Screencheck EIR Submitted: April 30, 2004
June 3, 2004
Draft EIR Circulated: June 10, 2004

Proposed Final EIR Approved:
Final EIR Certified:

DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT NO. 589

THE RANCH PLAN
GENERAL PLAN AMENDMENT/ZONE CHANGE (PA 01-114)

VOLUME I: DRAFT PROGRAM EIR

State Clearinghouse Number 2003021141

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June 10, 2004

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LIST OF ACRONYMS

A

AB	Assembly Bill
AC	Architectural Control
ACOE	U.S. Army Corps of Engineers
ADT	Average Daily Traffic
AFY	Acre Feet Per Year
AGT	Above Ground Tank
AQMP	Air Quality Management Plan
ARMC	Archaeological Resource Management Corporation
ASTM	American Society for Testing and Materials

B

BH	Balance Hydrologics
BMPs	Best Management Practices

C

CAA	Community Analysis Areas
CAD	Computer Aided Design
CAL	Confined Area Landing
CALFED	CALFED Bay Delta Authority
CC&Rs	Conditions, Covenants, and Restrictions
CCR	California Code of Regulations
CCWD	Cucamonga County Water District
CDC	California Department of Conservation
CDFG	California Department of Fish and Game
CDMG	California Department of Mines and Geology
CDR	Center for Demographic Research
CEQA	California Environmental Quality Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESA	California Endangered Species Act
cfs	Cubic feet per second
CGS	Conservation Geological Survey
CHP	California Highway Patrol
CIP	Capital Improvement Program
CIWMB	California Integrated Waste Management Board
CIWMP	Countywide Integrate Waste Management Plan
CMP	Congestion Management Plan/Program
CNDDB	California Natural Diversity Data Base
CNEL	Community Noise Impact Level
CNF	Cleveland National Forest
CNPS	California Native Plant Society
COG	Council of Governments
CPC	Catalina Pacific Concrete
CPP	Comprehensive Phasing Plan
CRHR	California Register of Historic Resources
CRREL	Cold Regions Research and Engineering Laboratory
CRWQCB	California Regional Water Quality Control Boards
CSS	Coastal Sage Scrub
CSUF	California State University, Fullerton

LIST OF ACRONYMS (Continued)

CTR	California Toxics Rule
CTS	Capistrano Test Site
CUP	Conditional Use Permit
CUSD	Capistrano Unified School District
CVWD	Cucamonga Valley Water District
CWA	Clean Water Act
CWRP	Chiquita Water Reclamation Plant

D

DAMP	Drainage Area Management Plan
DDT	Dichlorodiphenyltrichloroethane
DMG	Division of Mines and Geology
DOD	Department of Defense
DOGGR	California Department of Conservation, Division of Oil, Gas and Geothermal Resources
DON	Department of the Navy
DTSC	Department of Toxic Substance Control
DU	Dwelling Unit
DUDEK	Dudek & Associates, Inc.
DWR	California Department of Water Resources

E

EA	Environmental Assessment
EC	Enterococcus
EDAW	EDAW, Inc.
EDD	California Employment Development Department
EEI	Environmental Equalizers, Inc.
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMA	Environmental Management Agency
EMS	Emergency Services
EOD	Explosive Ordinance Disposal
ERNS	Environmental Response Notification System
ESA	Endangered Species Act
ESA	Environmental Site Assessment
ESCP	Erosion and Sediment Control Plan
ET	Evapotranspiration
ETC	Eastern Transportation Corridor
EV	Expected Value

F

FC	Fecal Chloroform
FCDM	Flood Control Design Manual
FD/WQ	Flow Duration/Water Quality
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FETS	Fossil Energy Test Site
FHWA	Federal Highway Administration
FLUP	Floodplain Land Use Permit

LIST OF ACRONYMS (Continued)

FM	Fuel Model
FMMP	Farmland Mapping and Monitoring Program
FMR	Fair Market Rent
FSP	Fair Share Participation
FTC-S	Foothill Transportation Corridor-South
G	
GDP	General Development Plan
GERA	Gobernadora Ecological Restoration Area
GIS	Geographic Information System
GLA	Glenn Lukos Associates
GMA	Growth Management Area
GMP	Growth Management Plan
GPA	General Plan Amendment
gpm	gallons per minute
GW	Ground Water
H	
HATS	High Altitude Test Stand
HBP	Harbors, Beaches and Parks
HC	High Confidence
HCD	State Housing and Community Development
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HEPTS	High Energy Propulsion Test Site
HHWCC	Household Hazardous Waste Collection Centers
HOA	Homeowners Association
HOV	High Occupancy Vehicle
HSCP	Health and Safety Contingency Plan
HUD	Department of Housing and Urban Development
I	
I-5	Interstate 5
IA	Implementation Agreement
ICU	Intersection Capacity Utilization
ID	Improvement Districts
IID	Imperial Irrigation District
IPM	Integrated Pest Management Plan
IRWD	Irvine Ranch Water District
ISE	Industrial and Systems Engineering
ISO	Insurance Services Office
J	
JURMP	Jurisdictional Urban Runoff Management Plan
K	
KSBR	Radio station call letters (Laguna Beach, CA)
kV	Kilovolt

LIST OF ACRONYMS (Continued)

L

LEA	Local Enforcement Agency
LEQ	Equivalent Noise Level
LOS	Level of Service
LUFT	Leaking Underground Fuel Tank
LUST	Leaking Underground Storage Tanks

M

MBA	Michael Brandman Associates
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
MCBCP	Marine Corps Base Camp Pendleton
MCL	Maximum Containment Level
mcy	Million Cubic Yards
MEP	Maximum Extent Practicable
mg/l	Milligrams per liter
MGD	Million Gallons Per Day
ml	Milliliters
MM_w	Maximum Moment Magnitudes
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPAH	Master Plan of Arterial Highways
MPD	Master Plan of Drainage
MPO	Metropolitan Planning Organization
MRF	Materials Recovery Facility
MRZ	Mineral Resource Zone
MS4	Municipal Separate Storm Sewer System
MSAA	Master Streambed Alteration Agreement
MSCP	Multiple Species Conservation Plan
MUSLE	Modified Universal Soil Loss Equation
MWD	Metropolitan Water District of Southern California
MWDOC	Municipal Water District of Orange County

N

NAFTA	North American Free Trade Agreement
NAP	Not a Part
NCCP Act	Natural Community Conservation Planning Act
NCCP/HCP	Natural Community Conservation Plan/Habitat Conservation Plan
NEPA	National Environmental Policy Act (of 1969)
NFFLS	National Forest Fire Laboratory System
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NOI	Notice of Intent
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places

LIST OF ACRONYMS (Continued)

O

O&M	Operations and Maintenance
OCCOG	Orange County Council of Governments
OCFA	Orange County Fire Authority
OCFD	Orange County Fire Department
OCHCA	Orange County Health Care Authority
OCHM	Orange County Hydrology Manual
OCIWMD	Orange County Integrated Waste Management Department
OCP	Orange County Projections
OCPFRD	Orange County Public Facilities and Resources Department
OCRDMD	Orange County Resources and Development Management Department
OCSD	Orange County Sheriff's Department
OCTA	Orange County Transportation Authority
OCTAM	Orange County Transportation Analysis Model
ONIS	Oglebay-Norton Industrial Sands
OPR	Office of Planning and Research
OSR	Open Space Reserve

P

PA	Public Application
PADS	PCB Activity Database System
PAH	Polycyclic Aromatic Hydrocarbon
PC	Planned Community
PCB	Polychlorinated Biphenyls
PCR	PCR Services Corporation
PDF	Project Design Features
PDS	Planning and Development Services
PFRD	Public Facilities and Resources Department
PRC	Public Resources Code
PRG	Preliminary Remediation Goals
PSHA	Probabilistic Seismic Hazard Analysis
PUC	Public Utilities Commission
PVC	Polyvinyl Chloride
PWA	Philip Williams & Associates, Ltd.

Q

QSA	Quantification Settlement Agreement

R

RCFPP	Regional Circulation Financing and Phasing Program
RCPG	Regional Comprehensive Plan and Guide
RCRA	Resource Conservation and Recovery Act
RCRA-COR	Resource Conservation and Recovery Act- Corrective Action Sites
RCRA-D	Resource Conservation and Recovery Act-TSD Facility List
RCRA-G	Resource Conservation and Recovery Act- Generators
RCRA-NLR	Resource Conservation and Recovery Act- No Longer Regulated
RCUZ	Range Compatibility Use Zone
RDM	Residual Dry Matter

LIST OF ACRONYMS (Continued)

RDMD/HBP	Resources Development and Management Department/Harbors, Beaches and Parks
RGO	Retail Gasoline Outlet
RHNA	Regional Housing Needs Assessment
RMP	Runoff Management Plan
RMV	Rancho Mission Viejo
ROD	Record of Decision
ROG	Reactive Organic Gases
ROMP	Runoff Management Plan
RSA	Regional Statistical Areas
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
RWQCB	Regional Water Quality Control Board

S

SAMP	Special Area Management Plan
SAMP/MSAA	Special Area Management Plan/Master Streambed Alteration Agreement
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SCORE	South County Outreach and Review Effort
SCS	Soil Conservation Service
SCSAM	South (Orange) County Sub-Area Model
SCWC	Southern California Water Company
SDG&E	San Diego Gas and Electric
SDR	Sediment Delivery Ratios
SDRWQCB	San Diego Regional Water Quality Control Board
SERRA	South East Regional Reclamation Authority
SEIR	Supplemental Environmental Impact Report
SFNA	School Facilities Needs Analysis
SFPP	Santa Fe Petroleum Pipeline
SG	Sand and Gravel
S&G	Sand and Gravel
SHP	Scenic Highway Plan
SIP	State Implementation Plan
SMARA	Surface Mining and Reclamation Act
SMWD	Santa Margarita Water District
SoCalGas	Southern California Gas Company
SOCTIIP	South Orange County Transportation Infrastructure Improvement Project
SOCWA	South Orange County Wastewater Authority
SONGS	San Onofre Nuclear Generating Station
SR	State Route
STIP	State Transportation Improvement Plan
SVOC	Semi-volatile Organic Compounds
SWL	Solid Waste Landfill
SWMM	Storm Water Management Model

LIST OF ACRONYMS (Continued)

SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board

T

TAZ	Traffic Analysis Zones
TCA	Transportation Corridor Agencies
TCM	Transportation Control Measure
TDM	Transportation Demand Management
TDS	Total Dissolved Solids
TKM	Total Kjeldahl Nitrogen
TMA	Transportation Management Associations
TMDL	Total Maximum Daily Load
TPH	Total Petroleum Hydrocarbons
TRM	Turf-Reinforced Mat
TRW	Northrup Grumman Space Technology
TSF	Thousand Square Feet
TSM	Transportation System Management
TSS	Total Suspended Solids

U

UAC	Urban Activity Center
UCCE	University of California Cooperative Extension
UCLA	University of California, Los Angeles
UGT	Underground Tank
URS	URS Greiner Woodward Clyde
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tanks
UWMP	Urban Water Management Plan

V

V/C	Volume to Capacity Ratio
VCD	Vehicles Per Day
VETS	Vertical Engine Test Site
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
VPH	Vehicles Per Hour

W

WDID	Waste Discharge Identification
WES	Waterways Experiment Station
WQMP	Water quality Management Plan
WSA	Water Supply Assessment

Z

ZC	Zone Change

LIST OF ACRONYMS (Continued)

Symbols

µg/L	Micrograms per liter

SECTION 1
EXECUTIVE SUMMARY

1.1 INTRODUCTION

The environmental impact report (EIR) process as defined by the California Environmental Quality Act (CEQA) requires the preparation of an objective, full-disclosure document to: a) inform agency decision makers and the general public of the direct and indirect environmental effects of a proposed action, b) provide mitigation measures to reduce or eliminate potential significant adverse impacts, and c) identify and evaluate reasonable alternatives to the proposed project.

This is a Program EIR that addresses the impacts associated with the proposed project, known as the "Ranch Plan." The project involves a proposed General Plan amendment and zone change (GPA/ZC). Subsequent approvals, such as Area Plans, tentative tract maps and grading permits, would be required at a future date. Although it is a separate and independent project, the Ranch Plan has been developed as part of a coordinated public planning process that anticipates the preparation of two other major planning and regulatory programs. One program is a Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP), which is being prepared by the County of Orange in cooperation with the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS). The NCCP/HCP is being developed in accordance with the provisions of the state Natural Community Conservation Planning Act of 1991 (NCCP Act), California Endangered Species Act (CESA), and federal Endangered Species Act (FESA). Another program is a Special Area Management Plan/Master Streambed Alteration Agreement (SAMP/MSAA), which addresses impacts to aquatic resources subject to the requirements of the federal Clean Water Act (CWA) (Section 404) and the state Fish and Game Code (Sections 1600-1603). The study boundaries currently proposed for the NCCP/HCP, the SAMP/MSAA, and the Ranch Plan are depicted in Exhibit 2-1. The entire Ranch Plan area is within the planning areas for the other two programs. The Ranch Plan area is approximately 22,815 acres, the majority of the remaining undeveloped private land in the NCCP/HCP planning area.

The three programs have been formulated in a coordinated fashion for consistency in the assumptions and the science used for the analyses. The original goal of the participants was to attempt to process the three components concurrently. Although this goal has been achieved in part, there have been substantial delays in the completion of the NCCP/HCP and SAMP/MSAA, and their respective environmental documents. The Notices of Intent (NOIs) which were published by the resource agencies for those planning efforts in 2001, anticipated the release of draft environmental documents sometime in 2002. When the 2003 Notice of Preparation (NOP) for the GPA/ZC was issued, it was anticipated that, in spite of the delays already encountered, the NCCP/HCP and SAMP/MSAA programs would keep pace with the GPA/ZC processing. However, other regional planning efforts (e.g., the Riverside County Multi-Species Habitat Conservation Plan [MSHCP]), as well as the major fires experienced in the Fall of 2003, have competed for the attention of the resource agencies. In order to prevent further delays in the planning effort for the Ranch Plan area, the processing of the Ranch Plan GPA/ZC is moving forward even though NCCP/HCP and SAMP/MSAA programs may not be complete by the date of County action on the proposed project.

Notwithstanding that the GPA/ZC will be processed before completion of any NCCP/HCP or SAMP/MSAA, the proposed project and the process that has been using to develop and evaluate the proposed project and the other alternatives (1) provides a plan for development and a framework for conservation that will help to achieve the major benefits originally envisioned by those planning programs for the Ranch Plan area, and (2) provides a conservation strategy that would be complementary to any such programs that are completed in the future. Therefore, the

proposed EIR can move forward without jeopardizing the preparation of the NCCP/HCP and SAMP/MSAA. This is discussed in more detail in Section 2.2, Coordinated Planning Process.

1.2 PROJECT LOCATION

The project site consists of 22,815 acres and is located in unincorporated south Orange County. The project site constitutes the remaining undeveloped portions of the Rancho Mission Viejo (RMV) property. The planned community of Ladera Ranch and the cities of Mission Viejo, San Juan Capistrano, and San Clemente surround the project site on the west. The City of Rancho Santa Margarita and unincorporated Coto de Caza and Las Flores bound the northern edge of the project site; the southern edge is bound by Marine Corps Base (MCB) Camp Pendleton in San Diego County. Caspers Wilderness Park and the Cleveland National Forest, as well as several private properties in Riverside and San Diego Counties, bound the project site on its eastern edge.

1.3 PROJECT DESCRIPTION

The Ranch Plan proposes up to 14,000 dwelling units, as well as retail, office, and recreational uses, within a development area of approximately 7,694 acres. Approximately, 6,000 of the 14,000 dwelling units would be senior housing. The remaining 15,121 acres would be retained in open space. Development is proposed to occur over a period of approximately 20 to 25 years. Infrastructure would be constructed to support all of these uses, including road improvements, utility improvements, and schools. Ranching and agricultural activities would be retained within a portion of the proposed open space area.

The project involves multiple components, including: a General Plan amendment (GPA), zone change, Williamson Act cancellation, and a Development Agreement. Related actions include a subsequent action to be taken by the Orange County Transportation Authority (OCTA) Master Plan of Arterial Highways (MPAH). Certain elements of the County of Orange General Plan would need to be amended in order to allow for implementation of the project, including the Land Use, Transportation, Resources, and Recreation elements. The Land Use Element Amendment would amend the land use designations for the project site from Open Space (5) to 1A-Rural Residential, 1B-Suburban Residential, Employment (3), Open Space (5), and Urban Activity Center (6). These amendments are further described in Section 3 of the Program EIR. A zone change is being requested to change the zoning for the project site from A-1 General Agricultural and S&G-Sand and Gravel Extraction (for portions of San Juan Creek and Trampas Canyon) to PC-Planned Community zoning district for the entire project site. A Development Agreement between Rancho Mission Viejo and the County of Orange is also intended to be processed concurrent with this project. In addition, the Williamson Act contract covering certain lands within the project site would be partially cancelled as part of the project.

A summary of impacts associated with the project, as well as a summary of mitigation measures, are provided in Section 1.7.

1.4 PROJECT OBJECTIVES

Through the Ranch Plan's comprehensive land use planning, conservation planning, and entitlement process, the project applicant seeks to provide, within Rancho Mission Viejo portions of the San Juan Creek and San Mateo Creek watersheds, an economically viable mix of residential, commercial, urban, and natural open space land uses which addresses: 1) the needs and goals of southern Orange County as reflected in the plans and policies of the Orange County General Plan; 2) the growth management goals of the Southern California Association of Governments; 3) the air quality objectives of the South Coast Air Quality Management Plan; 4) habitat, aquatic resource, and watershed protection; 5) the water quality protection goals of the state Non-point Source

Pollution Control Program and the Basin Plan; and 6) the financial return necessary for the landowner to offset the level of risk, loss of investment opportunities, and commitment of land and financial resources required to provide for the large-scale protection of many valuable natural resources. The opportunity for comprehensive planning is enhanced by virtue of the project applicant's control of the entire 22,815-acre project site.

In an effort to achieve the project objective, a number of measures have been identified that would help to implement the project objective as stated above. These measures are outlined in Section 3.7 of this Program EIR and include the following major topical areas:

- Growth Management
- Land Use
- Housing
- Transportation
- Public Services/Public Safety/Governance
- Recreation
- Trails and Bikeways
- Natural and Biological Resources
- Hydrology/Water Quality/Flood Control
- Agriculture & Mineral Resources
- Cultural/Historic Resources

1.5 PROJECT ALTERNATIVES

CEQA Guidelines Section 15126.6(a) requires that, “an EIR describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.” Identification of project alternatives under the Ranch Plan, NCCP/HCP, and SAMP/MSAA is being coordinated. No component of the coordinated process limits either the range of alternatives that may be considered or the selection of a "preferred alternative" for any of the other process components. The intent has been to identify alternatives that would be compatible with each other and that would facilitate achieving programmatic goals and objectives for the Ranch Plan GPA/ZC; and the other planning programs: the NCCP/HCP and SAMP/MSAA.

A range of alternatives was first developed in conjunction with the scoping process for the NCCP/HCP and the SAMP/MSAA. Through those processes, a screening of the various alternatives was conducted to determine which alternatives could feasibly attain the basic objectives of the NCCP/HCP and SAMP/MSAA programs. The screening of the alternatives was conducted by the NCCP/HCP and SAMP/MSAA Working Group (Working Group) to ensure the alternatives selected for evaluation represented a reasonable range of alternatives. The NCCP/SAMP Working Group included representatives from the United States Army Corps of Engineers (USACE), CDFG, USFWS, County, and local landowners.

The evaluation resulted in alternatives being divided into two basic categories: those that were considered but not carried forward and those that warranted further consideration. Although developed as alternatives for the NCCP/HCP and SAMP/MSAA, these alternatives have been carried through the GPA/ZC process. The evaluation of the same alternatives for each of the programs enhances consistency among the respective planning efforts. In addition to the alternatives identified through the NCCP/HCP and SAMP/MSAA processes, the County developed two supplemental alternatives for consideration as part of the GPA/ZC. The alternatives are fully discussed and depicted graphically in Section 5, Alternatives to the Proposed Project, of this

Program EIR. The following subsections provide a brief summary of each of the alternatives. To avoid duplication, the graphic depictions referenced for each alternative are provided in Section 5. Alternative B-4 is the Ranch Plan alternative addressed as the "Project" in this EIR. The main body of impact discussion of the Ranch Plan is provided in Section 4.

1.5.1 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

Through the coordinated planning process five variations of the No Project Alternative were initially identified for purposes of that planning process. Some of these alternatives assume different levels of development and would necessitate a General Plan Amendment and Zone Change; therefore, they are not true No Project Alternatives for the Ranch Plan. Through the evaluation process three of the No Project Alternatives were deemed to not be required to be carried forward in this Program EIR. Additionally, through the NCCP/HCP and SAMP/MSAA coordinated planning process, four development alternatives were identified as not being carried forward in the environmental documents for the NCCP/HCP and SAMP/MSAA; likewise, they are not being carried forward in this Program EIR. Further discussion of these alternatives is contained in Section 5, Alternatives to the Proposed Project.

1.5.2 ALTERNATIVES ANALYZED

As noted above, in screening the alternatives, the NCCP/HCP and SAMP/MSAA Working Group selected alternatives for evaluation that would represent a reasonable range of alternatives. These alternatives, though developed as alternatives for the NCCP/HCP and SAMP/MSAA, have been carried through the GPA/ZC process to enhance consistency between the planning programs. Further discussion of these alternatives is contained in Section 5, Alternatives to the Proposed Project, of this Program EIR. Given the size and scope of the project, with the exception of the "No Action" alternative, avoidance of significant impacts was not feasible.

No Project Alternatives Analyzed

Alternative A-1 is one of the "No Action" alternatives evaluated pursuant to CEQA. This alternative assumes existing conditions on RMV property and continued use of the RMV property for existing agricultural, livestock, resource extraction, and lease activities. No additional residential or other urban uses are assumed. There are no significant unavoidable impacts associated with this alternative. However, this alternative does not meet project objectives.

Alternative A-2 is another "No Action" alternative (no General Plan amendment or zone change) evaluated pursuant to CEQA. It assumes development based on existing General Agricultural zoning (one dwelling unit per four acres). Development would consist of large-lot residential development, as well as agricultural uses, and sand/gravel mining and resource extraction activities in conformance with the existing County Zoning Code. In addition, this alternative would be implemented without preparing an NCCP/HCP or SAMP/MSAA. This would provide for approximately 3,265 dwelling units throughout the Ranch Plan area. This alternative would provide for open space along the ridges and slopes deemed unsuitable for development. A graphic depiction is provided in Exhibit 5-6. Significant unavoidable impacts associated with this alternative include impacts related to land use, agricultural resources, air quality, transportation, biological resources, and visual resources.

Development Alternatives Analyzed

Alternative B-5 would provide 7,170 acres of development and 15,645 acres of open space. Uses would consist of 14,000 dwelling units and 406 acres of non-residential development. There would be no new development within the San Mateo Creek watershed (Planning Areas 6, 7, 8, and 9).

The size and configuration of Planning Area 4 would also be modified to allow a greater amount of development in that area. Of the 14,000 dwelling units, 6,000 are assumed to be senior housing. A graphic depiction of the area is provided in Exhibit 5-7. Significant unavoidable impacts associated with this alternative include impacts related to land use, agricultural resources, air quality, transportation, visual resources, biological resources, water quality (pathogens), and mineral resources.

Alternative B-6 would provide for 6,740 acres of development and 16,075 acres of open space. No new development is proposed within Planning Areas 2, 6, and 9. Development would be concentrated in areas in the San Juan Creek watershed, with new development in the San Mateo Creek watershed limited to areas already disturbed by past uses. This alternative would provide for 14,000 dwelling units, of which 6,000 are assumed to be senior housing. A total of 406 acres would be non-residential uses. A graphic depiction of the area that would be allowed to develop and those areas remaining in open space is provided in Exhibit 5-8. Significant unavoidable impacts associated with this alternative include impacts related to land use, agricultural resources, air quality, transportation, visual resources, biological resources, water quality (pathogens), and mineral resources.

Alternative B-8 would provide for 3,680 acres of development and 19,135 acres of open space. Development would be located in Planning Areas 1, 3, and 5. This alternative would provide for 8,400 dwelling units. None of the units would be designated as senior housing. Additionally, 192 acres would be non-residential uses. Development in Planning Area 3 would be limited to the area in and adjacent to the existing nursery in Planning Area 3. A graphic depiction of the area that would be allowed to develop and those areas remaining in open space is provided in Exhibit 5-9. Ranching and sand/gravel mining operations in the Planning Area 5 would be allowed to continue in the remainder of the project area. Significant unavoidable impacts associated with this alternative include impacts related to land use, agricultural resources, air quality, transportation, visual resources, biological resources, water quality (pathogens), and mineral resources.

Alternative B-9 would provide for 6,582 acres of development and 16,233 acres of open space. This alternative assumes the development of 13,600 dwelling units, of which 5,500 would be senior housing. A total of 406 acres of non-residential uses are proposed with this alternative. This alternative was intended to maximize compliance with the Draft NCCP Planning Guidelines and the Draft SAMP Watershed Planning Principles. With this alternative the size of Planning Area 4 would be increased and development would be removed from the Planning Areas 2 and 9. Development in the San Mateo Watershed would be limited to Planning Area 8. This alternative is depicted in Exhibit 5-10. Significant unavoidable impacts associated with this alternative include impacts related to land use, agricultural resources, air quality, transportation, visual resources, biological resources, water quality (pathogens), and mineral resources.

Alternative B-10. This alternative would provide for 8,565 acres of development and 14,250 acres of open space. A total of 14,450 dwelling units would be provided, of which 6,000 would be developed as senior housing. A total of 485 acres of non-residential development is proposed with this alternative. The size of Planning Area 4 would be increased and development would be removed from Planning Area 9. A planning reserve would be placed over the area in Planning Area 2 north of the Santa Margarita Water District (SMWD) Chiquita Water Reclamation Plant and over Planning Areas 7 and 8. The planning reserve is an overlay with performance criteria that would need to be satisfied before development plans could be processed. The Planning Reserve is discussed in more detail in Section 5, Alternatives to the Proposed Project. This alternative would provide for expansion of both the General Thomas F. Riley Wilderness Park and Caspers Wilderness Park. The Riley Wilderness Park would increase by 903 acres and an additional 1,211 acres would be added to Caspers Wilderness Park. This alternative is depicted in Exhibit 5-11.

Significant unavoidable impacts associated with this alternative include impacts related to land use, agricultural resources, air quality, transportation, visual resources, biological resources, water quality (pathogens), and mineral resources.

Alternative B-11. Development would occur on 8,621 acres and 14,194 acres would be retained in open space. This alternative strives to meet the regional housing needs for Orange County. It assumes the development of 19,200 dwelling units, including 11,450 senior units. A total of 312 acres of non-residential development would be proposed with this alternative. This alternative would increase the size of Planning Area 4 and remove development from Planning Area 9. As with Alternative B-10, there would be an expansion of General Thomas F. Riley Wilderness Park and Caspers Wilderness Park. This alternative would also have a Planning Reserve over the upper portion of Planning Areas 2, and Planning Areas 7 and 8. The Planning Reserve concept is discussed in Section 5, Alternatives to the Project. This alternative is depicted in Exhibit 5-12. Significant unavoidable impacts associated with this alternative include impacts related to land use, agricultural resources, air quality, transportation, visual resources, biological resources, water quality (pathogens), and mineral resources.

Alternative B-4 Reduced. This is not a new alternative concept, but a modification of the proposed Ranch Plan. Development would occur on 6,589 acres. A total of 16,226 acres or slightly more than 72 percent of the area would be retained in open space. This alternative assumes only 10,800 units would be constructed, of which 3,600 units would be senior housing. A total of 230 acres of non-residential development is proposed with this alternative. The low density development proposed by the Ranch Plan in Planning Areas 3, 7, and 8 would be eliminated, as would the estate development in Planning Area 9. Significant unavoidable impacts associated with this alternative include impacts related to land use, agricultural resources, air quality, transportation, visual resources, biological resources, water quality (pathogens), and mineral resources.

1.5.3 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Section 15126 of the CEQA Guidelines requires that the EIR identify the Environmentally Superior Alternative. If the No Project alternative is the environmentally superior alternative, the EIR must also identify an environmentally superior alternative among the other alternatives that have been evaluated in the EIR. The analysis of the potential impacts associated with the proposed project and alternatives indicates that no alternative is clearly the environmentally superior alternative. The alternatives with a greater amount of growth are better able to meet the County and regional housing goals, whereas those alternatives with smaller development footprints impact less natural habitat.

1.6 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

CEQA requires that areas of controversy or unresolved issues be identified up front as part of the EIR. By definition, the Ranch Plan EIR is a Program EIR that addresses a comprehensive land and conservation program at a General Plan and zoning level, and discusses a number of components for which final design has not occurred. These types of unresolved issues are routine and would be resolved during the plan implementation and subsequent approval process. Examples include the final size and design of water quality/retention basins, specific residential product types, development amenities, and internal trail network and design layouts. The components have been designed at a conceptual level for purposes of analysis in this Program EIR. Final details would be provided and evaluated when Area Plans and tentative tract maps are processed. The following are more substantial issues that are unresolved or that involve an element of potential controversy:

- During the scoping process there has been an ongoing debate on the development versus preservation point of view. The Ranch Plan area is one of the last large tracts of undeveloped land in Orange County. There is a segment of the community that believes that it is important to preserve the area. As a means of addressing this issue, the project provides 15,121 acres (or 66 percent of the total acreage) in open space. However, this continues to be a point of concern.

- Comments have been received during the scoping process indicating that the Ranch Plan should not move forward until the NCCP/HCP and the SAMP/MSAA are complete. The Ranch Plan proposal has been developed to provide for comprehensive planning of both future land uses and conservation.

- The project site supports eight endangered and threatened species and portions of the site has been designated as critical habitat for these resources. The Ranch Plan was developed in conjunction with the NCCP/HCP and the SAMP/MSAA to address this issue. The purpose of the NCCP Program is to provide long-term, large-scale protection of natural vegetation communities and wildlife diversity while allowing compatible land uses and appropriate development and growth. The SAMP/MSAA is designed for the protection and long-term management of sensitive aquatic resources (biological and hydrological) on a landscape level. The coordination maximizes the opportunity for protection and preservation of sensitive resources by developing the land use plan consistent with the draft planning guidelines and principles of these two programs. However, different members of the community view what constitutes an appropriate balance of development and conservation differently. This continues to be an area of controversy.

- The project proposes the development of 14,000 dwelling units on the Ranch Plan project site. This figure is substantially lower than what is identified in certain regional planning documents, such as the Regional Transportation Plan (RTP) and Growth Management Program, as well as the OCP-2004 socioeconomic projections. This reduction in the number of future dwelling units could affect the ability of Orange County to meet the long-term housing need for the area.

- The Ranch Plan proposes the new Rancho Mission Viejo Regional Park. The County Harbors, Beaches and Parks Division has indicated that the proposed location of the park, encompassing San Juan Creek and the floodplain, is not the desired location for a regional park. Concerns cited include the narrow configuration of the park, impediments associated with roads traversing the park, flood control requirements, and park interface with endangered species.

- The Ranch Plan proposes residential uses in Planning Area 8, adjacent to Marine Corps Base (MCB) Camp Pendleton. The Department of the Navy (DON) has expressed concern about the compatibility of residential uses adjacent to the Base. The concern is that the activities on the Base may have an impact on adjacent residential uses and that the residential uses could restrict the operations on the northern portion of the Base. The Ranch Plan does provide an open space buffer between the residential use and the Base that would limit physical intrusion of residents and pets. Impacts associated with noise from the Base could remain an issue. These impacts would not be substantially greater than what currently occurs with development on the southern edge of the City of San Clemente and the Base.

- The project proposes the partial cancellation of the Agricultural Preserve contract established pursuant to the Williamson Act, which would remove 1,856 acres from the

contract. Currently, 9,840 acres will be removed from the preserve between December 31, 2005 and December 31, 2008, through the non-renewal process regardless of this project. The cancellation of the contract would hasten the removal of a portion of the land from agricultural use.

- The project proposes amendments to the Circulation Element, and corresponding MPAH Amendments, including the removal of the proposed extension of Crown Valley Parkway east of Antonio Parkway. A concern has been raised that the removal of this extension would also eliminate a planned interchange of Crown Valley Parkway with the proposed extension of State Route 241 (SR-241). A further concern has been expressed that having the interchange further to the south on Cristianitos Road would result in less traffic being attracted to SR-241, thereby fewer tolls would be paid and it would have financial implications on the tollroad. However, it should be noted that currently the Transportation Corridor Agency (TCA) does not propose to construct the Crown Valley Parkway interchange as part of the initial construction phase for SR-241 extension.

- The deletion of the easterly extension of Crown Valley Parkway would reduce the service area Fire Station 58 from what was originally planned. The service area would effectively be reduced to the area currently being served. It would not be able to serve the lower portion of Coto de Caza, as originally intended. This may necessitate services to the upper portion of Planning Area 2 to be provided through an alternative station.

- A request was made by the City of San Juan Capistrano during the NOP process for the extension of Avery Parkway. The MPAH Cooperative Process provides an evaluation of Avery Parkway. The evaluation is incorporated as a special study area in the Traffic Report (Appendix D). The addition of Avery Parkway to the MPAH is not a component of this project.

- Ortega Highway is a state route; therefore, the County and OCTA do not have the authority to restrict or modify access to the Highway. The traffic analysis assumes Ortega Highway would remain in place. However, substantially fewer trips would occur on the existing roadway because of the improved design speeds on the proposed New Ortega Highway. There is a concern that the configuration of the existing Ortega Highway and the addition of New Ortega Highway may result in operational issues due to high left-turn volumes onto Antonio Parkway from eastbound Ortega Highway and from westbound New Ortega Highway. Additionally, the applicant is requesting that existing Ortega Highway from Antonio Parkway, east to where New Ortega Highway would rejoin the existing Ortega Highway, be abandoned as a state route, and New Ortega Highway and the connecting segment of Antonio Parkway be designated as SR-74. This would require action by Caltrans and it is not known if this request would be granted. Should the abandonment be granted, that segment of Ortega Highway would serve strictly as a local/recreational access road. This issue is addressed in Section 4.6, Transportation and Circulation.

- There is the potential that construction of the extension of SR-241 may be delayed because it is a controversial project. This Program EIR provides an evaluation of the potential traffic impacts with and without the extension of SR-241. The TCA and Federal Highway Administration (FHWA) have recently release an EIR/Environmental Impact Statement (EIS) for public review that addresses the SR-241 extension as part of the South Orange County Transportation Infrastructure Improvement (SOCTIIP) study. Whether this road will be built, and the precise alignment, is uncertain at this time. Modifications to the Ranch Plan may be required to reflect the alignment or other improvements selected as part of the SOCTIIP study.

1.7 SUMMARY OF PROJECT ENVIRONMENTAL IMPACTS AND MITIGATION PROGRAM

Table 1.7-1 presents a brief summary of the potential significant environmental effects of the proposed project, measures to mitigate project impacts to the extent feasible, and the expected status of effects following the implementation of the mitigation program. The mitigation program is comprised of project design features (PDF), standard conditions and regulations, and mitigation measures, which all serve to reduce potential environmental impacts. The more detailed evaluation of these issues, as well as the full text of the mitigation program, is presented in Section 4. Given the length of the mitigation measure, all measures are only briefly summarized in the table. A number is provided at the end of each summarized measure in Table 1.7-1,which provides the number reference of the full text in the mitigation program. The mitigation measures identify who is responsible, when the action would be implemented and who would be the approving authority, if applicable. The abbreviation PDF refers to the Project Design Feature that has been incorporated into the project, SC is the standard condition that would applicable to the project and MM is the mitigation measure being proposed. The mitigation monitoring program will be developed using the full text of the mitigation program.

TABLE 1.7-1
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
Land Use and Planning (Section 4.1) There is the potential for residential uses in Planning Area 8 to experience disturbance from helicopter flights and artillery training exercises, especially those occurring during night hours, potentially resulting in incompatible land uses. (Impact 4.1-1) The Ranch Plan would provide 14,000 dwelling units, or approximately 68 percent of the development assumed for the area in local and regional planning documents. This shortfall in the amount of housing provided may contribute to a long-term regional housing deficit. (Impact 4.1-2)	The Proposed Project includes approximately 15,121 acres of open space. The landowner will enter into a two-part agreement with the County regarding the open space. The first part of the agreement shall address the approximately 11,455 acres of open space not located within a Development Sensitive Area (DSA) and the second part will address 3,666 acres of open space DSAs. (PDF 4.1-1) Master Area Plans and Subarea Plans shall be processed for all Planning Areas demonstrating the project's compliance with the zoning regulations, as well as other applicable codes and requirements. (PDF 4.1-2) The project proposes a mix of uses and housing densities, including estates, single-family conventional housing, multi-family units, senior housing, and apartments that would provide housing opportunities for a range of income levels. (PDF 4.1-3) Approximately 6,000 senior housing dwelling units will be provided. (PDF 4.1-4) A buyer notification program is required for all residential structures within Planning Area 8 to inform the prospective purchaser, lessee or tenant that the property within Planning Area 8 may be subject to overflight and sound of military operations of MCB-Camp Pendleton. (MM 4.1-1) At the time of Area Plan approval for Planning Area 8, the Planning Director shall evaluate the most current RCUZ for MCB Camp Pendleton to ensure that noise sensitive land uses are not constructed in areas that exceed state noise standards. (MM 4.1-2) A buyer notification program is required for all uses within Planning Area 5 to inform the prospective purchaser, lessee, or tenant that the property within Planning Area 5 is located immediately adjacent to Prima Deshecha Landfill. (MM 4.1-3) In conjunction with the processing of the site development permit for any golf course, the applicant shall submit an Integrated Golf Course Management Plan (IGCMP) including turf grass management. (MM 4.1-4)	Less than Significant (Impact 4.1-1) Significant Unavoidable Adverse Impact (Impact 4.1-2)

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
Agricultural Resources (Section 4.2) The project would result in the development of urban uses on lands designated as Important Farmland. The project would result in the removal of 266 acres of Prime Farmland, 32.9 acres of Farmland of Statewide Importance, and 528.3 acres of Unique Farmland. In the aggregate, development of the project would result in the loss of 827.2 acres of Important Farmland. (Impact 4.2-1)	Ongoing grazing will be conducted in compliance with the Grazing Management Plan. (PDF 4.2-1) The location and amounts of the agricultural resources shall be identified as part of the Master Area Plan for Planning Areas 2, 7, and 10. (PDF 4.2-2) The project provides for the continuation of agricultural and ranching uses as an interim use until the time of project implementation. (PDF 4.2-3) The project applicant will be required to comply with the conditions/requirements set forth in the Government Code Sections 51282 to 51287 and County EMA Policy No. 2.3.101 associated with Agricultural Preserve cancellation. (SC 4.2-1)	Significant, unavoidable impact (Impact 4.2-1)
The project would result in the early removal of 1,856 acres from the existing Williamson Act contract and the associated Agricultural Preserve. (Impact 4.2-2)	Prior to planting of the planned orchards in Planning Area 7 a qualified biologist shall survey the site for listed habitat and species to avoid potential environmental impacts. Should any listed species be identified, the location of the planned orchards will be modified to avoid the resources or a mitigation plan consistent with the applicable requirements outlined in Section 4.9, Biological Resources shall be developed and implemented. (MM 4.2-1)	Significant, unavoidable impact (Impact 4.2-2)
Population and Housing (Section 4.3) No significant impacts were identified associated with population and housing.	The Ranch Plan would increase the overall jobs/housing balance for southern Orange County. (PDF 4.3-1) Rancho Mission Viejo would relocate displaced residents prior to approval of demolition permits. (PDF 4.3-2) In conjunction with approval of an Area Plan for those portions of Planning Areas 1 and 3 where existing residential units would be displaced, the applicant shall provide evidence of relocation of any remaining residents. (MM 4.3-1)	Less than significant.

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
Geology and Soils (Section 4.4) Development on the project site would be subject to ground shaking associated with seismic activity. (Impact 4.4-1) The project has the potential to expose persons and structures to on-site landslides. (Impact 4.4-2) Planning areas contain compressible and expansive soils. (Impact 4.4-3) Grading activities would expose soils to erosion. (Impact 4.4-4) Several of the planning areas proposed for development contain areas of shallow groundwater and development would be susceptible to liquefaction. (Impact 4.4-5)	The earth-fill dams located within the boundaries of the development areas that impound the existing on-site reservoirs shall be removed concurrent with grading. (PDF 4.4-1) Prior to the issuance of a grading permit, the applicant shall submit a geotechnical report to the Manager of Subdivision and Grading, for approval. (SC 4.4-1) Prior to the issuance of any grading permits, the Manager of Subdivision and Grading shall review the grading plan for conformance with the grading shown on the approved tentative map. (SC 4.4-2) Prior to the recordation of a subdivision map or prior to the issuance of any grading permit, whichever comes first, , the applicant shall record a letter of consent from the affected property owners permitting off-site grading, cross lot drainage, drainage diversions and/or unnatural concentrations. (SC 4.4-3) Prior to issuance of grading permits, the Manager of Subdivision and Grading shall determine that the proposed grading is consistent with the grading depicted within the approved planning application. (`County of Orange Standard Condition of Approval, G09) (SC 4.4-4) The proposed development shall be designed in compliance with the Uniform Building Code (UBC), accepted industry standards, and the County's earthquake safety Municipal Code requirements. (SC 4.4-5) Prior to the approval of the first tentative tract map in each Planning Area, the applicant shall submit a geotechnical report to the Deputy Director, Planning and Development Services, for approval. The report shall meet the requirements outlined in the County of Orange Grading Code and Manual. (MM 4.4-1) Prior to the approval of the first tentative tract map for Planning Area 9, the applicant shall demonstrate that residential development shall be sited to avoid mapped landslides. (MM 4.4-2)	All geotechnical impacts can be mitigated to a level of less than significant.
Water Resources (Section 4.5) Development of the project will result in increases in the rate and amount of surface flow runoff within certain portions of the developed watershed(s). However, these increases are relatively small and will be fully mitigated through	The *Watershed Planning Principles,* developed as part of the NCCP/HCP and SAMP/MSAA, *were* utilized as a framework to minimize project impacts. (PDF 4.5-1) Sufficient storage area is provided for runoff volumes to mitigate increases in peak discharges and to offset impacts of existing development. (PDF 4.5-2)	All impacts are reduced to a level of less than significant, except for pathogens.

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
the use of flood control detention basins. (Impact 4.5-1) Development of the project may result in reduced coarse sediment yields within certain sub-basins, especially during construction periods. However, these decreases are relatively minor when comparing existing and post-construction conditions. (Impact 4.5-2) In the absence of mitigation, development of the project would alter certain in-channel sediment transport processes, potentially affecting streambed/stream bank stability. (Impact 4.5-3) In the absence of mitigation, development of the project would have significant adverse impacts on storm water quality vis-à-vis increases in certain pollutants of concern, impacts to groundwater quality and increases in stream temperature. (Impact 4.5-4) Implementation of the project will result in significant and unavoidable impacts in the amount of pathogens entering into stormwater runoff. (Impact 4.5-5) In the absence of mitigation, implementation of the project would adversely impact water balance (i.e., inflows –versus- outflows) within the affected watershed(s) and sub-basins. (Impact 4.5-6)	A conceptual Water Quality Management Plan (the *Draft WQMP*) has been developed for the proposed project in compliance with the County of Orange DAMP. (PDF 4.5- 3) Water captured in the water quality control system and in detention facilities, will be used, where possible, as a supplemental source of irrigation water. (PDF 4.5-4) The following drainage studies shall be submitted to and approved by the Manager, Subdivision and Grading: a drainage study of the project, a study evidencing that drainage patterns will not overload existing storm drains, and studies indicating how grading and drainage systems will allow building pads to be safe from inundation from rainfall runoff which may be expected from all storms up to and including the theoretical 100-year flood. (SC 4.5-1) The project applicant shall design provisions for surface drainage; design all necessary storm drain facilities extending to a satisfactory point of disposal for the proper control and disposal of storm runoff; and dedicate the associated easements to the County of Orange, if determined necessary. These improvements shall be constructed in a manner meeting the approval of the Manager, Construction. (SC 4.5-2) The applicant shall design provisions for surface drainage, design all necessary storm drain facilities, and dedicate the associated easements to the County of Orange. These improvements shall be constructed in a manner meeting the approval of the Manager, Construction. (SC 4.5-3) The subdivider shall participate in the applicable Master Plan of Drainage including payment of fees and the construction of the necessary facilities. (SC 4.5-4) The subdivider shall not grant any easements over any property subject to a requirement of dedication or irrevocable offer to the County of Orange or the Orange County Flood Control District, unless such easements are expressly made subordinate to the easements to be offered for dedication to the County. Prior to granting any of said easements, a copy of the proposed easement shall be submitted for review and approval. (SC 4.5-5) The applicant shall improve Regional Facilities as deemed necessary and appropriate by the Orange County Flood Control District. (SC 4.5-6) The applicant shall submit a Runoff Management Plan for review and approval. (SC 4.5-7)	

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
	A WQMP identifying BMPs to control pollutant runoff shall be submitted for review and approval. The WQMP shall identify structural and non-structural measures specified in the current DAMP. (SC 5-8) Compliance with the WQMP requirements shall be demonstrated, including implementation, construction, and installation of all structural BMPs, compliance with all non-structural BMPs, submission of an (O&M) Plan for all structural BMPs for review and approval, availability of copies of the project's approved WQMP for incoming occupants; agreement to pay for a Special Investigation from the County of Orange 12 months after the issuance of a Certificate of Use and Occupancy for the project to verify compliance with the approved WQMP and O&M Plan; and agreement to and recordation of one of the following: CC&R's; a water quality implementation agreement; or the final approved WQMP and O&M Plan. (SC 5-9) Prior to the issuance of any grading or building permits, the applicant shall demonstrate compliance under California's General Permit for Stormwater Discharges Associated with Construction Activity by providing a copy of the NOI and a copy of the subsequent notification of the issuance of a WDID Number or other proof of filing. Projects subject to this requirement shall prepare and implement a SWPPP. (SC 5-10) Prior to the issuance of any grading or building permit, the applicant shall submit an ESCP to demonstrate compliance with local and state water quality regulations for grading and construction activities. The ESCP shall identify proper coverage, storage, and security of construction and grading materials and waste to prevent transport into local waters. (SC 5-11) A detailed Runoff Management Plan ("ROMP") shall be prepared that covers the entire Ranch within the regional watersheds and sub-watersheds and is consistent with applicable Orange County criteria and OCHM and FCDM criteria. The ROMP shall separately cover the San Juan Creek watershed to the downstream boundary of the Ranch or the San Mateo Creek watershed to the County border and be independent from the preliminary analyses submitted as part of the GPA/ZC submittals. The ROMP shall verify that development of the Ranch Plan will not produce adverse hydraulic impacts during flood events, provide analysis of sufficient detail to evaluate and establish the size and alignment of flood control and storm drain facilities, and site selection choices for the retarding basins, water quality detention basins and other mitigation measures. (MM 4.5-1) A Master Plan of Drainage ("MPD") shall be prepared showing all flood control, storm drain, and water quality features within the affected watershed(s). (MM 4.5-2)	

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
	A Master Area Plan WQMP shall be prepared consistent with the terms and content of the Draft WQMP and that provides detail for application within the individual Master Area Plans, including BMPs, facility sizing and location, and BMP operation and maintenance. (MM 4.5-3) A Sub-Area Plan WQMP shall be prepared consistent with the terms and content of the Draft WQMP and that provides detail for application within the individual Sub-Area Plans, including BMPs, facility sizing and location, and BMP operation and maintenance. (MM 4.5-4) Flood control detention facilities shall be constructed to provide hydrologic mitigation for increases in peak discharges. The detention basins will be designed as "off-line" from most of the major stream channels. Maintenance standards will be established for maximum depth of accumulated sediment in the forebay basins prior to removal. The outlet structure will be configured to control a wide range of flows, providing flow management from the 2- to 100-year flow event. It will also include an overflow spillway and a subdrain to ensure complete drainage within several days following a flow event. (MM 4.5-5) All developments will be designed in order to achieve flow duration matching, address the water balance, and provide for water quality treatment through a combined flow and water quality control system (termed combined control system). (MM 4.5-6) A stream stabilization program shall be prepared that will be implemented by the HOA or other responsible entity to mitigate effects of local erosion associated with drainage system outlets from the development or downstream of detention basins. (MM 4.5-7) A stream monitoring program shall be developed prior to the construction within the watershed which will include reporting requirements in order to observe changes in the natural alluvial stream system. The minimum program will include and address Stream Walks, Major Stream Cross Sections Monitoring, periodic aerial photography, evaluation of changes downstream of ponds and basins, and supplemental assessments. (MM 4.5-8)	
Transportation/Circulation (Section 4.6) Buildout of the Ranch Plan project under the Existing Conditions + Project Buildout traffic scenario would result in significant project-related impacts to study area intersections and freeway	Antonio Parkway at New Ortega Highway is a new intersection that shall be designed to have adequate capacity with and without the proposed SR-241 extension. (PDF 4.6-1) A Transportation Demand Management (TDM) program shall be prepared. (SC 4.6-1) The final map shall note the release and relinquish vehicular access rights to all arterial	Project mitigation is based on the *Year 2025 + Project Buildout* traffic scenario. Impacts 4.6-2 and

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
ramps. (Impact 4.6-1) Buildout of the Ranch Plan project under the Year 2025 + Project Buildout traffic scenario would result in significant cumulative impacts to study area intersections, freeway ramps, and freeway mainline segments. (Impact 4.6-2) The Short-Range (Year 2010) + Project traffic scenario would result in significant project-related impacts to study area intersections and freeway ramps. (Impact 4.6-3)	highways to the County of Orange. (SC 4.6-2) The subdivision map shall note that private streets shall be owned, operated and maintained by the developer, successors, or assigns. (SC 4.6-3) The subdivider shall design and construct improvements as noted in the condition. (SC 4.6-4) The applicant shall pay fees for the Major Thoroughfare and Bridge Fee Program for the Foothill/Eastern Transportation Corridor. (SC 4.6-5) Adequate sight distance shall be provided at street intersections. (SC 4.6-6) The subdivider shall install all underground traffic signal conduits and appurtenances for traffic signal construction and interconnection with adjacent intersections. (SC 4.6-7) The subdivider shall provide plans and specifications for and construct internal streets common private drive system and site entrances. (SC 4.6-8) The subdivider shall dedicate a signal maintenance easement to the County at the project site access. (SC 4.6-9) The subdivider shall design, construct, and/or provide a cash deposit for traffic signals. (SC 4.6-10) The subdivision map shall identify a two way reciprocal access and parking easement to all parcels. SC 4.6-11) The applicant shall submit a traffic study of the development. (SC 4.6-12 Table 4.6-26 and Table 4.6-27 identify the transportation improvement program proposed as mitigation for the Ranch Plan project for year 2025 and year 2010, respectively. (MM 4.6-1) Prior to the approval of each Master Area Plan, a traffic analysis which verifies ongoing compliance with *The Ranch Plan EIR Traffic Report* shall be prepared. (MM 4.6-2) If the responsible agencies establish a cumulative mitigation program for I-5 mainline	4.6-3 would remain significant after mitigation.

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
	improvements, the project applicant shall participate on a fair share basis. (MM 4.6-3)	
Air Quality (4.7) Construction-related air quality emissions would result in significant impacts on a daily and quarterly basis. (Impact 4.7-1) On a regional basis, operational air quality emissions would result in significant impacts, with the exception of sulfur oxides. (Impact 4.7-2) Local operational impacts would be less than significant. (Impact 4.7-3) Project operations are not expected to expose a substantial number of people to objectionable odors. (Impact 4.7-4) The Ranch Plan project would not conflict with or obstruct implementation of the Air Quality Management Plan. (Impact 4.7-5)	The project has been designed to minimize the need for external vehicular trips through the provision of residential, commercial, office, and institutional uses within the boundaries of the project site, thereby reducing vehicular air emissions. (PDF 4.7-1) All construction contractors shall comply with South Coast Air Quality Management District regulations, including Rule 403 and Rule 402. (SC 4.7-1) The applicant shall comply with measures to reduce NO_X and ROC from heavy equipment. (SC 4.7-2) All construction bid packages include a separate “Diesel Fuel Reduction Plan” identifying actions to reduce diesel fuel emissions during construction activities.’ (MM 4.7-1)	Impacts 4.7-1 and 4.7-2 would remain significant after mitigation. Impacts 4.7-3 and 4.7-4 would be reduced to a level of less than significant with mitigation.

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
Noise (Section 4.8) Construction noise represents a short-term effect on ambient noise levels. Construction conducted consistent with the County of Orange Noise Ordinance would not result in any significant short-term noise impacts. (Impact 4.8-1) Project implementation would not result in any significant project-specific traffic noise impacts on surrounding land uses (Impact 4.8-2) The project's contribution to cumulative noise would result in significant traffic noise impacts. (Impact 4.8-3) Prior to mitigation, on-site activities could result in significant noise impacts thereby impacting sensitive receptors. (Impact 4.8-4)	During construction, the project shall comply with the County of Orange Noise Ordinance. (SC 4.8-1) Construction vehicles shall be equipped with mufflers; all operations shall comply with Orange County Codified Ordinance Division 6; stockpiling and/or vehicle staging areas shall be located away from dwellings. (SC 4.8-2) All residential lots and dwellings shall be sound attenuated against present and projected noise. (SC 4.8-3) Field testing shall be performed in accordance with Title 24 Regulations. (SC 4.8-4) Non-residential structures shall be sound attenuated against present and projected noise. (SC 4.8-5) An acoustical analysis report and plans shall be prepared demonstrating compliance with Orange County Codified Ordinance, Division 6 (Noise Control). (SC 4.8-6) The developer shall produce evidence that the Department of Real Estate has been notified that the project area is adjacent to a regional transportation corridor. (SC 4.8-7) For Camino Capistrano, north of Junipero Serra, a detailed acoustical study shall be performed. Noise barriers shall be required meeting County's noise standards. (MM 4.8-1)	All impacts are mitigated to a level of less than significant
Biological Resources (Section 4.9) Implementation of the proposed project may result in impacts to thread-leaved brodiaea (Impacts 4.9-1, -9, -10, -18, -21, and 66) Implementation of the Proposed Project may result in impacts to southern tarplant (Impacts 4.9-2 and 85) Implementation of the Proposed Project may result in impacts to	Create a Comprehensive Open Space Protection System. (PDF 4.9-1). Formulate and fund a Comprehensive Long-Term AMP. (PDF 4.9-2) Prior to issuance of a grading permit for Planning Area 2, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that two of the four small thread- leaved brodiaea locations are protected. (MM 4.9-1) Prior to issuance of a grading permit for Planning Area 2, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the key location and major population of southern tarplant in the Chiquita sub-basin have been substantially avoided. (MM 4.9-2)	All impacts are mitigated to a level of less than significant with the exception of impacts to two slope wetlands located in the Chiquita sub-basin, impacts to habitat linkage/wildlife movement corridor K, and fecal

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
Coulter's saltbush (Impacts 4.9-3, -12, 15, -57, and 84) Construction of Christianitos Road in the Gobernadora sub-basin may result in impacts to wildlife movement and/or habitat linkage. (Impacts 4.9-4, -8, -24, -28, -58, -59, -60, and -95) Implementation of the Proposed Project may result in impacts to the southwestern pond turtle. (Impacts 4.9-5, -13, -49, and -74) Implementation of the Proposed Project may result in impacts the western spadefoot toad. (Impacts 4.9-6 and -73) Implementation of the Proposed Project may result in impacts to alkali wetlands. (Impacts 4.9-7, -41, and -42) Implementation of the Proposed Project may result in impacts to many-stemmed dudleya. (Impacts 4.9-11, -14, -19, -37, and -86) Implementation of the Proposed Project may result in impacts to the California gnatcatcher. (Impacts 4.9-16, -26, and -70) Implementation of the Proposed Project may result in impacts to native grasslands. (Impacts 4.9-17 and -25) Implementation of the Proposed	Prior to issuance of a grading permit for Planning Area 2, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the key location and major population of Coulter's saltbush in the Chiquita sub-basin have been substantially avoided. (MM 4.9-3) Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the southwestern pond turtle breeding and estivation habitat associated with the stockpond in the Cristianitos sub-basin have been substantially avoided. (MM 4.9-4) Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the western spadefoot toad breeding and estivation habitat associated with the stockpond in the Cristianitos sub-basin have been substantially avoided. (MM4.9-5) Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the alkali wetlands in the Cristianitos sub-basin have been substantially avoided. (MM 4.9-6) Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that a minimum of a 200-foot setback (average 500 feet) from Cristianitos Creek has been incorporated into the project design. (MM 4.9-7) Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that all three locations of thread-leaved brodiaea that contribute to protection of a major population in the Cristianitos sub-basin are protected. (MM 4.9-8) Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that all three locations of thread-leaved brodiaea that contribute to protection of an important population in key locations in the Cristianitos sub-basin are protected. (MM 4.9-9) Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall	coliform pathogen impacts.

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
Project may result in impacts to arroyo toad populations in Lower Gabino Creek. (Impact 4.9-20)	demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the major population of many-stemmed dudleya in the Cristianitos sub-basin is protected. (MM 4.9-10)	
Implementation of the Proposed Project may result in impacts to three out of eight known locations of many-stemmed dudleya in the Talega sub-basin. (Impact 4.9-22)	Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the important population of Coulter's saltbush in the Cristianitos sub-basin is protected. (MM 4.9-11)	
The Proposed Project would result in impacts to two slope wetlands located in the Chiquita Sub-basin. (Impact 4.9-23)	Prior to issuance of a grading permit for Planning Area 9, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the southwestern pond turtle breeding and estivation habitat associated with Jerome's Lake in the Gabino sub-basin have been substantially avoided. (MM 4.9-12)	
The Proposed Project would impact habitat for raptors, including the Cooper's hawk, white-tailed kite, Swainson's hawk, and merlin. (Impacts 4.9-27, -31, -36, -40, -52, -55, -72, -77, -81, -82, -89, and 90)	Prior to issuance of a grading permit for Planning Area 9, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the six known discrete locations of many-stemmed dudleya that are part of the major population in a key location in the Upper Gabino subunit are protected. (MM 4.9-13)	
The Proposed Project would impact grasslands habitat. (Impacts 4.9-29, -30, -39, and -61)	Prior to issuance of a grading permit for Planning Area 9, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the important population of Coulter's saltbush in the Upper Gabino subunit is protected. (MM 4.9-14)	
The Proposed Project would impact grasslands habitat in the Cristianitos sub-basin. (Impact 4.9-30)	Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that all five locations of California gnatcatcher locations in the Lower Gabino subunit are protected. (MM 4.9-15)	
The development pattern proposed under the Proposed Project would conflict with some areas targeted for restoration. (Impacts 4.9-32, -33, -34, 38, -46, and -47)	Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to native grasslands in the Lower Gabino subunit are substantially avoided. Additionally, applicant shall further demonstrate to the County's Director of Planning Services Department compliance with the Habitat Restoration Program for native grasslands. (MM 4.9-16)	
The Proposed Project would impact cactus wrens. (Impacts 4.9-35, -54, and -80)	Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall	

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
Implementation of the Proposed Project may result in impacts to the arroyo toad. (Impacts 4.9-43 and -69)	demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that all three locations of thread-leaved brodiaea that are the major population in a key location in the Lower Gabino subunit and Cristianitos sub-basin are protected. (MM 4.9-17)	
The Proposed Project would result in impacts to two slope wetlands, alluvial side canyons, and steep slopes. (Impacts 4.9-44, -45, and - 48)	Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the two known locations of many-stemmed dudleya in the La Paz sub-basin are protected. (MM 4.9-18)	
The Proposed Project has the potential to result in impacts on suitable habitat types for the orange-throated whiptail and San Diego horned lizard. (Impacts 4.9-50, -51, -75, and -76)	Prior to issuance of a grading permit for Planning Area 8, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the facilities specified in the Water Quality Management Plan to address pollutants of concern and conditions of concern are shown on the project plans. (MM 4.9-19)	
The Proposed Project has the potential to result in a significant impact on suitable habitat types for the tricolored blackbird. (Impact 4.9-53)	Prior to issuance of a grading permit for Planning Area 8, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the four known locations of thread-leaved brodiaea that constitute an important population in the Talega sub-basin are protected. (MM 4.9-20)	
The Proposed Project has the potential to significantly impact the yellow-breasted chat. (Impact 4.9-56)	Prior to issuance of a grading permit for Planning Area 8, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that eight known locations of many-stemmed dudleya in the Talega sub-basin are protected. (MM 4.9-21)	
The Proposed Project would impact coastal sage scrub, woodlands, and forests. (Impacts 4.9-62, -64, and 65)	Prior to issuance of a grading permit for construction of Cristianitos Road and New Ortega Highway, the applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department/designee that the design for Cristianitos Road and New Ortega Highway includes features to facilitate wildlife movement. If required for public heath and safety, all lighting on the bridge shall be shielded to prevent spill-over effects. (MM 4.9-22)	
The Proposed Project would significantly impact 89.51 acres of USACE jurisdiction and 195.55 acres of CDFG jurisdiction (riparian habitat). The Proposed Project would impact a total of 62.23 acres of USACE jurisdiction, including 21.33 acres of "wetlands" and 40.9 acres of "waters". Construction and maintenance of infrastructure (excluding reservoirs)	Prior to issuance of a grading permit for construction of Cristianitos Road, the applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department/designee that the design for Cristianitos Road includes features to facilitate wildlife movement. If required for public heath and safety, all lighting on the road above the culvert shall be shielded to prevent spill-over effects. (MM 4.9-23)	

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
would permanently impact a further 8.44 acres of "wetlands" and 8.41 of "waters". In addition, construction and maintenance of infrastructure facilities would temporarily impact 10.43 acres under the USACE jurisdiction. The Proposed Project would impact a total of 138.85 acres under the jurisdiction of the CDFG, including 120.16 acres of riparian and 18.69 acres of un-vegetated areas. Construction of infrastructure (excluding reservoirs) would permanently impact a further 32.61 acres of riparian and 2.56 of un-vegetated areas. In addition, temporary construction of infrastructure facilities within the RMV Open Space would impact 21.53 acres under the jurisdiction of the CDFG. (Impact 4.9-63) The Proposed Project would result in impacts on a vernal pool supporting the San Diego and Riverside fairy shrimp. (Impacts 4.9-67 and -68) The Proposed Project has the potential to significantly impact the least Bell's vireo. (Impact 4.9-71) The Proposed Project would result in potentially significant impacts on suitable habitat types for the tricolored blackbird. (Impact 4.9-78) The Proposed Project would result in significant impacts on the grasshopper sparrow through habitat loss. (Impact	Prior to design of the proposed ground tanks, project applicant shall coordinate with SMWD to review potential alternative locations for these tanks that would avoid impacts to linkages G and K while still meeting SMWD siting criteria for ground tanks. (MM 4.9-24) In conjunction with construction of these tanks, SMWD shall employ measures to reduce construction impacts, including fencing sensitive habitats and implementing of erostion control. Post construction all temporary disturbance areas shall be restored with native species. All manufactured slopes associated with the ground tanks shall be restored with native species. Lighting shall be restricted to necessary safety lighting and shall be shielded to reduce spill-over into native habitats. (MM 4.9-25) During construction, a construction monitoring program shall be implemented to mitigate for short-term noise impacts to nesting raptors, to the satisfaction of the County of Orange, Manager, Subdivision and Grading. Indirect impacts shall be mitigated by limiting heavy construction within 300 feet of occupied raptor nests. Occupied raptors nests shall be marked as "Environmentally Sensitive Areas" on grading/construction plans and shall be protected with fencing consisting of T-bar posts and yellow rope. (MM 4.9-26) All plants identified by the California Exotic Pest Plant Council as an invasive risk in Southern California shall be prohibited from development and fuel management zones adjacent to the RMV Open Space. Prior to issuance of fuel modification plan approvals, the County of Orange shall verify that plants identified by the California Exotic Pest Plant Council as an invasive risk in Southern California are not included in plans for fuel modification adjacent to the RMV Open Space. Prior to the recordation of a map for a tract adjacent to the RMV Open Space, the County of Orange shall verify that the CC&Rs contain language prohibiting the planting of plants identified by the California Exotic Pest Plant Council as an invasive risk in Southern California in private landscaped areas. (MM 4.9-27) Lighting shall be shielded or directed away from RMV Open Space habitat areas through the use of low-sodium or similar intensity lights, light shields, native shrubs, berms or other shielding methods. Prior to the issuance of building permits for a tract with public street lighting adjacent to RMV Open Space habitat areas, the County of Orange shall verify that measures to shield such lighting have been incorporated in the building plans. (MM 4.9-28) All plants identified by the California Exotic Pest Plant Council as an invasive risk in Southern California shall be prohibited from development and fuel management zones adjacent to the RMV Open Space. Prior to issuance of fuel modification plan approvals, the County of Orange shall verify that plants identified by the California Exotic Pest Plant Council as an invasive risk in Southern California are not included in plans for fuel modification adjacent to the RMV Open	

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
4.9-79) The Proposed Project has the potential to significantly impact the yellow-breasted chat. (Impact 4.9-83) The Proposed Project would result in significant impacts on mud nama. (Impact 4.9-87) The Proposed Project would result in potentially significant impacts on the partially armored threespine stickleback and arroyo chub. (Impact 4.9-88) The Proposed Project would result in significant impacts on Palmer's grappling hook. (Impact 4.9-91) The Proposed Project would result in significant impacts to Catalina mariposa lily. (Impact 4.9-92) The Proposed Project would result in potentially significant impacts on vernal barley. (Impact 4.9-93) The Proposed Project would result in potentially significant impacts on small-flowered microseris. (Impact 4.9-94) The Proposed Project would result in potentially indirect impacts including noise, construction related affects, exotic species, water quality, lighting, and human activity. (Impacts 4.9-96, -97, -98, -99, -100, and -101)	Space. Prior to the recordation of a map for a tract adjacent to the RMV Open Space, the County of Orange shall verify that the CC&Rs contain language prohibiting the planting of plants identified by the California Exotic Pest Plant Council as an invasive risk in Southern California in private landscaped areas. (MM 4.9-29) The Project Applicant shall prepare and implement a Biological Resources Construction Plan (BRCP) that provides for the protection of the resource and established the monitoring requirements. Provisions for biological monitoring during construction activities to ensure compliance and success of each protective measure. The monitoring procedures will (1) identify specific locations of wildlife habitat and sensitive species to be monitored; (2) identify the frequency of monitoring, monitoring methodology (for each habitat and sensitive species to be monitored); (3) list required qualifications of biological monitor(s); and (4) identify reporting requirements. (MM 4.9-30) Wetland/riparian habitat for tri-colored at the mouth of Verdugo Canyon would be avoided. (MM 4.9-31) Prior to issuance of grading permits for the proposed golf course in Cristianitos sub-basin, the County's Director of Planning Services/designee shall verify that the landscape plans for the golf course include native habitats which could contribute to the restoration of grasslands in the sub-basin. (MM 4.9-32) Prior to issuance of grading permits for the proposed golf course in Blind subunit, the County's Director of Planning Services or his/her designee shall verify that the landscape plans for the golf course include native habitats including native grassland which could contribute to the restoration of grasslands in the sub-basin. (MM 4.9-33) Prior to issuance of grading permits for the proposed golf course in the Gabino sub-basin, the County's Director of Planning Services or his/her designee shall verify that the landscape plans for the golf course include native habitats including native grassland which could contribute to the restoration of grasslands in the sub-basin. (MM 4.9-34) Prior to issuance of a grading permit for Planning Area 5, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that all vernal pools in the Trampas Sub-basin have been avoided. (MM 4.9-35) Palmer's grappling hook seed can be collected prior to project impacts for use in the seed mix for coastal sage scrub/native grassland restoration areas. Receiver sites will support clay soils and other conditions suitable for Palmer's grapplinghook. In addition, where	

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
	feasible, clay soils will be salvaged from development areas and appropriately transported to restoration areas to provide a seed bank. (MM 4.9-36) Catalina mariposa lily shall be salvaged and relocated to the coastal sage scrub/native grassland restoration and enhancement areas by the Project Applicant; or seed can be collected prior to project impacts for use in the seed mix for coastal sage scrub/native grassland restoration areas. The receiver sites shall support conditions suitable for Catalina mariposa lily. In addition, where feasible, clay soils shall be salvaged from development areas and appropriately transported to restoration areas to provide a seed bank. Implementation details of the salvage and relocation program shall be identified in the Final Plant Species Translocation, Propagation and Management Plan. (MM 4.9-37) Vernal barley seed can be collected prior to project impacts for use in the seed mix for coastal sage scrub/native grassland restoration areas. The receiver sites shall support clay soils and other conditions suitable for vernal barley. In addition, where feasible, clay soils shall be salvaged from development areas and appropriately transported to restoration areas to provide a seed bank. Implementation details of the salvage and relocation program shall be identified in the Final Plant Species Translocation, Propagation and Management Plan. (MM 4.9-38) Small-flowered microseris seed can be collected prior to project impacts for use in the seed mix for coastal sage scrub/native grassland restoration areas. The receiver sites shall support clay soils and other conditions suitable for small-flowered microseris. In addition, where feasible, clay soils shall be salvaged from development areas and appropriately transported to restoration areas to provide a seed bank. Implementation details of the salvage and relocation program shall be identified in the Final Plant Species Translocation, Propagation and Management Plan. (MM 4.9-39) Mud nama inoculum (topsoil and dried pants to obtain seed) shall be collected prior to project impacts for use in the relocation of this species. The receiver sites shall support appropriate soils and other conditions suitable for mud nama. Implementation details of the salvage and relocaiton program shall be identified in the Final Plant Species Translocation, Propagation and Management Plan. (MM 4.9-40)	
Aesthetics (Section 4.10) Grading activities would significantly alter the existing visual characteristics and topography of the site. (Impact 4.10-	Approximately two-thirds of the project site shall be retained in open space. (PDF4.10-1) A 1,000-foot-wide buffer shall be provided between Coto de Caza and the project site.	Significant, unavoidable impact (Impact 4.10-1)

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
1)	(PDF4.10-2)	
The visual character of the project site visible from several viewpoints will be significantly altered through implementation of the project. (Impact 4.10-2)	Within Planning Area 4 and along the easterly development edge of Planning Area 3 adjacent to Caspers Wilderness Park, the exterior lighting shall be designed and located to confine direct rays to the premises. (PDF 4.10-3)	Significant, unavoidable impact (Impact 4.10-2)
Foreground, middleground, and background ridgelines located in landscape zones would be significantly impacted by project grading to allow for the implementation of proposed land uses. (Impact 4.10-3)	Within Planning Area 4 and along the easterly development edge of Planning Area 3 adjacent to Caspers Wilderness Park, exterior walls, and particularly the roofing materials shall be compatible with the natural surroundings. (PDF 4.10-4)	Significant, unavoidable impact (Impact 4.10-3)
Views from some recreational area vantage points within wilderness parks would be significantly impacted by project grading and associated development activities. Changes in the character would be significant. (Impact 4.10-4)	The applicant shall install landscaping, equip for irrigation, and improvements for lots and common areas in accordance with detailed irrigation and landscaping design submitted to the Manager, Subdivision and Grading for approval, in consultation with the Manager HBP/Program Management (SC4.10-1 and SC4.14-2) Prior to issuance of any building permit, the applicant shall demonstrate that all exterior lighting has been designed and located so that all direct rays are confined to the property in a manner meeting the approval of the Manager, Building Permit. (SC4.10-3)	Significant, unavoidable impact (Impact 4.10-4)
Some views from Ortega Highway would be significantly impacted by project grading and development activities. (Impact 4.10-5)	All lighting along the perimeter of natural areas, particularly street lights, shall be downcast luminaries and shall be shielded and oriented in a manner that will prevent spillage or glare into the remaining natural and open space areas. Final lighting orientation and design shall be to the satisfaction of the County of Orange, Manager, Building Permit. Prior to final inspection or issuance of a certificate of occupancy, where applicable, the Manager, Building Permit, shall cause to be performed a photometric field inspection of the approved lighting system for the project. The inspection shall verify the proper construction and installation of materials within the approved plan, determine the actual light patterns and values through light meter testing and observation, and determine the extent of any errant lighting. Deviations and/or violations shall be corrected prior to the final clearance for the project. (MM4.10-1)	Less than significant impact (Impact 4.10-5)
The project would introduce new sources of nighttime lighting and the potential for glare. The change in character of the project site through the introduction of land uses requiring night lighting and the potential for the use of building materials resulting in glare is considered significant. (Impact 4.10-6)		Significant, unavoidable impact (Impact 4.10-6)

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
Cultural Resources (Section 4.11) Grading and construction activities would have a significant impact on the following NRHP- and CRHR-eligible/potentially eligible archaeological sites: CA-ORA-535, -656, -753, -754, -882, -997, -1043, -1048, -1121, -1222, -1134, -1136, -1137, -1138, -1449, -1551, -1552, -1555, -1556,-1559, -1560, and -1565. (Impact 4.11-1) Implementation of the project would have a significant impact on historic sites CA-ORA-29, 30-176631, 30-176633, 30-176634, and 30-176635, which have been determined to be eligible or potentially eligible for the NRHP or CRHR. (Impact 4.11-2) The proposed project would result in the disturbance and destruction of certain rock units identified as having a high likelihood of containing fossils. This disturbance would potentially result in the destruction of unique or important paleontological resources and is considered a significant impact. (Impact 4.11-3)	The Ranch Plan project has been designed to avoid/minimize significant impacts to known archaeological and historic resources. (PDF 4.11-1) Prior to the issuance of any grading permit, the applicant shall retained a County-certified archaeologist to observe grading activities and salvage and catalogue archaeological resources as necessary. If the archaeological resources are found to be significant, the archaeological observer shall determine appropriate actions. (SC4.11-1) Prior to the issuance of any grading permit, the project contractor shall retained a County certified paleontologist to observe grading activities and salvage and catalogue fossils as necessary. If the paleontological resources are found to be significant, the paleontologist shall determine appropriate actions. (SC4.11-2) Prior to the approval of final plans and specifications for the development of Area Plans, the project applicant shall prepare a Cultural Resources Management (CRM) Plan to address the presence of cultural resources and provide recommendations. (MM4.11-1) Based on the mitigation standards set forth in the California Environmental Act (CEQA) Guidelines §15126.4(b) and Public Resources Code §21083.2, prior to the approval of any Area Plan for Planning Areas 7 and 9, the applicant shall provide the County of Orange with evidence regarding the determination of eligibility of prehistoric sites. (MM4.11-2) As applicable, the following archaeological sites shall be mitigated to a less than significant level: CA-ORA-535, -656, -753, -754, -882, -997, -1043, -1048, -1121, -1222, -1134, -1136, -1137, -1138, -1449, -1551, -1552, -1555, -1556, -1559, -1560, and -1565, and historic sites CA-ORA-29, 30-176631, 30-176633, 30-176634, and 30-176635. Mitigation shall be accomplished through implementation of mitigation options consistent with the Cultural Resources Management Plan. (MM4.11-3) In accordance with California Health and Safety Code Section 7050.5, if human remains are found, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains are or believed to be Native American, the County Coroner shall notify the Native American Heritage Commission. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.	All the impacts on cultural resources would be reduced to a level of less than significant.
Recreation (Section 4.12)	The design has incorporated the development of Rancho Mission Viejo Regional Park, a 1,034-	There would be no

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
No significant impacts to recreational resources were identified.	acre regional facility located north and south of San Juan Creek. (PDF 4.12-1) The project incorporates a 20- to 25-acre sports park. (PDF 4.12-2) The project provides for 15,121 acres of open space within the Ranch Plan boundaries. (PDF 4.12-3) The project provides for trail linkages between the Ladera Ranch and the Ranch Plan community trails, which provides connection to the regional trail system. (PDF 4.12-4) The project would construct portions of the San Juan Creek, the Cristianitos, and the Prima Deshecha trails. (PDF 4.12-5) The project would construct portions of the San Juan Creek Bikeway. (PDF 4.12-6) The project proposes the construction of up to five golf courses. (PDF 4.12-7) Local park sites will be provided as part of the project as contained in a Park Implementation Plan. (PDF 4.12-8) An irrevocable offer of fee dedication will be made for local parks. (SC 4.12-1) An irrevocable offer to dedicate an easement for private local park purposes will be made and preliminary concept plans shall be submitted to the Manager, Current Planning Services, for review and approval. (SC 4.12-2) An irrevocable offer of dedication in fee for regional park purposes will be made. (SC 4.12-3) The subdivider shall reserve open space for granting in fee to a homeowner's association who shall be responsible for their maintenance and upkeep. (SC 4.12-4) The subdivider shall provide an easement for a recreational trail for riding and hiking trail purposes. (SC 4.12-5) A Master Trail and Bikeways Implementation Plan shall be developed for the Ranch Plan. (MM 4.12-1)	significant impacts either prior to or after mitigation.

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
Mineral Resources (Section 4.13) The inability to extract the mineral resources at the ONIS site beyond 2013, with the resultant loss of a resource of local value. (Impact 4.13-1) Implementation of the Ranch Plan would result in the inability to extract the sand and gravel within San Juan Creek. The Orange County General Plan, as well as by the California DMG, have identified this resource as a locally important mineral resource recovery site. (Impact 4.13-2)	The project would provide for the ONIS surface mining to continue within Planning Area 5 as an interim use until such time as development is proposed. (PDF 4.13-1) Temporary excavation/extraction of construction aggregate or construction-related materials extraction shall be allowed during construction grading and on-site earthmoving activities to promote project construction efficiencies and limit long distance transportation of construction aggregate and construction related material. (PDF 4.13-2)	Both impacts remain as significant unavoidable adverse impacts
Hazards (Section 4.14) Because of present and past agricultural use, there is the potential of exposing future uses to health risks if residual pesticides exceed levels established by state and federal standards for health-sensitive uses (e.g., schools, child care facilities, etc.) (Planning Area 1, 2, 3, 4, and 7). Additionally, where agriculture is proposed as an interim or future use, impacts would occur if runoff containing fertilizer or pesticide was allowed to enter downstream waters untreated. (Impact 4.14-1) Buildings and other improvements built before 1980 have the potential of containing asbestos-containing materials and lead-based paint. The demolition of these buildings has the potential of introducing contaminants into the air, soil, or water if residue is not	The project has been designed to address potential impacts from the Prima Deshecha landfill by incorporating setbacks from fill activities to avoid any potential exposure to potential hazardous materials impacts that may be associated with landfill activities. (PDF 4.14-1) The subdivider shall submit a "Hazardous Materials Assessment" and a "Disclosure Statement" covering the property which will be offered for dedication or dedicated to the County of Orange or the Orange County Flood Control District. (SC 4.14-1) The contractor shall submit to the Fire Chief a list of all hazardous, flammable and combustible liquids, solids or gases to be stored, used or handled on site. These materials shall be classified according to the Uniform Fire Code. (SC 4.14-2) Prior to the issuance of a grading permit, the contractor shall develop an approved Health and Safety Contingency Plan (HSCP) in the event that unanticipated/unknown environmental contaminants are encountered during construction. The plan shall be developed to protect workers, safeguard the environment, and meet the requirements of the California Code of Regulations (CCR), Title 8, General Industry Safety Orders – Control of Hazardous Substances. (MM 4.14-1) During construction, if environmentally affected soil, groundwater, or other materials are encountered on-site, the project engineer shall evaluate, assess the extent of, and mitigate the affected materials. Applicable sampling and monitoring activities are expected to include air monitoring, collecting soil and groundwater samples for analysis, and documenting mitigation	All impacts would be reduced to a level of less than significant.

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
properly handled (Planning Area 1, 3, 7, and 8). (Impact 4.14-2) There is the potential of contamination in the vicinity of AGT and UGT within Planning Areas 1, 3, 4, 5, and 8. Testing, and remediation if necessary, in conjunction with removal of the tanks prior to implementation of the Ranch Plan, would reduce these impacts to less than significant. This would also apply to tanks previously removed where there are not records of prior soil testing (Planning Area 3). (Impact 4.14-3) Evidence of minor surface soil staining was identified in Planning Areas 1, 3, and 5. The possibility of contamination does exist, though given the limited nature of the stains, this is considered an insignificant adverse impact. (Impact 4.14-4) There is the possibility of chemical contamination in the truck washout recycling pond and site operations area within the Catalina Pacific Concrete (CPC) lease vicinity (Planning Area 3). (Impact 4.14-5) East of the Cow Camp maintenance shop area (Planning Area 3) old equipment and discarded scraps were buried. Dependent on the materials buried, soil contamination may have occurred. (Impact 4.14-6)	activities. (MM 4.14-2) Prior to approval of Area Plan for areas within Planning Areas 1, 2, 3, 4, and 7, that have been used for agricultural activities where pesticides or herbicides have been used, the applicant shall conduct an investigation to assess the possible presence of residual pesticides and herbicides in accordance with applicable Department of Toxic Substance Control (DTSC) Guidance for Sampling Agricultural Soils. If necessary, a remediation program shall be developed and implemented for those areas where the soils testing program has identified that residual pesticides and herbicides exceed DTSC Guidance. (MM 4.14-3) Prior to issuance of a grading permit or a demolition permit for any on-site building constructed prior to 1973, the building shall be screened for lead-based paint prior to demolition. If lead-based paint is identified, it shall be mitigated in accordance with all applicable federal, state and local regulatory requirements. (MM 4.14-4) Prior to issuance of a demolition permit for any structure constructed before 1980, the applicant shall test for asbestos containing materials. Should the building being demolished contain asbestos, the applicant shall comply with notification and asbestos removal procedures outlined in SCAQMD Rule 1403 to reduce asbestos related health risks. (MM 4.14-5) Prior to issuance of grading permits for Planning Areas 1, 3, 4, 5, and 8, respectively, the applicant shall have removed all storage tanks, fuel dispensers, clarifiers and crushing equipment in compliance with OCHCA regulations. This shall include soil and groundwater sampling with analysis for petroleum hydrocarbons, heavy metals, and PAH's to determine if any contaminates exist in the tank pit area or in surrounding areas. If contaminates exist, the level of impact shall be assessed and a remediation plan shall be developed, if required pursuant to applicable laws and regulations (MM 4.14-6) Prior to approval of Area Plan for areas within Planning Areas 1, 3, and 5, respectively, where soil staining has been identified, the applicant or leaseholder shall test the test the contaminated soils to assess their level of impact and a remediation plan shall be developed, if required pursuant to applicable laws and regulations. (MM 4.14-7) Prior to issuance of grading permits for the portion of Planning Area 3 currently occupied by Catalina Pacific Concrete (CPC), the applicant shall provide verification to OCHCA that the truck washout recycling pond and related chemicals within the CPC lease area have been dismantled/removed and the pond contents removed/disposed in compliance with applicable	

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
Contamination was reported and only partially removed when UST's were removed in 1990, 1991, and 1997. In one case, the contamination was relocated to the overburden storage area of the property. The project proposes future residential development in these areas. Given the uncertainty of the actual level of contamination in this area, this would be considered a potential adverse impact. (Planning Area 5) (Impact 4.14-7) The chemical composition of the tailings within Trampas Dam has not been conclusively determined. Given the uncertainty of the actual level of contamination, this would be considered a potential significant impact because the proposed project could locate future sensitive uses in the area. (Impact 4.14-8) Two pistol ranges are present within Planning Area 8. These sites represent a potential lead and/or copper hazard in that the proposed project could propose sensitive uses in these areas. (Impact 4.14-9) Grading may result in the damage or disturbance to abandoned oil wells. This could result in the release of methane gas. (Impact 4.14-10) Grading activities will require the relocation of a portion of the Santa Fe Pipeline, which traverses Planning Areas	regulations. (MM 4.14-8) Prior to approval of an Area Plan for those locations within Planning Area 5 where the UST's were removed, and the overburden storage area where previously contaminated soil was relocated, the applicant shall conduct further investigation regarding the level of contamination. If contamination exists at a level that requires action pursuant to applicable laws and regulations, a remediation plan shall be prepared. (MM 4.14-9) Prior to approval of Area Plan for the Trampas Dam area of Planning Area 5, a Phase II testing program shall be developed and implemented to more precisely determine the chemical composition associated with the tailings within Trampas Dam. Once the nature of the tailings is known, a removal program shall be developed to ensure the proper handling and disposal of the material. If the testing program identifies a violation of applicable standards, a remediation program shall be developed and verification of remediation to adopted standards will be submitted to OCHCA prior to issuance of grading permits. (MM 4.14-10) Soil sampling shall be conducted for the two areas within Planning Area 8 previously used for pistol ranges. If significant contamination is encountered, soil with residual lead or copper concentrations exceeding US EPA's PRGs shall be removed from the property and disposed of at an appropriate facility. (MM 4.14-11) Prior to approval of Area Plans for the Northrop Grumman Space Technology Test Site (TRW) lease portion of Planning Area 8 a comprehensive closure plan will be developed to assess, monitor, and mitigate any residual threats to human health or the environment which may remain as a result of site operations and closure. The comprehensive closure plan shall comply with regulations put forth by DTSC and the San Diego Regional Water Quality Control Board. If the comprehensive closure plan identifies the need for remediation, verification of completion of the remediation program shall be submitted to OCHCA, or other appropriate agency prior to issuance of grading permits for those areas subject to remediation. (MM 4.14-12) Prior to issuance of grading permits within each Planning Area, the Environmental Site Assessments (ESAs) will be updated for that grading permit area. If the Phase I Update identifies new actual or potential impacts, a Phase II ESA will be completed. If hazardous materials are identified during the site assessments, the appropriate response/remedial measures will be implemented including directives of the OCHCA and/or Regional Water Quality Control Board (RWQCB), as appropriate. If soil is encountered during site development that is suspected of being impacted by hazardous materials, work will be halted and site	

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
1, 5, 6, 7, and 8. Relocation would be required in Planning Areas 1 and 8. During relocation there is an increased potential for soil contamination. (Impact 4.14-11) The above-ground tank installed by O'Connell Landscaping without permits and the housekeeping violations may result in contamination of surrounding soil. (Impact 4.14-12)	conditions will be evaluated by a qualified environmental professional. (MM 4.14-13) For those Planning Areas containing oil wells (Planning Areas 3 and 9) the applicant shall submit verification that final building plans have undergone review by the Department of Conservation, Division of Oil, Gas, and Geothermal Resources. (MM 4.14-14) The project provides for a minimum 110-foot fuel modification zone surrounding all development areas. (PDF 4.14-2) A Fire Management Plan in contained in the Adaptive Management Program provided in Appendix J. (PDF 4.14-3) Prior to approval of tentative subdivision maps and site-specific development projects with the project area, the landowner or subsequent project applicant shall submit evidence demonstrating compliance with all applicable OCFA conditions for development projects within a Special Fire Protection Area. (MM 4.14-15)	
Public Services and Facilities (Section 4.15) Due to the remoteness of the low density development in the eastern portion of Planning Area 7 and the estates in Planning Area 9, OCFA would not be able to provide adequate fire protection to these areas and meet adopted performance objectives. (Impact 4.15-1) The removal of Crown Valley Parkway from the MPAH would reduce the effectiveness of Fire Station 58 and result in service levels below adopted performance objectives for the northern portion of Planning Area 2. (Impact 4.15-2) The distance to the nearest hospital would cause delays in transport and	Construction of water storage and conveyance improvements consistent with the *Plan of Works for Improvement Districts 4C, 4E and 5 and* 6. (PDF 4.15-1, -6 and -7) Roadways, with the exception of Verdugo Road and other local access roads in Planning Area 9, will be designed in conformance with the Orange County Standard Plans. (PDF 4.15-2) Prior to the recordation of a subdivision map, the subdivider shall design and construct water distribution system per OCFA requirements. (County of Orange Standard Condition of Approval T04) (SC 4.15-1) Prior to approval of the first Subarea Plan, except for Planning Area 1, the developer shall enter into a Secured Fire Protection Agreement with OCFA. (MM 4.15-1) As part of the Area Plan and tentative tract map process, the developer shall coordinate with OCFA on street design to ensure arterial highways and local streets meet OCFA requirements. (MM4.15-2) Low-density development in Planning Areas 2 and 7 and development in Planning Area 9 shall be equipped with residential sprinkler systems unless alternative methods of fire protection have been incorporated through the Secured Fire Protection Agreement. (MM 4.15-3)	The Secured Fire Protection Agreement requires that provisions for meeting OCFA performance objectives be met; however, until the Agreement is fully negotiated, it is uncertain if the impacts can be reduced to a level of less than significant. Therefore, as a measure of caution, Impacts 4.15-1 through 4.15-3 would

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
greater use of OCFA staff. As a result, staff would not be available at the stations for other emergency calls. This may have an adverse effect on meeting adopted performance objectives. (Impact 4.15-3) Use of the existing ranch roads for access in Planning Area 9 may not meet OCFA standards for emergency access. (Impact 4.15-4) No significant impacts identified for other public services and facilities.	A OCSD substation site would be provided within the project limits to reduce response times and better serve the Ranch Plan area. (PDF 4.15-3) The Orange County Sheriff's Department and the project applicant shall enter into an agreement specifying the level of service and supporting facilities needed to adequately serve the project area, and the amount of funding to be provided by the project applicant. (MM 4.15-4) The project design has incorporated provisions for the construction of up to two electrical substations and a transmission line to serve the substations. Additionally, the project would extend the 12-inch high power gas line along Ortega Highway from the west of I-5 to Antonio Parkway, and the construction of a gas regulating station. (PDF 4.15-4) Permanent electric transmission lines less than 66 kV shall be subsurface within those portions of the Ranch Plan approved for development. (PDF 4.15-5) The project applicant shall coordinate with SDG&E in the design and implementation of future electrical service and facilities. (SC 4.15-2 and SC 4.15-3) The project applicant shall coordinate with SoCalGas in the design and implementation of future natural gas service and facilities. (SC 4.15-4) The project applicant shall coordinate with SMWD and MWD to ensure that no notable disruptions to the existing facilities and to determine specific sizing and placement of water facilities. (SC 4.15-5, -6, -7 and -8) The project design assumes five elementary school sites, one middle school site, and a potential high school site, if deemed necessary by CUSD. (PDF 4.15-8) The project applicant shall provide for the payment of fees pursuant to California Government Code Section 65995, unless other provision are required of the applicant through the agreement with CUSD (see mitigation measure 4.15-5). (SC 4.15-9) The applicant shall enter into an agreement with CUSD regarding the development of future facilities and payment of costs. (MM 4.15-5) A Solid Waste Management Plan meeting requirements established by the California Integrated Waste Management Act of 1989 shall be prepared. (SC 4.15-10) The project applicant shall coordinate with the pipeline owner, Kinder-Morgan, to ensure that no notable disruptions to the fuel pipeline that extends through the project site. (MM 4.15-6)	remain significant after mitigation. Impact 4.15-4 would be reduced to a level of less than significant; however, it is possible that the impacts associated with necessary roadway improvements in Planning Area 9 would exceed the level of impact assumed in this Program EIR. Should that occur, supplemental CEQA documentation would be required.

TABLE 1.7-1 (Continued)
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION PROGRAM

Impact	Mitigation Program Summary	Level Of Significance After Mitigation
	The project proponent shall pay appropriate developer fees for needed library facilities. (SC 4.15-11)	

SECTION 2
INTRODUCTION

2.1 PURPOSE OF THE DRAFT PROGRAM EIR

The environmental impact report (EIR) process as defined by the California Environmental Quality Act (CEQA) requires the preparation of an objective, full-disclosure document to a) inform agency decision makers and the general public of the direct and indirect environmental effects of a proposed action; b) provide mitigation measures to reduce or eliminate potential significant adverse impacts; and c) identify and evaluate a range of reasonable alternatives to the proposed project.

This Program EIR has been prepared to address the potential environmental impacts associated with developing the proposed Ranch Plan project. The project is described in detail in Section 3. In conformance with CEQA (Public Resources Code 21000 et seq.), this Program EIR assesses the potential individual and cumulative impacts of the proposed project. The County of Orange, as the lead agency, will review and consider the Ranch Plan Program EIR in its decision to approve, revise, or deny the project.

This Program EIR is further intended to serve as the primary environmental document for all future entitlements associated with the proposed Ranch Plan project including all discretionary approvals requested or required for project construction and operation. A lead agency can approve subsequent actions without additional environmental documentation unless otherwise required by Public Resources Code Section 21166, and CEQA Guidelines §§15162 and 15168. The County of Orange, which has the principal responsibility for processing and approving the project, and other public agencies (i.e., responsible and trustee agencies) that may use this Program EIR in their decision making or permitting processes, will consider the information in the Program EIR along with other information that may be presented during the CEQA process.

In accordance with CEQA, public agencies are required to make appropriate findings for each significant environmental impact of the project identified in the Program EIR. If the lead agency and responsible agencies decide that the benefits of the proposed project outweigh any identified unmitigated significant environmental effects, they will be required to adopt a statement of overriding considerations stating the reasons that support their actions.

2.2 COORDINATED PLANNING PROCESS

Although it is a separate and independent project, the Ranch Plan has been developed as part of an ongoing coordinated public planning process that anticipates the preparation of two other major planning and regulatory programs. The first is the Southern Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP), which is being prepared by the County of Orange in cooperation with the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS). The NCCP/HCP is being developed in accordance with the provisions of the state Natural Community Conservation Planning Act of 1991 (NCCP Act), California Endangered Species Act (CESA), and federal Endangered Species Act (FESA). The second major planning effort is a Special Area Management Plan/Master Streambed Alteration Agreement (SAMP/MSAA), which addresses impacts to aquatic resources subject to the requirements of the federal Clean Water Act (CWA) (Section 404) and the state Fish and Game Code (Sections 1600-1603). The study boundaries currently proposed for the NCCP/HCP, the SAMP/MSAA, and the Ranch Plan are depicted in Exhibit 2-1. The entire Ranch Plan area is within the planning areas for the other two programs. The Ranch Plan area is approximately 22,815 acres, the majority of the remaining undeveloped private land in the NCCP/HCP planning area.

The three projects have been formulated in a coordinated fashion for consistency in the assumptions and the science used for the analyses. When the above-described coordinated planning process commenced, the goal of the participants was to attempt to process the three components concurrently, to the extent possible. Although this goal has been achieved in part, such as with the concurrent identification of a consistent set of project alternatives, there have been substantial delays in the completion of the NCCP/HCP and SAMP/MSAA, and their respective environmental documents. The Notices of Intent (NOIs), which were published by the resource agencies for those planning efforts in 2001, anticipated the release of draft environmental documents sometime in 2002. When the 2003 NOP for the GPA/ZC was issued, it was anticipated that, in spite of the delays already encountered, the NCCP/HCP and SAMP/MSAA programs would keep pace with the GPA/ZC processing. However, other regional planning efforts (e.g., the Riverside County Multi Species Habitat Conservation Program), as well as the major fires experienced in the Fall of 2003, have competed for the attention of the resource agencies.

Also, the regulatory underpinnings of the NCCP/HCP have been affected by federal judicial decisions involving critical habitat designations and the "No Surprises Rule" (*Spirit of the Sage Council* v. *Norton*), issues which still remain unresolved. The No Surprises Rule is intended to provide regulatory certainty in exchange for conservation commitments, and it has been a major incentive for landowners such as the project applicant to voluntarily participate in NCCP/HCP planning efforts.

The foregoing events not only have introduced uncertainties into the timeframes for completing the planning processes, but have also placed increased demands on staff at the participating resource agencies. At the same time, budgetary problems and related cutbacks have further affected the ability of those agencies to maintain processing schedules.

Meanwhile, plans for the proposed Ranch Plan project have been refined and preparation of the Ranch Plan Program EIR has moved forward, using the baseline environmental data that has already been gathered, and the framework for environmental analysis that has been established, pursuant to the NCCP/HCP and SAMP/MSAA processes to date. In order to prevent further delays in the planning effort for the Ranch Plan area, and to protect the significant investment of time and resources to date in that effort, and by virtue of the project applicant's right under CEQA to define its project and the project objectives, the processing of the Ranch Plan GPA/ZC is moving forward even though NCCP/HCP and SAMP/MSAA programs may not be completed by the date of County action on the proposed project.

Notwithstanding that the GPA/ZC will be processed before completion of any NCCP/HCP or SAMP/MSAA, the proposed project and the process that has been using to develop and evaluate the proposed project and the other alternatives (1) provides a plan for development and a framework for conservation that will help to achieve the major benefits originally envisioned by those planning programs for the Ranch Plan area, and (2) provides a conservation strategy that would be complementary to any such programs that are completed in the future. Therefore, the proposed EIR can move forward without jeopardizing the preparation of the NCCP/HCP and SAMP/MSAA.

2.2.1 SOUTHERN NATURAL COMMUNITY CONSERVATION PLAN/HABITAT CONSERVATION PLAN

Purpose of the NCCP/HCP

The purpose of the NCCP Program is to provide long-term, large-scale protection of natural vegetation communities and wildlife diversity while allowing compatible land uses and appropriate development and growth. The NCCP process was initiated to provide an alternative to "single

species" conservation efforts. The shift in focus from single species, project-by-project conservation efforts to large scale conservation planning at the natural community level was intended to facilitate regional and subregional protection of a range of species that inhabit a designated natural community or communities. The proposed NCCP/HCP would provide for the conservation of identified listed and unlisted species ("Identified Species") and associated habitats that are currently found within the 132,000-acre NCCP/HCP planning area. Completion and implementation of the NCCP/HCP is designed to 1) maximize prospects for long-term protection and management for 30 identified listed and unlisted species and their associated habitats; and 2) minimize economic disruption caused by state/federal species listings, including critical habitat designations.

A key component of the NCCP/HCP would be the development of the Conservation Strategy (as further discussed in Section 4-9) to ensure effective long-term protection, restoration, and management of the natural communities that support the Identified Species. The strategy would have four major elements: (1) a permanent habitat reserve; (2) a habitat reserve adaptive management strategy; (3) state and federal regulatory coverage; and (4) an Implementation Agreement (IA), which would provide for an orderly implementation of an effective NCCP/HCP. This strategy would be formulated and would be implemented in a manner that addresses the standards of the Federal Endangered Species Act (FESA).

A separate Joint EIR/Environmental Impact Statement (EIS) would be prepared to address the potential impacts associated with the various alternative NCCP/HCP strategies. The Joint EIR/EIS, which would be a separate document from this EIR,[1] would be prepared pursuant to existing agency guidelines and the requirements of CEQA and the National Environmental Policy Act (NEPA). The County of Orange would be the lead agency pursuant to CEQA and the USFWS would be the federal lead agency pursuant to NEPA. The EIR/EIS would address the purpose and need for the NCCP/HCP, describe the affected environment, and evaluate impacts to Identified Species, and associated habitats resulting from the NCCP/HCP and project alternatives.

Planning Area for the NCCP

The Southern Subregion covers approximately 132,000 acres of developed, agricultural, and undeveloped natural lands and comprises about 26 percent of the County of Orange. However, 30 percent of the entire Southern Subregion (about 40,000 acres) is located within the Cleveland National Forest (CNF). Since the land within the CNF is already protected, it would not be addressed in the NCCP/HCP. The Southern Subregion includes all or portions of five cities: Mission Viejo, Rancho Santa Margarita, Lake Forest, San Clemente, and San Juan Capistrano. Public and operating agencies that would be affected by the NCCP/HCP include, but are not limited to, the Santa Margarita Water District (SMWD) and Transportation Corridor Agencies (TCAs). Of the NCCP/HCP planning area, almost 20,000 acres of natural lands are owned and managed by public agencies, non-profit organizations, and holders of major conservation easements.

Within the 92,000-acre portion of the Subregion located outside the CNF, 36 percent (about 33,000 acres) has already been urbanized. Another six percent (about 5,800 acres) has been used for agricultural purposes for decades or has been significantly disturbed by other uses. Natural habitats remain in the residual 58 percent (about 52,400 acres) of the non-CNF area. Coastal sage scrub (CSS) habitat constitutes about 31 percent of the existing natural lands remaining within the Southern Subregion. A total of 20,994 acres of coastal sage scrub is embedded within approximately 52,000 acres of natural biotic communities in the 92,000-acre planning area. Coastal

[1] It should be noted that there would be a total of three environmental documents for the three planning programs. They are the Program EIR prepared for the Ranch Plan General Plan Amendment and Zone Change, the EIR/EIS for the NCCP/HCP, and the EIR/EIS for the SAMP/MSAA.

sage scrub is a naturally fragmented and dispersed community embedded within a mosaic of non-coastal sage scrub vegetation communities, including 8,454 acres of chaparral and 15,387 acres of grasslands.

Participants

Landowners within the Subregion, including both private and public agency owners, would be affected by the NCCP/HCP. In recognition of the potential impact of the NCCP/HCP process on their properties, several landowners contributed funding and services to support completion of the NCCP/HCP, Joint EIR/EIS, and Implementation Agreement (IA). Landowners that have participated in the NCCP/HCP process include:

- The Santa Margarita Water District (SMWD)
- Rancho Mission Viejo (RMV)
- The Transportation Corridor Agencies (TCA)
- City of Mission Viejo
- City of San Clemente
- The County of Orange

The largest undeveloped private ownership in the Southern Subregion is the RMV property.

2.2.2 SPECIAL AREA MANAGEMENT PLAN/MASTER STREAMBED ALTERATION AGREEMENT

Purpose of the SAMP/MSAA

The purpose of the SAMP/MSAA, that would be prepared jointly by the U.S. Army Corps of Engineers (USACE) and CDFG as lead agencies, would be to provide for the protection and long-term management of sensitive aquatic resources (biological and hydrological) on a landscape level, or watershed level. Aquatic resources in the watershed include creeks, seeps, vernal pools, alkali meadows, freshwater marshes, and riparian wetlands. To the extent practicable, state and federal waters, including wetlands, would be avoided and unavoidable impacts would be minimized and fully mitigated under the SAMP/MSAA. The SAMP/MSAA also would be designed to enable reasonable economic activities and development to be permitted within the study area portions of the San Juan Creek and San Mateo Creek watersheds consistent with the requirements of federal and state laws (CWA Section 404) and state (Fish and Game Code Sections 1600 *et. seq.*).

When complete, the SAMP would provide the foundation for long-term planning and regulatory actions under Section 404 of the federal Clean Water Act (CWA), which is under the jurisdiction of the USACE. The MSAA would address the resources that fall under the jurisdiction of the CDFG. The SAMP/MSAA would establish the process and standards by which other later projects would be reviewed and considered.

The key objectives of the SAMP/MSAA for the San Juan Creek and western San Mateo Creek watersheds are: (1) evaluating the extent and condition of existing aquatic resources in the project area; (2) identifying and evaluating alternative land development scenarios that have been developed as part of the NCCP/HCP and SAMP/MSAA processes; (3) addressing, programmatically, water quality issues raised under state and federal laws; and (4) developing a reserve program and comprehensive management plan for the reserve areas to preserve and enhance existing aquatic resources. As to this last point, the SAMP/MSAA would provide a restoration plan for enhancing and protecting jurisdictional state and federal waters aquatic resources in the watersheds.

A separate Joint EIR/EIS would be prepared to address the potential impacts associated with the SAMP/MSAA. The Joint EIR/EIS, which would be a separate document from this Program EIR, would be prepared pursuant to existing agency guidelines and the requirements of CEQA and the NEPA. The CDFG would be the lead agency pursuant to CEQA and the USACE would be the federal lead agency pursuant to NEPA. The EIR/EIS would address the purpose and need for the SAMP/MSAA, describe the affected environment, and evaluate impacts on associated habitats resulting from the SAMP/MSAA program and project alternatives.

SAMP Study Area

The study area for the SAMP/MSAA covers the San Juan Creek and western San Mateo watersheds within the Southern Subregion NCCP planning area, including the Cleveland National Forest. The SAMP/MSAA study area covers approximately 107,350 acres. The primary difference in the study areas for the NCCP and the SAMP is the San Clemente Hydrologic Unit. This unit is excluded from the SAMP study area because the unit does not drain to either the San Juan Creek or the San Mateo Creek. Similar to the NCCP, the SAMP study area includes the Cleveland National Forest, but actions within the forest are subject to a separate planning process and would not be addressed in the SAMP/MSAA, except to the extent that coordination between the two programs would be necessary to implement management actions within the San Juan watershed (e.g., arundo control). The SAMP study area includes all or portions of the following six cities: Mission Viejo, Rancho Santa Margarita, Laguna Hills, Laguna Niguel, Dana Point, and San Juan Capistrano. Public and operating agencies affected by the SAMP/MSAA include, but are not limited to, the SMWD and TCA.

For the most part, the undeveloped areas outside the Ranch Plan study area are under public ownership. Approximately 40 percent of the watersheds are already in protected open space, including the Cleveland National Forest, which occupies the majority of the upper watersheds. The middle portion of the Arroyo Trabuco is within O'Neill Regional Park and portions of the lower Arroyo Trabuco are in the process of being added to the regional park system. Other protected areas in the San Juan Creek watershed include Upper Chiquita Canyon Conservation Area, Chiquita Ridge Open Space, Tijeras Creek Open Space, Canada Gobernadora Ecological Restoration Area (GERA), and the Ladera Ranch Open Space. The Donna O'Neill Land Conservancy is adjacent to both the San Juan Creek and San Mateo Creek watersheds. The majority of upper San Mateo Creek watershed remains undeveloped. However, portions of the upper watershed and most of the lower watershed are on Department of Defense (DOD) lands occupied by the Marine Corps Base (MCB) Camp Pendleton. Camp Pendleton lands in the San Mateo Creek watershed are used for military training, agriculture, and recreation.

Within the SAMP study area, upland habitats include CSS, chaparral, grassland, forest, coast live oak woodland, cliff, and rock in addition to agriculture, disturbed and developed, and total approximately 100,326 acres (NCCP database). According to the WES/CRREL/PCR database, aquatic habitats in the study area total approximately 7,030 acres and include habitat types such as willow riparian scrub, southern arroyo willow riparian forest, mule fat scrub, and intermittent rivers and streams.

2.2.3 PUBLIC PARTICIPATION AS PART OF THE COORDINATED PROCESS

To date, the three planning processes, including the use of technical data and development of alternatives, have been conducted in a coordinated fashion to enhance the effectiveness of the planning process and sharing of pertinent information. To this end, there has also been joint coordination on the public participation and outreach efforts. The first notice for the public was on June 30, 1993, when the County prepared and published a Notice of Preparation (NOP) for both the Southern Subregion and Central and Coastal Subregion NCCP EIRs. The USFWS published a

Notice of Intent (NOI) for the EIS component of the Joint EIR/EISs (Federal Register, June 24, 1993). On July 7, 1993, the County and USFWS conducted a Joint Scoping Meeting covering both the Southern, Central, and Coastal Subregion NCCPs.

On May 14, 1998, a second public Scoping Meeting was held for the Southern Subregion NCCP planning process. It was at the 1998 Scoping meeting that the concept of initiating a watershed-level planning and permitting program was recommended. The intent was to have a program capable of addressing impacts to aquatic resources subject to the requirements of the federal CWA (Section 404) and the state Fish and Game Code (Sections 1600-1603). To have a full comprehension of the factors that would influence the NCCP/HCP and SAMP/MSAA documents, the planning process for the RMV property was initiated. This was crucial, being the last large unplanned private ownership remaining within the Subregion.

To formally initiate the coordinated planning effort, a joint scoping meeting for the NCCP/HCP, SAMP/MSAA, and the Ranch Plan was held on June 14, 2001. The scoping meeting was conducted jointly by the County, USFWS, CDFG, and USACE. The County distributed the NOP for the NCCP/HCP on September 13, 2001, and the USFWS issued an NOI on November 8, 2001. The NOP/NOI for the SAMP/MSAA was published on June 12, 2001. The NOP for the Ranch Plan was distributed on February 24, 2003, and a Revised NOP was distributed on March 23, 2004.

Five public workshops were held on the coordinated planning process between December 2001 and June 2003. Public attendance at these meetings ranged from approximately 250 to 500 persons. These workshops were intended to provide a collaborative and consultative public forum to discuss NCCP/HCP and SAMP/MSAA planning issues. The Ranch Plan was also discussed in the context of these two planning programs. The public workshops were conducted to:

- Explain the coordinated approach for processing the NCCP/HCP and SAMP/MSAA;
- Identify key planning issues that needed to be addressed and assure that the full range of public policy and planning issues were addressed;
- Discuss NCCP/HCP and SAMP/MSAA reserve design tenets and principles;
- Identify and consider alternative habitat reserve designs; and
- Obtain public comments and suggestions prior to preparation of draft documents.

In addition to the above-noted public participation, public notices and outreach focused specifically on the Ranch Plan have also been conducted. This is further discussed in Section 2.3 below and in Section 3.3, Project History. As previously indicated, all three processes have separate environmental documents that are or would be available for public review and comment.

2.3 RANCH PLAN PROGRAM EIR: FOCUS AND EFFECTS FOUND NOT TO BE SIGNIFICANT

In accordance with CEQA Guidelines §15063, the County of Orange prepared an Initial Study/Environmental Checklist for the Ranch Plan and distributed it along with the NOP to responsible and interested agencies and key interest groups. The NOP/Initial Study for the Ranch

Plan Program EIR was distributed on February 24, 2003. The review period ended on March 26, 2003. A total of 52[2] comment letters were received from the following agencies and individuals:

Federal Agencies

1. USFWS (joint with the CDFG)
2. Marine Corps Base Camp Pendleton

State Agencies

3. CDFG (joint with USFWS, letter 1 above)
4. Department of Conservation
5. California Highway Patrol
6. Department of Toxic Substances Control
7. California Department of Parks and Recreation
8. California Department of Transportation, District 12

Local Agencies (County, City, Special Agencies)

9. Orange County Sheriff-Coroner Department[3]
10. Orange County Sheriff-Coroner Department
11. City of Mission Viejo
12. City of San Juan Capistrano
13. City of Rancho Santa Margarita
14. Orange County Fire Authority
15. OCTA
16. Transportation Corridor Agencies
17. County of Orange, Grading, Plan Check
18. County of Orange, Acoustics, Building Permits
19. County of Orange, Subdivision & Grading
20. County of Orange, Integrated Waste Management Division
21. County of Orange, Historic Resources
22. County of Orange, County Executive Office, Strategic Affairs
23. County of Orange, Public Facilities and Resources Division/Harbors, Beaches and Parks
24. Capistrano Unified School District
25. South Coast Air Quality Management[4]
26. Riverside County, Planning Department[4]

Individuals and Businesses	**Residing City/Group Represented**
27. Terri Trammell	Irvine
28. Calvin Hecht	San Clemente
29. David Bendall	Aliso Viejo
30. Terrell Watt, AICP	Endangered Habit League
31. Diana Rodgers	Mission Viejo
32. Dave Huber	San Clemente
33. Barbara Rosenbaum	Trabuco Canyon

[2] A joint letter was received from USFWS together with CDFG; therefore, there are 51 letters from 52 commenting parties.

[3] The Orange County Sheriff-Coroner Department submitted two comment letters on the NOP.

[4] The comment letters for the South Coast Air Quality Management District and the County of Riverside Planning Department were received after the close of the NOP review period and based on supplemental contact.

34. Brenda Stouffer	Dana Point, Heart & Soul Coalition
Individuals and Businesses (continued)	**Residing City/Group Represented (continued)**
35. Dan Songster, President	O.C. Chapter, California Native Plants Society
36. Ilse M. Byrnes	California Trails & Greenways
37. Paul Carlton	Sierra Club, SCORE member
38. Nossaman, Guthner, Knox & Elliott	Talega Associates
39. Thomas and Judith Gielow	Costa Mesa
40. Bill Corcoran	Sierra Club, Los Angeles
41. Marni Magda	Laguna Beach
42. Mike and Valerie Dencker	Lake Forest
43. Steve Netherby	Netherby Associates, San Clemente
44. Pauline Hollinger Faye	San Clemente
45. Jeff and Shelley Mott	Trabuco Canyon
46. Lynda A. Hernandez	Huntington Beach
47. Michael J. Bosse	San Clemente
48. Jeff Petersen	Monarch Beach
49. Rich Kemenesi	West Covina
50. Lyn Harris Hicks	CREED, San Clemente
51. Jim Parkhurst	San Clemente
52. Dawn Kukla	Aliso Viejo

In March 2004, a Revised NOP was distributed for agency and public review. A total of 30 comment letters were received on the Revised NOP. The NOP and Revised NOP are discussed in Section 3.3, Project History, and are included in Appendix A. Comments on the Revised NOP were received from the following agencies and individuals:

State Agencies

1. Caltrans District 12
2. Department of Conservation
3. Department of Fish & Game (joint with USFWS)
4. Department of Health Services
5. Department of Toxic Substances Control
6. Governor's Office of Planning & Research, State Clearinghouse and Planning Unit

Local Agencies (County, City, Special Agencies)

7. City of Mission Viejo
8. City of Rancho Santa Margarita
9. City of San Juan Capistrano
10. City of Huntington Beach
11. Foothill/Eastern Corridor Agency
12. County of Orange Integrated Waste Management Division
13. Orange County Fire Authority
14. SDG&E
15. South Coast Water District

Individuals and Businesses	**Residing City/Group Represented**
16. Damien Shilo	Juaneño Band of Mission Indians, Acjachemen Nation

17. Adrian J. Peters	Talega Associates
Individuals and Businesses (continued)	**Residing City/Group Represented (continued)**
18. Gregory W. Sanders	Nossaman, Guthner, Knox & Elliott, LLP
19. Matthew Vespa & Terrell Watt	Shute, Mihaly & Weinberger LLP
20. Judith M. Gielow	St. Mark Presbyterian Church Ecophilians Environmental Group
21. Barbara Rosenbaum	League of Women Voters of the Capistrano Bay Area
22. Paul Carlton	SCORE
23. Marni Magda	Laguna Beach
24. Kelsyen Leedom	San Juan Capistrano
25. Greg Sumter	Residence not provided
26. Greg Koch	Anaheim
27. Ilse M. Byrnes	California Trails & Greenways Foundation
28. Dawn Montano	Aliso Viejo
29. Marianna H. Handler	Sewanee, Tennessee
30. The Rodgers Family	Mission Viejo

Copies of the NOP/Initial Study, Revised NOP, distribution list, and comments received on the NOP responses are included in Appendix A. The Initial Study determined that a Program EIR is required to evaluate the potentially significant environmental effects of the proposed project. The Program EIR addresses all the potential significant environmental effects identified in the environmental checklist (those items checked “Less than Significant with Mitigation” and “Potential Significant Impact” on the checklist). In addition, the Program EIR provides a summary of other issues that were determined not to be significant and assists the reader in developing a better understanding of the project and the environment in which it would be implemented. In accordance with CEQA Guidelines §15128, the following statements identify the items that were checked “No Impact” or “Less than Significant Impact” on the Initial Study Checklist and the reasons that these possible effects were not considered significant or applicable to the project and therefore not addressed in the Program EIR.

- The project would not result in design features or uses that would pose safety hazards. The ranching operations would not result in safety conflict with the other uses. All roadways, bikeways, and trail systems would be constructed in compliance with County standards. The project would not result in barriers for pedestrians and bicyclists or result in inadequate emergency access. Facilities would be constructed to support the new development. Site-specific access would be evaluated during the Area Plan and tentative tract map stages of approval. (Transportation and Circulation, checklist items 7c-g)

- The project would not be located within an airport land use plan or within two miles of a public airport, nor would it generate excessive ground borne vibration or noise levels. No facilities are being planned as part of the project that would result in excessive ground borne vibration and there are no plans as part of the project or by another agency to develop an airport within two miles of the project site. (Noise, checklist items 9 d and e)

2.4 PROJECT SPONSORS AND CONTACT PERSONS

The County of Orange is the lead agency for preparation of this Program EIR. All inquiries regarding the Draft Program EIR should be directed to the County. The applicant for the proposed project is Rancho Mission Viejo.

Key contact persons are as follows:

Lead Agency	County of Orange Planning and Development Services Mr. Chuck Shoemaker P.O. Box 4048 Santa Ana, CA 92702-4048
Project Applicant	Rancho Mission Viejo Mr. Richard Broming P.O. Box 9 San Juan Capistrano, CA 92693

2.5 REVIEW OF THE DRAFT PROGRAM EIR

The Ranch Plan Program EIR has been distributed to responsible and trustee agencies, other affected agencies, surrounding jurisdictions, and interested parties, as well as other parties requesting a copy of the Draft Program EIR in accordance with Public Resources Code Section 21092. The Notice of Completion for the Draft Program EIR was also distributed as required by CEQA. During the 45-day public review period, the Program EIR (including the technical appendices) is available for review at the County of Orange Planning and Development Services Department located at 300 North Flower Street, Third Floor, Santa Ana, California. Additionally, copies of the Program EIR and technical appendices are available at the reference desk of the following libraries:

Laguna Niguel
30341 Crown Valley Parkway
Laguna Niguel, CA 92677

Rancho Santa Margarita
30902 La Promesa
Rancho Santa Margarita, CA 92688

San Clemente
242 Avenida Del Mar
San Clemente, CA 92672

San Juan Capistrano Regional
31495 El Camino Real
San Juan Capistrano, CA 92675

Mission Viejo Library
100 Civic Center
Mission Viejo, CA 92691

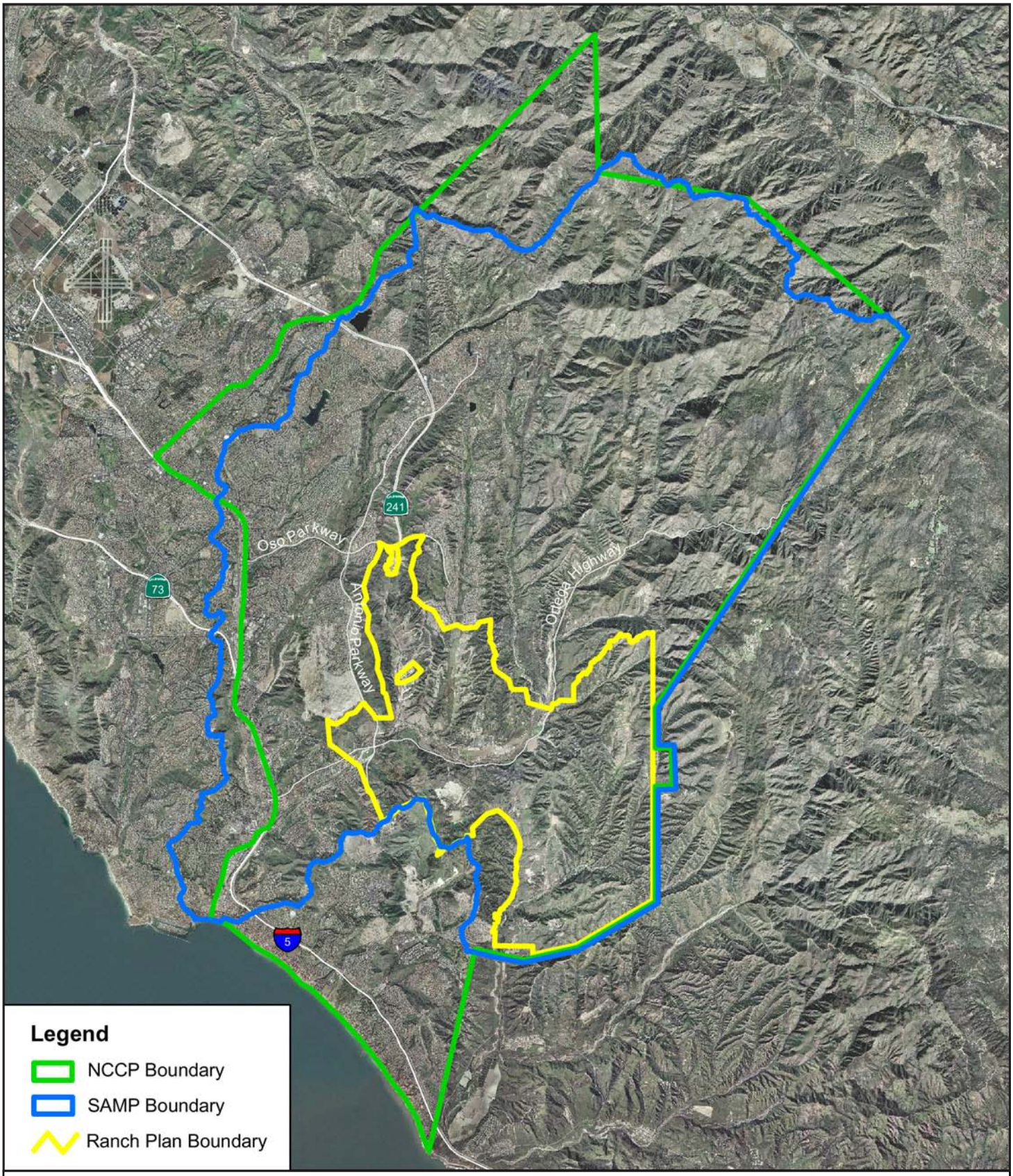
Ladera Ranch Branch Library
29551 Sienna Parkway
Ladera Ranch, CA 92694

For purchase of a copy of the Draft Program EIR or technical appendices, contact OCB Reprographics, located at 17721 Mitchell, Irvine, California 92614. The phone number for OCB Reprographics is (949) 660-1150. When calling, ask for the Xerox Department. Compact disks with the documents in PDF format are also available at OCB Reprographics.

Written comments should be sent to the following address no later than 5:00 p.m. on July 26, 2004.

County of Orange
Planning and Development Services
Mr. Chuck Shoemaker
P.O. Box 4048
Santa Ana, CA 92702-4048

Upon completion of the 45-day public review period, written responses to all significant environmental issues raised will be prepared and available for review at least ten days prior to the public hearing before the County Planning Commission when the recommendation on certification of the Program EIR is considered. These environmental comments and their responses will be included as part of the environmental record for consideration by the decision makers for the project.



NCCP/ HCP, SAMP/ MSAA and the Ranch Plan Boundaries

Exhibit 2-1

The Ranch Plan

1" = 16,000'

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Source: EDAW, Inc. 2004

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SECTION 3
PROJECT DESCRIPTION

3.1 PROJECT LOCATION

The approximately 22,815-acre Rancho Mission Viejo (the "Ranch Plan") project site is located in southeastern Orange County and constitutes the remaining undeveloped portions of Rancho Mission Viejo located within unincorporated Orange County. The planned community of Ladera Ranch and the cities of Mission Viejo, San Juan Capistrano, and San Clemente border the project site on the west. The City of Rancho Santa Margarita borders the northern edge of the project site; the United States Marine Corps Base (MCB) Camp Pendleton in San Diego County borders the southern edge; and Caspers Wilderness Park and the Cleveland National Forest, as well as several private properties in Riverside and San Diego counties, border the site on its eastern edge. The project site is presented in a regional and local context in Exhibits 3-1 and 3-2, respectively. Exhibit 3-3 provides an aerial photograph of the project site and surrounding area with major landmarks identified.

Regional access to the project site is via Interstate 5 (I-5), which is located west of the project site and State Route 241 (SR-241) (also known as the Foothill Transportation Corridor), which currently terminates at Oso Parkway, just north of the project site. Ortega Highway (State Route 74) runs east-west through the project site. Antonio Parkway provides the project area with north-south arterial highway access. Avenida Pico, in the City of San Clemente, runs east-west and terminates near the southwestern boundary of the project site.

3.2 REGIONAL AND LOCAL SETTING

Substantial portions of the 22,815-acre project site have been used for ranching and agricultural uses for the past 120 years and these uses continue today. Commercial nursery operations, research and development uses, and natural resources extraction are ongoing activities on the Ranch through lease agreements. Previous extractions of mineral resources within the project site included rock aggregate, silica sand, clay, and expanded aggregate. The owners grow and harvest citrus on several hundred acres of the ranch. Given the expanse of the project site and variety of historic uses, many different land use and environmental conditions are represented. The ongoing uses are discussed in more detail in Section 4.1, Land Use and Related Planning Programs.

Circulation facilities within the project boundaries include Ortega Highway that runs in an east-west direction through the project site and connects with I-5 to the west. Ortega Highway continues east of the project site to Riverside County. Antonio Parkway/La Pata Avenue is a north-south arterial highway that extends through the western portion of the project site. Antonio Parkway begins north of the project site in the City of Rancho Santa Margarita, extends through the Las Flores and Ladera Ranch communities, and enters the project site. At Ortega Highway, Antonio Parkway turns into La Pata Avenue where it currently terminates at the Prima Deshecha Landfill. Other private and ranch roads exist within the project site.

To the north and west of the project site are the cities of Rancho Santa Margarita, Mission Viejo, San Juan Capistrano, and San Clemente. Other large land developments in unincorporated Orange County and in the vicinity of the project site include the planned communities of Las Flores, Coto de Caza, and Ladera Ranch. The latter is currently under construction. Existing land uses within the project site include the Rancho Mission Viejo headquarters located on Ortega Highway, west of Antonio Parkway. Also in this area, south of Ortega Highway, is the Oaks/Blenheim/Rancho Mission Viejo Riding Park. Further east along Ortega Highway and San

Juan Creek are a variety of commercial nursery operations, the Solag Disposal materials recovery facility (MRF), a concrete batch plant, and a company that manufactures paving stones. Proximate to the Prima Deshecha Landfill is the BFI Greenwaste commercial composting site. The Northrop Grumman TRW Capistrano Test Site is located on an approximately 2,700-acre leased site in the southern portion of the project site adjacent to the City of San Clemente, the Talega Planned Community, and MCB Camp Pendleton.

Within the project site are several major public facilities and utilities, including the Santa Margarita Water District (SMWD) Chiquita Water Reclamation Plant, located in Chiquita Canyon. This facility, located in Planning Area 2, is identified as not a part (NAP) of the project. Other major utilities include a 66-inch domestic water line and smaller non-domestic water and sewer lines in the vicinity of Cristianitos Road. In addition, there are several large overhead electric distribution lines owned by San Diego Gas and Electric (SDG&E) and Southern California Edison (SCE) that extend from the San Onofre Nuclear Generating Station (SONGS) located south of the site. Facilities located adjacent to the site include the County's Prima Deshecha Landfill, located at the western boundary of the project site, and two SDG&E substations located just west of the southern boundary of the project site.

Several creeks are located within the boundaries of the project site. Just north of Ortega Highway, San Juan Creek flows in an east-west direction through the site. San Juan Creek is a major drainage basin that discharges into the Pacific Ocean in the vicinity of the City of Dana Point. Major tributaries to San Juan Creek are Arroyo Trabuco, Oso Creek, Cañada Chiquita, Cañada Gobernadora, Bell Canyon Creek, and Verdugo Canyon Creek. Cristianitos Creek is located south of Ortega Highway and traverses the project site in a north-south direction. Major tributaries to Cristianitos Creek within the project site are Gabino Canyon Creek, La Paz Creek, and Talega Canyon Creek. Cristianitos Creek is in the western portion of the San Mateo Creek watershed. These creeks are further discussed and their location depicted in Section 4.5, Water Resources.

The geology of the project site and surrounding area contains a wide variety of geological characteristics. Two faults–the Mission Viejo fault and the Cristianitos fault–traverse the project site. The Cristianitos fault is classified as inactive; the Mission Viejo fault is classified as potentially active. The nearest known active fault is the Newport-Inglewood fault, located 9.3 miles to the south. Landslides are located throughout the project site, with the greatest number located west of the Cristianitos fault. The faults and major landslides are further discussed and their location depicted in Section 4.4, Geology and Soils.

The project site contains a diverse population of flora and fauna species, including sensitive vegetation communities that provide habitat to sensitive species. These vegetation communities include, but are not limited to, scrub habitats, chaparral, vernal pools and seeps, riparian habitat, and woodland habitat. Grasslands on the project site are currently used for grazing activities and also provide habitat and foraging areas for wildlife. The project site also supports sensitive plant species (see Section 4.9, Biological Resources). The Gobernadora Ecological Restoration Area (GERA) is a 105-acre mitigation bank developed in Cañada Gobernadora as replacement habitat for previously approved projects. Over the past few years, portions of the project site have been proposed as, or are designated, by USFWS as critical habitat for listed species, including the coastal California gnatcatcher and the Riverside fairy shrimp. USFWS did designate critical habitat for the arroyo toad within the project boundaries; however, based on a recent court case, the critical habitat for this species has been vacated and was to be reevaluated by USFWS by July 30, 2004. However, on April 28, 2004, the USFWS published a proposed rule to re-designate critical habitat for this species. The proposed rule covers the same stream reaches that were proposed in the previous rule for the arroyo toad.

3.3 PROJECT HISTORY

As previously discussed in Section 2.2, the Ranch Plan has been developed in coordination with the ongoing NCCP/HCP and the SAMP/MSAA planning programs to ensure that the Ranch Plan is substantially consistent with the draft planning goals and principles (further discussed in Section 4.9) formulated to address biological and water resources. A third process, the South County Outreach and Review Effort (SCORE), sought input from the community on the project. SCORE is discussed more fully below. As a result of the input through the NCCP/HCP, SAMP/MSAA, and the SCORE processes, particularly the development of the Draft Southern NCCP Planning Guidelines (Draft Guidelines) and Draft Watershed and Sub-basin Planning Principles (Draft Planning Principals), Planning Areas 2, 3, and 7 of the original Ranch Plan applications/filing plan were modified.

These modifications respond to protection recommendations contained in the Draft Southern NCCP Guidelines and Draft Watershed and Sub-basin Principles regarding such issues as protection of listed species (for example, California gnatcatcher and thread leaved brodiaea), protection of wildlife corridors, and consideration of the specific terrains and geomorphology found in these planning areas.

RMV submitted an application to the County of Orange in November 2001 for The Ranch Plan Community Plan and Open Space Management Program, including requests for a General Plan Amendment and a zone change for the project site. In December 2001, Fifth District Supervisor Tom Wilson proposed the SCORE process as a means for receiving community input on the proposed project. The SCORE process encouraged early comment by the community on issues related to the Ranch Plan development with the objective of establishing and maintaining positive and constructive communications among potentially interested parties in order to consider a range of planning issues and perspectives.

The SCORE program established two task forces to study the Ranch Plan development issues, one task force to address land use and one task force to address urban runoff. The Land Use Task Force reviewed a preliminary set of reserve design concepts to provide commentary relative to a predetermined set of criteria. The Urban Runoff Task Force identified issues and evaluated potential solutions for managing urban runoff and protecting water quality regardless of development type or location. The Land Use Task Force met 14 times during Phase One and the Urban Runoff Task Force met six times. The *Orange County SCORE Program Phase One Report* (October 2002) provides an overview of the findings by the two task forces.

The second phase of the SCORE process was a review of additional information from the environmental resource agencies, review and discussion of draft land use alternatives to be evaluated in the EIR for the Ranch Plan, and further consideration of the reserve design concepts by the SCORE Land Use Task Force. A SCORE Phase II Report was prepared that provides an overview of the SCORE Land Use Task Force comments on the land use alternatives that were developed as part of the NCCP/HCP process (Moore, Iocafano and Goltsman, Inc., September 2003). The report presents the Land Use Task Force's comments regarding the nine Ranch Plan development areas using the SCORE Land Use Evaluation criteria and performance objectives.

The third phase of the SCORE process will be a report to the SCORE Land Use and Urban Runoff Task Forces on this EIR prepared for the Ranch Plan. The Board of Supervisors will receive for consideration the input provided by the SCORE process as part of the final Program EIR package.

In addition to the SCORE process and the public meetings associated with the NCCP and SAMP processes, in February 2003 the NOP for this project, and/or notices regarding the NOP, were sent to responsible and trustee agencies and members of the public to seek input on the issues to be addressed in the Program EIR. As previously indicated in Section 2.3, 51 comments letters on the NOP were received.

A Revised NOP outlining minor changes in the project was sent to the recipients of the original NOP and NOP notification list in March 2004. The Revised NOP identified eight changes to the project since the distribution of the original NOP. The key changes included:

(1) A modification in the number of acres in the project to reflect the sale of 35 acres along La Pata Avenue to provide access to San Juan Hills High School;

(2) A reduction in the number of acres being requested for removal from the Williamson Act;

(3) A change in the land use designation being requested as part Land Use Element Amendment to reflect the 1A-Rural Residential use, though this request does not change the actual land uses proposed;

(4) Changes in the request for the amendment to the Master Plan of Arterial Highways (MPAH) and the Circulation Plan component of the Transportation Element of the General Plan;

(5) A change in the request pertaining to the amendment of the Recreation Element of the General Plan;

(6) Modification to the request to amend the Resources Element of the General Plan pertaining to the designation of mineral resources in San Juan Creek;

(7) Modifications to the approach of processing the Ranch Plan separately rather than concurrently with the NCCP/HCP and the SAMP/MSAA; and

(8) A clarification that the project would be implemented over 20 to 25 years, not 25 to 30 years, as originally anticipated.

A total of 30 comment letters on the Revised NOP were received.

The County of Orange Planning Commission held a public scoping meeting for the project and associated Program EIR on April 23, 2003 at the City of Mission Viejo City Council chambers. A total of 41 members of the public commented on the project at this scoping meeting.

3.4 PROJECT DESCRIPTION

3.4.1 PROJECT OVERVIEW

The Ranch Plan includes up to 14,000 dwelling units and other uses within a development area of approximately 7,694 acres. Approximately, 6,000 of the 14,000 dwelling units would be senior housing. The remaining 15,121 acres of the 22,815 acres within the project site would be retained in open space. Development is proposed to occur over a period of approximately 20 to 25 years. Infrastructure would be constructed to support all of these uses, including road improvements, utility improvements, and schools. Ranching and agricultural activities would be retained within a portion of the proposed open space area.

The project applicant is requesting (in Planning Application number PA01-114) a General Plan Amendment (GPA) and zone change. Several elements of the County of Orange General Plan would need to be amended in order to allow for implementation of the project, including the Land Use, Transportation, Resources, and Recreation elements. These GPA are further described in Section 3.4.2 of the Program EIR. The zone change would change the current A-1 General Agricultural and SG-Sand and Gravel Extraction zoning to PC-Planned Community zoning district for the entire project site. The zone change is discussed in Section 3.4.5. Other components of the project include an amendment to the MPAH (see Section 3.4.3); cancellation of a portion of the Williamson Act contract covering lands within the project site (see Section 3.4.7) and a Development Agreement between Rancho Mission Viejo and the County (see Section 3.4.8).

SR-241 (the Foothill Transportation Corridor) has been built from SR-91 to Oso Parkway. The roadway terminates at the northern Ranch Plan boundary. Currently, the MPAH, local General Plans, and regional planning documents, such as the Regional Transportation Plan, depict the southern extension of SR-241 traversing the project study area, extending into San Diego County and connecting with I-5 in the vicinity of Basilone Road. This is the locally preferred alignment of the proposed southern extension of SR-241 selected by the Transportation Corridor Agencies (TCA)[1] as the locally preferred toll road alignment in 1991. The graphics in this document reflect this alignment for consistency with local and regional planning documents.

The TCA and Federal Highway Administration (FHWA) are currently conducting the South Orange County Transportation Infrastructure Improvement Project (SOCTIIP), to assess the transportation needs in south Orange County. SOCTIIP is evaluating a number of different transportation improvement alternatives, several which include the extension of SR-241. The selection of a SOCTIIP alternative is anticipated to occur by mid-2005. In conjunction with the SOCTIIP project, the TCA and FHWA has prepared an EIS/EIR prepared pursuant to NEPA and CEQA evaluating the impacts associated with the construction of the extension of SR-241. The EIS/EIR was released for public review in May 2004. SOCTIIP is discussed in Section 7, Cumulative Projects.

Should the TCA and FHWA select a SOCTIIP alternative that includes an alignment for the SR-241 extension that is different from what is depicted in the local General Plans, regional planning documents, and this Program EIR, the Ranch Plan project would be modified, as needed, to reflect the adopted alignment. Because the construction of the toll road is not part of the Ranch Plan project and the Ranch Plan project is not dependent on the completion of the toll road, this Program EIR does not evaluate the impacts associated with the toll road to the same extent as the Ranch Plan project. However, as previously indicated, Section 7 of this Program EIR does take into consideration the potential environmental impacts of SR-241 as a part of the cumulative analysis.

The major components of the proposed project are discussed and graphically depicted in the following sections. The discussion starts at the General Plan level and then provides more specific detail on the development proposed. Future actions by the County and other agencies

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[1] The Foothill/Eastern Transportation Corridor Agency is a joint powers authority composed of the County of Orange and the local cities within the area of benefit of the Foothill Transportation Cooridor (FTC) and Eastern Transportation Corridor (ETC) to oversee the planning, design, and construction of the Foothill and Eastern Transportation Corridors. The member agencies are: Anaheim, Dana Point, Irvine, Lake Forest, Mission Viejo, Orange, Rancho Santa Margarita, San Clemente, San Juan Capistrano, Santa Ana, Tustin, Yorba Linda, and the County of Orange.

required to implement the proposed land uses are identified in Sections 3.8 and 3.9, respectively, of this Program EIR.

3.4.2 GENERAL PLAN AMENDMENTS

California Government Code (Section 65300) requires that each city and county adopt a comprehensive, long-term General Plan that provides a blueprint for the growth and development of the jurisdiction. The General Plan is implemented through the zoning and subdivision processes. As indicated in the County of Orange General Plan, "All subdivisions, capital improvements, development agreements, projects subject to the zoning code, specific plans, and other land use actions must be consistent with the adopted General Plan."

The County of Orange General Plan contains an introduction chapter, a chapter on the approved demographics for the County, and nine elements. The County complies with the State mandate for seven elements through the adoption of the following elements: Land Use, Transportation, Resources, Recreation, Noise, Safety, and Housing. State law allows optional elements. To that end, the County has adopted the Public Services and Facilities, and Growth Management elements.

The Ranch Plan proposes an amendment to four General Plan elements: the Land Use Element, Transportation Element, Resources Element, and Recreation Element. The specific provisions proposed for amendment are discussed below.

General Plan Land Use Element

The General Plan Land Use Element establishes criteria and standards for land use development in unincorporated Orange County, including population and building intensities. Land use categories in the Land Use Element depict the general distribution, location, and extent of public and private use of land. As depicted on Exhibit 3-4, the project site is designated Open Space (5) on the Orange County General Plan. This is one of the two categories of Open Space in the General Plan. The other category is Open Space Reserve (OSR). The Land Use Element states, "The Open Space (5) category indicates the current and near-term use of the land, most of which is zoned agricultural. It is not necessarily an indication of long-term commitment to open space use." In contrast, the OSR overlay generally depicts lands that are permanently preserved for open space. However, some private landholdings exist in these areas. The OSR overlay includes major parks, beaches, forests, harbors, and other territory.

The project applicant is requesting an amendment to the Land Use Element of the General Plan to allow for the designation of 1,761 acres as 1A-Rural Residential, 8,382 acres as 1B-Suburban Residential, 80 acres as Employment (3), and 827 acres as Urban Activity Center (UAC) (6).[2] The remaining 11,765 acres would continue to be designated as Open Space (5)

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[2] The project is requesting the designation of 1,761 acres as 1-A Rural Residential and 827 acres as UAC. The full acreage would not be built with these uses. Because the General Plan does not allow flexibility in locating uses outside of the appropriate land use designation, more acreage has been designated for these uses than is necessary. This will allow greater flexibility in locating the uses during subsequent planning stages. The zoning establishes the maximum amount of each of these uses. Within the 1A-Rural Residential designation, zoning provides for a total of 220 dwelling units. The vast majority of the 1A-Rural Residential area would be open space. Within the UAC designation there would be a maximum of 251 acres of UAC uses. The zoning statistics are presented in Table 3.4-2.

as depicted in Table 3.4-1, which is broken out by planning areas. Exhibit 3-5 depicts the proposed land use designations for the project site. These proposed designations would be depicted in an updated Map III-1 in the Land Use Element of the General Plan. No modifications to the goals, objectives, or policies are proposed.

TABLE 3.4-1
RANCH PLAN GENERAL PLAN SUMMARY

Planning Area	Rural Residential (1A)	Suburban Residential (1B)	Employment(3)	Urban Activity Center(6)	Open Space(5)		Planning Area Totals
	Gross Acres	Gross Acres	Gross Acres	Gross Acres	Open Space Gross Acres	RMV Regional Park Gross Acres	Gross Acres
1		544		132	12	122	**810**
2		1,470		210			**1,680**
3		1,868		485			**2,353**
4		216					**216**
5		1,350					**1,350**
6		308					**308**
7		1,442					**1,442**
8		1,184	80				**1,264**
9[a.]	1,761				7,511		**9,272**
10					845		**845**
11					1,015		**1,015**
12					1,348		**1,348**
13						912	**912**
Subtotals	1,761	8,382	80	827	10,731	1,034	
Total	**11,050**[b.]				**11,765**[c.]		**22,815**[d.]

a. The Rural Residential designation provides for the estate housing, casitas, and 218 acres of golf course. Within the 218-acre envelop for the golf course, only 200 acres would be developed.
b. The acreage totals for General Plan-level development designations do not identify certain included open space areas that are reflected in zoning (see Table 3.4-2).
c. The total amount of actual open space is established by the zoning, which provides for 15,121 acres of open space. This reflects the General Plan designation and does not reflect open space internal to planning areas.
d. Water quality features may be located in either development use areas or open space areas.

The General Plan identifies the 1A-Rural Residential designation as being characterized by limited residential use compatible with the natural character of the terrain. Development under this category requires special consideration due to topography and other factors. The building intensity standard for Rural Residential ranges from 0.025 to 0.5 dwelling units per acre. Within the project limits, 220 dwelling units are proposed in the area designated 1A-Rural Residential.

The General Plan identifies the 1B-Suburban Residential designation as being characterized by a range of housing types, from estates to attached dwelling units. Building intensities range from 0.5 unit per acre to 18.0 units per acre. Within the project limits, 13,780 dwelling units are proposed in the area designated as 1B-Suburban Residential. The 1B-Suburban Residential designation allows neighborhood centers of less than 10 acres that provide services (e.g., grocery stores, dry cleaners, and shops) associated with residential development. The 1B-Suburban Residential designation would also contain areas of internal open space, both natural open space and graded landscaped areas, as well as local public facilities such as

schools and parks. These uses would be reflected in more precise levels of planning (e.g., Area Plans).

The Employment (3) land use category identifies areas intended for use by employment generators, usually light and service industries or professional administrative office uses. The Land Use Element encourages locating employment generators and commercial uses together in well-defined urban activity centers.

The Land Use Element defines an Urban Activity Center (6) land use category as an area "intended for high-intensity mixed-use development. Appropriate land uses include, but are not limited to, residential, commercial, and offices uses; industrial parks and materials recovery/ recycling facilities; civic, cultural, and educational uses; and childcare facilities." The flexibility allowed by this category encourages efficient use of existing and future transportation systems, conservation of energy resources, and development of various residential densities.

Approximately 11,765 acres would retain the Open Space (5) designation. However, this does not include the open space internal to the planning areas. When all the open space is included, the project provides for 15,121 acres of open space or 66 percent of the total project area. Within this Open Space (5) designation, 1,034 acres is proposed for the Rancho Mission Viejo Regional Park.

General Plan Transportation Element

The General Plan Transportation Element sets forth a comprehensive strategy for planning, developing, and maintaining a surface transportation system to serve existing and planned land uses in unincorporated Orange County. The Transportation Element contains three components: the Circulation Plan, the Bikeways Plan, and the Scenic Highways Plan. The project proposes to amend the maps of these three components of the Transportation Element. No modifications to the goals, objectives, or policies are proposed.

Circulation Plan. The Circulation Plan component of the Transportation Element establishes a system of surface roadways for the unincorporated areas of Orange County. As depicted in Exhibit 3-6, the Circulation Plan currently has limited facilities within the project area. The project would provide for two additional arterial highways, the deletion of a portion of one arterial highway, and the reclassification of a portion of an arterial highway on the County's Circulation Plan. These modifications would also be made to the MPAH, administered by the Orange County Transportation Authority (OCTA). This action by the OCTA is discussed in greater detail in Section 3.4.2 of this Program EIR. The proposed modifications to the Circulation Plan are depicted in Exhibit 3-7. These modifications would be made to Figure IV-1 of the Transportation Element of the General Plan. The proposed amendments include the following changes:

- New Ortega Highway would be added to the Circulation Plan and MPAH as an east-west arterial highway on the north side of San Juan Creek. The road would provide an east-west link through Rancho Mission Viejo. The alignment would extend from Antonio Parkway to the existing Ortega Highway near the common boundary of Rancho Mission Viejo and Caspers Wilderness Park. New Ortega Highway would be constructed as a four-lane primary arterial highway with 100 feet of right-of-way. In addition, a right-of-way reserve would be provided for a six-lane major arterial (120 feet of right-of-way) between Antonio Parkway and the future SR-241. It is assumed that the interchange formerly proposed for Ortega Highway and SR-241 would be constructed at New Ortega

Highway and SR-241.[3] The County is also requesting the abandonment of the parallel section of existing Ortega Highway and the designation of New Ortega Highway as the state route. Therefore, New Ortega Highway would be constructed to Caltrans specifications (see Section 3.4.4 below).

- Cristianitos Road would be added to the Circulation Plan and the MPAH as a north-south arterial highway. The roadway would extend from Avenida Pico northerly through Cristianitos and Trampas canyons, crossing San Juan Creek and New Ortega Highway, and connect with a newly proposed interchange with SR-241. The new interchange with SR-241 would replace the need for the formerly proposed Crown Valley Parkway interchange. Cristianitos Road would be grade separated to preclude a direct connection with the existing Ortega Highway. The road would be constructed as a four-lane primary arterial (100 feet of right-of-way) from the future extension of SR-241, southerly to the connection with Avenida Talega. From Avenida Talega southerly to Avenida Pico, the road would be constructed as a two-lane collector road with a right-of-way reserve for a four-lane secondary arterial (80 feet of right-of-way). It is anticipated that the connection to Avenida Pico and the bridge crossing Cristianitos Creek would be constructed as a four-lane facility.

- Avenida Talega would be reclassified (downgraded) on the Circulation Plan and the MPAH in unincorporated Orange County from a secondary arterial highway to a collector road (56 feet of right-of-way).

- Crown Valley Parkway would be deleted from the Circulation Plan and the MPAH east of Antonio Parkway. This action would also involve the deletion of the proposed Crown Valley Parkway interchange with the proposed extension of SR-241. Relocation of the interchange from Crown Valley Parkway to Cristianitos Road would also require the concurrence of the TCA, Caltrans, and FHWA.

Bikeways Plan. Figure IV-7 (Bikeway Plan) of the Bikeways Plan of the County General Plan Transportation Element would be modified to designate a specific alignment for the proposed Class I Off-Road Bikeway through the proposed Rancho Mission Viejo Regional Park. As depicted on Exhibit 3-8, the Bikeways Plan shows the San Juan Creek Bikeway along the south side of the San Juan Creek. The project proposes to align the bikeway along the north side of San Juan Creek. The specific locations/alignments would be determined at a later time. Because of the scale of the Bikeway Plan, the proposed change (from the south side of the creek to the north side of the creek) cannot be distinguished graphically.

Scenic Highways Plan. Figure IV-11 (Scenic Highway Plan) of the Transportation Element Scenic Highways Plan depicts the existing Ortega Highway as a Landscape Corridor from I-5 to Antonio Parkway and as a Viewscape Corridor east of Antonio Parkway (see Exhibit 3-9). With the project, the segment of Ortega Highway east of Antonio Parkway to the connection with New Ortega Highway would serve as a park road and for local access. The project proposes the deletion of the segment of Ortega Highway east of Antonio Parkway to New Ortega Highway from the Scenic Highway Plan. New Ortega Highway would be added as a Landscape Corridor. With the proposed action, Ortega Highway/New Ortega Highway would be a Landscape Corridor from I-5 to the eastern terminus of New Ortega Highway. Exhibit 3-10 depicts the proposed modifications to the Scenic Highway Plan.

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[3] Later in the Project Description (Section 3.4.4), a request to Caltrans for the abandonment of the segment of Ortega Highway that parallels New Ortega Highway is identified. With the provision of a new arterial highway with higher design speeds, traffic volumes on the existing Ortega Highway, should it be retained, would be substantially reduced and primarily serve the Rancho Mission Viejo Regional Park and ranching activities.

General Plan Resources Element

The purpose of the County General Plan Resources Element is to set forth a comprehensive strategy for the development, management, preservation, and conservation of resources that are necessary to meet Orange County's existing and future demand. The Resources Element addresses a wide range of issues. The proposed project would require an amendment to several of the figures within the Natural Resources Component of the Resources Element. No modifications to the goals, objectives, or policies are proposed.

Natural Resources Component. The Natural Resources Component addresses agricultural, mineral, vegetation and wildlife, and landforms. The project would require an amendment to the agricultural and vegetation and wildlife sections of the Natural Resources Component. Specifically, the project proposes development on lands that are designated Prime Farmland. Therefore, Figure VI-1 in the General Plan, which depicts the locations of Prime Farmland, would need to be modified to reflect changes in uses proposed by the project. The project proposes urban uses on 266 acres of Prime Farmland. Exhibit 3-11 depicts the existing and proposed update to Figure VI-I in the General Plan.

Figure VI-2 in the Natural Resources Component of the Resources Element depicts Agricultural Preserves in Orange County. The project applicant is requesting the removal of 1,856 acres from the Agricultural Preserve. Notices of non-renewal have previously been filed for all these areas. These lands will be removed from the Preserve between December 31, 2005 and December 31, 2008, regardless of this project. The current proposal would cancel remaining Williamson Act contract for those lands within development areas, with the exception of land in Planning Area 7 and 9. Exhibit 3-12 depicts the existing, and proposed updates to, Figure VI-2 in the General Plan.

Figure VI-4 of the Natural Resources Component of the Resources Element provides a generalized depiction of wildlife habitat areas within the County. Implementation of the proposed project would require the modification of this figure to delete the areas to be developed as a part of the project. Exhibit 3-13 depicts the existing and proposed General Plan Wildlife Habitat Areas map.

General Plan Recreation Element

The General Plan Recreation Element contains the official policies pertaining to the acquisition, development, operation, maintenance, and financing of the County's recreational facilities. The Recreation Element contains the Local Parks Component, Regional Riding and Hiking Trails Component, and Regional Recreation Facilities Component. The proposed project would require an amendment to the Regional Recreation Facilities component of the Recreation Element. As discussed below, the amendment would be to a figure in the Recreation Element and do not propose modifications to the goals, objectives, or policies.

Master Plan of Regional Recreational Facilities. Figure VII.2 of the General Plan Recreation Element, as depicted in Exhibit 3-14, would be modified by the proposed project by the addition of the proposed 1,034-acre Rancho Mission Viejo Regional Park to the Master Plan. The park would include a Class I (paved off-road) bikeway. An additional "clean-up" item is also proposed. Currently, the Master Plan of Regional Recreational Facilities depicts a segment in the Arroyo Trabuco north of Crown Valley Parkway as a proposed extension of O'Neill Regional Park. The offer of dedication for this area has already been accepted. As part of this amendment, this area would be shown as existing regional park. Exhibit 3-15 depicts the proposed changes to Figure VII.2 in the Master Plan of Regional Recreational Facilities.

3.4.3 MASTER PLAN OF ARTERIAL HIGHWAYS AMENDMENT

As previously indicated, the MPAH is a program administered by the OCTA. The MPAH is a critical element of the overall transportation planning in Orange County because it defines a countywide circulation network in response to existing and planned land uses. OCTA, through its management of the MPAH, ensures that the County and the cities within the County are working cooperatively to achieve an adequate countywide circulation network.

The project applicant is requesting that the MPAH be amended. The previously identified modifications to the Orange County Circulation Plan would also be made to the MPAH (see discussion on the General Plan Transportation Element, Circulation Plan). The existing and proposed MPAH for the project area are depicted in Exhibits 3-16 and 3-17, respectively. An additional change reflected on the proposed MPAH (Exhibit 3-17) is a modification of the proposed alignment for Avenida Talega. The MPAH currently depicts a conceptual alignment bisecting the Donna O'Neill Land Conservancy at Rancho Mission Viejo. Conceptual plans for the Rolling Hills Planned Community, processed through the County of Orange in 1987 and in 1998 through the City of San Clemente, depicted Avenida Talega extending along the northern boundary of the Land Conservancy. Modifications to the map to align Avenida Talega along the northern boundary of the Land Conservancy, rather than bisecting it, is considered a mapping correction, rather than a realignment of the proposed facility.

OCTA has an established process for amending the MPAH. The local agency must amend its General Plan Circulation Element in accordance with the MPAH Amendment Process. This process requires that OCTA and the affected jurisdictions concur with the technical merit of the proposed amendment and that it is consistent with OCTA's adopted MPAH guidelines. This mutual agreement is often achieved through a cooperative study. The cooperative study process for the MPAH amendments proposed by this project, including a listing of those jurisdictions involved in the process, is discussed in more detail in the Traffic Technical Study, Appendix D of this Program EIR.

3.4.4 ORTEGA HIGHWAY ABANDONMENT

With the designation of New Ortega Highway on the County of Orange Circulation Plan and the MPAH, a component of the project is for the County to request Caltrans for an abandonment of the segment of Ortega Highway parallel to New Ortega Highway. The segment of New Ortega Highway would have a higher design speed and capacity; therefore, the new facility would attract most of the trips on Ortega Highway. The existing Ortega Highway would then become access to the proposed Rancho Mission Viejo Regional Park and serve as local access for ranch operations. In the interim, while the Ranch Plan project is under construction, the existing Ortega Highway would also continue to provide access to the leaseholds.

Recognizing that there are no assurances that the parallel segment of Ortega Highway would be abandoned and that the process for such an action may be prolonged, the exhibits for this project reflect both the existing Ortega Highway and proposed New Ortega Highway. A traffic sensitivity analysis has been conducted as part of the traffic study for the Ranch Plan (see Appendix D) to evaluate traffic conditions with and without Ortega Highway as a through facility. The California Transportation Commission would be the decision making body that would take action on the proposed abandonment.

3.4.5 ZONE CHANGE

The Orange County Zoning Code is adopted by ordinance and promotes the implementation of the County General Plan. Zoning regulates permitted and prohibited land uses and establishes

development standards for land uses. As depicted on Exhibit 3-18, most of the project site is currently zoned A-1, General Agriculture, with certain areas along San Juan Creek and elsewhere zoned SG Sand and Gravel Extraction. To implement the proposed project, a zone change would be required. As depicted on Exhibit 3-19, a PC-Planned Community designation is proposed for the entire project site. The PC zoning designation is intended to "provide the authority, regulations, and procedures whereby large land areas can be planned, zoned, developed, and administered as individual integrated communities" (source: County of Orange, 2002).

A comprehensive zoning program, known as *The Ranch Plan Planned Community Program* Text[4], has been developed to provide the guidance for conservation, management, and development of the project site. The full text of the proposed *Ranch Plan* is available for review at the County of Orange, Planning and Development Services (PDS), 300 North Flower Street, Third Floor, Santa Ana.

In accordance with Orange County Zoning Code Section 7-9-103, "PC "Planned Community' District," the Ranch Plan is comprised of four components, which are:

- A *Ranch Plan Planned Community Program Text*, specifying the regulations applicable to all areas of the Ranch Plan.
- A PC Zoning Map, showing the exterior boundaries of the Ranch Plan. This Zoning Map includes a statistical summary regulating the maximum/minimum of certain aspects of development within the Ranch Plan as a whole.
- A PC Development Map, providing general and, in certain instances, detailed information about the Ranch Plan.
- A Statistical Table regulating land uses within each planning area.

The *Ranch Plan Planned Community Program Text* provides the regulations and procedures that apply to each of the land use categories. The regulations and standards adopted as part of the *Ranch Plan Planned Community Program Text* would apply to the development and implementation of the proposed Ranch Plan project. In those cases where the standards differ from the Orange County Zoning Code, the *Ranch Plan Planned Community Program Text* standards would be the applicable regulations.

In order to ensure consistency between the County General Plan and the *Ranch Plan Planned Community Program Text*, the ultimate control for development is the maximum number of residential dwelling units or acreage of other uses as depicted on the Development Map and indicated on the Statistical Table (see Exhibit 3-20 and Table 3.4-2). Limited changes to uses within the *Ranch Plan Planned Community Program Text* including transfer of units from one planning area to another, or refinements to uses within planning areas, would be permitted but would be governed by special provisions in the regulations (refer to Planned Community Text for details). Such revisions would not exceed the overall maximum uses defined in the Statistical Table for the *Ranch Plan Planned Community Program Text* as a whole and would only be made with the intent to be responsive to changing community needs and goals and to allow and encourage innovative community design as more precise planning is accomplished. Further details on how these provisions would be implemented are included in the *Ranch Plan*

4 Portions of this Planned Community Program Text are included with this Program EIR Project Section and contain cross-references to other Ranch Plan Planned Community Program Text.

Planned Community Program Text (General Provisions). Such refinements may include the following:

- Focused or limited transfer of dwelling units from one planning area to another;
- Focused or limited transfer of non-residential use acreage and square footage from one planning area to another;
- Enhancement or enlargement of open space and related facilities; or
- Determination of precise acreage resulting from a more detailed level of engineering.

Per the *Ranch Plan Planned Community Program Text*, an Area Plan is required for each of the Planning Areas proposed as development areas (Planning Areas 1 through 9). An Area Plan is a plan showing the relationship of proposed uses within a portion of or an entire Planning Area. An Area Plan shall consist of a map, set of statistics and text that describe the location, density and intensity of proposed uses within a planning area. It is a tool to describe how special features or planning concerns will be addressed. All grading, development and improvements shall be in substantial conformance with the provisions of the approved Area Plan. The Planning Commission is the approving authority for all area plan applications and amendments. A Master Area Plan that covers an entire Planning Area and addresses the requirements listed in Section II.B.3.a of the *Ranch Plan Planned Community Program Text* must accompany the first Area Plan filed within each Planning Area. Prior to approval of any subdivision within each Subarea, a Subarea Plan shall be prepared. The following information shall be included in the Master Area Plan and the Subarea Plan:

At a minimum, the Master Area Plan shall consist of text, a map, and statistical table identifying and/or providing the following:

1) Legal description (meets and bounds) of the overall Planning Area boundary and graphic depiction of each Planning Subarea.

2) The general location, acreage and type of land use for each Planning Subarea.

3) Proposed maximum number of dwelling units for each Planning Subarea.

4) Proposed maximum number of gross and net acres for non-residential land uses, including community facilities and service stations to be located within Neighborhood Centers, Urban Activity Centers and/or Business Parks.

5) A listing of agricultural and other existing and on-going uses, per Section III.H and consistent with General Regulation 16.

6) Estimated acres of park, recreation and other open space uses will be provided in accordance with General Regulation No. 18, and the provisions of the Orange County Local Park Code as contained in the Park Implementation Plan for the Ranch Plan PC Area.

7) Identification of applicable project design features, mitigation measures and Development Agreement stipulations unique to this Planning Area.

8) Other relevant programs, policies and guidelines contained in the Ranch Plan PC, as may be required for consideration, together with a description of how they are being implemented by the Area Plan.

9) Traffic Analysis which verifies on-going compliance with the May 2004 EIR traffic study including:

   - An evaluation of how any proposed refinements to circulation system and/or milestones remain in compliance with appropriate Development Agreement obligations and EIR mitigation measures.

   - Average Daily Trips generated by uses proposed within the Planning Area, as distributed onto the surrounding circulation system (both within the Ranch Plan PC Area, and in the surrounding vicinity) including the peak hour characteristics of those trips.

10) Phasing of infrastructure for entire planning area, including roads, sewer, storm drainage and a Runoff Management Plan (ROMP), Master Plan of Drainage (MPD), including the location of water quality facilities.

11) For Planning Areas 3 and 4, a broad color palette shall be provided in order to demonstrate that the exterior walls, and particularly the roofing materials, of homes and businesses visible from Caspers Regional Park are compatible with the natural surroundings.

12) Demonstrate compliance with OCFA Wildland Fire Management Plan, including a Preliminary Fuel Modification Plan

13) Annual Monitoring Report framework

14) Preliminary conceptual grading at 30-foot contours

15) Utilize the recommendations of the draft “NCCP/HCP Planning Guidelines” (prepared by NCCP/SAMP Working Group, April 2003) developed for the Southern Subregion, Orange County, California and draft “Watershed and Sub-Basin Planning Principles” (prepared by NCCP/SAMP Working Group, February 2003) developed for the San Juan/Western San Mateo Watersheds, Orange County, California.

For the Subarea Plan, in addition to the components listed above for the first Master Area Plan filed within a Planning Area, subsequent Area Plans filed within a Planning Area shall consist of text, a map and statistical table identifying or providing the following:

1) Consistency analysis of all components listed in Section II.B.3.a above.

2) The specific residential use categories (i.e., senior housing, estate housing, etc.) and other non-residential uses.

3) Locations and more detailed acreage of park, recreation and other open space uses in accordance with General Regulation No. 17.

TABLE 3.4-2
THE RANCH PLAN STATISTICAL TABLE

Planning Area	Development Use									Gross Acres	Open Space Use		Planning Area Totals	Development Sensitive Areas (Overlay)	
	Residential		Urban Activity Center		Neighborhood Center		Business Park		Golf Resort						
	Gross Acres	Maximum Dwelling Units	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres		Open Space Gross Acres	Rancho Mission Viejo Regional Park Gross Acres	Gross Acres	Development Gross Acres	Open Space Gross Acres
1	451	1,020	89	1,190,000						**540**	148	122	810		
2	985	1,550	40	610,000	5	50,000				**1,030**	650		1,680	505	505
3	1,957	5,630	122	1,680,000	10	100,000				**2,089**	264		2,353	140	149
4	211	150			5	50,000				**216**			216		
5	1,181	2,440			10	100,000				**1,191**	159		1,350		
6	263	110								**263**	45		308		
7	843	1,480			10	100,000				**853**	589		1,442	128	497
8	982	1,400			10	100,000	80	1,220,000	20	**1,092**	172		1,264	446	158
9	420	220								**420**	8,852		9,272	420	2,827
10											845		845		
11											1,015		1,015		
12											1,348		1,348		35
13												912	912		
Subtotal	**7,293**	**14,000**	**251**	**3,480,000**	**50**	**500,000**	**80**	**1,220,000**	**20**		**14,087**	**1,034**		1,639	4,171
Total										**7,694**	**15,121**		**22,815**	5,810	

a. Of the 14,000 units, 6,000 will be senior housing and will be located in PA's 1, 2, 3, 5 and 8.
b. Development area is inclusive of fuel modification zones.

4) Specify HBBE locations per Section III.A.7, with particular emphasis on compatibility with surrounding land uses.

5) A legal description (meets and bounds) of the edge of development.

6) A listing of agricultural and other existing and on-going uses, per Section III.H.

7) Circulation features, including MPAH arterial highways, collector roadways, walking, riding and hiking trails and pedestrian facilities.

8) Concept grading plan at 10 foot contours.

9) Conceptual stormwater drainage, water and wastewater system locations.

Another notable feature provided by the *Ranch Plan Planned Community Program Text* is a Development Sensitive Area (DSA) Overlay. Within those areas designated on the Development Map as being within a DSA Overlay, special attention during the Subarea Plan would be required to demonstrate project compliance with the mitigation measures of the EIR, NCCP/HCP and/or SAMP/MSAA (if adopted), and applicable resource and regulatory agency permits (such as Section 1600, Section 404, Section 7, and Section 401). The DSA Overlay is shown both on development areas and open space areas. This is discussed more fully in Section 3.4.6, Proposed Land Use Plan.

3.4.6 PROPOSED LAND USE PLAN

As previously indicated, the General Plan land use designations on the project site are proposed to be 1A-Rural Residential, 1B-Suburban Residential, Employment (3), UAC (6), and Open Space (5). Prior to construction, Area Plans would be required for each planning area to provide more specific detail on the neighborhood layouts, location of supporting services, collector street locations and preliminary grading concepts.

As a Program EIR, this EIR is intended to serve as the primary environmental document for all future entitlements associated with the proposed project, including all discretionary approvals requested or required to implement the project by the lead agency and responsible and trustee agencies. A lead agency can approve subsequent actions without additional environmental documentation unless otherwise required by Public Resources Code §21166, and state CEQA Guidelines §15162 and §15168. CEQA Guidelines §15168(c) states “Subsequent activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared.”

<u>Interim Uses</u>

Although the project site is designated as Open Space (5) on the General Plan, there are a number of activities ongoing on the site. In addition to grazing and farming activities, there are more than 23 different entities operating on the site, including mineral extraction, wholesale nurseries, waste management, and research and development businesses. The project proposes to allow these uses to continue unless they are replaced with urban uses adopted as part of the project or the use is terminated pursuant to the applicable lease agreement. These existing uses are more fully discussed and locations graphically depicted in Section 4.1, Land Use and Related Planning Programs. They are also discussed in Section III.H of the *Ranch Plan Planned Community Program Text*. More specifically, the *Ranch Plan Planned Community Program Text* allows the following:

Agricultural Uses: The following existing, relocated and future farming and ranching uses shall be allowed within any Planning Area, as well as any other uses allowed by the A1 "General Agricultural" District Regulations per Zoning Code Section 7-9-55:

a) Grazing (cattle, horses, sheep, goats, etc.)

b) Farming (citrus farming, dry farming, and row crops)

c) Caretaker housing and related facilities in relation to on-going agricultural and ranching operations, including the "Ranch House" and "Horse Ranch" residence on Ortega Highway

d) Employee quarters related to agricultural uses

e) Livestock feeding ranches in compliance with applicable health and safety regulations

f) Packing plants for agricultural products

g) Permanent facilities for sale of agricultural products grown on the site

h) Apiaries (if 150 feet from a street or highway, 40 feet from any property line and more than 400 feet from an occupied dwelling)

Other Existing Uses: The following existing uses (see Exhibit 4.1-2 for locations of these uses) shall also be allowed:

a) Rancho Mission Viejo headquarters at 28811 Ortega Highway, including a heliport

b) Ladera construction offices at 28811-A Ortega Highway

c) Rancho Mission Viejo maintenance yard at 28672 Ortega Highway

d) Ranching facilities also used periodically for recreational purposes (including "Cow Camp" "Amantes Camp" and "Campo Portola" Ortega Highway).

e) Communication transmitting, reception or relay facilities (including AirTouch/PacBell Wireless, Bell South, Saddleback KSBR, SDG&E, and SCE) and RMV Telecom antenna sites

f) Public/private utility buildings and structures

g) Wholesale nurseries (including Tree of Life Nursery, Color Spot Nursery, DM Color Express Nurseries, Tru-Green Wholesale Nurseries, O'Connell Landscaping yard)

h) Commercial stables (including Oaks/Blenheim/Rancho Mission Viejo Riding Park, Oaks Corral/J. Irvine Smith, RJO Horse Ranch, St. Augustine's Training Center and Stables

i) Research and development testing facilities and activities (including TRW, Northrop Grumman Space Technology, Propulsion Testing Site)

j) Waste disposal operations and related uses (including Solag Disposal, Tierra Verde Industries, La Pata Greenwaste)

k) Storage of recreational vehicles, campers, trailers and boats

l) Recycling and transfer/materials recovery facilities per Section 7-9-146.12 (Orange County Zoning Code) (including Elwes Materials Asphalt Recycling)

m) Surface mining and quarrying of rock, sand, gravel, aggregate, earth, clay and similar materials per Section 7-9-104 (Orange County Zoning Code) (including California Portland Cement/Catalina Pacific Concrete South, California Silica/Ogleby Norton, Transit Mixed Concrete Company/City Concrete, Olsen Pavingstone, Inc., Sierra Soils)

n) Resource mitigation sites for the preservation or replacement of native, riparian or other biological habitat, as approved by the appropriate regulatory agency (e.g., Army Corps of Engineers, U.S. Fish & Wildlife Service California Department of Fish and Game and/or the County)

Section III.H.3 of the *Ranch Plan Planned Community Program Text*, outlines procedures for the continuation of these uses. Generally, the agricultural and existing uses listed above may continue in their present location unless modified by subsequent Master Area Plans and/or Subarea Plans. In instances where a use listed in above is allowed per a Use Permit, and that particular Use Permit is subject to a time limitation, the Use Permit may be renewed per approval of the Director of PDS. If relocation of an existing use is proposed, a Site Development Permit shall be required, per Zoning Administrator approval per Section 7-9-150 of the Zoning Code.

In addition, the following uses are proposed within areas that would be designated for urban development until such time as the approved uses are implemented. These uses, though they are identified as approved interim uses, would obtain permits and County approval, as required, prior to implementation of the use.

- Construction related uses that would include materials and equipment storage, batch plants, and production of construction products. The primary objective of this use would be to support the development of the Ranch Plan, and secondarily, to reduce construction-related traffic for projects in south Orange County.

- Additional harvesting of sand and gravel and other materials that are of commercial quality or beneficial to the Ranch Plan development. Potential sand and gravel sites are located in Planning Areas 3 and 4. Collection of this material in conjunction with grading to final grade levels would reduce the amount of material that would be brought onto the project site for project construction.

- Interim retail/commercial uses to support the early phases of the project. This would include support uses such as hardware stores and small markets.

- Additional telecommunication uses, such as antenna and transmitter sites.

Development Sensitive Areas

As noted above, Development Map has designated areas with the DSA Overlay where special attention during the Subarea Plan would be required to demonstrate project compliance with the mitigation measures of the EIR, NCCP/HCP and/or SAMP/MSAA (if adopted), and applicable resource and regulatory agency permits (such as Section 1600, Section 404, Section 7, and Section 401). These areas generally represent locations with sensitive resources where the development/open space interface would receive extra consideration during the development

process. The locations where the DSA Overlay has been applied are shown on Exhibit 3-20 and include the following:

- The northern portion of Planning Area 2, north of the Chiquita Water Reclamation Plant.
- The northern portion of Planning Area 3, proposed for low-density development.
- The eastern portion of Planning Area 7, proposed for low-density development.
- The northern and eastern portions of Planning Area 8
- The eastern portion of Planning Area 9, proposed for estate development.
- A portion of Planning Area 12 south of Coto de Caza where a SMWD water quality basin has been proposed though is not a component of the Ranch Plan.

The DSA Overlay is discussed in Sections II.B.4 and III.J of the *Ranch Plan Planned Community Program Text*. For development areas, the underlying land use as outlined in the *Ranch Plan Planned Community Program Text* is permitted. For open space areas, allowable uses, provided the applicant demonstrates that the use is in compliance with the species and habitat avoidance mitigation measures required by the EIR, include the following:

1) All "Open Space" uses not subject to discretionary land use permits, as listed in Section III.I.a.1 of the *Ranch Plan Planned Community Program Text*.

2) Retention/detention basins for water quality enhancement purposes.

3) Temporary grading associated with urban development that results in revegetated slopes.

4) Storm drain and flood control facilities

5) Active parks and equestrian facilities, if no site development permit is required (i.e., no permanent structures or parking)

Additionally, the following uses may be allowed; however, a Site Development Permit would be required:

1) All "Open Space" uses subject to a Master Area Plan and Subarea Plan approval per Section II.B of the *Ranch Plan Planned Community Program Text*, and Site Development Permit approval per Section II.C *Ranch Plan Planned Community Program Text*, as listed in Section III.I.a.2 *Ranch Plan Planned Community Program Text.*

2) Community Facilities

   (a) Private recreation centers and facilities including, but not limited to, parks, swimming pools, tennis courts, lakes (fishing and swimming), clubhouses, stables and trails.

   (b) Flood control facilities

   (c) Security facilities and structures (private)

3) Equestrian centers, provided that any such facilities are located at least one hundred (100) feet from any off-site dwelling unit.

4) Golf course and clubhouse facilities, including, but not limited to restaurants, banquet facilities, driving range, water reservoirs, maintenance buildings and storage facilities.

5) Museums and nature study centers

6) Active parks (with structures and parking)

7) Any other use as determined by the Director, PDS, to be consistent with the purpose and intent of these regulations and the Ranch Plan generally.

Open Space

For those non-development, non-DSA Overlay areas planned for open space, Section III.I of the *Ranch Plan Planned Community Program Text* identifies permitted uses, prohibited uses and design standards. The regulations provide for the protection of valuable environmental resources while allowing uses natural, recreational, educational or agricultural nature, as well as necessary urban infrastructure (including, but not limited to, designated arterial highways, transportation corridors, utilities and flood control structures).

The permitted uses not subject to discretionary land use permits include the following:

a) Existing uses (agricultural, residential and non-agricultural) shall be allowed subject to Section III.H of the *Ranch Plan Planned Community Program Text* and per the A1 "General Agricultural" District Regulations (Zoning Code Section 7-9-55).

b) Grazing according to an approved Grazing Management Plan; associated ranching facilities (including barns, corrals and worker housing).

c) Horse, cattle and ranching operations and structures ancillary (including corrals, but excluding feed-lot operations).

d) Archaeological and paleontological investigations/excavations, including natural resource study sites.

e) Existing family cemetery

f) Fire and emergency access

g) Infrastructure and public service facilities, including extensions thereof necessary for the development of adjacent urban areas (often in locations determined by the utilities, not the landowner).

h) Passive recreation

i) Resource mitigation sites for the preservation or replacement of native, riparian or other biological habitat, as approved by the appropriate regulatory agency (e.g., Army Corps of Engineers, U.S. Fish & Wildlife Service, California Department of Fish and Game and/or the County).

j) Public/private utilities regulated by state law and exempt from local land use review and authority.

k) Roads that are a part of the Master Plan of Arterial Highways, or which provide access to other allowed uses.

l) Temporary signage appurtenant to Ranch Plan uses and located within thirty (30) feet of curbs or other road improvements, provided it is in accordance with a County-approved signage program.

m) Wildlife preserves and sanctuaries

n) Any other use as determined by the Director, PDS, to be consistent with the purpose and intent of these regulations, the Ranch Plan PC Program and/or an NCCP/HCP, if appropriate.

Principal permitted uses subject to Master Area Plan and Subarea Plan approval per Section II.B, and Site Development Permit approval per Section II.C of the *Ranch Plan Planned Community Program Text.*

a) Apiaries, upon the following conditions:

(1) No occupied hives shall be located or maintained within one hundred fifty (150) feet of any street or highway.

(2) No occupied hives shall be located or maintained within four hundred (400) feet of any existing dwelling, unless the written consent of the owner of such off-site dwelling is secured.

(3) No occupied hives shall be located or maintained within fifty (50) feet of any adjoining property lines unless the adjoining property is home to another apiary.

b) Fire station and wildland fire training facility.

c) Passive parks (when habitable structure involved)

d) Telecommunications facilities.

e) Any other use as determined by the Director, PDS, to be consistent with the purpose and intent of these regulations and the Ranch Plan generally.

Additional detail is provided in the *Ranch Plan Planned Community Program Text,* Section III.I.

Development Areas

The project proposes approximately 7,694 acres of the 22,815 acres for residential and associated urban development within Planning Areas 1 through 9, (See Table 3.4-2). The proposed residential uses would include a range of housing types and densities for a diversity of income levels and lifestyles. The use regulations and development standards for each of the uses are defined in Section III of the *Ranch Plan Planned Community Program Text*. The *Ranch Plan Planned Community Program Text* defines the following types of dwelling units:

- **Conventional single-family detached**: A residential development wherein each dwelling unit is detached and situated on a lot of record and the units are constructed at a net density of less than nine (9) dwelling units per net acre and have a minimum lot size of three thousand (3,000) square feet.

- **Planned concept detached**: A subdivision of detached dwellings, which if built on separate building sites are at a net density of eight (8) dwelling units per net acre or greater, or are built with more than one dwelling unit per building site at any density.

- **Multiple family**: A residential structure wherein the number of permitted dwelling units per building site is two (2) or more and may include a variety of types of ownership including rental units.

- **Senior housing**: A residential development of at least 35 dwelling units to be built specifically for senior citizens, age 55 years and over.

- **Casitas**: Attached or detached residential units in association with a residential neighborhood or a golf course.

- **Home based business enclave**: Attached or detached residential neighborhood comprised of dwelling units that allow opportunities for small, entrepreneurial business owners to operate out of their homes.

- **Estate dwellings**: A residential development wherein each dwelling unit is detached and situated on a lot of record and the units are constructed at a net density of one (1) dwelling unit per net acre.

Residential development would be permitted in nine planning areas. The generalized location and scale of these uses within the planning areas is shown on Exhibit 3-21. The uses in each of these planning areas are described below and summarized in the Ranch Plan Statistical Table (Table 3.4-2). Further information on supporting infrastructure is provided later in this section of the Program EIR, as well as Section 4.15, Public Services and Facilities. Parkland requirements are determined based on the number of dwelling units constructed, in compliance with the County parkland requirements. The location of local, neighborhood, and community parks would be distributed throughout the Planned Community and determined at the Area Plan level of approval. There is a further discussion of parkland requirements in Section 4.12, Recreation.

Grading necessary for the development, including remedial grading, would occur and balance within the boundary of the development area, unless otherwise noted in the text below.[5] Grading concepts were developed by EDAW, the land-planning firm for the proposed development of Planning Areas 1 through 9. Subsequently, the civil engineering firm of Huitt-Zollars digitally captured the grading concepts and produced analysis of the cut-fill quantities as measured between the proposed landform alterations and existing terrain. The analysis was conducted at varying scales between one-inch equals 200 feet and one inch equals 400 feet (depending on the size and required detail for the planning area). The raw data was then analyzed for adjustments in elevation required to affect a balance between mass excavation and mass fills for each planning area. The data was also reviewed by the geotechnical

[5] Generally all grading will be within the area defined as the development footprint (see Exhibit 3-21). There are a few infrastructure improvements, such as roadways, trails, pipelines water quality basins, and water storage facilities that would be constructed outside of the development footprint. The conceptual locations of the roads are depicted on Exhibit 3-22 and the water facilities are depicted in Exhibits 4.15-1 and 4.15-2. The general location of trails and bikeways are shown in Exhibit 4.12-2 and 4.12-3, respectively, though precise alignments for these facilities have not been determined. The Program EIR addresses the impact for implementation of these facilities. Section 4.9, Biological Resources makes an assumption on the size, location and extent of habitat removal and species impacts as part of this GPA/ZC evaluation.

consultant for feasibility including the estimations of quantities associated with the removal, replacement and re-compaction of low-density materials, the stabilization of slopes and landslides as required and other buttressing, over-excavation and remedial work estimated to construct the project in accordance with the current standards of practice in the County of Orange. An exhibit of the grading concept plan is provided in Section 4.4, Geology and Soils.

Temporary excavation/extraction of construction aggregate or construction related materials extraction would be allowed during construction grading and on-site earthmoving activities to promote project construction efficiencies and limit long distance transportation of construction aggregate and construction related material. However, the activities would subject to all of the following conditions:

a. The temporary excavation/extraction use would be included in applicable grading or site development permits for a development project and would be consistent with *Ranch Plan Planned Community Program Text* and the project, as presented in this Program EIR.

b. Transportation of any surplus excavated/extracted construction aggregate or construction related materials would be limited to private or public construction projects within the boundaries of the Ranch Plan area.

c. Transportation of any surplus excavated/extracted construction aggregate or construction related materials within the project site would be allowed only when actual construction grading and earthmoving activities have commenced and would cease when it is determined that construction grading and earthmoving activities have terminated, have been indefinitely suspended, or are no longer being actively pursued for the development project.

All construction staging, grading, and fuel modification for development would also occur within the limits of development for each planning area. Most infrastructure improvements would occur within development area boundaries. However, in addition to the roadways previously discussed, there are a few locations where utilities and water storage facilities would be located outside of areas designated for development and within areas to be designated as open space (see Section 4.15, Public Services and Facilities). Two water quality basins have been identified within areas designated as open space (Planning Areas 2 and 12). The water quality features would collect urban runoff and provide natural treatment before the water is allowed to discharge into the creeks. The precise siting and configuration of these facilities would be determined at the Area Plan/tentative tract level of approval because more defined grading information is required. Additionally, since the analyses in this Program EIR are for General Plan and zoning levels of approval, it is assumed that the entire area with the development boundaries of each planning area would be disturbed by development for Planning Areas 1 through 8, unless otherwise noted. For example, in Planning Area 2, canyons and other resources in the upper reach of the Planning Area are identified as being protected. In these areas the grading would not occur. The lower portion of Planning Area 2 would be subject to conventional grading activities. Therefore, even though ultimate development plans may preserve certain areas, for purposes of this Program EIR, all resources in the areas with conventional grading are assumed to be removed.

Given that this Program EIR is addressing potential impacts at a GPA/ZC level of detail. Specific design features, such as precise location of facilities such as schools and fire stations; local trails; location of neighborhood commercial uses; and other community amenities would be identified at the Area Plan level of approval.

Planning Area 1. Planning Area 1 is located east of the City of San Juan Capistrano in the vicinity of Antonio Parkway and Ortega Highway and immediately south of the Ladera Ranch Planned Community. Much of this planning area is currently used for citrus and other agricultural operations. This 810-acre planning area would provide a mix of residential, urban activity center (UAC) uses, and open space uses. Of these acres, 148 acres would be open space internal to the planning area. An additional 122 acres of open space represents a portion of the proposed Rancho Mission Viejo Regional Park. Approximately 540 acres would be allocated for development, which would include 89 acres for urban activity center uses. The remaining portion of the planning area would be devoted to residential use.

Within the area designated for residential development, approximately 1,020 dwelling units would be constructed. The residential units would provide a mix of housing types, including low-density housing and senior housing. Low-density housing is proposed along the westerly edge of the planning area along the boundary with the City of San Juan Capistrano. Surrounding the residential development would be 148 acres of open space. This open space would include buffer areas between the existing development in San Juan Capistrano and Ladera Ranch. This buffer area includes natural hillsides that would not be graded.

Urban activity center uses would be located north and south of San Juan Creek. One area would be in the general vicinity of the intersection of Antonio Parkway with both the existing Ortega Highway and proposed New Ortega Highway. A second urban activity center location would be south of San Juan Creek in the vicinity of the intersection of Antonio Parkway. Together these uses would consist of approximately 1,190,000 square feet of Urban Activity Center development, consisting of office space and 180,000 square feet of retail development.

A 122-acre portion of the proposed Rancho Mission Viejo Regional Park, which is discussed as part of Planning Area 13, is included in Planning Area 1 and would be designated Open Space (5) on the General Plan. The extension of the regional riding and hiking trail along the southerly side of San Juan Creek and the regional bikeway along the northerly side would be implemented with construction of this planning area.

Access to the development would be from Ortega Highway and Antonio Parkway. As part of this project and to enhance the regional roadway system, Antonio Parkway, including the existing bridge where Antonio Parkway crosses San Juan Creek, which would require widening from four to six lanes (plus dedicated turning lanes) from the southern boundary of Ladera Ranch to Ortega Highway. The internal roadway system would be determined at the Area Plan and tentative tract map level of approval.

Based on preliminary estimates, there would be approximately 4,500,000 cubic yards of cut and fill balanced within this planning area. The remedial grading would be approximately 9,750,000 cubic yards.

Planning Area 2. Planning Area 2 is located north of Ortega Highway, east of Antonio Parkway, south of Oso Parkway and Tesoro High School, and west of Cañada Gobernadora. This area is located within Chiquita Canyon. The planning area encompasses 1,680 acres with approximately 1,030 acres allocated for development and approximately 650 acres for open space. The open space area would surround the Chiquita Water Reclamation Plant, providing a wildlife movement corridor. The 1,010 acres north of the Chiquita Water Reclamation Plant has the DSA Overlay. The area with the DSA Overlay is even divided between open space area and development area. An additional wildlife movement corridor would be provided at Chiquita Narrows. Planning Area 2 would allow for the development of 1,550 residential units. In the southern portion of the planning area by the intersection of New Ortega Highway and Chiquita Canyon Road, approximately 40 acres (610,000 square feet) of urban activity center and five

acres (50,000 square feet) of neighborhood commercial would be provided. The retail use would be consistent with the 1B-Suburban Residential designation because it would be less than 10 acres.

Two distinct types of residential development are proposed for Planning Area 2, divided roughly north and south of the Chiquita Water Reclamation Plant. In the northern area, clustered and low-density housing surrounding an 18-hole golf course is proposed. This area has the DSA Overlay. The clustered housing would be at the very northern end of the planning area and would provide a buffer between Tesoro High School and the low-density housing. The golf course is proposed on the western edge of the planning area, east and west of Chiquita Creek and would allow a transition to the open space area provided in Planning Area 10. The links-style (i.e., target) golf course would be built in the canyon floor and alluvial side canyons. The golf course would include a driving range, but would not have night lighting. A golf course management plan would apply to the construction, operation, and maintenance of the golf course. The management plan would be prepared and approved in conjunction with the Area Plan approval of the golf course. Grading would be designed to have minimal impacts on Chiquita Creek and the coastal sage scrub and oak trees located in the side canyons. All grading and fuel modification would occur within the development footprint shown on Exhibit 3-21.

In the southern area, conventional grading is proposed. Other features supporting the residential uses would be a possible elementary school. A water quality basin is also proposed in the southern portion of this planning area in an area designated as open space. The basin has been identified on the Development Map (Exhibit 3-20) and has the DSA Overlay.

Chiquita Canyon Road, the proposed new collector road, would extend the length of Planning Area 2 along the ridgeline between Chiquita and Gobernadora canyons. This roadway would be a spine road providing access to the local development. New Ortega Highway would also provide access at the southern boundary of the planning area. A box culvert would provide for two wildlife movement corridors at Chiquita Narrows and by the Chiquita Water Reclamation Plant. Based on the alignment shown on the MPAH, SR-241 is proposed to extend along the northeast boundary of Planning Area 2 parallel to Chiquita Canyon Road. An alternative road network is depicted later in this section that would be constructed should the SR-241 extension not be constructed or be constructed on a very different alignment than what is depicted on the MPAH. Internal roadways, which provide local access to specific developments, would be determined at Area Plan and tentative tract map level of approvals.

Based on preliminary estimates, there would be approximately 18,650,000 cubic yards of cut and fill, which would be balanced within this planning area. The remedial grading would be equal to the amount of cut and fill within this planning area.

Planning Area 3. Planning Area 3 is located north of San Juan Creek, west of Caspers Wilderness Park, south of Coto de Caza, and east of Gobernadora Creek and is generally known as the Gobernadora area. The lower reaches of the planning area are currently used for nursery and citrus operations and other lease operations. Planning Area 3 is approximately 2,353 acres with 2,089 acres proposed for development and approximately 264 acres of open space is proposed internal to the planning area. The open space area would be located along the northern and eastern edges of the Planning Area 3 and would serve as a buffer between Ranch Plan development and Coto de Caza and Caspers Wilderness Park. The open space in Planning Area 3 would connect with Planning Area 12, which is proposed entirely as open space. Additionally, the northern 289 acres of this Planning Area has the DSA Overlay. The area with the DSA Overlay is split with 140 acres being designated for development and 149 acres being designated for open space.

Of the 2,353-acre planning area, approximately 132 acres would represent a core urban activity area to the Ranch Plan where a number of services and amenities would be provided. Within the non-residential development area, a variety of urban activity uses are proposed. The proposed project would allow for approximately 1,680,000 square feet of urban activity center uses, consisting of office space, 100,000 square feet of neighborhood commercial, and a Town Center. These uses would be clustered around New Ortega Highway, Gobernadora Road (an internal roadway),[6] and SR-241 (if constructed).

In addition to the Town Center area, Planning Area 3 would contain 5,630 dwelling units. Planning Area 3 has two development areas. The smaller, northern development area is proposed for clustered low-density housing on 140 acres (the area with the DSA Overlay). All grading and fuel modification would occur within the development footprint shown on Exhibit 3-21. Low-density housing is proposed to provide a transition to the open space area and wildlife movement area in Planning Area 12. The wildlife movement corridor provides a connection from O'Neill Regional Park/Arroyo Trabuco to Caspers Wilderness Park and the Cleveland National Forest. The larger development area within Planning Area 3 would also provide for residential development, but with more conventional grading and densities. Within the planning area, there would be potential for two elementary schools and a middle school. If needed, this planning area would also have a high school.

Along the southern boundary of Planning Area 3 is an area historically known as Cow Camp (the location is graphically depicted in Exhibit 4.1-5). Existing uses in this area include homes for agricultural workers, a horse riding arena, stock yards, tack room, shop equipment storage, and restroom facilities. This area would be retained in family ownership and no new development is proposed. Immediately adjacent to Cow Camp, also to be maintained in family ownership, is an area known as the Community Meadows. While retained in family ownership, this area may occasionally be used for community public gatherings. The proposed 25-acre Sports Park is in the same vicinity. The park would provide baseball and soccer fields for active recreation. Night lighting of the fields would be provided. However, no specific development plans have been developed.

SR-241 is shown on the MPAH as extending from the northwest through the center of the planning area. Interchanges with SR-241 at Cristianitos Road and at New Ortega Highway would provide regional access; however, the construction of the interchanges would be done in conjunction with SOCTIIP, not the Ranch Plan.[7] Additional roadways in Planning Area 3 include New Ortega Highway, Gobernadora Road, and East Gobernadora Road. New Ortega Highway would provide access through the southern portion of Planning Area 3; Gobernadora and East Gobernadora roads would be part of the local collector system in the planning area. The remainder of the internal roadway system would be determined at the Area Plan and tentative tract map level of approval.

Based on preliminary estimates, there would be approximately 42,400,000 cubic yards of cut and fill, which would be balanced within this planning area. The remedial grading would be approximately 33,400,000 cubic yards.

Planning Area 4. Planning Area 4 is located north and south of existing Ortega Highway and known as the East Ortega area. This 216-acre planning area is proposed for residential development, predominately low-density housing. The planning area would allow for approximately 150 single-family low-density dwelling units. This planning area would also

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6 Key components of the internal road network are discussed later in the Project Description.

7 If the extension of the SR-241 is not constructed, an alternative roadway network depicted in Exhibit 3-24 is proposed to meet the circulation needs of the Ranch Plan.

support a 5-acre commercial site with approximately 50,000 square feet of neighborhood commercial.

Within this planning area, New Ortega Highway would split from the current alignment of Ortega Highway. Therefore, access would be from both New Ortega Highway and the existing Ortega Highway. New Ortega Highway would be constructed with a bridge across San Juan Creek. Internal roadways would be determined at the Area Plan and tentative tract map level of approval. This planning area also has the proposed bikeway and riding and hiking trail along its southern boundary.

Based on preliminary estimates, there would be approximately 2,000,000 cubic yards of cut and fill within this planning area. Remedial grading would be approximately 1,244,000. Grading would be balanced on the site.

Planning Area 5. Planning Area 5 is located south of Ortega Highway and east of the City of San Juan Capistrano, in an area known as Trampas Canyon. Much of this planning area has been disturbed from previous silica mining operations. The planning area encompasses a total of 1,350 acres, which would support approximately 2,440 single-family units, including senior housing. Along the western edge of the study area, would be an area of low-density homes to provide a buffer to the open space areas.

Internal to the development would be approximately 159 acres of open space. This open space would protect the ridgeline between the development in Planning Area 5 and the Talega Planned Community to the south and serve as a buffer between development and the Prima Deshecha Sanitary Landfill and the future Prima Deshecha Regional Park to the west. The slopes in the open space would be retained as natural slopes. A segment of the Cristianitos Trail, a riding and hiking trail, would be implemented with construction of this planning area.

Other amenities in this planning area would be a 200-acre golf course and an approximate 10-acre neighborhood center with 100,000 square feet of development. The precise location of the neighborhood center would be determined at the Area Plan level of approval.

Access to Planning Area 5 would be from Cristianitos Road. Trampas Road would be a local collector loop road that would connect to the internal roadways providing access to development. Internal roadways would be determined at the Area Plan and tentative tract map level of approval. The proposed riding and hiking trail would enter into the northern edge of the planning area.

Based on preliminary estimates, there would be approximately 25,200,000 cubic yards of cut and fill balanced within this planning area. Remedial grading is estimated at 35,000,000.

Planning Area 6. Planning Area 6 is located north of the Donna O'Neill Land Conservancy at Rancho Mission Viejo (previously known as the Rancho Mission Viejo Land Conservancy) and is referred to as Cristianitos Meadows. Within the 308-acre planning area, approximately 45 acres of open space internal to the planning area is proposed. There would be 110 single-family low-density dwelling units surrounding an 18-hole golf course within a 263-acre development area. The golf course would not have night lighting. A golf course management plan would apply to the construction, operation, and maintenance of the golf course. The management plan would be prepared and approved in conjunction with the Area Plan approval of the golf course.

Access to Planning Area 6 would be from Cristianitos Road. The network of internal roadways would be determined at Area Plan level of approval.

A segment of the Cristianitos Trail, a riding and hiking trail, would be implemented with construction of this planning area.

Based on preliminary estimates, there would be approximately 5,845,000 cubic yards of cut and fill balanced within this planning area. The remedial grading would be approximately 3,500,000.

Planning Area 7. Located north of the existing TRW site in Cristianitos Canyon, Planning Area 7 is known as the Cristianitos Canyon area. Planning Area 7 consist of 1,442 acres. The DSA Overlay is proposed on 625 acres in the eastern portion of Planning Area 7. Of those acres, 128 would be development area and 497 would be open space area. Approximately 1,480 single-family dwelling units are proposed on 843 acres within this planning area. The remaining 589 acres in the planning area would be open space within the planning area. The open space area on the western edge would provide a buffer between the development and the Donna O'Neill Land Conservancy at Rancho Mission Viejo. The planning area contains two types of residential housing. The portion located immediately east of the proposed SR-241 extension, would be conventional residential development. The portion to the east would be developed with limited low-density homes. This low-density development would allow a transition between the urban development and open space area in Planning Area 9.

Developed internal to the residential development would be a 10-acre commercial site (approximately 100,000 square feet of neighborhood retail uses). This size commercial site is intended to serve the local community and the location would be determined during the Area Plan level of approval.

Vehicular access would be provided from Cristianitos Road. An under- or over-crossing of Cristianitos Road at SR-241 would be constructed. The network of internal roadways would be determined at Area Plan level of approval.

Based on preliminary estimates, there would be approximately 24,000,000 cubic yards of cut and fill balanced within this planning area. The remedial grading would be approximately 14,412,000 cubic yards.

Planning Area 8. Planning Area 8 is located south of Planning Area 7 and north of the southern RMV property boundary on land currently leased to Northrop Grumman Space Technology and known as the TRW area. The planning area is 1,264 acres with approximately 1,400 dwelling units proposed for development and 172 acres of open space designed to protect the natural resources in Blind Canyon. The development area is divided into two separate areas to provide protection of the wildlife movement corridor in Blind Canyon. The DSA Overlay is proposed for 604 acres in the northern and eastern portion of the study area. Of those acres, 446 of them are within the development area and 158 acres are open space.

Approximately 80 acres are proposed for business park use and approximately 10 acres are proposed for neighborhood commercial use. The remaining approximately 20 acres are proposed for a golf resort. A possible elementary school would be provided in this planning area.

The northernmost portion of Planning Area 8 would include an 18-hole golf-oriented community with low-density homes. No night lighting is proposed. A golf course management plan would apply to the construction, operation, and maintenance of the golf course. The management plan would be prepared and approved in conjunction with the Area Plan approval of the golf course. In the eastern portion of the subarea, a 20-acre golf-oriented resort is proposed. The golf resort would include a hotel, clubhouse, restaurant and banquet facilities, as well as, potentially, gift and pro shops.

The southwestern part of the planning area would include residential uses and an 80-acre business park located along Cristianitos Road, east of the proposed SR-241 extension. The business park would support a 1,220,000 square foot business park. In addition, a 10-acre, 100,000 square foot neighborhood commercial site is proposed. The easternmost portion of the planning area would be developed with low-density homes.

Access to Planning Area 8 would be from Avenida Pico and Cristianitos Road, with regional access from an interchange at Avenida Pico with SR-241.

Based on preliminary estimates, there would be approximately 30,141,000 cubic yards of cut and fill balanced within this planning area. The remedial grading would be approximately 18,000,000 cubic yards.

Planning Area 9. Planning Area 9 is 9,272 acres and located in the southeastern portion of the project site. All but 420 acres would be retained as open space. The 420 acres of development and 2,827 acres of open space would have the DSA Overlay. The development would occur in the far eastern portion of the planning area in the vicinity of Verdugo Canyon and upper Gabino Canyon. The development would include an approximately 218-acre golf course, 20-acre site for development of 120 residential casitas, and 100 estate residential lots. A casita is defined in the *Ranch Plan Planned Community Program Text* as a dwelling unit constructed in association with estate residential units. As with the other golf courses, a golf course management plan would be required in conjunction with the Area Plan approval to construct the golf course. The remaining 8,852 acres would be open space and be retained in its natural state. Continued ranching operations would be permitted in this part of the planning area. Existing Verdugo Road, a two-lane rural roadway, would provide access to the on-site uses. The network of existing ranch roads would provide access for the estates, as well as continue their intended use of providing access for ranching operations.

Based on preliminary estimates, there would be less than 500,000 of cut and fill balanced within this planning area. The remedial grading would be approximately 1,269,000 cubic yards.

Planning Area 10. This 845-acre open space area is located to the west of Planning Area 2 and contains Chiquita Ridge. Planning Area 10 would be retained as open space. The entirety of the planning area would be preserved and remain undeveloped. The project applicant also proposes to continue ranching and citrus operations in the planning area. A community trail is proposed within Planning Area 10 that would connect with the Ladera Ranch Community Trail.

Planning Area 11. Planning Area 11 is located south of Planning Area 1 and a portion of Planning Area 13, and west of Planning Area 5. It is generally east of La Pata Avenue and south of Ortega Highway. The 1,015-acre planning area would be retained as open space use and would be preserved. The project applicant also proposes to continue ranching (cattle grazing) operations in Planning Area 11. This planning area would also contain a segment of the Prima Deshecha Riding and Hiking Trail.

Planning Area 12. This open space area is located between Planning Areas 2 and 3 and includes Gobernadora Creek. GERA contains approximately 105 acres of habitat mitigation area associated with past projects over which a conservation easement has been placed. The 1,348-acre planning area would be retained as open space use and would be preserved. The project applicant also proposes to continue ranching operations in this location. Features within this planning area include a wildlife movement corridor that crosses from Chiquita Canyon to Gobernadora Canyon and then enters Caspers Wilderness Park in the east. New Ortega Highway would cross the southern boundary of this planning area. A bridge would be constructed where New Ortega Highway crosses Gobernadora Creek.

Although an open space planning area, some water and wastewater facilities would be located in this planning area to provide service to adjacent development. The project provides for a 35-acre water quality basin just south of Coto de Caza, which would be used to treat run-off from Coto de Caza. This area has the DSA Overlay. Grading for these facilities in Planning Area 12 would be limited and has been assumed in the cut and fill estimates for the adjacent planning areas.

Planning Area 13. A central feature of the Ranch Plan project is the proposed Rancho Mission Viejo Regional Park in Planning Area 13. The park would be retained as open space. The park would encompass approximately 1,034 acres[8] and extend along San Juan Creek from the City of San Juan Capistrano boundary to the existing Caspers Wilderness Park. The park would include areas both north and south of creek. It would provide passive and active recreational opportunities. A Class I (paved off-road) bike path is proposed to extend along the north side of the creek and the San Juan Creek Trail, a regional riding and hiking trail, is proposed to follow the south side. In addition, areas for picnicking would be provided throughout the park. Existing authorized land uses would continue until the commencement of any new proposed land use for the affected areas and the park is offered for dedication to the County. New Ortega Highway extends along the northern boundary of the park adjacent to Planning Areas 2, 10, and 12. Where New Ortega Highway crosses the confluence of Cristianitos Creek and San Juan Creek, a bridge would be built.

Although an open space planning area, roads and some water and wastewater facilities would be located in this planning area to provide service to adjacent development. Grading for these facilities in Planning Area 13 would be limited and has been included in the cut and fill estimates for the adjacent planning areas.

Schools

Additional schools would be needed to support the proposed project. The number of schools is based on the number of the students that would be generated by the project. To serve the projected number of students, the project has reserved, for acquisition by the school district, five elementary school sites and one middle school site. Elementary school sites are anticipated to be located in Planning Areas 2, 3, 7, and 8. Planning Area 3 would likely require two elementary schools. Each elementary school would be built on approximately 12 acres and would provide for approximately 600 to 800 children. These schools would serve the proposed development and would be phased with construction. The middle school would likely be located in Planning Area 3. The middle school would be built on approximately 25 acres and would serve approximately 1,500 students. The precise location of the school would be determined in consultation with the Capistrano Unified School District (CUSD). The conceptual locations for these facilities are shown on Exhibit 3-20, though the precise site of the facilities would be determined at subsequent phases of development in conjunction with CUSD.

The additional students generated by the project, combined with existing area demand, may necessitate the construction of a high school within the project limits. The high school, if required, would be built on approximately 55 acres and serve approximately 900 students. If needed, a high school site would be made available for acquisition by the school district in Planning Area 3.

8 The total acreage of the Rancho Mission Viejo Regional Park is 1,034 acres with 122 acres in Planning Area 1 and 912 acres in Planning Area 13.

Fire Stations

Additional fire stations would be required to provide sufficient coverage for the project development. The precise number and location of stations would be determined in consultation with the Orange County Fire Authority (OCFA). At this time, OCFA recommends that fire stations be located within Planning Areas 3, 6, and 8, with two new stations in Planning Area 3. Additionally, proposed Station 56 would move from its currently planned location of Ortega Highway and Antonio Parkway to an area near New Ortega Highway and Antonio Parkway within the southern portion of Planning Area 1. The conceptual locations for these facilities are shown on Exhibit 3-20, though the precise site of the facilities would be determine at subsequent phases of development in conjunction with OCFA.

Infrastructure Improvements

To support the proposed development, infrastructure improvements would be required. These would include roadway improvements and utility improvements. The implementation of these improvements would be phased with development to meet the increased demand. The infrastructure improvements proposed as part of the project are outlined below.

Circulation Improvements

A circulation network to support the proposed development is an integral part of the project. The circulation improvements would include arterial highways and a local circulation network. As previously discussed in Sections 3.4.2 and 3.4.3, the project proposes modifications to the Circulation Plan of the County of Orange General Plan and the MPAH.

In addition to arterial highway improvements, the project proposes construction of a local circulation network. Much of the local circulation network would be defined at the time area plans and tentative tract maps are processed. However, local collector streets that would connect the trips from within the development to the arterial highway system have been preliminarily identified. These local collector streets, as well as the proposed arterial, are shown in Exhibit 3-22 and listed below. Cross sections for each of the roadways would follow County Standard Plans, with the potential exception of Verdugo Road, which would use the existing ranch road in that location.

- Chiquita Canyon Road would serve the north-south traffic demand. The road would extend from New Ortega Highway northerly to Oso Parkway, and connect to Tesoro Creek Road in the vicinity of Tesoro High School. Chiquita Canyon Road would be constructed as a two-lane collector with provisions that the roadway may be gated and accessible for local traffic only.

- Gobernadora Road, a primary loop road, would provide internal circulation to Planning Area 3. The proposed road would connect to a newly proposed interchange with SR-241, and extend southerly crossing SR-241 to connect to New Ortega Highway in the center of Planning Area 3. The road would be constructed as either a four-lane secondary or a modified collector (includes a protected median with provisions for protected left turns).

- East Gobernadora Road would be an internal loop road to provide circulation for the eastern portion of Planning Area 3. The road would connect to New Ortega Highway. The road would be constructed as a two-lane collector.

- Trampas Road, a primary loop road, would provide internal circulation to Planning Area 5. The proposed road would connect to Cristianitos Road and would be constructed as a two-lane collector and a right-of-way reserve for a four-lane community collector.

- Verdugo Road would provide access to Planning Area 9. This existing ranch road would connect to New Ortega Highway near Caspers Wilderness Park. No major improvements are anticipated.

Lighting on the roadways would be consistent with County of Orange standards. Streets would be lit internal to the development, but only intersections and bridges would be lit in open space areas. Where lighting is proposed within open space areas, shields would be provided to focus the lighting on the roadway and away from open space areas.

A number of bridges and culverts would be constructed for creek crossing or continuity of drainage. The bridge characteristics are shown in Table 3.4-3. The culverts would range in size from 36 inches to 15 feet and multiple units would be installed if required to accommodate the expected storm flows. The bridges and larger culverts would also be designed to facilitate wildlife movement. Those asigned to serve as wildlife movement corridors are discussed in Section 4.9, Biological Resource (see Table 4.9-35). The locations of the bridges and major culverts (15-foot) are depicted in Exhibit 3-23.

TABLE 3.4-3
BRIDGE CROSSINGS CHARACTERISTICS

Bridge Location	Bridge Length in Feet	Bridge Width in Feet	Bridge Height in Feet
Cristianitos Road – Over Cristianitos Creek west of Planning Area 8	499	80	60
Cristianitos Road – Over Gabino Creek from Planning Area 8 to Planning Area 7	818	56	120
Cristianitos Road – Over Old Ortega Highway	130	80	30
Cristianitos Road – Over San Juan Creek from Planning Area 5 to Planning Area 3	547	80	83
Cristianitos Road[a].– Over Gobernadora Creek from Planning Area 3 to Planning Area 2	1,395	80	53
New Ortega Road – Over Chiquita Creek from Planning Area 1 to Planning Area 2	433	120	46
New Ortega Road – Over Gobernadora Creek from Planning Area 2 to Planning Area 3	220	120	42
New Ortega Road – Over San Juan Creek from Planning Area 3 to Planning Area 4	509	100	56

[a.] The arterial highway in this location would be constructed only if as a result of the SOCTIIP study an alternative without the extension of SR-241 was adopted, or if the alignment of SR-241 is substantially different from what is depicted on the current MPAH and General Plan.

Source: RMV, 2004.

As previously discussed, the alignment for SR-241 is still under study; therefore, a circulation network that does not assume the extension of the toll road is evaluated in this Program EIR. In this scenario, Cristianitos Road would be extended north along the alignment shown on the MPAH for SR-241 to an intersection with Chiquita Canyon Road. This circulation network is depicted in Exhibit 3-24.

Provisions for alternative modes of transportation (i.e., bikeways, trails, and pedestrian paths) would be provided. At the GPA/ZC, the facilities on the General Plan have been identified; however, at the Area Plan additional detail on local amenities would be required (see above for requirements for Area Plans). When the precise location of schools, neighborhood commercial uses, parks, and other features are known, facilities to encourage alternative modes of transportation can be identified.

Utilities

Water and Wastewater Facilities

CEQA, in Public Resources Code Section 21151.9 requires the preparation of a water supply assessment for the project. SMWD has prepared that study, which is discussed further in Section 4.15, Public Services and Facilities. Water and sewer improvements are proposed to meet the demand of the proposed 14,000 residential units and urban uses. The improvements include a network of domestic and non-domestic water lines and sewer lines that would be implemented in conjunction with tentative tract maps, as well as facility improvements such as pump stations, lift stations, and reservoir sites that would be needed to support the project. Reservoirs would be sited proximate to development, but also at elevations to ensure adequate pressure zones. As a result, a water reservoir may be located in one planning area, but serve an adjacent area because of elevation requirements for the reservoir. The precise location and size of these facilities would be determined at the time tentative tract maps are processed. The general location, type, and capacity of water and wastewater facilities associated with the proposed project are discussed in Section 4.15, Public Services and Facilities, and depicted in Exhibits 4.15-1 and 4.15-2.

Because most of the facilities would be within development areas, grading for these facilities is assumed as part of the cut and fill for the development. For those facilities located outside of development areas, as well as connecting pipelines, an approximate location and pad size is assumed to ensure that the potential impacts of these facilities is included in the impact assessment for the project. For purposes of this Program EIR, the following characteristics are assumed for each type of facility.

For the domestic and non-domestic water systems, the area is divided into five pressure zones. These are based on service area elevations. The numeric zones correspond to the domestic water service system and the alphabetic designation is for the non-domestic water system. Pressure Zones 1A and A1 are for areas below 300 feet in elevation. Pressure Zones 1 and A are for areas between 300 and 500 feet elevation. Zones 2 and B covers areas between 500 and 700 feet elevation. Zones 3 and C service areas between 700 and 900 feet elevation and Zones 4 and D are between 900 and 1,100 feet elevation.

- The domestic and non-domestic reservoirs are generally circular steel or concrete water tanks. The capacity of the tanks generally range from 0.6 million gallons to 14.8 million gallons. The height of these tanks would be approximately 32 to 35 feet, with a diameter of up to 285 feet. For the domestic reservoirs, a chlorination facility would be provided to ensure water quality. A color coat and landscaping is generally used to reduce the visual intrusion of the tanks. The reservoirs are strategically located to more evenly distribute storage volume and for equal spacing between reservoirs with common pump stations.

- A wastewater lift station is designed to convey sewage flows emanating from the project to the Chiquita Water Reclamation Plant, or in the case of development in Planning Area 9, to the Package Treatment Plant. The facility would be enclosed in a structure. The

enclosure contains the equipment and controls for the pump station. It also serves to attenuate any noise associated with operation of the lift station and reduces visual impacts associated with the equipment. Odor control facilities, such as a hydrogen peroxide storage tank and metering pump, are standard SMWD standard design requirements for such facilities. Other equipment may include a surge tank, chemical feed tank, and storage tank. The entire building pad for a large lift station would be between 10,000 and 15,000 square feet and would be enclosed in a structure approximately 2,000 square feet in size. A small lift station is generally housed in a structure approximately 1,000 square feet in size on a 5,000 square foot building pad.

- A pump station is used to lift water into the four pressure zones. This type of facility generally consists of a turbine pump and control equipment. A surge tank that would operate as a hydropneumatic tank may also be included to provide backup should a reservoir not be available to supply or store the system demands. The pump station is housed in a structure to protect the equipment and attenuate any noise associated with the operation of the pump station. The structure also provides visual screening of the equipment. The structure for the pump station is generally 1,000 and 1,500 square feet with a lot size of approximately 7,000 square feet.

- A package sewer treatment plant would be located on a one-half to one-acre site and would include a paved parking lot, an access road, and the facility itself. The facility would include a large steel tank to house all primary treatment equipment. The primary treatment equipment would be compartmentalized within the tank and perform separate and different treatment functions. The steel tank would be above-ground and is typically color coated to blend into the surrounding habitat. The package sewer treatment plant would generally have small metal filters housed in small metal containers on the site. Facilities would also include a small chemical storage building on-site as well as another area for tertiary treatment equipment.

In addition, SMWD would make improvements and connections to existing facilities. The Talega Wastewater Conveyance Systems would be modified. This would include the Talega Lift Station #1, located on the southeast corner of Talega, and the Ortega Zone 2 Lift Station, south of the San Juan Creek, west of the proposed SR-241 and immediately north of Trampas Canyon. It is anticipated that the footprint for these improvements would be within the limits of the currently graded sites. The precise limits of construction will not be known until preliminary design is prepared, which is beyond the scope of a General Plan/Zoning Change level of approval. Impacts would be further evaluated when implementation of the improvements is proposed, which is a separate discretionary action. Other modifications would include connection of the proposed Ortega Gateway water pipeline to the Ladera Zone 2 pipeline and the connection of the proposed Trampas Canyon pipeline to the Talega Zone 3 pipeline.

Access to each of these facilities would be required. As previously indicated, the majority of the facilities are within the development areas. Therefore, the access roads would also be constructed within the areas designed for development. Pipelines are generally built within the roadways of development. Access roads to the reservoir sites would generally be a 20-foot paved roadbed with two-foot-wide shoulders and curbs on each side. Access would be limited to water district personnel for use during maintenance operations and inspections. Where pipelines are located outside of development areas, access would be required. For water lines, an easement is adequate. For sewer lines, a 15-foot wide, all weather access road would be required to provide access for inspection and maintenance.

Electric and Natural Gas

San Diego Gas and Electric (SDG&E) provides service to the project site. Development of the Ranch Plan would require at least one, and potentially two new electrical substations. These facilities would each be located on a two- to three-acre site. These substations would be 138/12 kV and have associated 138 kV transmission lines. The transmission lines would be double circuit 138 kV lines. An electrical substation would be located within Planning Area 3. The facility would be within the development area; therefore, the grading and associated impacts would be provided for in the evaluation of the development plan. A second facility may be located in the development area of Planning Area 5.[9] The timing for construction of these facilities, as well as the precise locations, would be coordinated with SDG&E.

To serve the project, the Southern California Gas Company would be required to extend a 12-inch, high-pressure gas line from the vicinity of the Atchison Topeka and the Santa Fe Railroad line, west of I-5, to Antonio Parkway. The line would be placed within the Ortega Highway right-of-way and connect to a new regulating station at the northwest corner of the Antonio Parkway/Ortega Highway intersection. The regulating station would be on a parcel approximately 30 feet by 10 feet.

3.4.7 WILLIAMSON ACT CANCELLATION

The California Land Conservation Act of 1965, also known as the Williamson Act, was adopted as a means of encouraging the preservation of the State's agricultural lands. As a means to implement the Act, a land contract is established, whereby the County Board of Supervisors stabilizes the taxes on qualifying lands in return for an owner's guarantee to keep the land in Agricultural Preserve status for a 10-year length of time. Each year, on its anniversary date, the contract is automatically renewed unless a notice of non-renewal is filed. RMV currently has 9,840 acres under a Williamson Act contract. Notices of non-renewal have been filed for all the areas within the Agricultural Preserve. The acreage will be removed from the preserve between December 31, 2005 and December 31, 2008, as a result of the non-renewal process. However, the Ranch Plan is requesting partial cancellation of the Williamson Act contract (i.e., removal of the land from the Williamson Act earlier than what is provided for through the non-renewal process). Specifically, this project is requesting to terminate the contract immediately for 1,856 acres within development areas upon approval of the project, with the exception of areas within Planning Areas 7 and 9. As a result, lands would come out of Agricultural Preserve between one and three years before the non-renewal process could remove these same lands. Precise mapping of the lands within the Agricultural Preserve is provided in Section 4.2.

3.4.8 DEVELOPMENT AGREEMENT

The project applicant is requesting a Development Agreement to vest the project's development approvals to allow build out of the site under the development standards and requirements in place at the time of project approval. The Development Agreement includes requirements of the County of Orange that would need to be accomplished by the project applicant in return for the vesting of project approvals. The Development Agreement identifies the improvements or benefits to the community that the project would be required to provide, as well as other key

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9 SDG&E, in a letter dated January 19, 2004, has identified two potential substations for the project. One would be in Planning Area 3, as proposed by the Ranch Plan. However, SDG&E has identified Planning Area 1 as the potential site for the second substation. Given the proximity of the Planning Area 1 site to the substation in Ladera Ranch, RMV is proposing to locate the second substation in Planning Area 5 to ensure appropriate overlap of service for the Ranch Plan. The precise location would be coordinated with SDG&E. Regardless of the final location, the substations would be located within the development area and would not result in new grading and associated impacts.

provisions, such as the phasing of roads and other infrastructure and how they are tied to the level of development. The Development Agreement would not preclude the need for future Area Plans, tentative tract maps, or other permit processing prior to development.

3.4.9 GOVERNANCE

Since 1979, the County's policy has been that new planned communities must be self-supporting with no subsidy by the County in terms of revenue or services. In general, all new planned communities must provide for all critical public facilities and services with no General Fund revenue from the County. In addition, it is the County's adopted policy that public services to urban or urbanizing area are best provided by cities. Therefore, it is the County's policy that the Project will be incorporated and/or annexed to a City. At this time, however, the Project is not within the Sphere of Influence of a city. Incorporation and/or annexation of the Project is within the jurisdiction of the Local Agency Formation Commission (LAFC0) which will determine the approach and timing of incorporation and/or annexation.

The County of Orange would be the governing body for the Ranch Plan area in the interim period prior to any incorporation as a city or annexations into the existing adjacent cities. A governance concept will be developed for consideration by the County that would involve the establishment of special districts under the control of the County to better plan for and insure how municipal services would be administered to the Ranch Plan area as the project develops and matures. The formation of special districts would allow contracting for service agreements to be tied directly with identified funding sources to insulate the balance of the County General Fund from expenses incurred within the Ranch Plan area. Services that may be included are fire and sheriff services, park and recreation services, drainage maintenance, roadway maintenance, and habitat restoration and maintenance.

3.5 PROJECT PHASING

Project build-out is anticipated to take 20 to 25 years. As explained above in Section 3.4.6, during that period, existing authorized land uses continue until the commencement of any new proposed land use for the affected areas. The phasing plan assumes that the project would be graded in seven phases and developed in eight phases. The actual timing of the grading and construction may vary based on market forces. Exhibits 3-25 and 3-26 depict the estimated grading and construction phasing concept, respectively.

3.6 PROJECT DESIGN FEATURES

The project has been designed to minimize environmental impacts. Since these design features are assumed as part of the analysis of the impacts, they are included in the mitigation program for the project. This ensures that they are appropriately tracked and implemented.

3.7 PROJECT PURPOSE AND OBJECTIVES

3.7.1 PROJECT OBJECTIVES

The project applicant seeks to provide, within Rancho Mission Viejo portions of the San Juan Creek and San Mateo Creek watersheds, an economically viable mix of residential, commercial, urban, and natural open space land uses which addresses: 1) the needs and goals of southern Orange County as reflected in the plans and policies of the Orange County General Plan; 2) the growth management goals of the Southern California Association of Governments; 3) the air quality objectives of the South Coast Air Quality Management Plan; 4) the protection of habitats, aquatic resources, and watersheds; 5) the water quality protection goals of the State Non-point

Source Pollution Control Program and Basin Plan; and 6) the financial return necessary for the landowner to offset the level of risk, loss of investment opportunities, and commitment of land and financial resources required to provide for the large-scale protection of many valuable natural resources. The opportunity for comprehensive planning is enhanced by virtue of the project applicant's control of the entire 22,815-acre project site.

3.7.2 MEASURES FOR IMPLEMENTATION OF PROJECT OBJECTIVES

In an effort to achieve the project objective, a number of measures have been identified that would help to implement the project objectives as stated above. These measures, outlined below, have been developed in the context of a comprehensive land use, conservation planning, and entitlement process.

Growth Management

According to the Orange County Projections 2000 (OCP-2000), by the year 2025, Orange County is projected to experience marked increases in population, employment, and housing. Because the rate of increase in new housing is projected to lag behind the rate of increase in employment, the County would also experience an increased housing deficit.

The project's Growth Management Goal is to build self sustaining master planned communities that would accommodate up to14,000 dwelling units of the projected County population growth and approximately 5,000,000 square feet of non-residential uses indicated for RMV lands in accordance with the goals established for southern Orange County by the Orange County General Plan Growth Management Element and the Jobs/Housing Balance goals established for Southern Orange County by SCAG.

Land Use

1) Implement land uses that respond to the goals, objectives, and policies of the County of Orange Growth Management Element regarding development. Among other things, Growth Management Element objectives and policies advocate the phasing of development in accordance with any applicable phasing plan adopted by the County. The intent of such phasing plans is to establish both a phasing allocation of development commensurate with roadway and public facility capacities and an overall build-out development plan which can be supported by implementation of the planned infrastructure system.

2) Retain flexibility in land use designations to allow opportunities for meeting changing economic and social circumstances over time.

3) Comply with the County of Orange Growth Management Element policy on Balanced Community Development, which states in part "Balanced community development shall be established which encourages employment of local residents and provides for both employment and employee housing opportunities within the County or Growth Management Area."

4) Implement land uses that are compatible with adjacent land uses.

5) Locate commercial and industrial centers along existing and/or planned major transportation facilities. Additionally, the plan should provide for other potential large business users in areas not necessarily adjacent to existing roads so long as proper infrastructure can be provided without creating impacts that would otherwise be avoided as a result of locating adjacent to said transportation facilities.

6) Create a viable habitat reserve system via a phased open space dedication program that assures the orderly phased dedication of open space as portions of the project area are developed, comparable to other major phased dedication programs in the County.

Housing

1) Provide a variety of residential densities and product types that permits a mix of housing opportunities that (a) meet the market demand; (b) are supported by a transportation network; (c) allow for the logical extension of the transportation network; and (d) are feasible in light of geotechnical constraints.

2) Achieve an absorption rate that is commensurate with the capacities of the existing and planned transportation circulation network and provides sufficient funding for the costs and phasing of constructing supporting infrastructure, including open space and habitat dedications.

3) Minimize local home-to-work commute distances and reduce overall regional vehicle miles traveled (VMT) to employment centers in southern and central Orange County by providing housing opportunities in proximity to local and Orange County employment centers.

Transportation

1) Assist in implementing the County of Orange Growth Management Element goal of ensuring that adequate transportation facilities are provided for future residents. In this regard, consult with adjacent cities, the County, and OCTA, in conformance with the objectives of the Growth Management Element and the Congestion Management Program, to analyze the project's traffic impacts, to determine feasible mitigation measures and to establish an appropriate implementation program.

2) Identify opportunities for expanding, enhancing, and/or managing the capacity of the arterial highway system to accommodate project development.

3) Address planned regional transportation facilities alternatives provided by the relevant lead transportation agencies.

4) Implement Transportation System Management/Transportation Demand Management measures, where appropriate.

5) Promote alternative modes of transportation, such as walking, bicycling, and mass transit.

Public Services /Public Safety/Governance

1) Provide a development master plan that contains a mix of land uses that provides the foundation for a viable and self-sustaining community that can be appropriately governed over the long-term.

2) Provide a development pattern and layout that results in a community with a district identity and sense of place, thereby encouraging a sense of belonging and community cohesion.

3) Integrate into the mix of development such essential elements as sites for public and private schools, parks, and other public/civic facilities.

4) Plan and design public facilities to maximize community identity and sense of place.

5) Utilize the preserved natural terrain, including riparian drainage corridors, sensitive habitat areas, and wildlife habitat linkages to define the boundaries of distinctive neighborhoods/ communities.

Recreation

1) Address the need for regional park sites and commercial recreational facilities to meet the recreation needs of existing and future residents, including natural parks; active recreational facilities, such as soccer fields, golf courses, and equestrian facilities; educational facilities, such as interpretative centers, museums, and cultural centers; and other recreation based uses such as picnicking.

2) Locate any regional park site(s) and commercial recreational facilities to minimize potential conflicts between recreational and development uses, and between active recreation and habitat and aquatic resource preservation/management areas.

3) Integrate any wilderness or natural park areas into related resource protection programs.

4) Address the need for local park sites and facilities to meet the local recreation needs of existing and future residents.

5) Maximize opportunities for joint use of community facilities and recreational areas (such as joint use of recreational facilities for public schools and city parks).

6) Encourage multi-use recreational facilities for all age groups.

Trails and Bikeways

1) Local trails should connect residential areas, parks, staging areas and equestrian centers to regional parks. Local Class I bikeways should connect residential areas to regional bikeways and activity centers such as, parks, schools, shopping centers and employment centers. These trails should provide for trail linkages between open space and recreation facilities and between community and municipal trail systems, including:

    a) Provide for links in the Orange County “Mountains to the Coast” trail and bikeway system.

    b) Provide for links to the City of Mission Viejo, City of San Juan Capistrano, and City of San Clemente trails and bikeways.

2) Facilitate implementation of the Master Plan of Regional Riding and Hiking Trails.

3) Locate and manage trail and bikeway linkages in a manner that is consistent with the goals, policies, and other provisions of programs for the protection of native habitat, aquatic resources, and watersheds.

4) Facilitate implementation of the OCTA and County bikeway master plans.

Natural/Biological Resources

Establish and implement a program for the protection, management, enhancement, and restoration of upland and aquatic habitats and species in those portions of San Juan Creek and San Mateo Creek watersheds within the project area in accordance with the requirements of

federal and state laws, including the FESA, California Endangered Species Act (CESA), CWA, and Porter-Cologne Act. These planning efforts would provide for a comprehensive program that would ensure the preservation and long-term protection, enhancement, management, and restoration of identified habitats and species. Included, as part of the program, is the creation of a permanent open space system that is designed to protect the significant biological functions and values within the project site. The open space system will be designed to provide for biological connectivity, including protection of vital wildlife movement corridors. Also included are adaptive management programs keyed to identify habitat and species needs.

Hydrology/Water Quality/Flood Control

1) Where flood control protection is indicated in conjunction with project development, provide for such protection in a manner that is consistent with protection of important hydrologic and biological resources.

2) Protect and, where feasible, enhance hydrologic functions and water quality.

3) Develop comprehensive preservation, enhancement, and restoration plans in consideration of habitat enhancement, water quality improvement, and flood hazard evaluation.

4) Prepare a watershed-level water quality program as it relates to new development proposed as part of the project.

Agriculture & Mineral Resources

1) Provide for ongoing and future compatible agricultural operations, including cattle grazing.

2) Avoid reliance on mineral resources outside of the Ranch Plan area and encourage the use of local mineral resources during construction of authorized uses.

Cultural/Historic Resources

1) Identify significant cultural, archaeological, and paleontological resources in accordance with requirements of applicable laws.

2) Protect and/or recover significant cultural, archaeological, and paleontological resources in accordance with requirements of applicable laws.

3) Preserve the following historic ranch uses: Casa de la Mission Vieja, the Rancho Mission Viejo Cow Camp, Amantes Camp, Camp Portola, O'Neill/Moiso family cemetery, and Rancho Mission Viejo corporate headquarters.

3.8 INTENDED USES OF THE EIR

As a Program EIR, the document to be prepared would address the overall program for the Project. Implementation of the project would require approvals from multiple agencies. It is intended that the County of Orange discretionary actions that could be approved based on this Program EIR would include the following:

- Certification of the Program EIR, including adoption of Findings of Fact and a Statement of Overriding Considerations

- Adoption of an amendment to the Orange County General Plan, including, as discussed above, revisions to the Land Use Element, Transportation Element, Recreation Element, and Resources Element

- Adoption of a Zone Change to zone the 22,815-acre site as Planned Community

- Partial Williamson Act Cancellation

- Approval of a Development Agreement

- Approval of a concept Water Quality Management Plan (WQMP)

- If required in the future, formation of a County Service Area and Community Services Districts and/or Community Facilities Districts

In addition to the approvals identified above, the project would be subject to other review and approvals by the County of Orange prior to implementation. Exhibit 3-27 provides a flowchart of County entitlement process that would be required prior to initiation of construction. Many of these actions, though not all, would be subject to CEQA and may require additional documentation. These would include, but not be limited to:

- Secured Fire Protection Agreement (Orange County Fire Authority)
- Area Plans
- Site Development Permits
- Tentative Tract Maps ("A" and "B" maps)
- "Final" Subdivision Map Recordation
- Grading Permits
- Use Permits
- Cultural Resources Management Plan
- Project level WQMP

Subsequent activities in the project program would be examined in the light of the Program EIR to determine whether additional CEQA documentation is needed. CEQA documentation would be provided pursuant to the requirements of CEQA §21166 and CEQA Guidelines §15162 and 15168 for subsequent approvals, as required.

3.9 PROJECT RELATED ACTIONS BY OTHER AGENCIES

In addition to the County of Orange, as the lead agency, other agencies will have permitting or other approval authority over the project. CEQA defines a responsible agency as "a public agency, other than the lead agency, which has responsibility for carrying out or approving a project." Responsible agencies are consulted during the preparation of the Program EIR to ensure there is an understanding of the issues and concerns each of these agencies may have regarding the Project. By understanding these concerns and addressing them in the Program EIR, the responsible agencies would use the Program EIR as the necessary CEQA documentation for the project. Responsible agencies and their expected approvals for the project are listed below. It should be noted that some of the following actions would be considered separate projects, but are supporting the implementation of the Ranch Plan. The expected actions include:

United States Fish and Wildlife Service

- Evaluation and permitting pursuant to the FESA

United States Army Corps of Engineers

- Evaluation and permitting pursuant to Section 404 of the Clean Water Act

Federal Highway Administration

- Approval of new interchange with SR-241 at Cristianitos Road
- Approval of ramp configuration at New Ortega Highway and SR-241 interchange

California Department of Fish and Game

- Evaluation and permitting pursuant to Section 1600 (*et. seq.)* of the California Fish and Game Code.

- Evaluation permitting pursuant to CESA and/or the NCCP Act of 1991.

California Department of Transportation

- Encroachment permits for any work or hauling along SR-74 (Ortega Highway)
- Approval of new interchange with SR-241 at Cristianitos Road
- Approval of ramp configuration at New Ortega Highway and SR-241 interchange
- Approval of abandonment of the segment of existing Ortega Highway that would be parallel to New Ortega Highway.
- Compliance with Section 106 of the National Historic Preservation Act of 1966 for those areas requiring Caltrans involvement.

California Department of Conservation

- Review of final building plans for those areas where re-abandonment of oil wells may be required due to disturbance during grading.

San Diego Regional Water Quality Control Board

- Section 401 Certification

Orange County Transportation Authority

- MPAH Amendment for addition of New Ortega Highway and Cristianitos Road to MPAH, the deletion of the extension of Crown Valley Parkway east of Antonio Parkway, and the downgrading of Avenida Talega in unincorporated Orange County.

Transportation Corridor Agencies

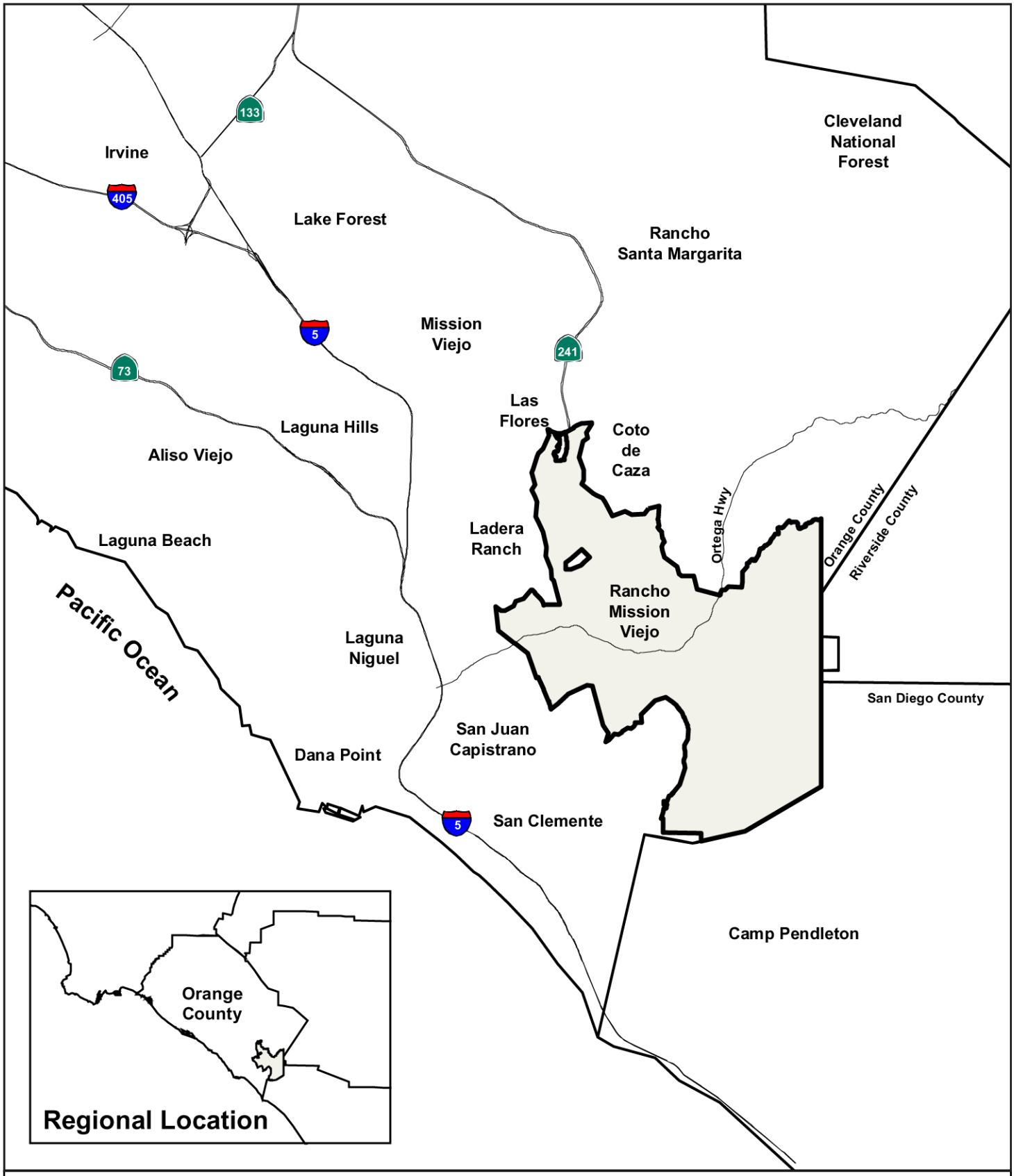
- Approval of deletion of the planned interchange of SR-241 and Crown Valley Parkway
- Approval of new interchange with SR-241 at Cristianitos Road
- Approval of ramp configuration at New Ortega Highway and SR-241 interchange

Department of Toxic Substance Control

- Approval of school sites prior to acquisition by the Capistrano United School District

Local Agency Formation Commission

- Approval of the formation of County Service Areas and Community Service Districts



Regional Location

Exhibit 3-1

The Ranch Plan

1" = 16,000'

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Source: EDAW, Inc. 2004

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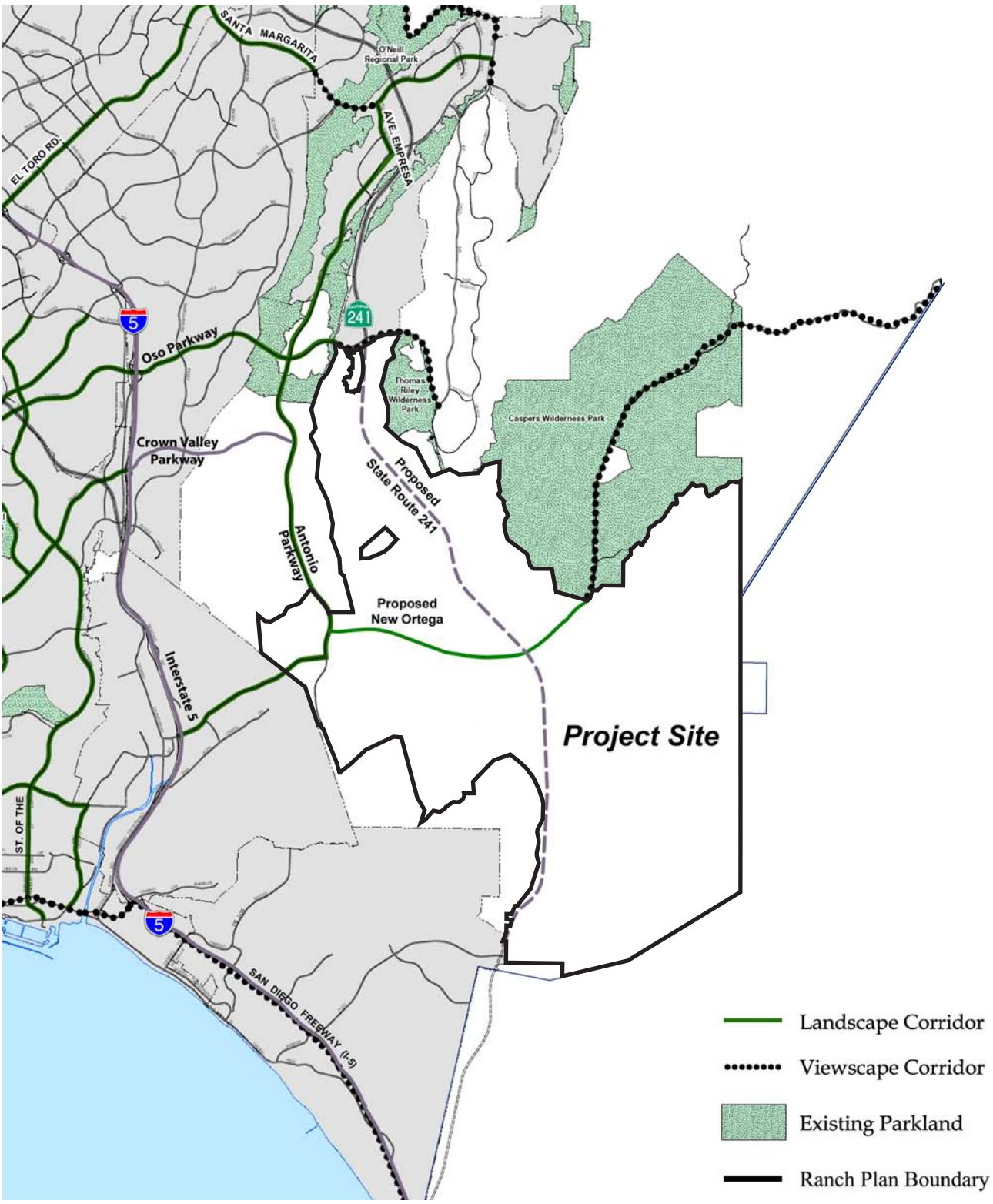

Proposed County Scenic Highway Plan for the Project Area (Proposed General Plan Figure IV-11)

Exhibit 3-10

The Ranch Plan

1" = 2 Miles

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Source: EDAW, Inc. 2004

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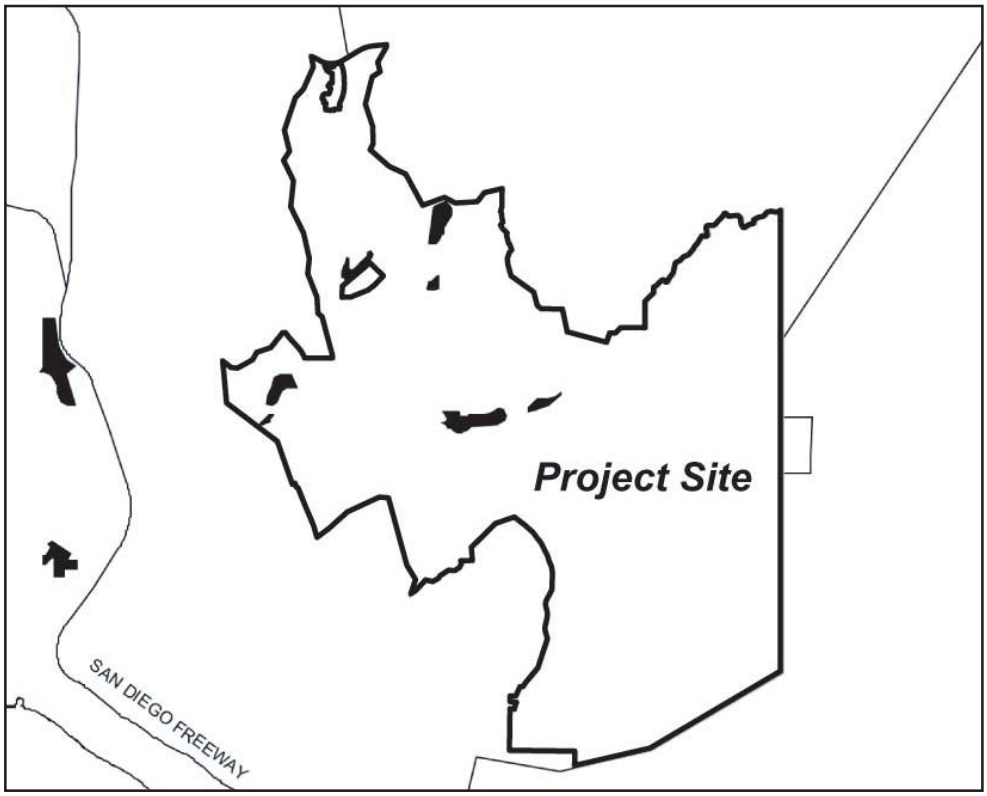
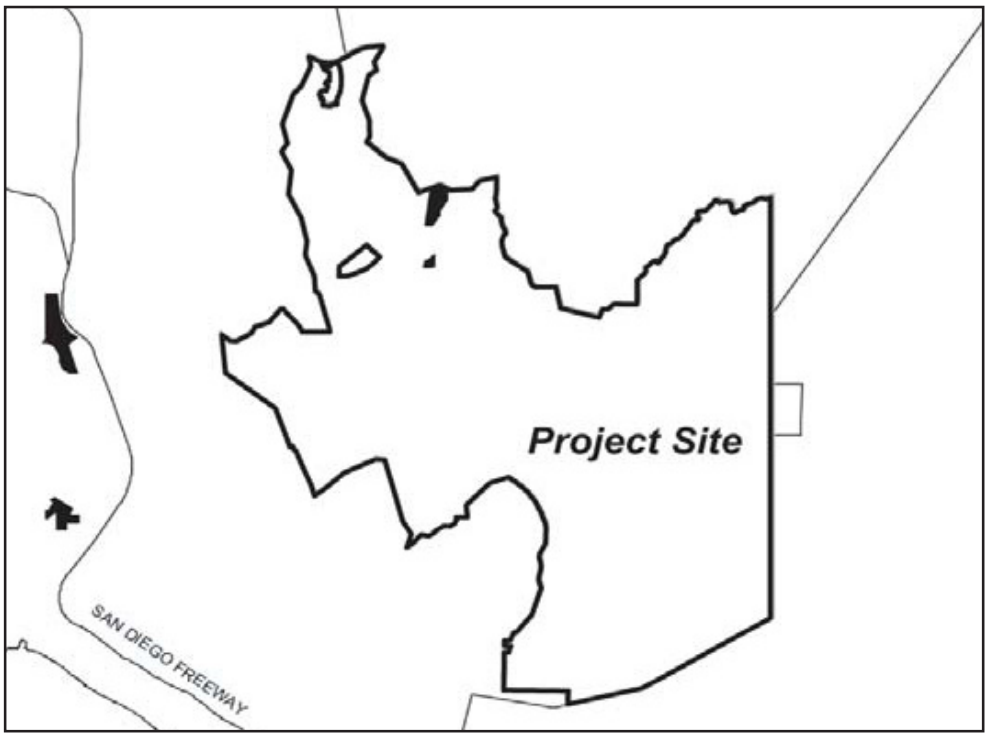


Existing General Plan Figure VI-I

Note: Reflects the 2002 Important Farmland mapping update by the California Department of Conservation.



Proposed General Plan Figure VI-I

Prime Farmland (Generalized)

Existing and Proposed Modifications to County Prime Farmland Map

Exhibit 3-11

The Ranch Plan

1" = 14,000'

N W E S

Source: EDAW, Inc. 2003

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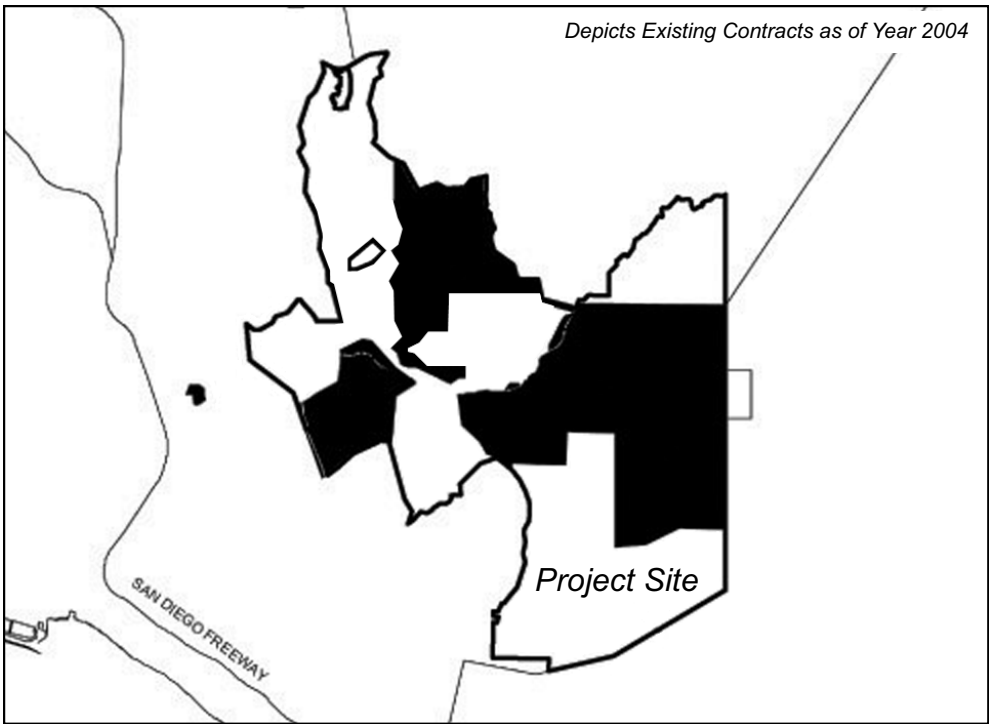

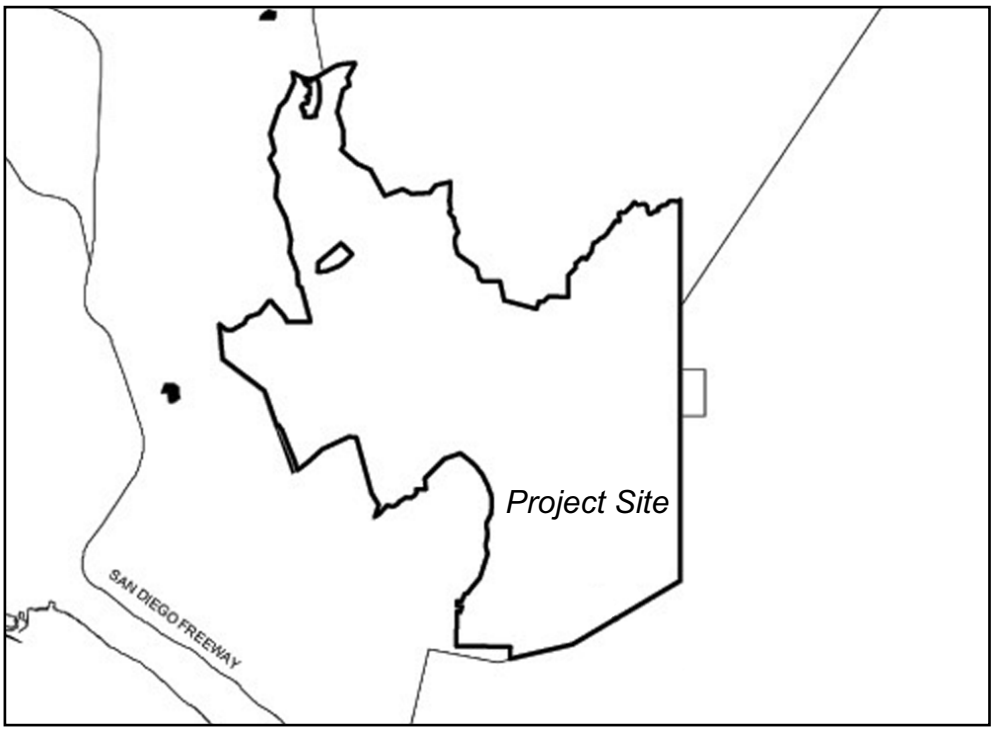

Agriculture Preserves (Williamson Act)

Existing and Proposed Agriculture Preserves for the Project Area (General Plan Figure VI-2, Proposed General Plan Figure VI-2)

Exhibit 3-12

The Ranch Plan

1" = 14,000'

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Source: EDAW, Inc. 2004

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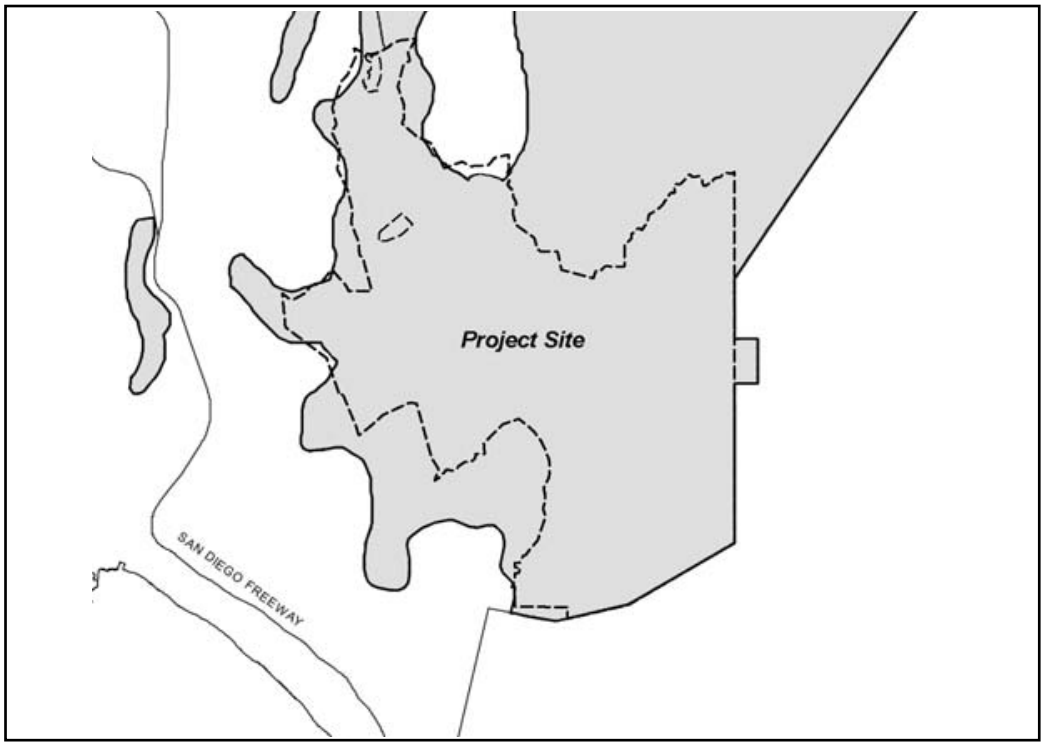
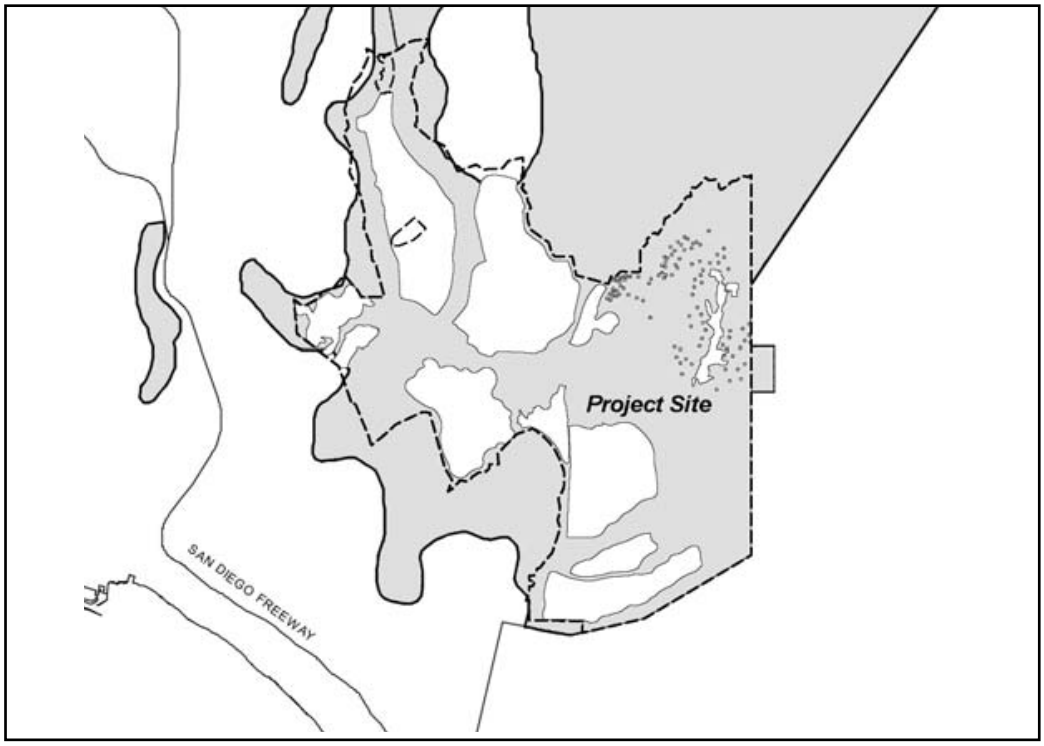


Existing General Plan Figure VI-4



Proposed General Plan Figure VI-4

Wildlife Habitat Areas (Generalized)

Existing and Proposed Modifications to General Plan Wildlife Habitat Area Maps for the Project Area

Exhibit 3-13

The Ranch Plan

1" = 14,000'

N W E S

Source: EDAW, Inc. 2004

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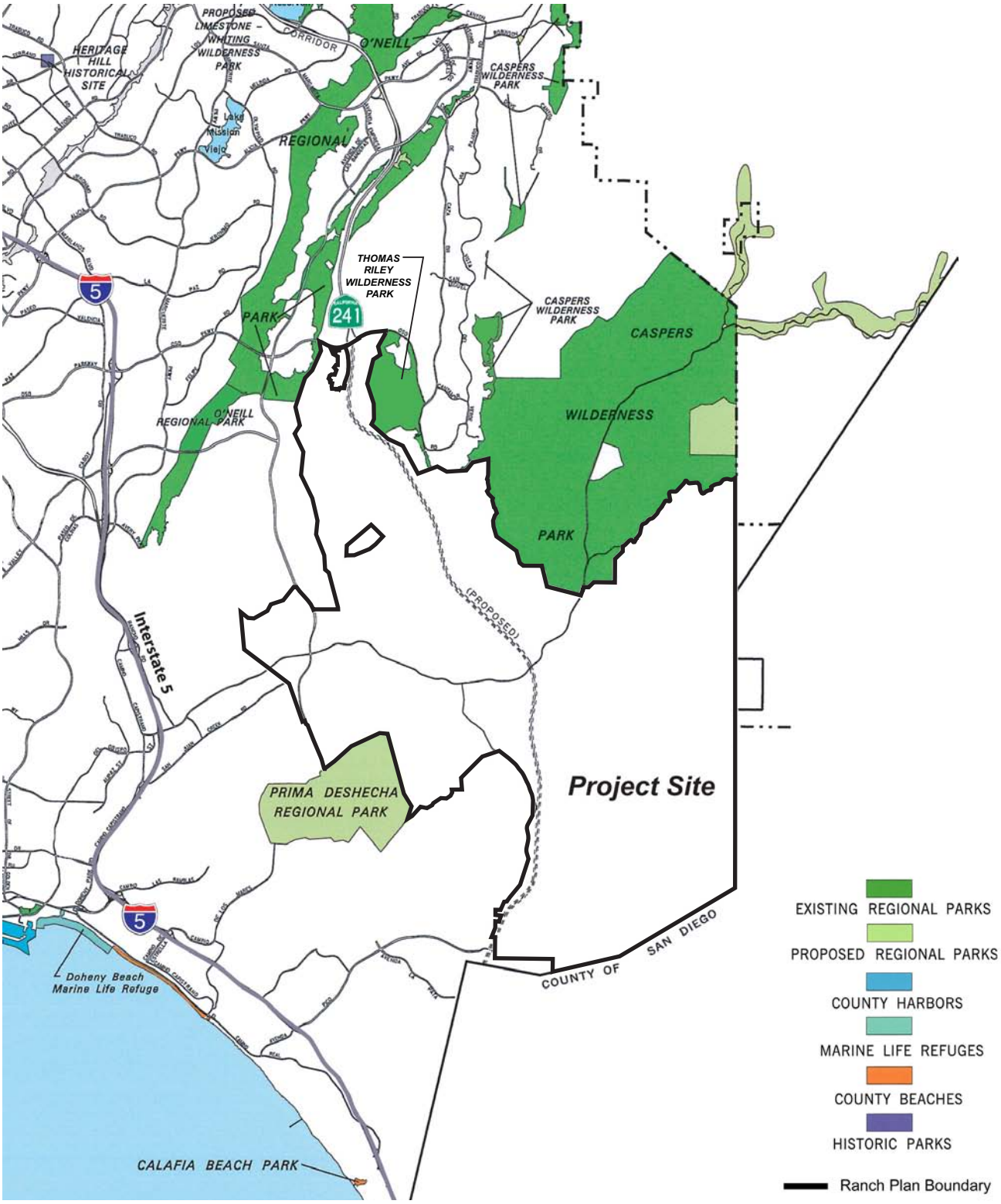

Existing Master Plan of Regional Recreational Facilities for the Project Area (General Plan Figure VII-2)

Exhibit 3-14

The Ranch Plan

1" = 2 Miles

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Source: EDAW, Inc. 2004

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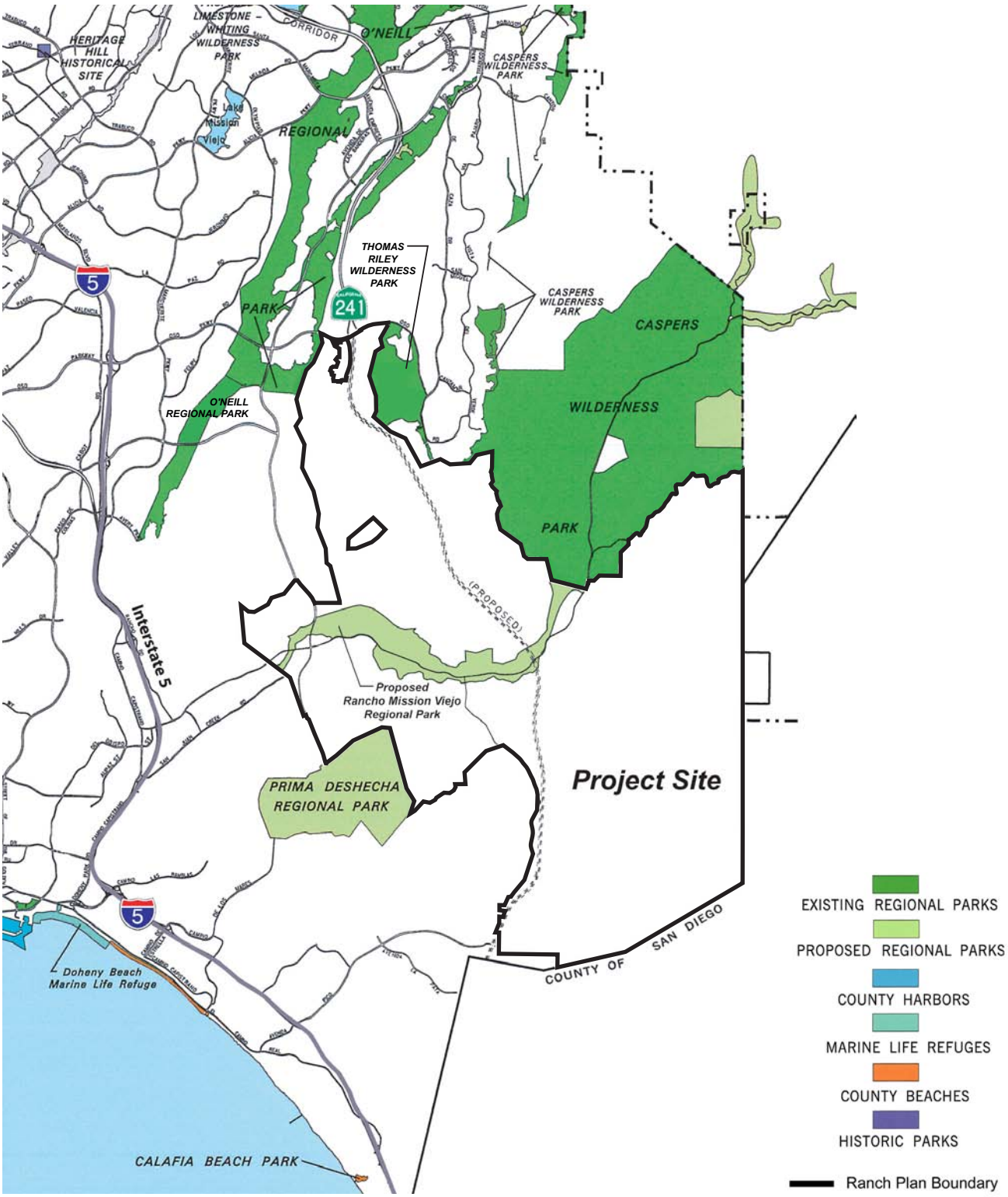

Proposed Master Plan of Regional Recreational Facilities for the Project Area (Proposed General Plan Figure VII-2)

Exhibit 3-15

The Ranch Plan

1" = 2 Miles

N W E S

Source: EDAW, Inc. 2004

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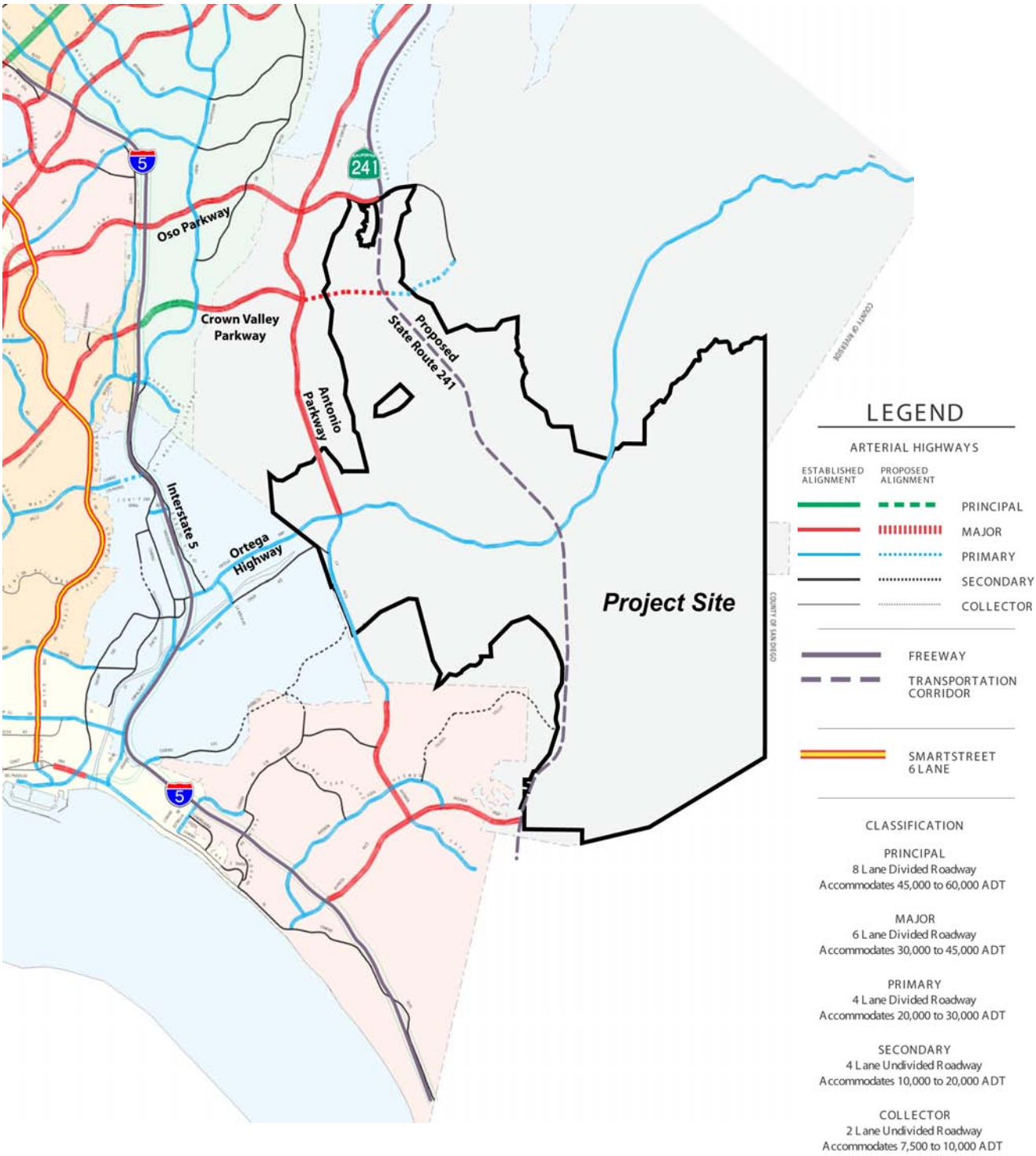

Existing MPAH for the Project Area

Exhibit 3-16

The Ranch Plan

1" = 2 Miles

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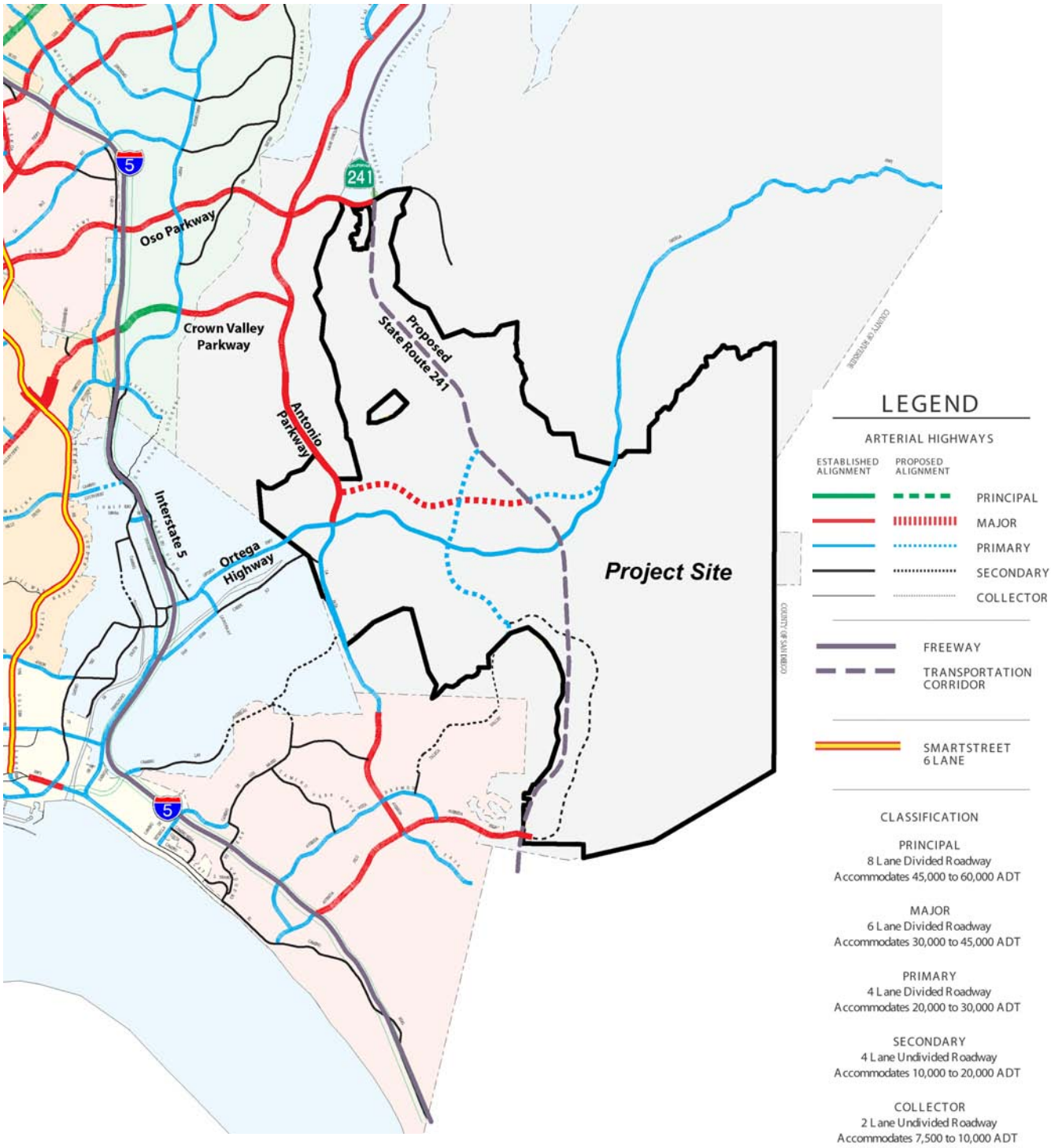
Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-16_ExistingMPAH_060104.pdf



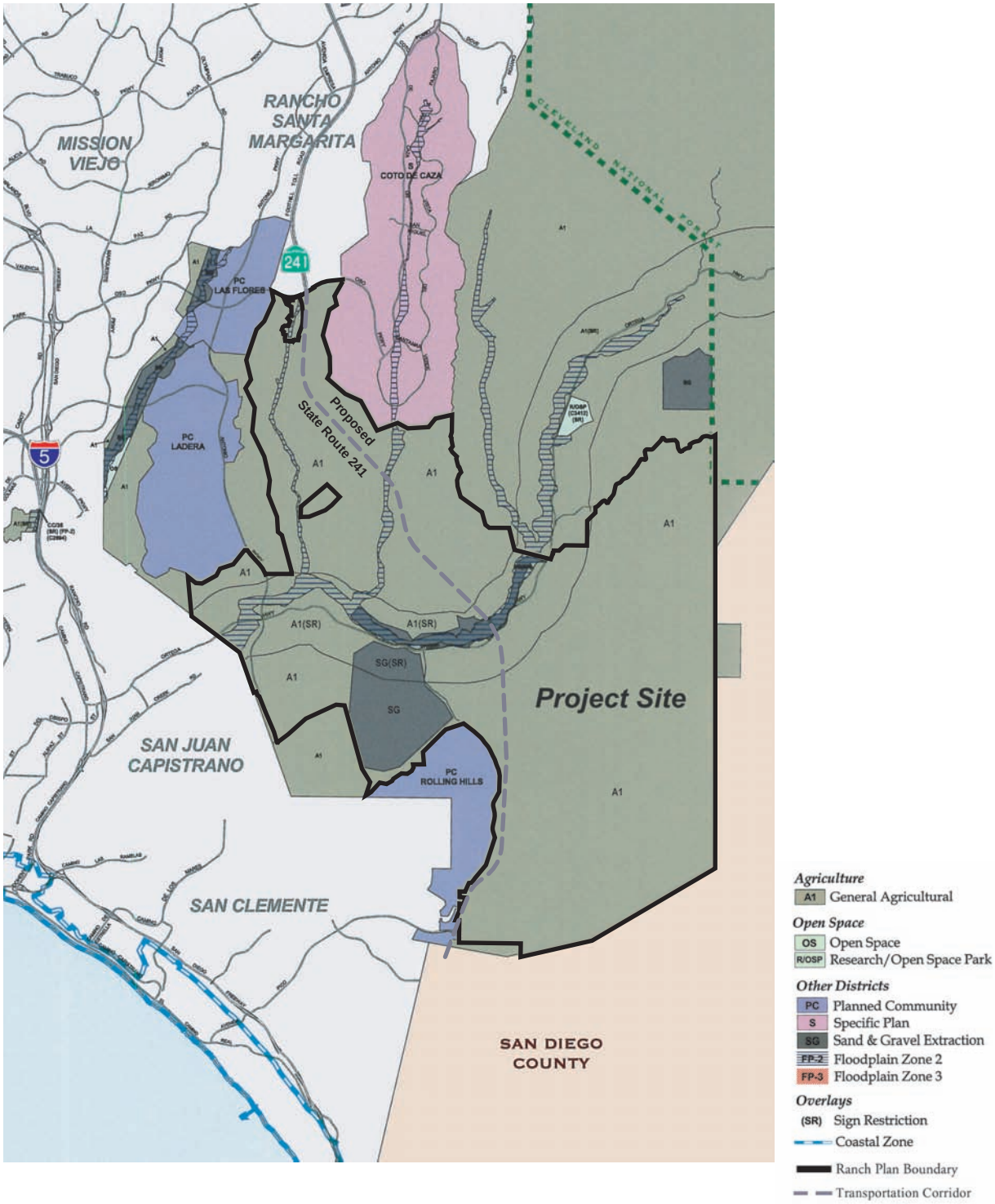
Proposed MPAH for the Project Area — Exhibit 3-17

The Ranch Plan — *1" = 2 Miles*

N W E S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-17_PropMPAH_060104.pdf



Existing Zoning for the Project Area

Exhibit 3-18

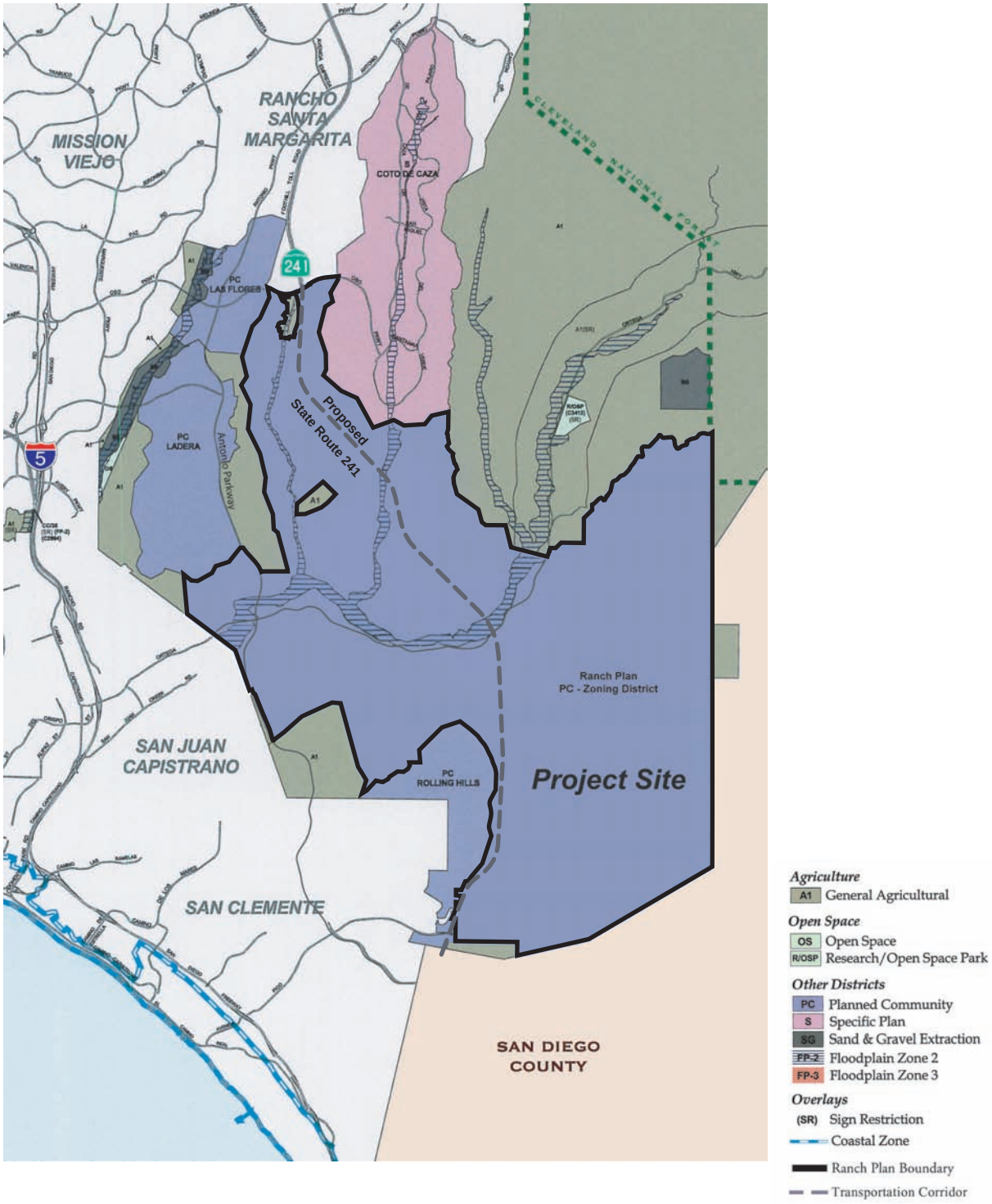
The Ranch Plan

1" = 2 Miles

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-18_ExZoning_060704.pdf



Proposed Zoning for the Project Area

Exhibit 3-19

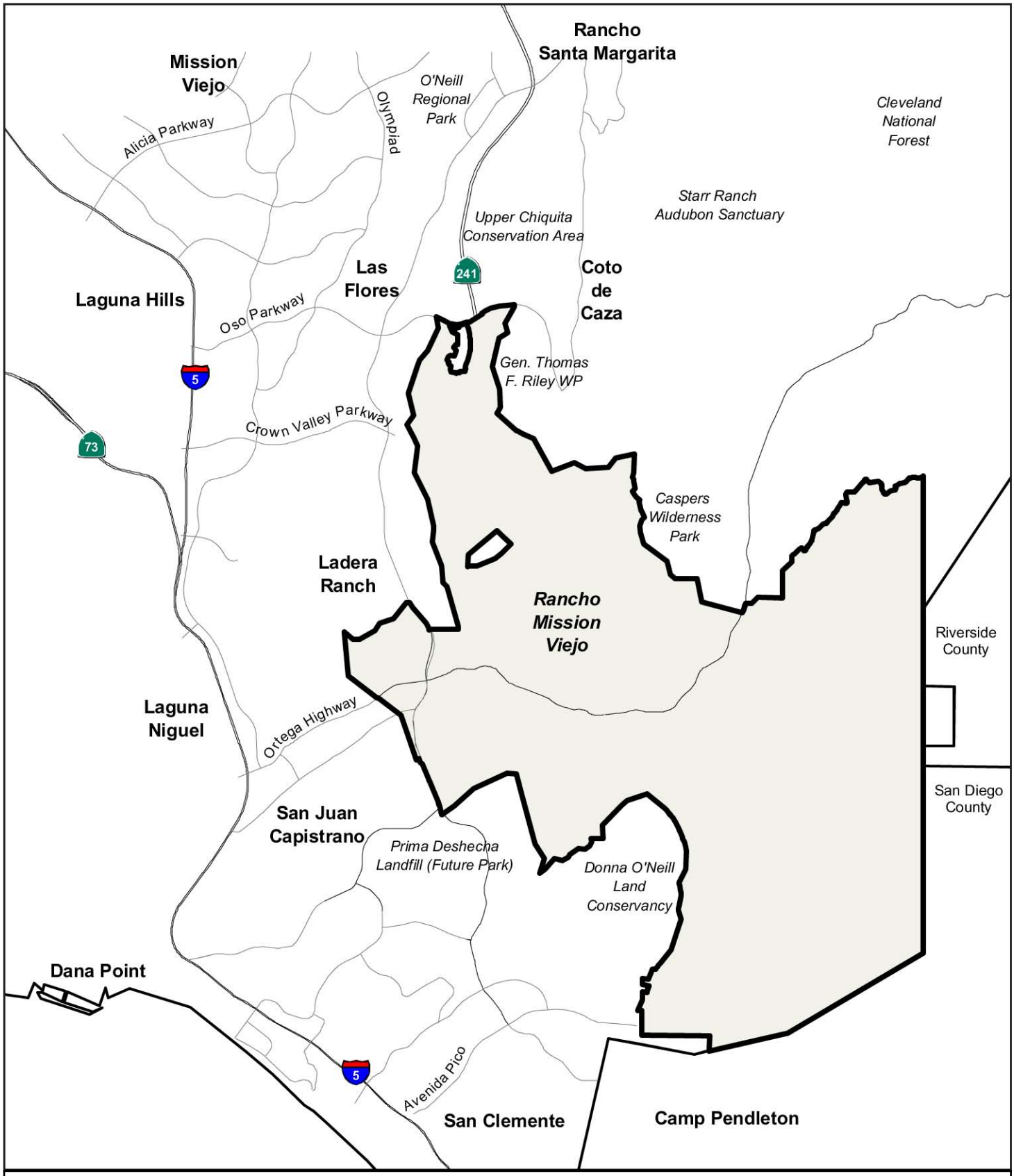
The Ranch Plan

1" = 2 Miles

N W E S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-19_PropZoning_060704.pdf



Local Vicinity

Exhibit 3-2

The Ranch Plan

1" = 9000'

N
W E
S

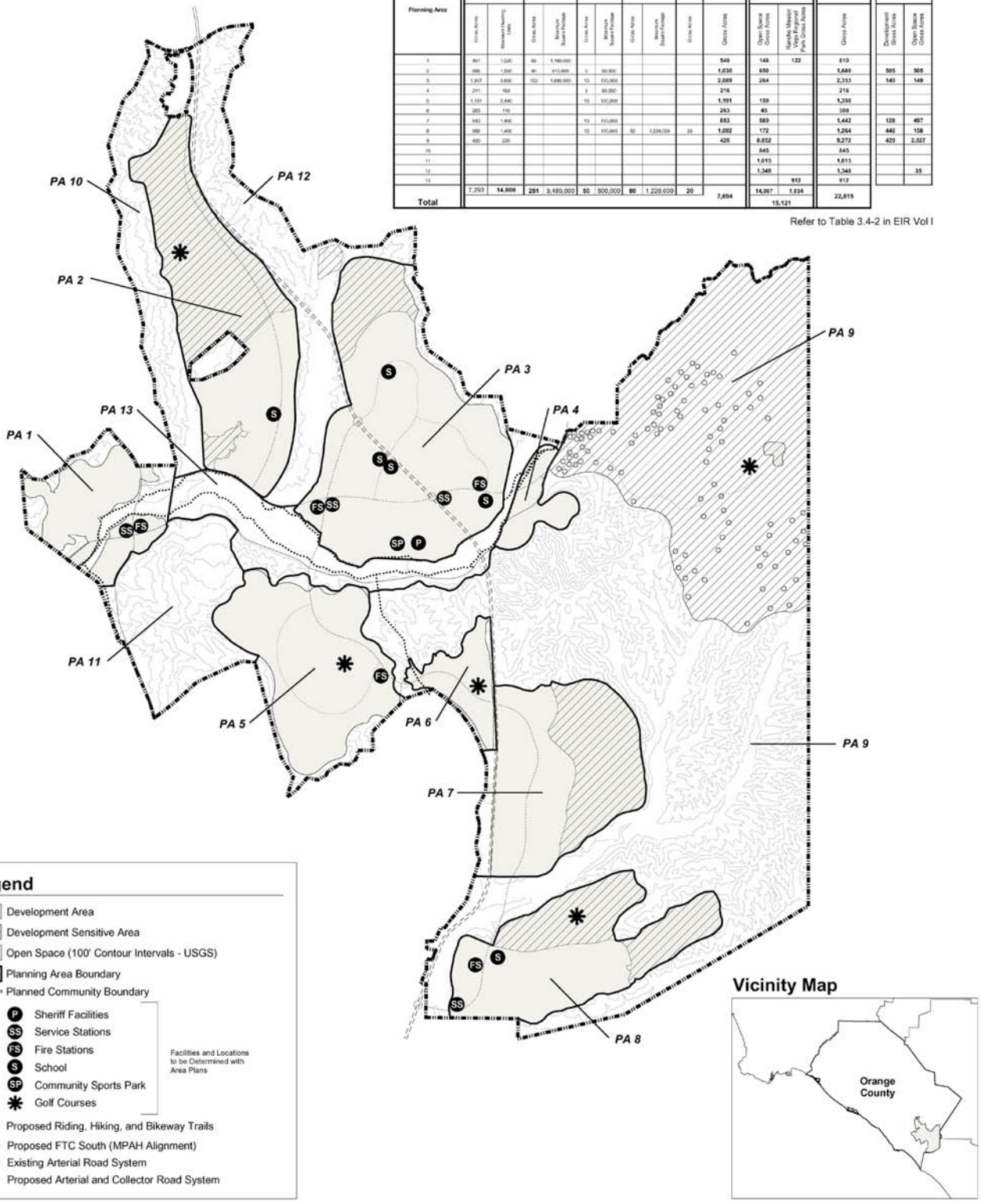
Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-2_LV_060104.pdf

The Ranch Plan Statistical Table

Planning Area	Development Use										Open Space Use		Planning Area Totals	Development Sensitive Areas (Overlay)	
	Residential		Urban Activity Center		Neighborhood Center		Business Park		Golf Resort						
	Gross Acres	Maximum Dwelling Units	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Gross Acres	Open Space Gross Acres	Sandy Meyer Veterans Regional Park Gross Acres	Gross Acres	Development Gross Acres	Open Space Gross Acres
1	491	1,226	80	1,190,000						540	148	122	810		
2	988	1,500	40	610,000	5	80,000				1,030	650		1,680	505	505
3	1,807	3,600	122	1,680,000	12	130,000				2,089	264		2,353	140	149
4	211	160			5	80,000				216			216		
5	1,181	2,440			15	130,000				1,191	159		1,350		
6	203	110								253	45		298		
7	642	1,400			12	130,000				853	589		1,442	128	407
8	992	1,400			15	130,000	80	1,220,000	20	1,092	172		1,264	446	158
9	426	220								426	8,852		9,272	420	2,027
10											845		845		
11											1,015		1,015		
12											1,348		1,348		35
13												912	912		
Total	7,293	14,000	251	3,480,000	50	500,000	80	1,220,000	20	7,694	14,087	1,034	22,815		
											15,121				

Refer to Table 3.4-2 in EIR Vol I



The Ranch Plan Planned Community Development Map

Exhibit 3-20

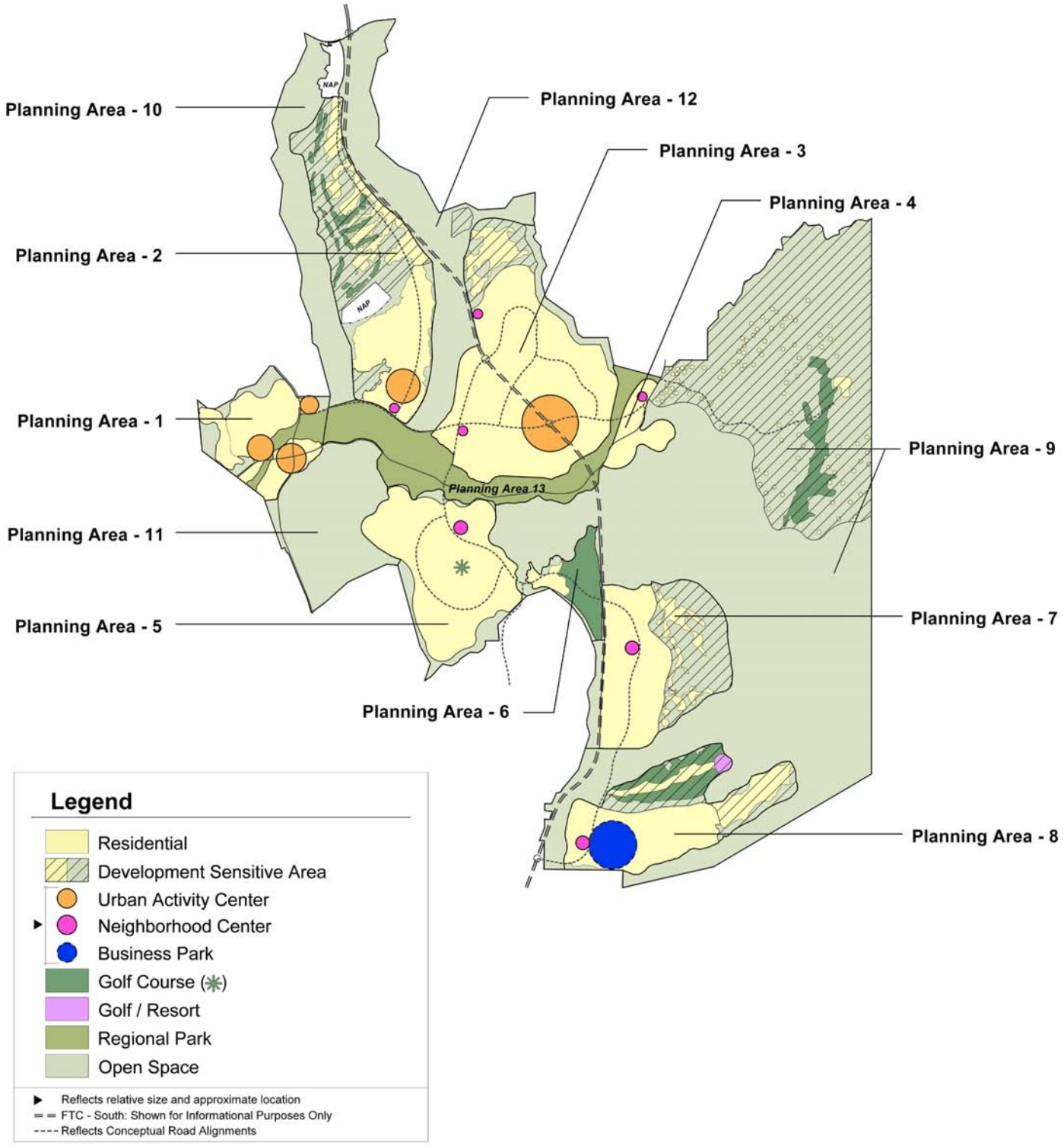
The Ranch Plan

1" = 7,500'

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-20_PCDev_060704.pdf



The Ranch Plan

Exhibit 3-21

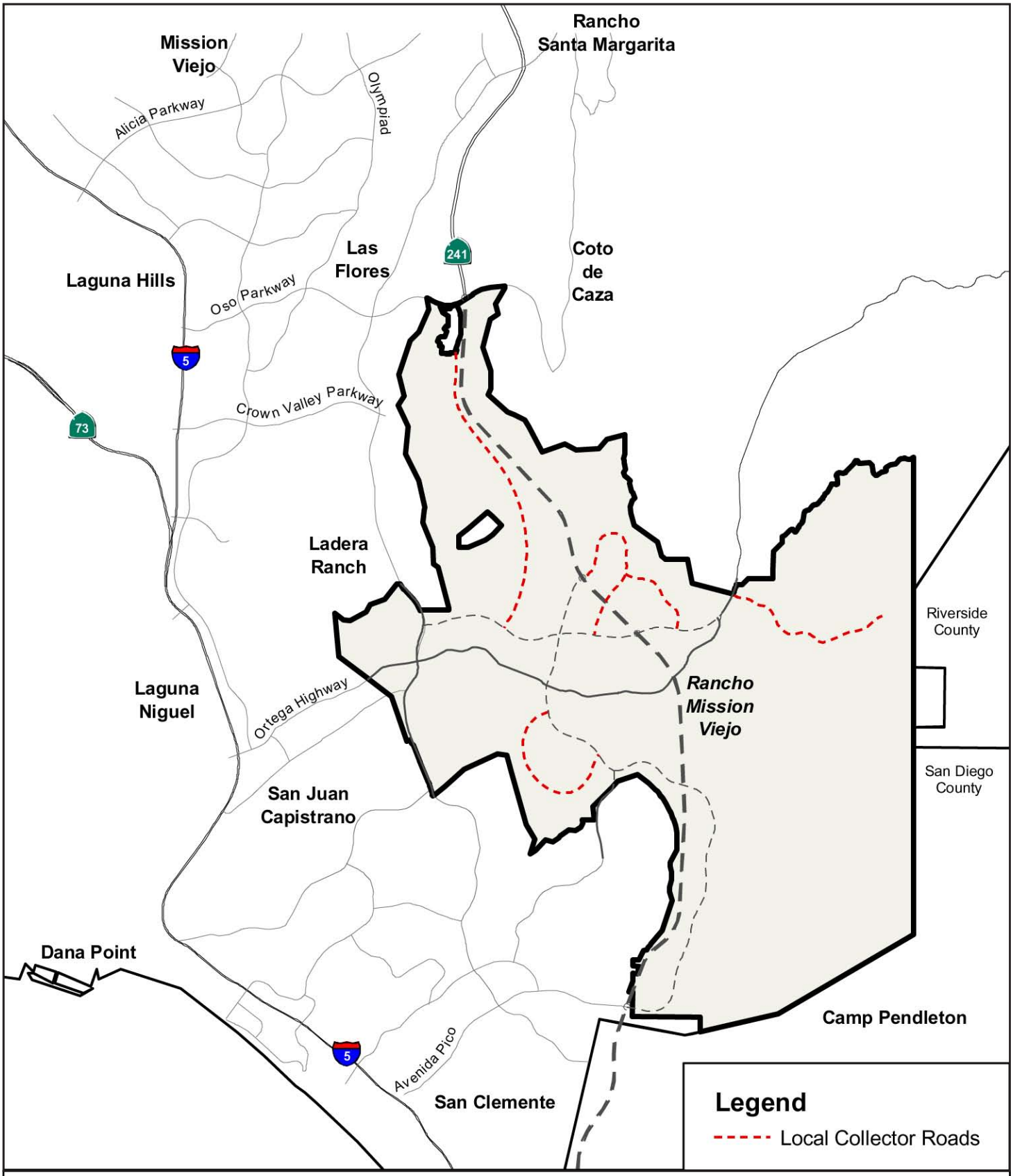
The Ranch Plan

1" = 8,500'

N
W E
S

Source: Rancho Mission Viejo

R:\Projects\RMVJ008\Ex3-21_RanchPlan_060704.pdf



Proposed Circulation Network with SR-241

Exhibit 3-22

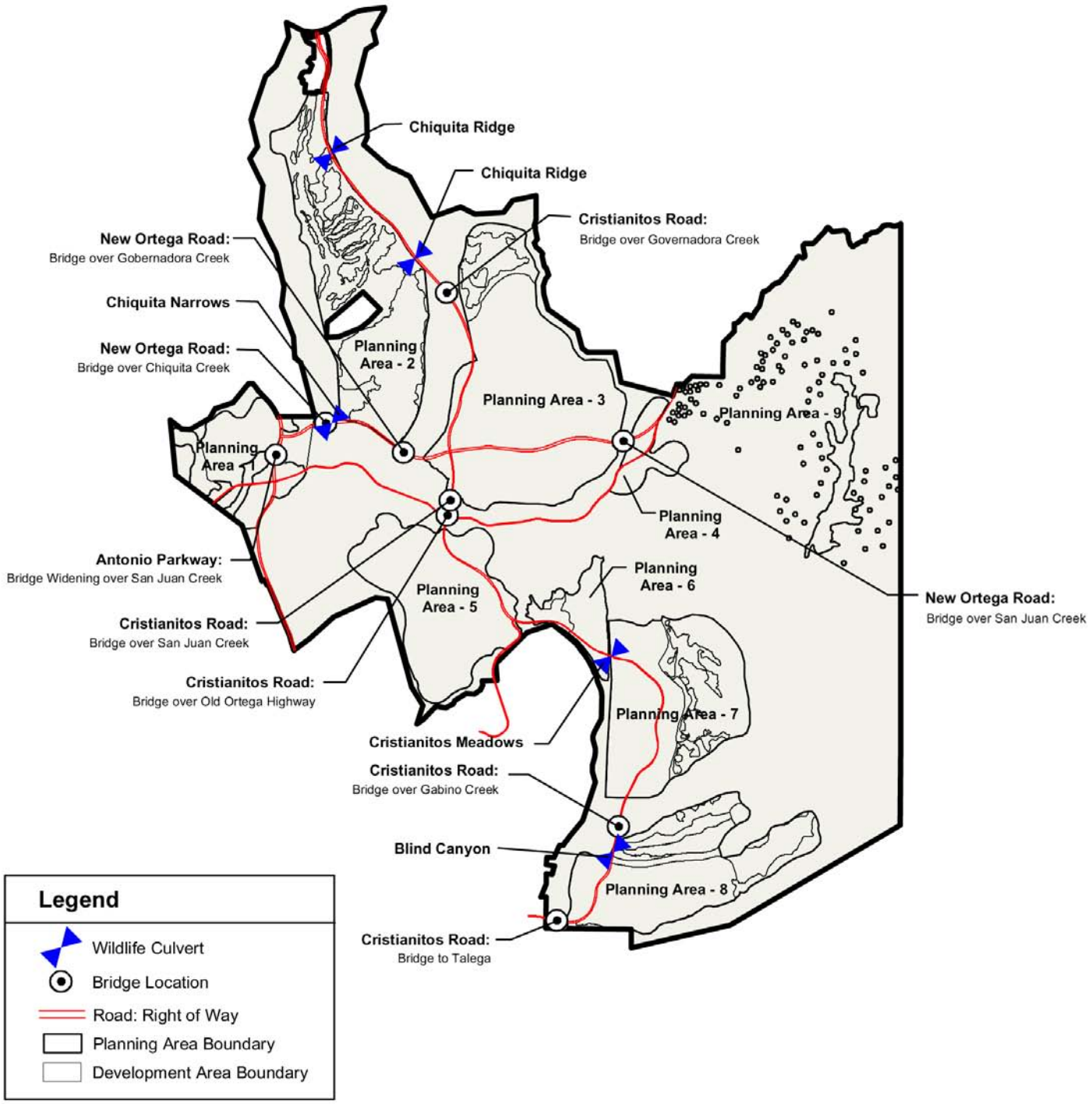
The Ranch Plan

1" = 9,000'

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-22_CircFTC_060104.pdf



Bridge Locations

Exhibit 3-23

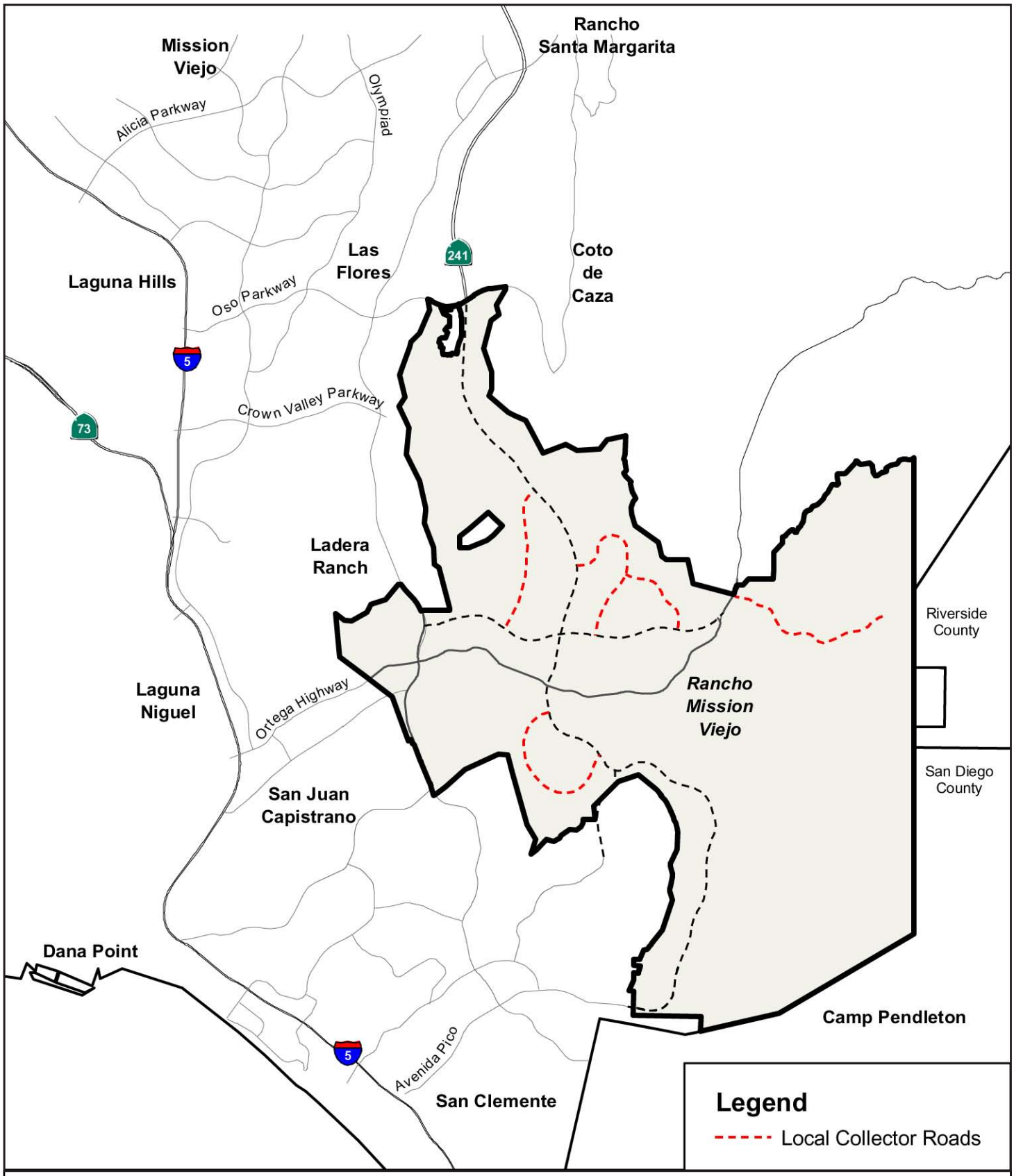
The Ranch Plan

1" = 8,000'

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-23_Bridges_060704.pdf



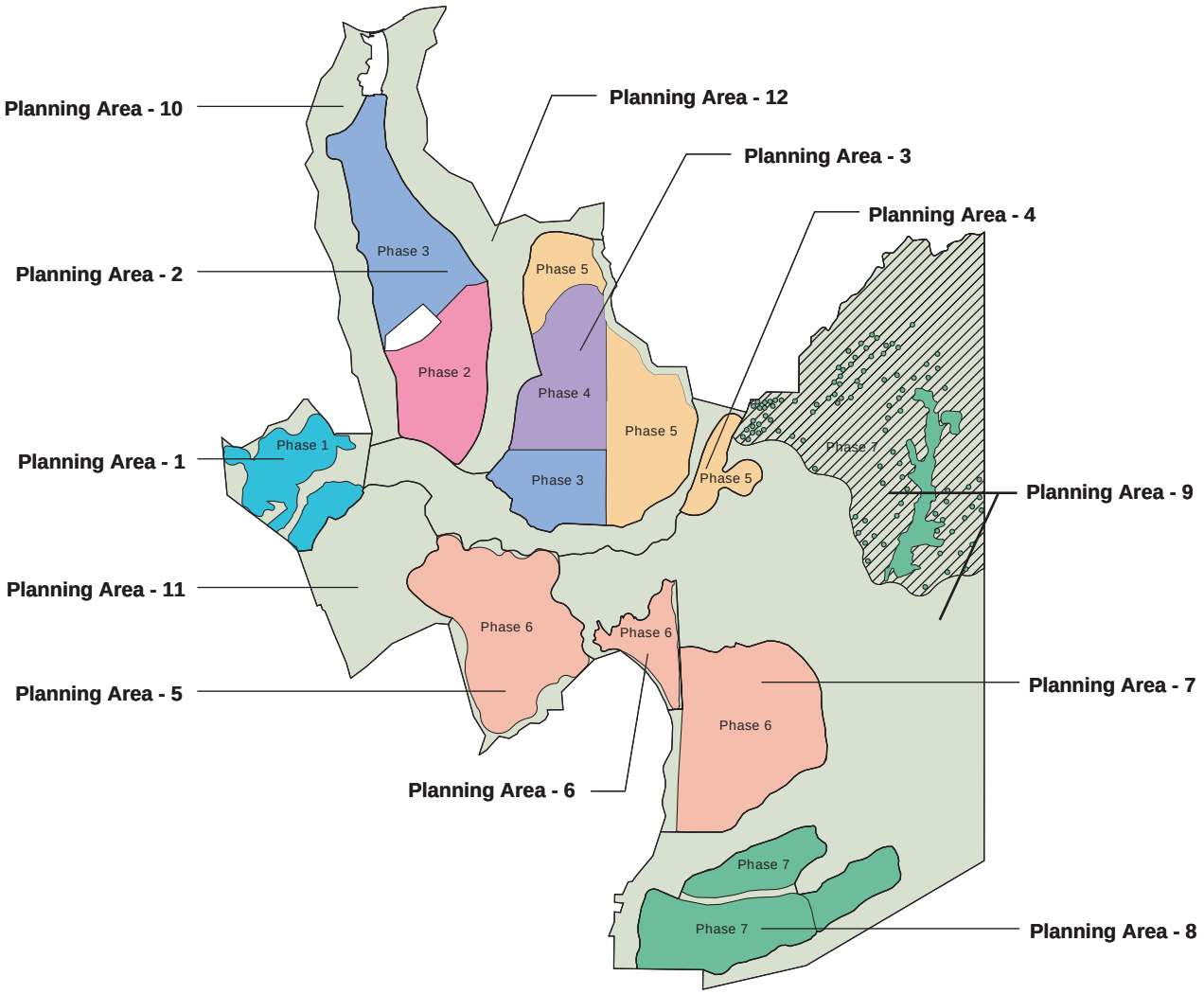
Proposed Circulation Network without the SR-241 — Exhibit 3-24

The Ranch Plan — *1" = 9,000'*

N W E S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-24_CircnoFTC_060104.pdf



Legend

- Phase 1 (2005-2006)
- Phase 2 (2006-2007)
- Phase 3 (2007-2008)
- Phase 4 (2009-2010)
- Phase 5 (2011-2013)
- Phase 6 (2015-2017)
- Phase 7 (2016-2024)

(Intended to Reflect Grading Timeline, Not the Actual Grading Plan)

Grading Phasing Concept

Exhibit 3-25

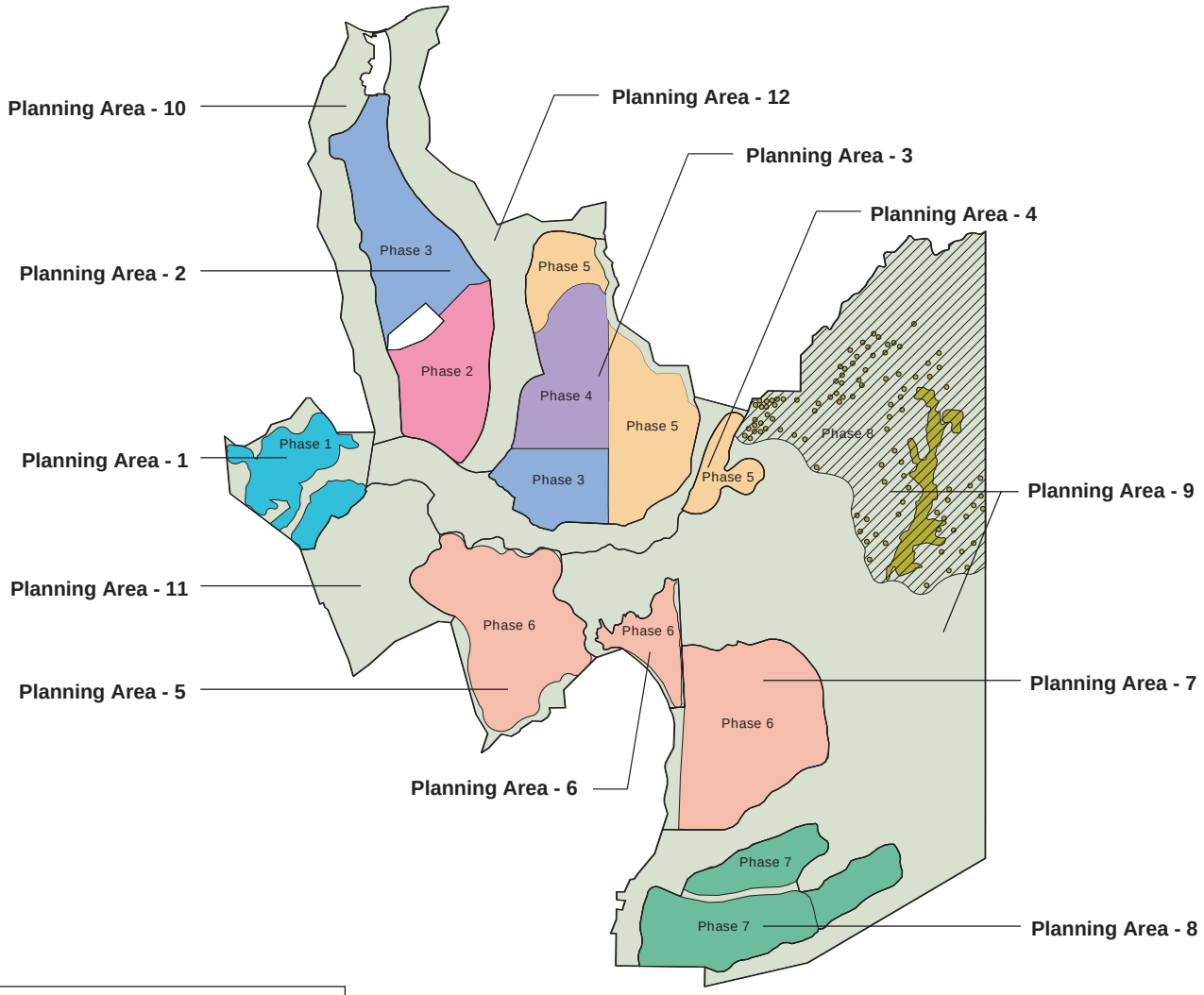
The Ranch Plan

1" = 8,000'

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-25_GradingConcept_060804.pdf



Legend

- Phase 1 (2005-2007)
- Phase 2 (2007-2009)
- Phase 3 (2009-2011)
- Phase 4 (2011-2014)
- Phase 5 (2013-2017)
- Phase 6 (2016-2018)
- Phase 7 (2020-2025)
- Phase 8 (2016-2025)

Construction Phasing Concept

Exhibit 3–26

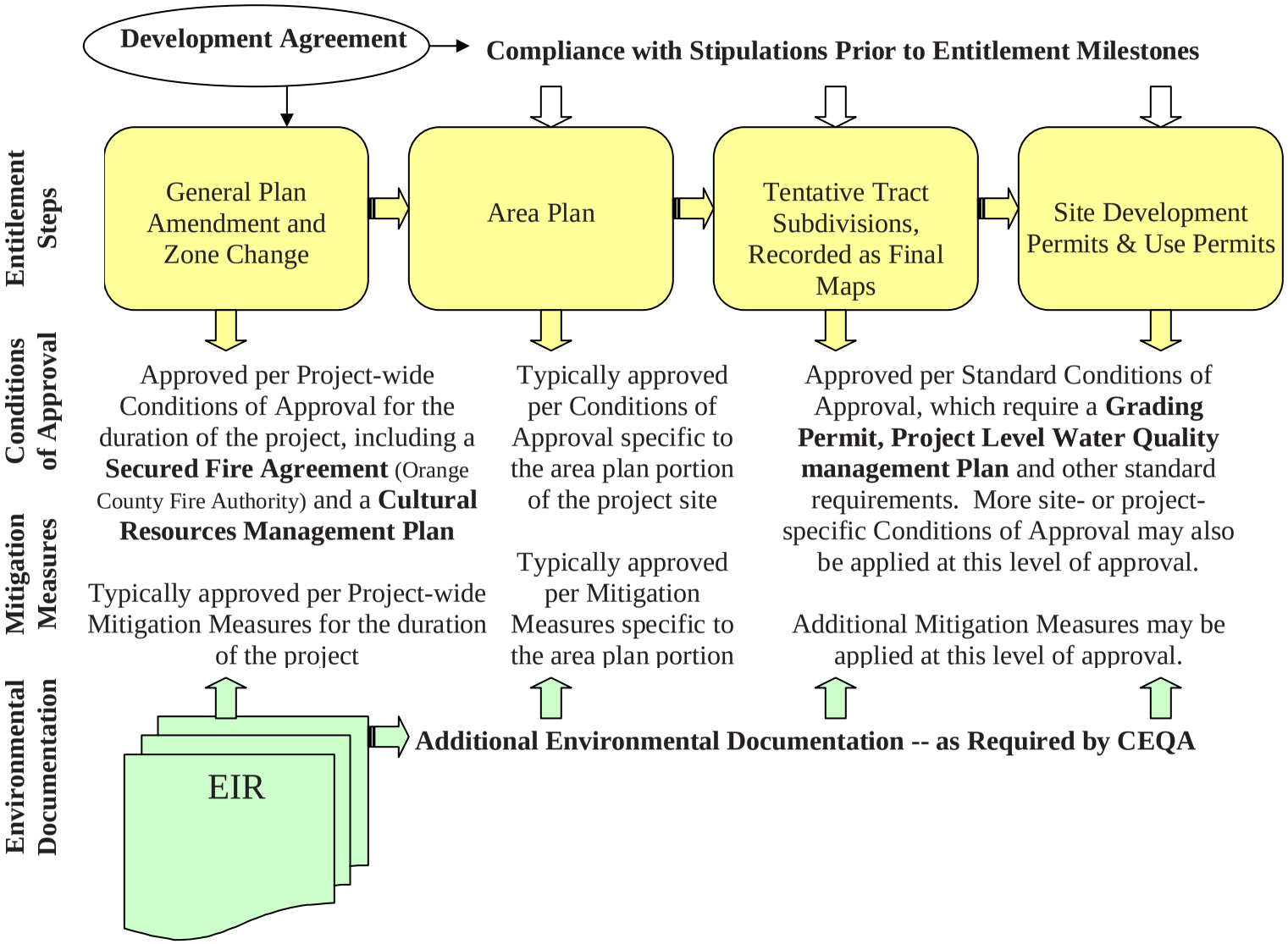
The Ranch Plan

1" = 8,000'

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-26_ConPhasing_060804.pdf



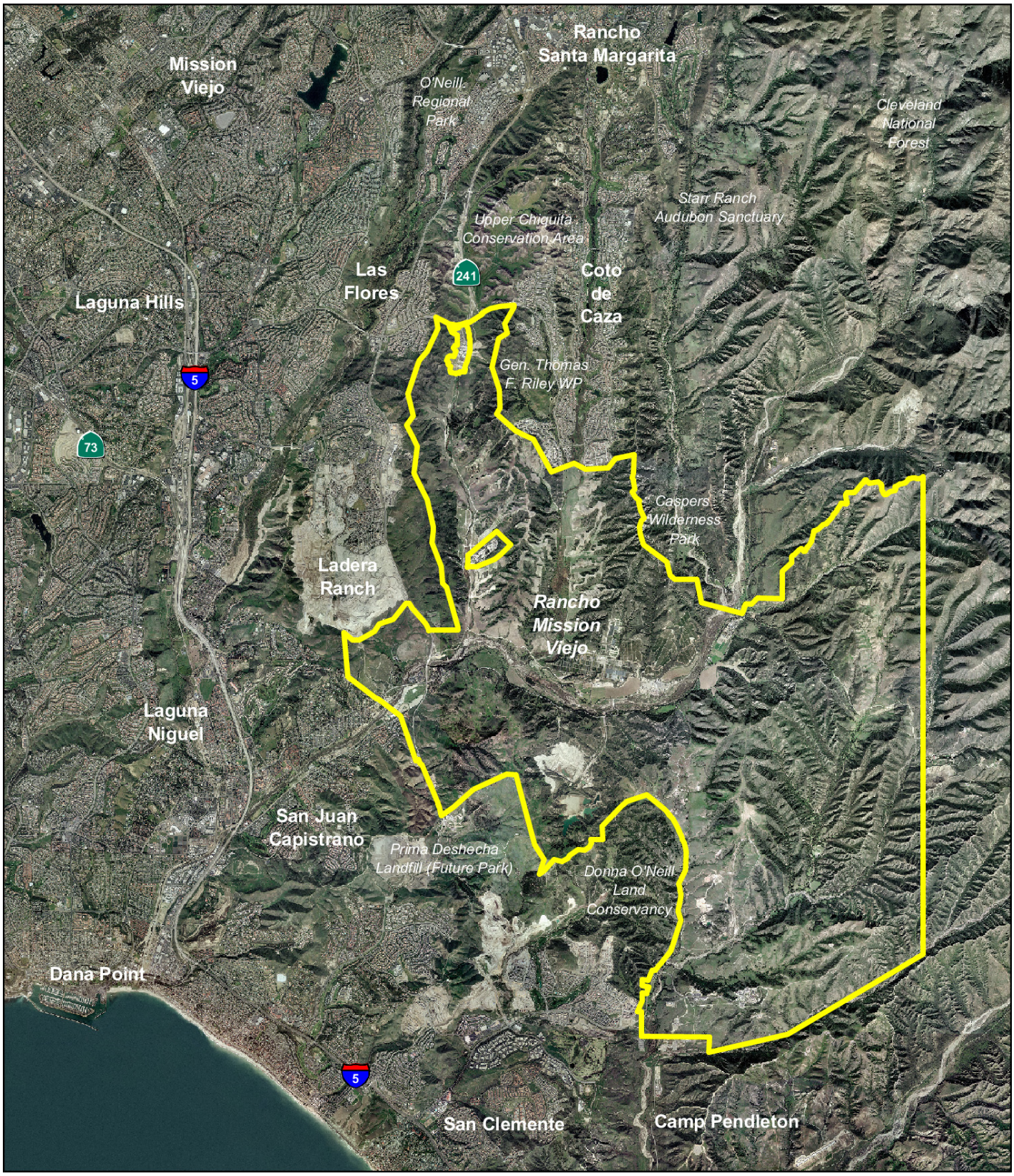
County of Orange Entitlement Process

Exhibit 3-27

The Ranch Plan

Source: Planning Solutions, Inc.

S:/GIS_Exhibits/RMVJ008/Ex3-27_Entitlement_042804.pdf



Aerial Photograph of the Project Site

Exhibit 3-3

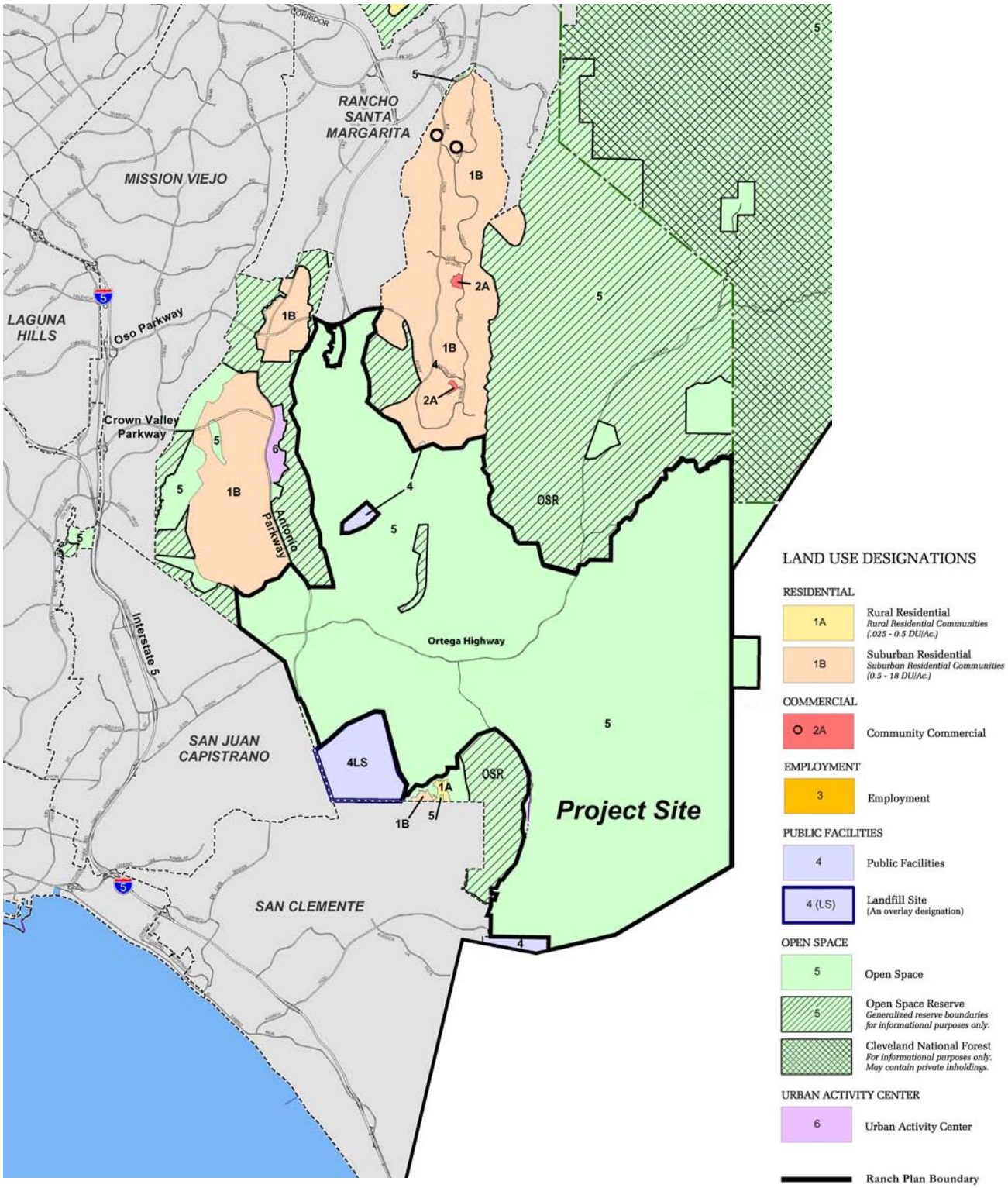
The Ranch Plan

1" = 9,000'

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-3_Aerial_060104.pdf



Existing General Plan Land Use Designations for the Project Area (General Plan Figure III-1)

Exhibit 3-4

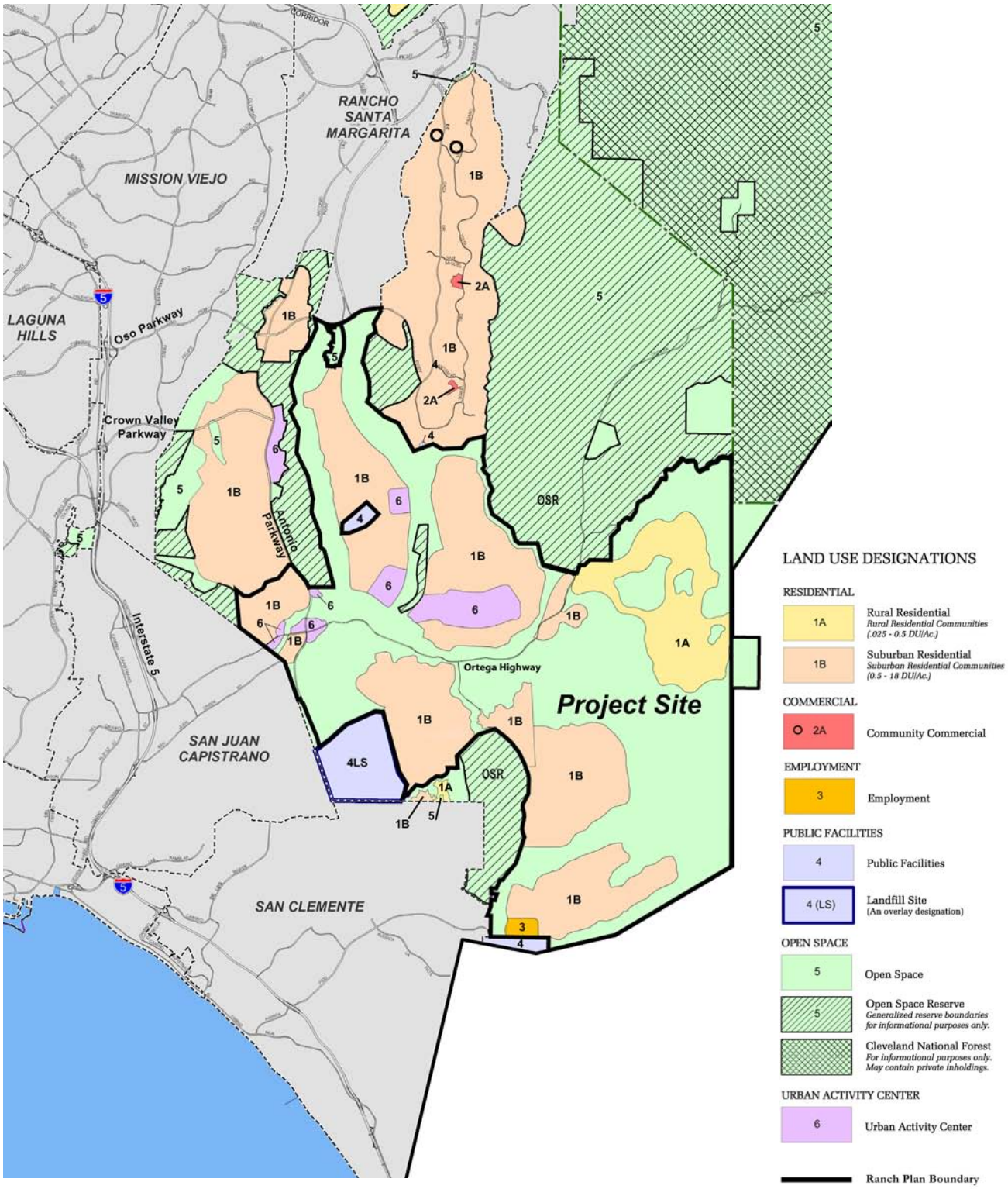
The Ranch Plan

1" = 2 Miles

N W E S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-4_GPLandUse_060104.pdf



Proposed General Plan Land Use Designations for the Project Area (General Plan Figure III-1)

Exhibit 3-5

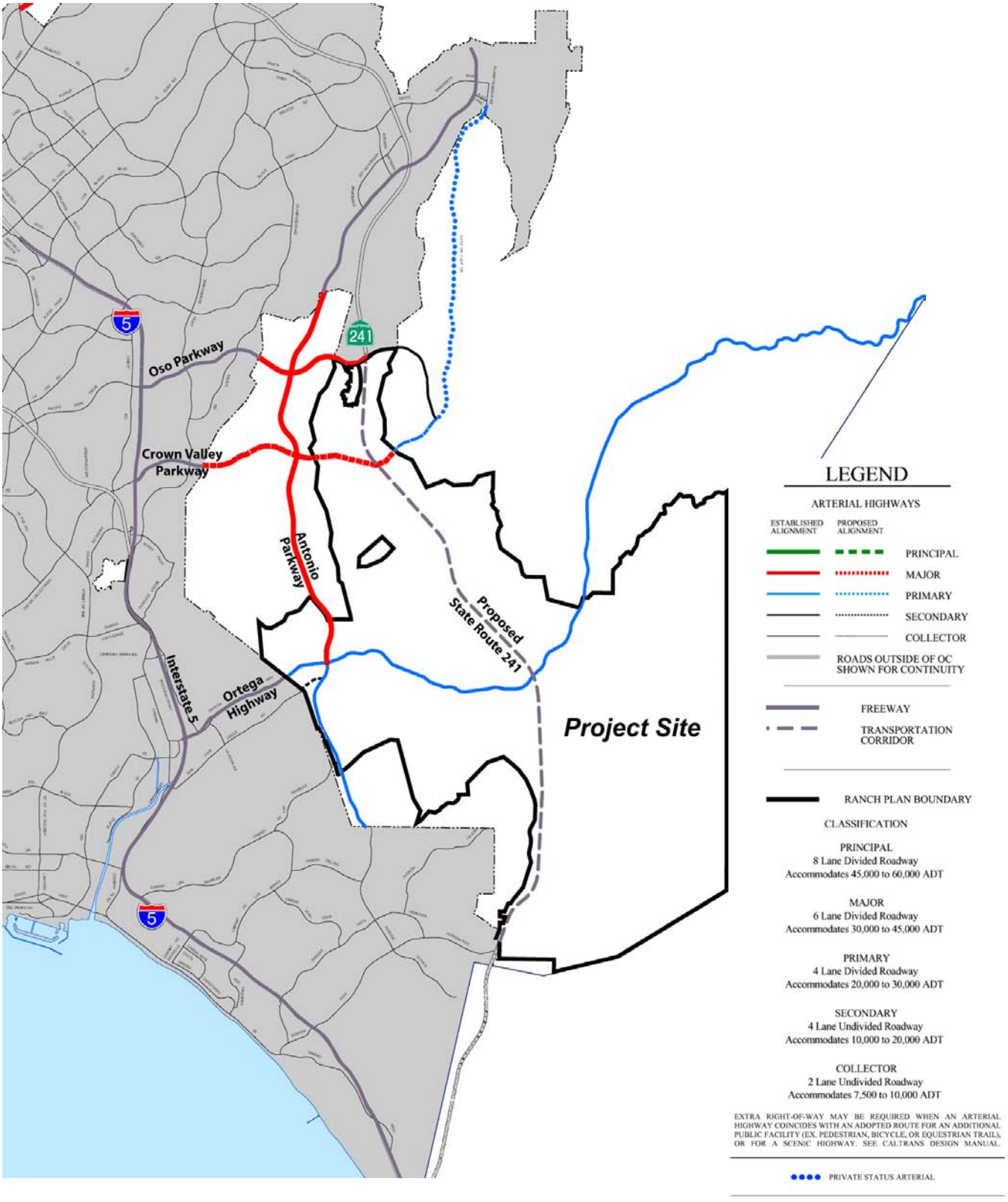
The Ranch Plan

1" = 2 Miles

N W E S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-5_PropGP_060104.pdf



Existing County Circulation Plan for the Project Area
(General Plan Figure IV-1)

Exhibit 3-6

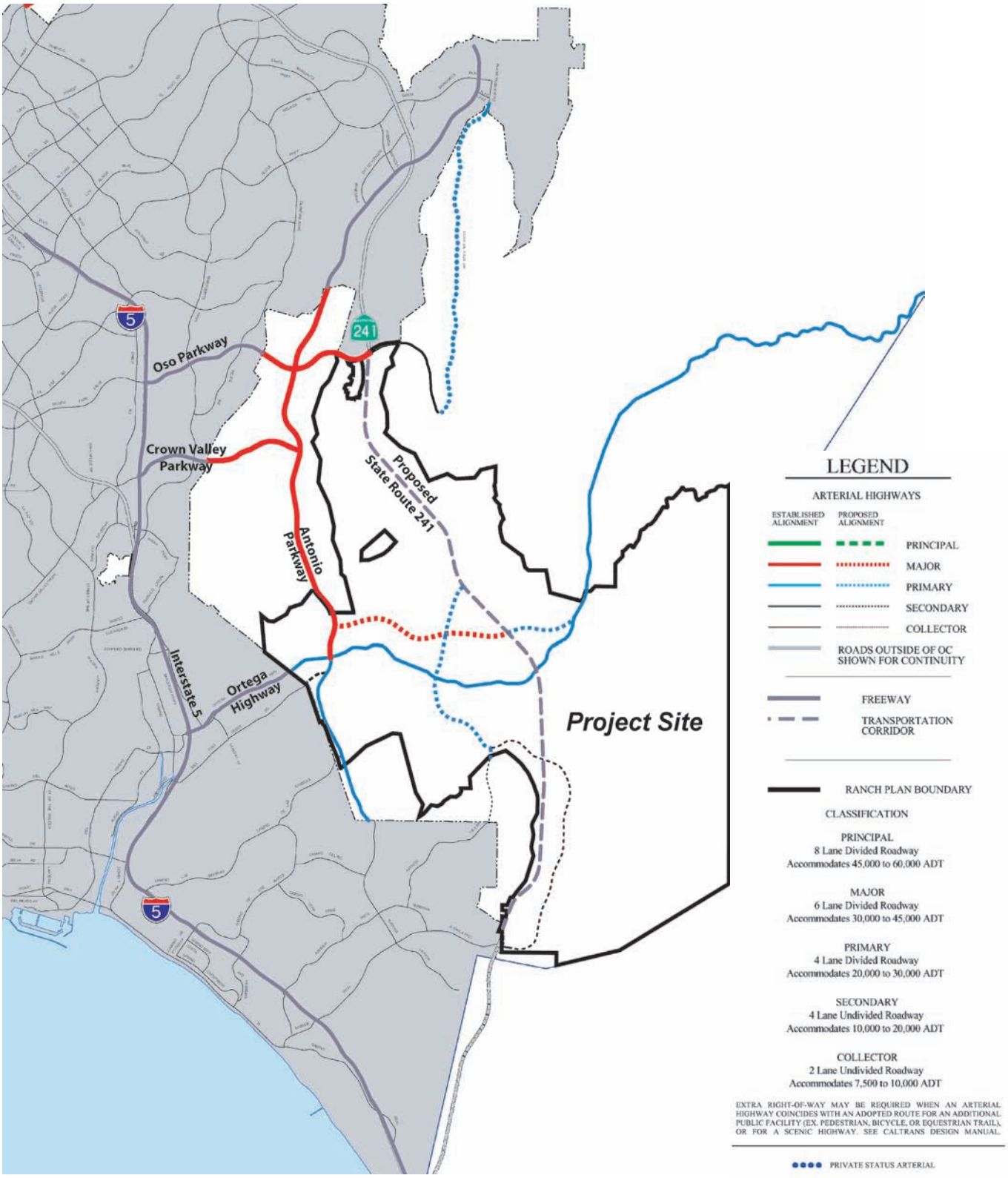
The Ranch Plan

1" = 2 Miles

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-6_Circulation_060704.pdf



Proposed County Circulation Plan for the Project Area (Proposed General Plan Figure IV-1)

Exhibit 3-7

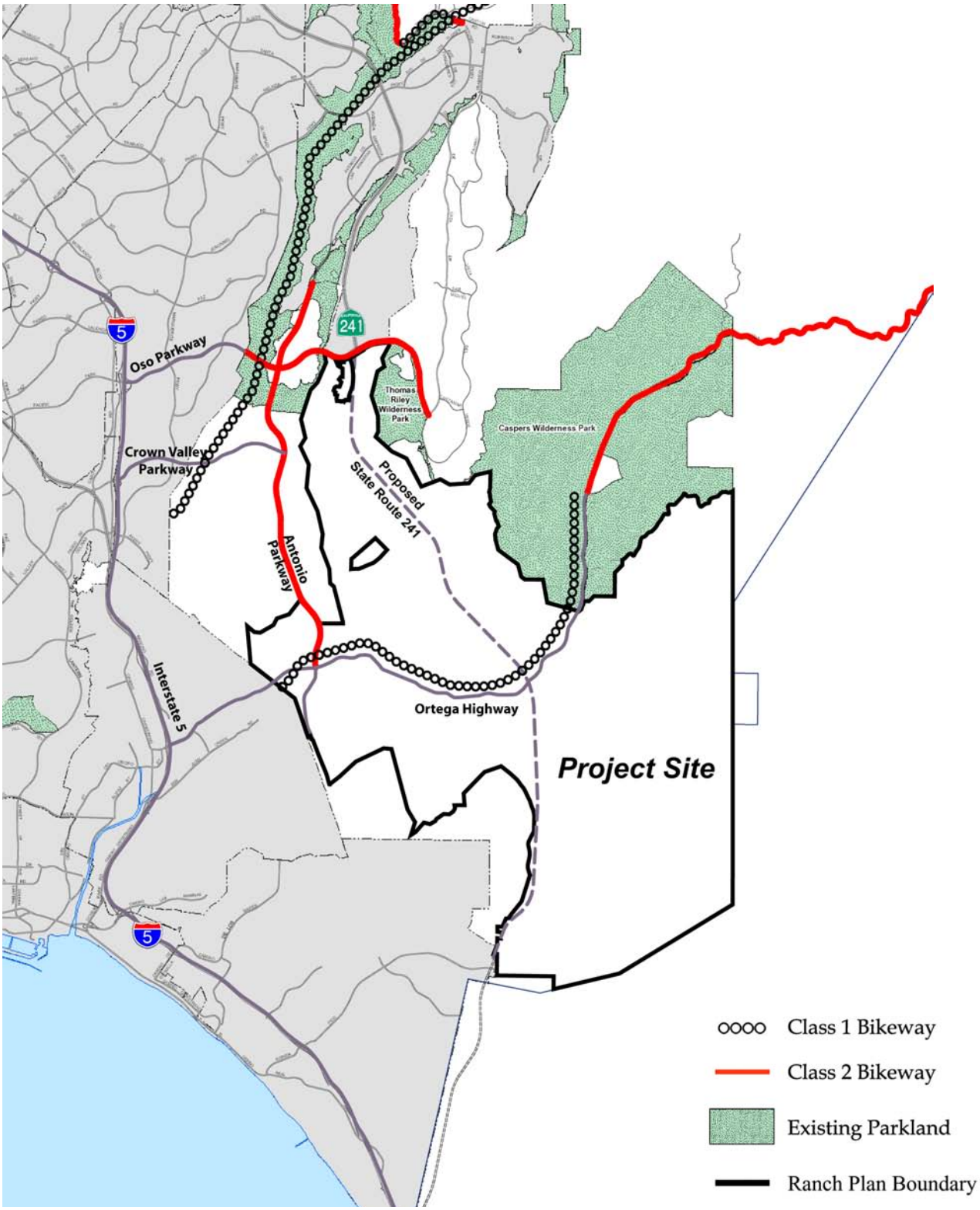
The Ranch Plan

1" = 2 Miles

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-7_PropCirc_060704.pdf



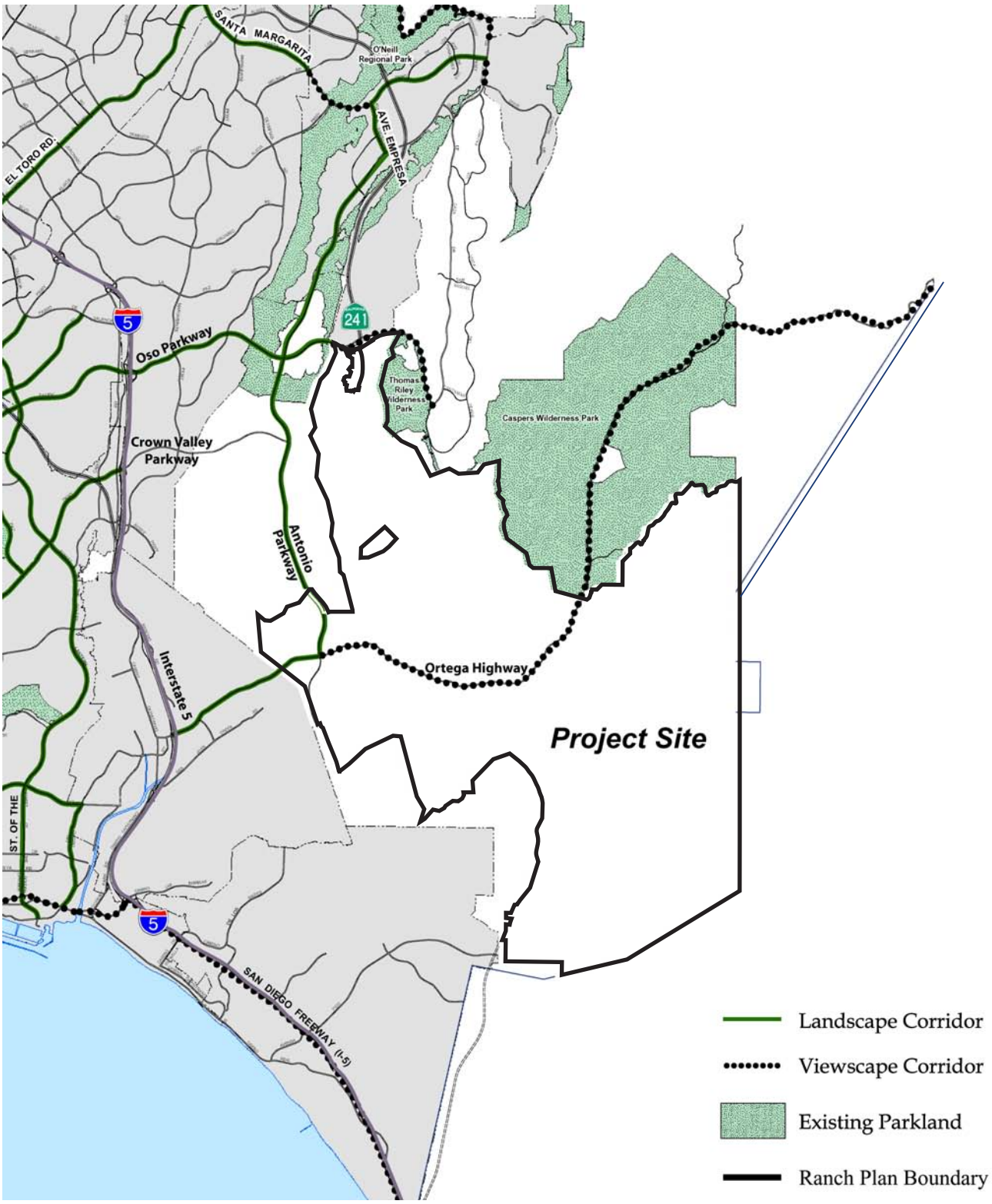
Existing and Proposed County Bikeway Plan for the Project Area (General Plan Figure IV-7, Proposed General Plan Figure IV-7) Exhibit 3-8

The Ranch Plan *1" = 2 Miles*

N W E S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-8_Bikeway_060104.pdf



Existing County Scenic Highway Plan for the Project Area (General Plan Figure IV-11)

Exhibit 3-9

The Ranch Plan

1" = 2 Miles

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex3-9_ScenicHwy_060104.pdf

SECTION 4
ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

In accordance with State CEQA Guidelines §15125 and 15126, this chapter of the Program EIR provides analysis of impacts for those environmental topics where it was determined that the proposed project could result in "potentially significant impacts," as identified in the Initial Study included as part of the NOP in Appendix A. Each topical section includes the following information: description of the existing setting; identification of thresholds of significance; analysis of potential project effects and identification of significant impacts; identification of a mitigation program, if required, to reduce the impacts; and level of significance after mitigation.

State CEQA Guidelines §15064.7 addresses thresholds of significance. The thresholds used in this Program EIR have been derived from several sources, including previous EIRs prepared by the County of Orange, the County of Orange General Plan, the CEQA Checklist, adopted thresholds from other agencies (such as the South Coast Air Quality Management District), and the professional opinions of the County of Orange. The County of Orange has sanctioned the use of these thresholds for the Ranch Plan Program EIR evaluation.

The mitigation program identified to reduce potential project impacts consists of Project Design Features, Standard Conditions and Requirements, and mitigation measures. By including all of these components of the mitigation program they would all be tracked in the Mitigation Monitoring and Reporting Program required for the project. Recognizing that the Program EIR is addressing the proposed project at the GPA/ZC level of approval and details of the project design are unknown, during subsequent levels of approval an environmental equivalent measure or design feature may be adopted. Any Project Design Feature or mitigation measure and timing thereof, subject to the approval of the County of Orange, which will have the same or superior result and will have the same or superior effect on the environment, may be substituted for the Project Design Features and mitigation measures described in this Program EIR. Additional mitigation measures and standard conditions may also be required in association with approval of subsequent levels of planning. The three components of the mitigation program are described below.

- **Project Design Features**–Project Design Features (PDFs) are specific design elements proposed by the project applicant that have been incorporated into the project to prevent the occurrence of, or reduce the significance of, potential environmental effects. Because PDFs have been incorporated into the project, they do not constitute mitigation measures as defined by CEQA. However, PDFs are identified in the mitigation section for each topical issue to ensure that they are included in the mitigation monitoring program to be developed for, and implemented as a part of, the proposed project.

- **Standard Conditions and Regulations**–Standard conditions and regulations are based on local, state, or federal regulations or laws that are frequently required independently of CEQA review and also serve to offset or prevent specific impacts. Typical standard conditions and requirements include compliance with the provisions of the Uniform Building Code, South Coast Air Quality Management District Rules, local agency fees, etc. Additional conditions may be imposed on the project by government agencies during the approval process, as appropriate. Many of the standard conditions and regulations are enacted at later phases of project approval in association with subsequent discretionary and administrative approvals. Given that this is a Program EIR and will be the basis for future CEQA evaluations, the County of Orange Standard Conditions that would apply to the project at subsequent levels of approval (i.e., grading permits and tract maps) are listed to provide the reader an understanding of future

requirements and to document their applicability to the overall project. Therefore, within the standard conditions and regulations section of each topical area there may be conditions that are tied to grading permits or tentative tract maps; however, this is not to imply that grading permits and tentative tract maps are being processed at this time. These are separate discretionary actions, which will be subject to CEQA evaluation at a later time. When an adopted Orange County Standard Condition of Approval is identified, the number of the condition is listed in parentheses.

- **Mitigation Measures**–Where a potentially significant environmental effect has been identified and is not reduced to a level considered less than significant through the application of PDFs, and standard conditions and regulations, project-specific mitigation measures have been identified.

The topical sections that follow incorporate the approaches described above.

4.1 LAND USE AND RELATED PLANNING PROGRAMS

4.1.1 INTRODUCTION

Appendix G of the CEQA Guidelines requires an EIR to analyze land use impacts when a project has the potential to physically divide an established community; conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or conflict with any applicable habitat conservation plan or natural community conservation plan. Physical environmental impacts associated with agricultural resources, traffic, noise, aesthetics, recreation, and mineral resources are discussed in Sections 4.2, 4.6, 4.8, 4.10, 4.12, and 4.13, respectively. These topical issues are only discussed to the extent that they would result in an incompatible land use.

This section describes the land use conditions for the Ranch Plan project site and the immediate vicinity, and discusses potential land use impacts that could result from implementation of the proposed project. This includes potential direct impact on land uses and incompatibilities with adjacent land uses, as well as consistency with applicable General Plans and regional plans. This section also addresses the relationship of land use changes to relevant planning policies.

Methodology

The land use analysis is based on field observations, use of aerial photography, lease information, and a review of related planning documents referenced herein. A land use impact was based on a physical impact to an existing land use. Relevant planning programs were evaluated for consistency with the applicable goals and policies. Pursuant to CEQA Guidelines §15125(a) the discussion of the project site is based on the conditions of the site when the Notice of Preparation (NOP) was published. The original NOP was published in February 2003 and revised in March 2004. There was not a substantive change in the environment of the project site between the issuance of the two NOPs.

Study Area

The project study area is defined as the Ranch Plan project site and the immediately contiguous properties.

4.1.2 EXISTING CONDITIONS

Surrounding Land Uses

The Ranch Plan project site is located within the unincorporated portion of southeastern Orange County. In general, located to the north are the City of Rancho Santa Margarita and the unincorporated planned communities of Las Flores and Coto de Caza, Thomas F. Riley Wilderness Park, and permanent open space located within unincorporated Orange County. MCB Camp Pendleton in the County of San Diego bounds the site on the south. The Cleveland National Forest, located in both Orange and Riverside counties, and MCB Camp Pendleton borders the site to the east. To the west, the site is bordered by portions of the cities of San Juan Capistrano, San Clemente, and Mission Viejo, as well as lands within unincorporated Orange County. Within the unincorporated area is the community of Ladera Ranch, which is currently under construction. Further to the west is O'Neill Regional Park. The Talega planned community, which is currently under construction, is within the City of San Clemente.

Exhibits 3-3 and 3-22 in Section 3, Project Description, provide an aerial photograph with key surrounding land uses identified and the planning area boundaries, respectively. Exhibit 4.1-1 provides a jurisdictional boundary map for the area surrounding the Ranch Plan area. Following is a more detailed description of the land uses currently surrounding the project site:

North

From east to west, the northern portion of the project site is bordered by the following land uses:

- ***Cleveland National Forest*.** The 135,000-acre Cleveland National Forest is located in the counties of Orange, Riverside, and San Diego. The project site is proximate to the San Mateo Canyon Wilderness area within the forest. The San Mateo Canyon Wilderness Area is approximately 9,700 acres. In addition there are a number of private landholdings within the forest. Significant portions of the Cleveland National Forest are within the proposed NCCP/HCP and SAMP/MSAA boundaries. The forest is located along the northeastern tip and eastern edge of the project site, adjacent to Planning Area 9.

- ***Ronald W. Caspers Wilderness Park*.** Caspers Wilderness Park is an approximately 8,500-acre County of Orange regional park facility. Together with the General Thomas F. Riley Wilderness Park, the two parks contain protected land for a variety of native habitats and associated species and serve as outdoor recreation areas for hikers, equestrian users, and mountain bikers. Wilderness parks are intended to have minimal hardscape and improvements and provide access and enjoyment/observation of natural resources and processes. In addition to day use, Caspers Wilderness Park provides overnight camping and is adjacent to Planning Areas 3, 4, 9, and 12

- ***Coto de Caza.*** Coto de Caza is a residential planned community located north of and bordering the Ranch Plan project site. Residential development extends to the southern boundary of Coto de Caza, which is immediately adjacent to Planning Area 12 and in close proximity to Planning Areas 2 and 3.

- ***General Thomas F. Riley Wilderness Park*.** The General Thomas F. Riley Wilderness Park is a 524-acre County regional park facility. The park abuts Planning Area 12 and provides for day use activities, such as hiking.

- ***Upper Chiquita Conservation Area*.** The Upper Chiquita Conservation Area abuts the very northern portion of the project site and is located between Coto de Caza to the east and Las Flores to the west. This approximately 1,200-acre conservation area was set aside as mitigation for impacts resulting from construction of the segment of Foothill Transportation Corridor North (SR-241) from Oso Parkway to Antonio Parkway. The conservation area abuts Planning Area 12.

- ***Tesoro High School*.** This public high school is located north of the site, along (and on the south side of) Oso Parkway near the current terminus of the SR-241. The campus shares its eastern, western, and southern borders with the project site, specifically Planning Areas 2 and 12.

- ***Las Flores Planned Community*.** The residential planned community of Las Flores borders the project site to the northwest. Las Flores contains both single- and multi-family residences, as well as permanent open space nearly surrounding the development area. The planned community is completely built out and is adjacent to Planning Area 10.

- ***City of Rancho Santa Margarita.*** The City of Rancho Santa Margarita is immediately adjacent to the northern boundary of the Ranch Plan. The City provides a diverse number of uses; however, the incorporated area immediately adjacent to Planning Area 12 includes the Upper Chiquita Conservation Area and SR-241.

Land uses further to the north include the Starr Ranch Audubon Sanctuary and O'Neill Regional Park, the latter being a 3,358-acre County regional park facility, which offers camping and day uses, in addition to protection of natural habitat and associated species.

West

The area west of the project site contains several developing and developed areas. Along the northwestern edge, is the Las Flores Planned Community, which was addressed above. Other uses, from north to south, along the western boundary of the project site are identified below:

- ***Ladera Ranch*.** The planned community of Ladera Ranch is located immediately west of the project site's western border. Under construction, Ladera Ranch at completion will contain 8,100 dwelling units and approximately 125 acres of Urban Activity Center (UAC) uses. That portion of Ladera Ranch bordering the project site is preserved open space.

- ***The City of San Juan Capistrano.*** The City of San Juan Capistrano forms the western boundary along Planning Areas 1 and 11. While the city provides a number of diverse uses, residential development is immediately adjacent to Planning Area 1. The area consists of low-density single-family homes. Further south, along La Pata Avenue and adjacent to Planning Area 11, is the San Juan Hills High School (under construction).

- ***San Juan Hills High School.*** Capistrano Unified School District is currently grading the site for the San Juan Hills High School. The school, located west of La Pata Avenue and south of Ortega Highway, is scheduled to be open in 2006. The school will serve approximately 2,200 students.

- ***Prima Deshecha Landfill*.** The Prima Deshecha Landfill is a county sanitary landfill facility located in unincorporated Orange County, as well as the cities of San Juan Capistrano and San Clemente. The approximately 1,530-acre landfill has 1,000 acres permitted for refuse disposal and can accept up to 4,000 tons of waste per day. The landfill was opened in 1976 and is scheduled to close in approximately 2064. The landfill is adjacent to Planning Area 5 and south of Planning Area 11. Upon closure, the landfill site is planned to be a regional park.

- ***Donna O'Neill Land Conservancy*.** Donna O'Neill Land Conservancy at Rancho Mission Viejo, formerly the Rancho Mission Viejo Land Conservancy, is a 1,200-acre private non-profit wilderness reserve. The property is open only during guided nature walks, astronomy nights, and other scheduled programs. The Conservancy is west of Planning Areas 7 and 8 and south of Planning Areas 5 and 6. A small portion of Planning Area 9 is to the east of the Conservancy.

- ***Talega*.** The planned community of Talega is located predominately in the City of San Clemente. The 3,500-acre community includes various densities of residential uses that currently exist in the land areas adjacent to the project site, including both single-family and multi-family residences, as well as business and retail uses. Within the planned community boundaries there are approximately 2,000 acres of open space, which

includes the Donna O'Neill Land Conservancy. Talega is currently under construction and is adjacent to Planning Area 8.

The City of Mission Viejo is located further to the west of the site, west of the Arroyo Trabuco.

South

***U.S. Marine Corps Base at Camp Pendleton*.** MCB Camp Pendleton is located on approximately 125,000 acres of largely undeveloped land in unincorporated San Diego County and borders portions of the Ranch Plan site on the south and east, adjacent to Planning Areas 8 and 9. The Base is the largest amphibious training facility for the United States Department of Defense. In general, uses on the Base include military training and training support facilities, Base infrastructure and mission support, and leaseholders. Directly adjacent to the southern boundary of the project site, land uses include Camp Talega (a cantonment area containing military barracks, drill training areas and other troop support facilities), the San Onofre State Park and Beach, firing range areas, and Live Fire and Maneuver Areas.

East

The majority of land east of the project site is in undeveloped Orange, Riverside, and San Diego counties. Currently, an easement exists via ranch roads, which allows access to property immediately east of the project site. This property is within the County of Riverside and is under private ownership and contains scattered homes and the Rancho Del Rio Girl Scout camp on 213 acres. The Cleveland National Forest, located in both Orange and Riverside counties, and Camp Pendleton borders the site to the east.

Onsite Land Uses

The 22,815-acre project site is the remaining undeveloped portion of the Rancho Mission Viejo (see Exhibit 3-3 in Section 3, Project Description). Historically, land uses have included both ranching and agricultural uses. In the more recent past, portions of the project site have been leased for various uses including commercial nursery operations, natural resources extraction, research and development uses, communications facilities, and storage and maintenance yards. Current lease information is discussed below, with the location of the various onsite land uses depicted in Exhibit 4.1-2. More detailed exhibits of the existing land uses are provided for each of the planning areas. Additional onsite land uses managed by Rancho Mission Viejo include citrus and avocado groves, grazing lands, related agricultural uses, and a limited number of private residences.

Planning Area 1

Planning Area 1 is located east of the City of San Juan Capistrano in the vicinity of Antonio Parkway and Ortega Highway and immediately south of the Ladera Ranch Planned Community. Antonio Parkway traverses Planning Area 1 in a generally north-south direction. Ortega Highway traverses the southern portion of the planning area in a southwest to northeast direction. Much of the 810-acre planning area is currently used for citrus and other agricultural operations. Planning Area 1 contains commercial, industrial, and agricultural businesses; the Rancho Mission Viejo headquarters; limited residences; open fields, and 122 acres of San Juan Creek (see Exhibit 4.1-3). San Juan Creek bisects the planning area in a east-west direction. Specific land uses include the following:

- An approximately 50-acre field cultivated with a variety of market crops is located on the northwest corner of Ortega Highway and Antonio Parkway. This is the previous site of

the Joan Irvine-Smith pasture. The site includes a small wooden shed, fenced grazing pasture, and an aboveground diesel tank.

- The Ladera Ranch construction yard, formerly the Les Thompson lease area, located at 28811-A Ortega Highway, is an approximately one-acre area located in the northern portion of the planning area. This area includes a large wooden structure and several trailers.

- Oaks Corrals, 28650 Ortega Highway, occupies approximately 1.5 acres in the southern portion of the planning area. The area is used for horse corrals.

- A maintenance shop area, 28672 Ortega Highway, is located on approximately one acre in the southern portion of Planning Area 1. The maintenance shop area has two shop buildings, a large garage, and parking lots (gravel and asphalt).

- Residential units, 28652 and 28632 Ortega Highway, are located in the southern portion of Planning Area 1.

- Residential units, 28651, 28653, 28731, and 28691 Ortega Highway, are located north of Ortega Highway in Planning Area 1.

- The Blenheim Oaks Rancho Mission Viejo Riding Park, 29500 Ortega Highway, is located on the southwest corner of La Pata Avenue at Ortega Highway. The approximately 60-acre area contains fenced pastures and an equestrian exhibition area.

- DM Color Express Nurseries (29001 and 29813 Ortega Highway) is located on two sites at the corner of Antonio Parkway and Ortega Highway, in the southwestern portion of Planning Area 1. The site is occupied by a wholesale nursery and seed ranch, and includes an office, maintenance shop, storage buildings, greenhouses, various sheds, and trailers. The site also contains a pond and a water filtration/blending station.

- Tru-Green Nurseries, 29813 Ortega Highway, occupies approximately 22 acres in the southwestern portion of the planning area. The wholesale nursery has an office, storage building, greenhouses, shade houses, various sheds, and trailers.

- Citrus groves are located on approximately 100 acres in the western and central portions of the property and along San Juan Creek, south of Ortega Highway. A small supply shed and three small-unlabeled aboveground tanks are located in the western portion of the citrus groves; several electric windmills are located in citrus groves along San Juan Creek.

- The Rancho Mission Viejo Headquarters, at 28811 Ortega Highway, is located in the central portion of Planning Area 1. The approximately 15-acre headquarters includes a one-story office building, two-story recreation/conference complex, and one residence (28881 Ortega Highway).

- Open space encompasses approximately 400 acres in the northern and western portions of the Planning Area 1.

Planning Area 2

Planning Area 2 is located north of Ortega Highway, east of Antonio Parkway the Ladera Open Space and Planning Area, east of Ladera Open Space, east of Planning Area 10, south of Oso

Parkway and Tesoro High School (1 Tesoro Creek Road), and west of Cañada Gobernadora (Planning Area 12). The southern extension of SR-241, as depicted on the local General Plans and regional planning documents, would run through a portion of Planning Area 2 in a north-southeast direction and continue into Planning Area 3. The 1,680-acre planning area is in Cañada Chiquita. Eighty-six acres of lemon orchards, ten acres of avocado orchards, and barley fields are located in Lower Chiquita and Lower Chiquita Pasture. Sea Tree Nursery was previously located where the lemon orchards are currently located. The remainder of Planning Area 2 is in open space (see Exhibit 4.1-4). The SMWD Chiquita Water Reclamation Plant is located in the center of Planning Area 2, but is not a part of the Ranch Plan. A portion of the 10.5-acre Chiquita Canyon Mitigation Site is located on the western edge of Planning Area 2.

Planning Area 3

Planning Area 3 is located north of San Juan Creek, south and west of Caspers Wilderness Park, south of Coto de Caza, and east of Cañada Gobernadora. Planning Area 3 contains approximately 2,353 acres. As noted previously, a portion of the proposed SR-241 southerly extension would traverse Planning Area 3 in a generally northwest to southeast direction.

Most of Planning Area 3 is vacant and covered by natural vegetation (the northern portion of the site); the lower reaches (southern portion) of the planning area are currently used for commercial, industrial, and agricultural businesses, as well as residences for agricultural workers (see Exhibit 4.1-5). Along the southwesterly boundary of Planning Area 3 is an area historically known as “Cow Camp.” Existing uses in Cow Camp include the agricultural worker residences, horse riding arena maintenance facilities, and restroom facilities. Existing uses in Planning Area 3 include the following:

- Campo Vaquero, 31471 Ortega Highway, is located on 50 acres in the southern portion of the planning area. The site includes older ranch housing, pasture fields, a maintenance facility, and horse corrals. This area is contained with the area known as Cow Camp.

- Transit Mixed Concrete Company/Cemex Concrete, 31601 Ortega Highway, is located on four acres in the southeastern portion of Planning Area 3. The site is occupied by a cement/concrete batch plant, which includes an office trailer, maintenance trailer, fueling island, truck washout area, and storage shed.

- Olsen Pavingstone, 31511 Ortega Highway, is located on a six-acre site also in the southeastern portion of the planning area. The site is used as a paving stone manufacturing plant, which includes several office trailers, a residential unit, the manufacturing plant, and several storage units.

- CR&R/Solag Disposal Company, 31641 Ortega Highway, is located on six acres in the southeastern portion of Planning Area 3. The waste management facility site includes an office building, maintenance shop, fueling station, waste-processing unit, and storage units and yard used for refuse collection.

- Ewles Materials, 32501 Ortega Highway, is located on a 2.5-acre site also in the southeastern portion of the planning area. The site is occupied by an asphalt recycling and processing plant which includes an office trailer, employee trailer, storage unit, fuel compound, and wash station.

- Lemon groves and a field are located on approximately 166 acres north of Ewles Materials.

- California Portland Cement/Catalina Pacific Concrete South, 31511 Ortega Highway, is a 16-acre site located in the southeastern portion of the planning area. The site is occupied by a concrete batch plant which includes a truck fueling facility, truck washout area, office building, scale house, maintenance shop, storage buildings, several storage units, and three sub-lessee spaces: Saddleback Materials (materials storage), Chuck Royce Trucking (equipment storage), and Laguna Asphalt Paving, (equipment storage).

- O'Connell Landscaping Yard, 31821 Ortega Highway, is a 1.5-acre storage yard in the southeastern portion of Planning Area 3. The storage yard includes several portable storage units.

- Ten residences at 31121, 31151, 31181, 31221, 31241, 31261, 31263, 31265, 31381, and 31825 Ortega Highway are located along the ridge north of Campo Vaquero, in the southwestern Campo Vaquero in the southwestern portion of San Juan Creek, and adjacent to the O'Connell Landscaping storage yard.

- St. Augustine Training Center, 31151 Ortega Highway, is an approximate 0.5-acre site located in the southwest portion of the planning area. The site is used as a horse training facility with several stables, portable storage trailers, and two residential trailers.

- Color Spot Nursery, 31101 Ortega Highway, is located on 243.7 acres in the central portion of Planning Area 3. The site is a wholesale nursery with a maintenance shop, storage buildings, greenhouses, lined ponds, an irrigation recovery system, and a water filtration/blending station.

- A Cellular on Wheels site is located near Color Spot Nursery at 31101 Ortega Highway on an approximate one-acre property in the central portion of the planning area. The site contains two temporary mobile telecommunications tower and a small concrete structure, the latter used for equipment storage for the telecommunications towers.

Planning Area 4

Planning Area 4 is located north and south of existing Ortega Highway, and south of San Juan Creek. This 216-acre planning area, depicted in Exhibit 4.1-6, is occupied by the following land uses:

- Tree of Life Nursery, 33201 Ortega Highway, is located in the northwest portion of Planning Area 4. The 35-acre wholesale nursery has cultivation areas and several structures, including an office building, several green houses, barn, and trailers.

- RJO Horse Ranch, 33101 Ortega Highway, is a 24-acre site located south of the Tree of Life Nursery. The horse ranch has a barn, grazing land, and two residences.

- (not showing)The field south of the RJO Horse Ranch and east of Ortega Highway is used for barley cultivation (South Forty on Exhibit 4.1.6).

- A pump station for the Nichols Institute is located in the eastern portion of Planning Area 4. The Santa Margarita Water District maintains the pump station.

Planning Area 5

Planning Area 5 is located south of Ortega Highway, north of the City of San Clemente, and east of the City of San Juan Capistrano (see Exhibit 4.1-7). Much of the 1,350-acre planning

area has been disturbed by mining operations. Planning Area 5 has been used by Oglebay Norton Industrial Sands (ONIS) since 1984 as a sand mining and processing facility. Approximately 500,000 tons of silica sand is processed annually for building materials such as stucco, grouts, and mortars, as well as for use in golf courses, playing fields, and playgrounds (source: www.oglebaynorton.com). Exploration and mining of feldspar, clay, and ancillary minerals and substances also occurs at this location. The facility includes an open pit mine, a large earthen dam and associated reservoir, a processing plant, office complex, scale house, fueling facility, maintenance shop, several storage buildings, sheds and trailers, and open vehicle/equipment storage areas.

Planning Area 6

Planning Area 6 is located west of the proposed SR-241 alignment and north of the 1,200-acre wilderness reserve managed by the Donna O'Neill Land Conservancy at Rancho Mission Viejo (previously known as the Rancho Mission Viejo Land Conservancy). The 308-acre planning area is currently unoccupied (see Exhibit 4.1-8). Abandoned clay mines are located in the central and southern portions of the site. A portion of the western edge of Planning Area 6 is covered by the ONIS lease, but not impacted by the mining operation.

Planning Area 7

Planning Area 7 is a 1,442-acre predominately undeveloped/vacant property. The planning area is located north of Planning Area 8, south and east of Cristianitos Creek, and east of the proposed SR-241 alignment. Existing land uses are limited to one storage structure in the southeast portion of the property and lemon and avocado orchards in the northeast portion of the property (see Exhibit 4.1-9). The eastern half of Planning Area 7 was most recently occupied by Philco-Ford Aeronutronics, which operated a weapons research and testing facility from 1969 to 1993. Planning Area 7 is located approximately 0.5-mile north of the TRW site in Planning Area 8.

Planning Area 8

Planning Area 8 is located south of Planning Area 7, north of the southern Rancho Mission Viejo property boundary, and east of the planned community of Talega and the proposed SR-241 alignment. Referred to as the "TRW" site, Planning Area 8 is 1,264 acres (see Exhibit 4.1-10). Planning Area 8 has been leased to Northrop Grumman Space Technology for its TRW Capistrano Test Site (CTS) since 1963. The CTS is used to develop and test directed energy systems, and spacecraft and rocket propulsion systems and antennas. Prior site uses have also included the development and testing of "clean coal" technology. Facilities at the property include office and research facilities, chemical laboratory (Chem Lab), a fossil energy test site (FETS), testing and monitoring facilities including the high energy propulsion test site (HEPTS), vertical engine test site (VETS), and high altitude test stand (HATS), and various maintenance and support structures.

Planning Area 9

Planning Area 9 comprises the eastern portion of the project site and serves as the northeastern and southeastern boundaries of the site. The 9,272-acre planning area is generally bordered by Ortega Highway, open space, and the proposed SR-241 alignment to the west, and by open space/grazing land to the north, east, and south. Camp Pendleton is south and east of Planning Area 9. The site is vacant.

Planning Area 10

Planning Area 10 is a long, narrow property located west of Planning Area 2 and east of the planned community of Ladera Ranch. The 845-acre planning area is undeveloped; its most distinctive feature is Chiquita Ridge, which traverses the lower portion of the planning area in a north-south direction. The CUSD and Ladera Ranch have a 10.5-acre mitigation area, west of Water Treatment Plant, called the Chiquita Canyon Mitigation Site.

Planning Area 11

Planning Area 11 is located southeast of Planning Area 1, south of Planning Area 13, and west of Planning Area 5. It is generally east of La Pata Avenue and south of Ortega Highway. The planning area borders the City of San Juan Capistrano and the County of Orange Prima Deshecha Landfill on the east and the City of San Clemente on the south. The 1,015-acre planning area is currently used for cattle grazing. Other uses include Tierra Verde Industries, also known as La Pata Greenwaste, a commercial biodegradation-composting site. This use is located on 7.5 acres at east of La Pata Avenue. A cellular site is also located in the southeasterly portion of Planning Area 11 on approximately 2.0 acres.

Planning Area 12

Planning Area 12 is a narrow planning area located between Planning Area 2 and Planning Area 3 in the northern portion of the project site. The proposed alignment of SR-241 borders the western edge of the planning area. The Gobernadora Ecological Restoration Area (GERA) is located within Cañada Gobernadora in Planning Area 12. With the exception of GERA, the 1,348-acre planning area is currently used for cattle grazing.

Planning Area 13

Planning Area 13 is 912 acres and is currently undeveloped. San Juan Creek traverses the planning area in a generally east-west direction.

Existing Land Use Designations

Land use issues addressed in this section include the related planning programs of the County of Orange governing existing and future conditions in the project site. Several local and regional plans and programs apply to development in and around the site. The following discussion addresses these ongoing programs.

General Plan

The Ranch Plan site is located in unincorporated Orange County. The project site has a *County of Orange General Plan Land Use Element* designation of Open Space (5) (see Exhibit 3-4 of Section 3, Project Description). Land use categories are used to depict the general distribution, location, and extent of public and private uses of land. The *Land Use Element* states, “The Open Space (5) category indicates the current and near-term use of the land, most of which is zoned agricultural. It is not necessarily an indication of long-term commitment to open space use.” Within the Open Space (5) designation in the General Plan there is a second category called Open Space Reserve (OSR), which generally depicts lands preserved for open space. The OSR overlay includes major parks, beaches, forests, harbors, and other territory. However, there are private land holdings within the OSR designation and the boundaries can be manipulated on the General Plan. There is not the OSR designation within the Ranch Plan boundary.

Zoning

The *Zoning Code* is an ordinance that provides for the implementation of the *General Plan*. Zoning regulates permitted and prohibited land uses and establishes development standards for land uses. The majority of the project site is zoned A-1, General Agricultural, with another portion zoned S&G, Sand and Gravel Extraction (see Exhibit 3-20 of Section 3, Project Description). The area zoned S&G, Sand and Gravel Extraction is predominately San Juan Creek and the proposed Planning Area 5, where the ONIS operations are currently active.

As set forth in the *County of Orange Municipal Code Section 7.9-55.1*, the A-1 District "is established to provide for agriculture, outdoor recreational uses and low-intensity uses that have a predominately open space character. It is also intended that this district may be used as an interim zone in those areas which the General Plan may designate for more intensive urban uses in the future."

SG, Sand and Gravel Extraction District regulations, outlined in the *Zoning Code*, are intended to provide for surface mining, and quarrying, and processing of these materials in a manner that is both environmentally sensitive and compatible with existing and future land uses. These regulations are also intended to implement the Surface Mining and Reclamation Act and the regulations of the State Mining and Geology Board. Every site zoned *SG* is required to have an SG site permit, which identifies permitted uses. No uses shall be permitted in the *SG* District unless authorized by an *SG* permit. Only the ONIS site has an active SG site permit.

Relevant Planning Programs

As previously indicated, one aspect of land use planning considered under CEQA is the consistency of the proposed project with relevant planning documents. Relevant planning documents associated with this project would include the *County of Orange General Plan* and certain regional planning documents. The focus is on policy documents that are intended to provide guidance on development. This section is not intended to discuss other projects that may be within the same area or close proximity. These would be considered cumulative projects and are discussed in Section 7. To provide a comprehensive evaluation of applicable planning documents, the evaluation of most of the planning programs have been consolidated under this section. However, the natural resource planning programs are discussed in Section 4.9, Biological Resources.

County of Orange General Plan

As previously addressed, the Ranch Plan site is located in unincorporated Orange County. The County of Orange General Plan contains the following elements: *Land Use Element*; *Transportation Element*, *Public Services and Facilities Element*, *Resources Element*, *Recreation Element*, *Noise Element*, *Safety Element*, *Housing Element*; and *Growth Management Element*. The *County of Orange General Plan* defines a goal as a "general expression of community values and is abstract in nature. It looks to an ideal future of about twenty years." An objective is defined as "an intermediate step toward attaining a goal and is relatively more specific." A policy is defined as "a specific statement that guides decision-making." Goals, objectives and policies of the General Plan, relevant to the proposed project, are discussed below.

To avoid redundancy by citing each goal, objective and policy under the Existing Conditions and Impacts sections, the goals, objectives and policies, as well as the evaluation of the project's consistency with the policies, are discussed in Section 4.1.3, Impacts.

Land Use Element

The *County of Orange General Plan Land Use Element* (adopted February 2000, as amended April 2004) "…contains official County policies on the location and character of land uses necessary for orderly growth and development." The *Land Use Element* identifies policies and programs in other General Plan elements that affect land use and provide guidance for future land use planning studies for the unincorporated portion of the County. The Land Use Element discusses the planning constraints and deficiencies affecting development in Orange County: environmental, fiscal, economic and market, and governmental.

Three purposes are set forth in the *Land Use Element*. One, the *Land Use Element* provides policies, and land use patterns for unincorporated Orange County and establishes development criteria and standards, including population density and building intensity. In accomplishing this primary purpose, the *Land Use Element* fulfills the requirements of California Government Code §65302(a), which establishes it as a mandated element of a general plan. Two, the *Land Use Element's* policies provide a basis for the evaluation of physical development and growth trends in order to achieve General Plan goals. Three, the policies determine land use capacities and the appropriate level of public services and infrastructure necessary to support these capacities.

The *Land Use Element* identifies 13 major land use policies applicable to all geographic areas of unincorporated Orange County. These policies were adopted by the County for the purpose of guiding the planning and development of unincorporated areas in the short- and long-term.

The *County General Plan Land Use Element* establishes eight land use programs to implement the policies of the element. "These programs are necessary to effectuate the intent and purpose of the LUE policies. Future development in the County will be reviewed for compliance with the LUE policies through the following programs."

- Growth Management Program
- Housing Density Bonus Program
- Community Planning Program
- Environmental Review Process
- Natural Communities Conservation Planning Program
- Annual Land Use Element Review Program
- Childcare Improvement Program
- Recycling/Materials Recovery Program

Transportation Element

The *County of Orange General Plan Transportation Element* (adopted February 2000, as amended April 2004) "…contains County policies on the development of transportation facilities necessary to accommodate orderly growth of the County." The *Transportation Element* sets forth a comprehensive strategy for planning, developing, and maintaining a surface transportation system to serve existing and planned land uses in the unincorporated areas of Orange County. The primary goal, consistent with the State mandate, was originally adopted by the Orange County Board of Supervisors on May 10, 1972 and reaffirmed on June 9, 1982. The primary goal is to develop an integrated transportation system consisting of a blend of transportation modes capable of meeting the need to move people and goods by private and public means with maximum efficiency, convenience, economy, safety, and comfort and a system that is consistent with other goals and values of the County and the region.

The *Transportation Element* contains three components:

- Circulation Plan
- Bikeways Plan
- Scenic Highways Plan (SHP)

All three components are closely related and play a vital role in the County's attempt to achieve a balanced transportation system through an integration of multi-modal transportation facilities.

Public Services and Facilities Element

The *County of Orange Public Services and Facilities Element* (adopted February 2000, as amended April 2004) "*…*contains County policies on the planning and provision of public services and facilities that are necessary for orderly growth and development." The Public Services and Facilities Element focuses on those publicly managed services and facilities which have a direct influence on the distribution and intensity of development that can be accommodated through the utilization of existing technologies and assumptions that are used to determine adequate service levels.

These services include flood control, waste management, water and wastewater, transportation, and community services, i.e., fire protection library, sheriff patrol, and local special services districts and public school facilities. This strategy is expressed as an integrated framework of public facility goals, policies and programs. The goals of the *Public Services and Facilities Element* are based primarily on quantified objectives, an assessment of public facility needs, and the identification of problems impeding the planning, management, or implementation of County public facilities.

The policies and programs of the *Public Services and Facilities Element* form an effective implementation plan to meet the established goals. Consequently, this element serves to guide and direct local government decision-making in public facility-related matters and also fosters coordination with regional state and federal policies and programs. One of its major purposes is to provide a clear statement of County policy so that timely steps can be taken to ensure than an adequate supply to all necessary services and facilities will be available to meet the County's growth needs.

Resources Element

The *County of Orange Resources Element* (adopted February 2000, as amended April 2004) "*…*contains official County policies on the conservation and management of resources." The *Resources Element* is comprised of six components:

- Natural Resources
- Energy Resources
- Water Resources
- Air Resources
- Open Space
- Cultural-Historical

The goals of the element are consistent with state requirements and are primarily based on quantified objectives, an assessment of resource needs, and identification of problems impeding the development, management, preservation, or conservation of County resources. The *Resources Element* serves to guide and direct local government decision-making in resource-

related matters and also facilitates coordination with regional, state, and federal policies and programs.

Urbanization affects agriculture, parkland, wildlife habitat, and natural vegetation most directly, since these resources often compete with development for the same land. All resources will experience increasing demand as the urbanized area expands, but the methods employed to meet these demands will vary. One of the major purposes of the *Resources Element* is to provide a clear statement of County policy so that timely steps can be taken to ensure than an adequate supply of all necessary resources will be available to meet the County's growth needs.

Recreation Element

The *County of Orange Recreation Element* (adopted February 2000, as amended April 2004) "*…*contains official policies pertaining to the acquisition, development, operation, maintenance and financing of the County's varies recreation facilities, which include regional recreation facilities, local parks, and riding and hiking trails." Its purpose sets forth a comprehensive strategy for the acquisition, development operation, maintenance, management and financing of county recreation facilities which are necessary to meet Orange County's existing and future recreational needs. In accomplishing this primary purpose, the *Recreation Element* fulfills the requirements of California Government Code §65303(a).

The *Recreation Element* is made up of three components:

- Local Parks
- Regional Riding and Hiking Trails
- Regional Recreation Facilities

Each component includes a master plan with goals, objectives, policies and implementation programs. This element also identifies existing and potential constraints to and opportunities for satisfying the projected recreational demands for Orange County. Constraints can be identified as environmental (noise, flood hazard, fire hazard geological hazards), governmental (fiscal, competing objectives and priorities), economic (land availability), and legal (the Quimby Act allows a jurisdiction to establish dedication requirements). Conversely, recreational opportunities can also be defined as environmental (undeveloped land offers unique opportunities to address recreational needs), governmental (balanced land uses enhance recreational opportunities), economic (large-scale land holdings conserve and preserve natural features and enhance recreational opportunities), and legal (State Planning, Zoning, and Development laws enable the County to secure open space for recreational uses).

Noise Element

The *County of Orange Noise Element* (adopted February 2000, as amended April 2004) "*…*contains information that relates to the noise environment in the unincorporated section of Orange County." The *Noise Element* responds to the requirements of Section 65302(f) of the California Government Code. The objectives achieved by the development of this element are:

- Identification in quantitative, numerical terms of existing and projected noise levels, noise sources, and noise-sensitive land uses in the County.
- Direction for implementation programs which may be used to achieve and maintain a desirable noise environment.

The broad, noise-related goal of the County of Orange is to protect the health, safety, and general welfare of County residents by reducing noise levels and establishing compatible land

uses in noise-impacted areas. This goal promotes the amelioration of noise impacts by both reducing the noise produced by various sources and by guiding land uses so they are compatible with existing or projected long-term average noise levels. This goal must be achieved while maintaining internal consistency among the other elements of the General Plan as required by state law. The *Noise Element* addresses, amplifies, and supports other elements as they relate to noise issues.

Safety Element

The *County of Orange Safety Element* (adopted February 2000, as amended April 2004) "*…*contains County policies on identified and potential hazards and safety considerations, their mitigation (i.e. reduction in damage and loss to real and personal property and minimization of adverse social and economical impacts) and implications for development." The State Government Code required general plans to include a safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides, subsidence and other geologic hazards known to the legislative body; flooding; and wildland and urban fires." As such, the *Safety Element* must be considered in the physical development of a jurisdiction. While the element is required to focus on fire, flood, and geologic hazards, it may also address other locally relevant safety issues.

As the County continues to grow, the demand for public safety will increase. Services and programs designed to improve the safety of Orange County residents as the urbanized areas expand will experience increasing pressure. This pressure will be met through various methods. For example, adequate methods of crime protection already exist in the urbanized areas, but it is necessary that affirmative steps be taken to inform the public of available services and programs. One of the major purposes of the *Safety Element* is to provide a clear statement of County policy so that timely steps can be taken to ensure that an adequate supply of services and facilities will be available to meet the County's growth needs.

Housing Element

The *County of Orange Housing Element* (certified by the State January 2002, as amended April 2004) "*…*contains a comprehensive statement by Orange County government to the public of its broad and specific commitments to facilitate the development of housing in the unincorporated areas." These commitments are expressed within an integrated framework of goals, policies, and programs. The goals of the element are primarily based on state law, assessment of shelter needs, and identified opportunities for and constraints on the development and improvement of housing. In accomplishing these primary purposes, the *Housing Element* fulfills the requirements of State Government Code 65588(a), which establishes it as a mandated element of a general plan. The policies and programs of the element, taken together, form an implementation strategy to meet the goals established. The *Housing Element* evaluates the following:

- The appropriateness of the housing goals, objectives, and policies in contributing to the attainment of the state housing goal.
- The effectiveness of the Housing Element in attainment of the community's housing goals and objectives.
- The progress of the local agency in implementation of the *Housing Element.*

The current conditions and the manner in which future growth is determined by examining the following:

- Population distribution patterns;
- Population trends by Regional Statistical Areas;
- Housing distribution patterns;
- Countywide employment trends and distribution patterns;
- Comparison of jobs-to-housing balance;
- Population characteristics (i.e., household composition and income characteristics);
- Special needs (i.e., elderly and handicapped, large-family households, single heads of household, farm workers, homeless individuals and families);
- Housing stock characteristics (i.e., structure type, overcrowding status, condition of housing stock, housing cost, residential energy cost); and,
- Regional Housing Needs Assessment (current and future).

Growth Management Element

The *County of Growth Management Element* (adopted February 2000, as amended April 2004) "*…*contains County policies on the planning and provision of traffic improvements and public facilities that are necessary for orderly growth and development." The purpose and intent of this element is to mandate that growth and development be based upon the County's ability to provide an adequate circulation system; adequate sheriff, fire, paramedic, and library services and other necessary facilities; and through all of the processes established in this element, natural resources and the natural environment shall be protected. The *Growth Management Element* addresses, amplifies, and supports traffic improvement and public facility and developing phasing concerns identified in the other General Plan elements. It is implemented through various integrated programs developed to support and carry out its goals, objectives, and policies. The *Growth Management Element* achieves internal consistency with the other General Plan elements through the pursuit of common major goals such as balanced land use and public facilities development.

The project site is not located within any city's Sphere of Influence and therefore is not subject to any city general plan goals and policies.

Regional Planning Programs

The Southern California Association of Governments is the Metropolitan Planning Organization (MPO) for six counties: Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. The region encompasses a population exceeding 15 million persons in an area of more than 38,000 square miles. As the designated MPO, the SCAG is mandated by the federal government to research and draw up plans for transportation, growth management, hazardous waste management, and air quality. Among leading activity SCAG undertakes are:

- Maintenance of a *continuous, comprehensive*, and *coordinated planning* process resulting in a Regional Transportation Plan and a Regional Transportation Improvement Program.

- Development of *demographic projections* plus the integrated land use, housing, employment, transportation programs, measures, and strategies portions of the South Coast Air Quality Management Plan, as well as serving as co-lead agency for *air quality planning* for the Central Coast and Southeast Desert air basin districts.

- Responsibility under the federal Clean Air Act for determining conformity to the Air Plan of projects, plans and programs.

- Review of environmental impact reports for projects having regional significance for consistency with regional plans.

- Pursuant to federal water pollution control statutes, the Association functions as the authorized area wide waste treatment management planning agency.

- Responsibility under state law for preparation of the Regional Housing Needs Assessment.

SCAG has developed a number of plans to achieve the regional objectives. The most applicable to the Ranch Plan are the Regional Comprehensive Plan and Guide (RCPG) and the Regional Transportation Plan (RTP). Projects are reviewed by SCAG for consistency with the RCPG and RTP core and ancillary policies that apply to the specific project being reviewed. Projects are reviewed and an assessment is made on whether the project is consistent with or supports those specific policies. Some of the policies within these plans are advisory in nature.

4.1.3 IMPACTS

Thresholds of Significance

The project would result in a significant land use impact if it would:

- Disrupt or divide the physical arrangement of an established community

- Create an incompatibility with existing or planned land uses adjacent to the project site.

- Create an Incompatibility Land Use Existing Onsite at the Time of Development.

- Conflict with the policies of the General Plan or zoning put into place to protect environmental resources.

- Conflict with policies of the regional planning agency put into place to protect environmental resources.

- Conflict with any applicable adopted habitat conservation plan or natural community conservation plan

Impacts

The thresholds of significance can be divided into two main categories: those that evaluate the physical impacts and incompatibility of uses and those that consider consistency with policies. The first two thresholds focus on the physical arrangement of land uses and compatibilities of uses. The last three evaluate consistency with policies that have been adopted to help guide planning to avoid land use impacts. This discussion is designed to address the relationship of land use changes to relevant planning policies and to identify whether there are any inconsistencies with applicable general plans and regional plans, in accordance with CEQA Guideline §15125.

Indirect land use impacts, such as traffic, air quality, noise, and aesthetics are discussed in Sections 4.6, 4.7, 4.8 and 4.10, respectively. This section focuses on the compatibility of the Ranch Plan with existing and proposed land uses. The indirect impacts are only discussed here to the extent that they would contribute to the incompatibility of the land use.

The evaluation identifies the relationship, including similarities and differences, of the proposed uses to the surrounding uses. The analysis discusses the land uses by geographic area, as presented above in Existing Conditions.

Physical Impacts on Established Communities

The Ranch Plan area is generally at the edge of urban development. As discussed under Existing Conditions, uses on the site generally are various agricultural uses, industrial leases, and ranch related residential uses. The project would not disrupt or divide the physical arrangement of an established community. The closest established communities are Ladera Ranch to the north, and the cities of San Juan Capistrano and San Clemente to the west. The project would not have any physical impact on these communities. There would be no impacts associated with this threshold.

Incompatibility with Existing and Planned Land Use Surrounding the Project Site

Impact 4.1-1: *There is the potential for residential uses in Planning Area 8 to experience disturbance from helicopter flights and artillery training exercises, especially those occurring during night hours, potentially resulting in incompatible land uses.*

The following provides a discussion of the area surrounding the project site and the potential incompatibility of the proposed project with these adjacent uses.

North

- *Cleveland National Forest*. The Cleveland National Forest is located along the northeastern tip and eastern edge of the project site, adjacent to Planning Area 9. There are no facilities or development within the National Forest in close proximity to the Ranch Plan site. Access along Verdugo Canyon Road would be maintained for those private landholdings within the Forest that have an access easement. The majority of Planning Area 9 would retain the Open Space (5) designation on the General Plan, with 1,761 acres being designated 1A-Rural Residential. Within the 1A-Rual Residential designation, a total of 100 estate homes, 120 casitas and a 218-acre golf course are proposed. The majority of the project site adjacent to the Cleveland National Forest would not be developed and would retain the rural ranching characteristics. The natural open space interface between the Ranch Plan and the Cleveland National Forest would

be retained. There would be no significant land use impacts on the Cleveland National Forest.

- *Ronald W. Caspers Wilderness Park*. Caspers Wilderness Park provides outdoor recreation for hikers, equestrians, mountain bikers, and campers. The park is adjacent to Planning Areas 3, 4, 9, and 12. There would be no direct impact on the park. Issues relating to potential impacts are discussed in Section 4.12, Recreation.

- *Coto de Caza*. Coto de Caza is a residential planned community, which is immediately north of the Ranch Plan area. The Ranch Plan proposes clustered and low-density residential development in the northern portion of Planning Areas 2 and 3. This type of development would be consistent and compatible with the existing uses in Coto de Caza. There would not be a significant land use impact.

- *General Thomas F. Riley Wilderness Park*. This 524-acre park abuts Planning Area 12 and would be in close proximity to Planning Area 2. Planning Area 12 would be retained in open space and provide a buffer between the park and development in Planning Area 2. Development would be visible from vantage points along the ridgeline within the park. These would be mid-range and distant views, similar to what exists for other developments surrounding the park. Issues relating to potential indirect impacts are discussed in Section 4.12, Recreation.

- *Upper Chiquita Conservation Area*. This 1,200-acre conservation area abuts Planning Area 12. As previously indicated Planning Area 12 would be retained in open space and would provide a buffer between development and the conservation area. Planning Area 12 protects a wildlife movement corridor, which would provide connectivity with the Upper Chiquita Conservation Area, Chiquita Canyon, Cañada Gobernadora, and Caspers Wilderness Park. The Ranch Plan would not result in any significant impacts to the Upper Chiquita Conservation Area.

- *Tesoro High School*. The existing high school would be adjacent to Planning Areas 2 and 12. Clustered housing is proposed in the northern portion of Planning Area 2 in the vicinity of the high school. There would be no direct impacts on the high school. Residential use would be compatible with the high school. Chiquita Canyon Road, which would be constructed pursuant to the County Standard Plans for a two-lane collector road, would be constructed east of the high school and would connect with Tesoro Creek Road. Chiquita Canyon Road would be gated, which would reduce the amount of additional traffic in the vicinity of the school. The Ranch Plan would not have a significant impact on Tesoro High School.

- *Las Flores Planned Community*. This residential planned community is located immediately north and west of the Ranch Plan area. Las Flores would be adjacent to Planning Area 10, which would be retained in open space. The open space in Planning Area 10 would preserve the wildlife movement corridor south of the residential development required as part of the Las Flores Planned Community approval. There would be no impact on the existing uses in the Las Flores Planned Community.

- *The City of Rancho Santa Margarita*. The city provides a number of diverse land uses. The uses proposed in the Ranch Plan are similar in nature to the uses with the City of Rancho Santa Margarita. Within the City immediately adjacent to the Ranch Plan area are the Upper Chiquita Conservation Area (discussed above) and SR-241. The project would not conflict with any of the uses within the City. The Ranch Plan would not bisect

any uses within the City of Rancho Santa Margarita. There would not be a significant land use impact.

West

- *Ladera Ranch*. Ladera Ranch, currently under construction, provides a mix of residential and urban activity uses. Ladera Ranch would abut Planning Areas 1 and 10. The portion of the planned community adjacent to Planning Area 10 is in preserved open space. This would be consistent with the open space uses proposed for Planning Area 10. Residential use (1B Suburban Residential) is proposed within Planning Area 1 adjacent to the Ladera Ranch Planned Community. This would be a consistent use and would be a continuation of the residential use with Ladera Ranch. There would not be a significant land use impact.

- *The City of San Juan Capistrano*. The city provides a number of diverse land uses. The uses proposed in the Ranch Plan are similar in nature to the uses within the City of San Juan Capistrano. Residential uses and open space extend along the eastern edge of the City of San Juan Capistrano immediately adjacent to the Ranch Plan. North of Ortega Highway the housing is predominately low-density housing. This area would be adjacent to Planning Area 1; which proposes a combination of residential and urban activity center uses. However, the majority of the planning area would not be visible from the existing residential uses in the City of San Juan Capistrano because of an intervening minor ridgeline. The Ranch Plan proposes low-density housing in the portion of Planning Area 1 visible from the existing residential housing. This would be a continuation of the existing development and would be considered a compatible use. Senior housing, with a mix of housing types, would be on the east side of the ridge. The area adjacent to Ortega Highway would be designated Urban Activity Center, with a mix of uses proposed. There would not be a significant land use impact.

- *San Juan Hills High School*. The site for the proposed high school is currently being graded. Access to the high school would be off of La Pata Avenue. Planning Area 11 would be on the east side of La Pata Avenue. This planning area would be retained in open space. There would not be any land use impacts associated with the Ranch Plan and San Juan Hills High School.

- *Donna O'Neill Land Conservancy*. This approximately 1,200-acre area was set aside for conservation purposes as mitigation for the Talega development. Planning Areas 5, 6, 7, 8 and 9 would be immediately adjacent or in close proximity to the conservancy. Development is proposed in proximity to the Conservancy for all the adjacent planning area, except for Planning Area 9. This southern end of Planning Area 9 would be open space. Planning Area 5, proposed for 1B Suburban Residential development is located northwest of the Conservancy. A ridgeline separates the proposed development from the Conservancy. Additionally, Avenida Talega would act as a boundary between the Conservancy and Planning Area 5. Planning Areas 6 and 7 are to the north and east of the Conservancy, respectively. Both of these planning areas are proposed for 1B Suburban Residential development. Planning Area 6 would be low-density homes and a golf course. Planning Area 7 proposes both conventional and low-density homes; however, the conventional housing would be adjacent to the Conservancy. Cristianitos Road would separate Planning Area 7 from the Conservancy. Though there would be no direct impact on the Conservancy, development would be visible, especially along ridgelines, from within the Conservancy. Wildlife movement corridors connecting the Conservancy to other open space within the Ranch Plan and beyond to Caspers Wilderness Park and the CNF have been maintained. This is further discussed in

Section 4.9, Biological Resources. However, this would also be a land use factor since the Donna O'Neill Land Conservancy has been established for the protection of wildlife resources. The Ranch Plan would increase additional development in the area; however, approximately 66 percent of the area would be retained in open space and would not result in a significant impact on the function of the Donna O'Neill Land Conservancy.

- *Talega*. The Talega Planned Community, located predominately in the City of San Clemente, proposes residential, as well as business and retail uses. The Ranch Plan would be a continuation of similar uses. There would be no land use impacts.

The City of Mission Viejo is further to the west than the above listed uses. The Ranch Plan does not abut the City of Mission Viejo. There would not be any direct land use impacts on the City of Mission Viejo.

<u>South</u>

U.S. Marine Corps Base at Camp Pendleton. MCB Camp Pendleton borders the Ranch Plan site on the south and east, adjacent to Planning Areas 8 and 9. Uses immediately south of the Ranch Plan include the lease for the San Onofre State Beach (discussed above) and Camp Talega. The Ranch Plan would not have a direct impact on MCB Camp Pendleton. However, there is a potential for impacts from MCB Camp Pendleton on future sensitive land uses, specifically in Planning Area 8. Specific concerns relate to noise impacts from training operations. The northern portion of MCB Camp Pendleton, adjacent to the Ranch Plan site, is the busiest part of the base for training operations. Training operations include helicopter flights and artillery training exercises. These operations occur both during day and night hours.

The Department of the Navy (DON) has adopted several programs to ensure the compatibility of on- and off-site uses to minimize conflict with the ongoing training operations on the Base. The Range Compatibility Use Zone (RCUZ) program was adopted in August 1993 to achieve and maintain, to the extent possible, compatible land uses on-base and in the vicinity of the base as they relate to noise and safety hazards generated from training activities at MCB Camp Pendleton. The primary objective of the RCUZ program is to preserve the existing land uses that are primarily training and operation (maneuver) areas on base. The off-base objective is to promote land uses in the vicinity of the base boundaries that are compatible with the mission of MCB Camp Pendleton, but do not prevent the civilian community from realizing reasonable use and benefit from the land. The adopted RCUZ is approximately 10 years old and is proposed for updating in 2004. The existing RCUZ was based on training characteristics from 1990 and 1991. Based on discussions with MCB Camp Pendleton (personal communication, L. Rannals, January 30, 2004.), there is the potential that the updated RCUZ would identify the area within Planning Area 8 as being subject to impacts associated with training operations. If this were to occur, non-sensitive uses, such as commercial, business park, light industrial, and golf course uses, would be compatible uses. Residential use would be considered a sensitive, incompatible use by MCB Camp Pendleton. More detailed evaluation on the type of impact anticipated to occur must be evaluated when the RCUZ is prepared. Even when the 2004 RCUZ is developed, this plan may not be relevant by the time Planning Area 8 is proposed for development as part of the last phase of development (approximately 2022-2025). Though the area may not be in a 65 CNEL impact zone[1] from the airfield operations, there may be an annoyance factor associated with helicopter operations and artillery fire. At the time the Area Plan for Planning Area 8 is processed, the most current RCUZ should be evaluated to avoid

[1] The County and state standard for identifying a significant noise impact for residential and other noise sensitive uses is the 65 Community Noise Impact Level (CNEL). This is discussed in more detail in Section 4.8, Noise.

approval of potentially incompatible uses. Assuming a worst case, there is the potential for incompatible land uses within Planning Area 8, which would be a potentially significant impact. Implementation of the proposed mitigation measure to evaluate the current RCUZ prior to approval of development in Planning Area 8 would reduce this to a level of less than significant.

Associated with the land compatibility issue, MCB Camp Pendleton has expressed concern that the placement of residential development adjacent to the base would result in impacts to future residents, which may ultimately result in pressures to modify their training operations. If this were to occur, it is uncertain if there would be a significant physical impact associated with modification of training operations to reduce impact from MCB Camp Pendleton operations on adjacent Ranch Plan land. There is a potential that impacts associated with training operations, such as noise, may then occur in an area not currently impacted. This impact is speculative because it is uncertain if the area in Planning Area 8 would be adversely impacted by MCB Camp Pendleton, and if the residents would pressure for modification to training operations, and how the training operations would be modified. However, the mitigation measure to evaluate the compatibility of the noise sensitive land use at the time of Area Plan, as well as a buyer notification program would reduce this potential impact to a level of less than significant.

Helicopter training is done throughout the San Mateo Valley. Flights are often at low altitude through the valley. This area has been used to support the low-ambient-light night vision goggle training for helicopter aircrews. The construction of residential and business uses along the southern edge of the Ranch Plan boundary would introduce lighting into an area that currently has minimal lighting. This lighting would add to the lighting distractions that currently exist elsewhere within the area. Current sources of lighting would include residential development along the southern boundary of the City of San Clemente, and lighting at the cantonment areas (Talega, Cristianitos, San Mateo, and San Onofre). Together, these lighting sources may reduce the effectiveness of night vision goggle training in this area. This would be an operational issue rather than a physical impact. The project by itself would not result in a significant reduction in the effectiveness of this type of training activity because of the generally low ambient light associated with residential uses (compared to lighting levels associated with I-5 and the commercial uses adjacent to the freeway). This issue is also discussed in Section 7, Cumulative Impacts.

<u>East</u>

The majority of land east of the project site is undeveloped area within Orange, Riverside, and San Diego counties. As previously indicated, the Cleveland National Forest and Caspers Wilderness Park (discussed above) are the primary uses. There are several properties within the County of Riverside under private ownership that contain scattered homes and the Rancho Del Rio Girl Scout camp. This area would be adjacent to open space within Planning Area 9. The proposed golf course and casitas would be over 1,500 feet from the property line for these uses. Access to these parcels would be retained via easements on existing ranch roads and no expansion of these roads is proposed. The project would not alter the easement agreements or the ability of residents of those parcels to maintain access. There would be no adverse land use impacts to these land uses.

Incompatibility with Existing and Planned Land Use On the Site

In addition to grazing and farming activities, there are more than 23 different entities operating on the site, including mineral extraction, wholesale nurseries, waste management, and research and development businesses. The project proposes to allow these uses to continue until they are replaced with urban uses adopted as part of the project or until applicable lease agreements covering these uses expire. A change in a land use would not be considered a significant

impact unless the change results in an incompatibility with other land uses. It should also be noted that impacts agricultural and mineral resources are further discussed in Sections 4.2 and 4.13, respectively. The following provides a discussion of the onsite land uses and impact to these uses.

Planning Area 1. Planning Area 1 contains commercial, industrial, and agricultural businesses; the Rancho Mission Viejo headquarters; limited residences; and open fields.

- The Ranch Plan would displace the agricultural uses on the site, including the market crops field, which occupies approximately 50 acres and approximately 100 acres of lemon orchard in the central and western portion of the planning area. This continuation of these uses would be the prerogative of the landowner and would not be considered a significant land use impact. The loss of agricultural lands is further discussed in Section 4.2, Agricultural Resources.

- Other agricultural/commercial uses that would be displaced are the DM Color Express Nurseries (29001 and 29813 Ortega Highway) and Miramar Wholesale Nurseries (29813 Ortega Highway). These 29.4- and 17-acre nursery sites are both located in the southwestern portion of the planning area. The Ranch Plan would displace these wholesale nurseries and the facilities constructed to support them. These include the seed ranch, as well as offices, maintenance shop, storage buildings, greenhouses, various sheds, and trailers. Both of these leases expire in 2004. Given the number of approvals that would be required prior to any construction on the Ranch Plan, it is likely that these uses would terminate pursuant to the lease agreements prior to initiation of construction.

- The Ladera Ranch construction yard, located at 28811-A Ortega Highway, is an approximately one-acre area located in the northern portion of the planning area. This area includes a large wooden structure and several office trailers. It is anticipated that the need for this facility would no longer be required when the construction of the Ranch Plan is initiated because major construction operations for Ladera Ranch would be near completion. However, the site would serve as a construction yard while implementing the Ranch Plan.

- The maintenance shop area (28672 Ortega Highway), which includes several shop buildings and garage, provides support to RMV ranching/agricultural operations. This use would be displaced and would be relocated elsewhere on the ranch.

- The Oaks Corrals (28650 Ortega Highway) and Blenheim Oaks Rancho Mission Viejo Riding Park (29500 Ortega Highway) would be displaced. The lease on this site is set to expire in 2004. Similar to the nursery leases, the lease agreements reflect the termination of these uses prior to construction initiation.

- Residential units, 28652 and 28632 Ortega Highway, are located in the southern portion of Planning Area 1. Additionally, residential uses on the north side of Ortega Highway (28651, 28653, 28731, and 28691) would also be displaced. These units are owned by RMV and used by ranching staff. These units would be displaced and commensurate housing would be provided. Similar to the other leases, these displacements would occur as part of ongoing property management.

- Miramar/Cellular on Wheels are located on less than one acre located at the southeast corner of Ortega Highway at La Pata Avenue. The site is used for a mobile communications tower and for the storage of potted plant stock. These uses may

require relocation; however, this would be consistent with the lease agreement and permits.

The Rancho Mission Viejo Headquarters, located at 28811 Ortega Highway, would remain on site. This approximately 15-acre headquarters would be located in the UAC designation and would be considered a compatible use.

The displacement of the uses within Planning Area 1 would not be considered a significant impact. The leases on these uses either terminate prior to the anticipated initiation of construction or, in the case of the Ladera Ranch construction yard, the use would no longer be required. The termination date on a lease indicates that there is no commitment to continue the use onsite beyond the lease date.

Planning Area 2. Currently this planning area is undeveloped and used for agricultural purposes. The site contains lemon orchards. Barley fields are located in this planning area and are grazed by the cattle. The development of the Ranch Plan would not result in a significant land use impact. The impacts to agricultural production are discussed in Section 4.2, Agriculture. The project would not impact the SMWD Chiquita Water Reclamation Plant, which is surrounded by Planning Area 2, but is not a part of this project. The SMWD facility would not result in any impacts on the adjacent development. A component of an Area Plan would be address if screening is required. Additionally, project design and visual considerations are addressed as part of the tentative tract map approval process.

Planning Area 3. The site is predominately vacant and covered by natural vegetation in the northern portion of the site. The southern portion of the planning area is currently used for commercial, industrial, and agricultural businesses, as well as residences for agricultural workers. The displacement of the RMV agricultural uses and residences would be the choice of the landowner and would not be considered a significant impact. The following are other uses onsite that would be affected.

- Cow Camp would remain in O'Neill family ownership. The existing uses, such as the agricultural worker residences, a horse riding arena and restroom facilities would remain. No further development is proposed in this area; therefore, there would be little alteration of this portion of the planning area.

- The industrial-type uses, including Transit Mixed Concrete Company/Cemex Concrete (31601 Ortega Highway), Olsen Paving Stone (31511 Ortega Highway), Ewles Materials (32501 Ortega Highway) and Catalina Portland Cement/Catalina Pacific Concrete South (31511 Ortega Highway) are involved with construction supplies, such as a cement/concrete batch plant, paving stone manufacturing plant and asphalt recycling. The expiration dates for leases are as follows:

  - Transit Mixed Concrete Company/Cemex Concrete—April 1, 2013
  - Olsen Paving Stone—Renewed monthly
  - Ewles Materials—Renewed monthly
  - Catalina Portland Cement/Catalina Pacific Concrete South—Renewed annually

  There is no commitment to continue these uses beyond the termination dates of the leases with or without the Ranch Plan. The projected development date for this portion of Planning Area 3 is between 2013 and 2015 (Phase 4); therefore, there would be no impact to these industrial-type uses.

- Color Spot Nursery (31101 Ortega Highway) is located within the planning area. Similar to other uses on the property, there are no commitments to continue this use beyond the lease termination date of December 31, 2006. Development in this portion of Planning Area 3 is anticipated between 2009 and 2013 (Phase 3); therefore, the leases would have expired prior to any Ranch Plan construction activities. Since this use would end prior to the development of the Ranch Plan, there would be no impact.

- The O'Connell Landscaping Yard (31821 Ortega Highway), which is only 1.5 acres, is also within this planning area and would be displaced. O'Connell Landscaping provides landscape services to the Ranch. Relocation of this use should not be difficult because of the portable nature of the buildings

- CR&R/Solag Disposal Company, the waste management facility site, has a lease that extends to September 19, 2015, with an option for two five-year extensions. If both options were exercised, the lease would extend to 2025. The phasing plan identifies this area as being developed between 2013 and 2015. The Solag use would be permitted in the UAC designation; however, it may not be compatible with other surrounding uses. At the time of Area Plan approval, the nature of the uses surrounding the Solag site would need to be evaluated for consistency. The property owner may elect to work with the lessee to relocate the Solag use elsewhere within the project site. The potential impacts associated with relocation of the use would be evaluated when permits for the relocation of the use are requested. This would be a separate discretionary action and would be subject to separate CEQA documentation. Given that the use is consistent with the UAC designation and it would only be speculation as to the surrounding uses, the continuation of the Solag use would not be considered a significant land use impact.

- Ten residences at 31121, 31151, 31181, 31221, 31241, 31261, 31263, 31265, 31381, and 31825 Ortega Highway are located along the ridge north of Campo Vaquero, in the southwestern portion of Cow Camp along San Juan Creek, and adjacent to the O'Connell Landscaping storage yard. It is estimated that six of these units would be displaced by construction (31241, 31151, 31121, 31181, 31221, and 31381).

- St. Augustine Training Center would also be displaced by the Ranch Plan. The lease for this use expires on August 31, 2008 or one year after written notice by the landlord, which ever is first. This area is proposed to be developed in the third phase between 2009 and 2012. Since the lease would have terminated for this use prior to development, there would not be a conflict.

- The Cellular on Wheels site near Color Spot Nursery may need to be relocated; however, this would be consistent with the lease agreement and the permits; therefore, there would be no significant impacts.

There would be no significant land use impacts in Planning Area 3. The existing residential uses would be incorporated into the design plans for the Ranch Plan. Uses currently on leases would be terminated prior to construction or would be deemed compatible with the General Plan designation.

***Planning Area 4*.** Development of the Ranch Plan would displace uses within this 216-acre planning area. Use that would be affected include:

- The Tree of Life Nursery is currently on an annual lease renewed each July. As with other lease holds, there is no commitment to continue the use beyond the terms of the lease.

- The RJO Horse Ranch would remain and be part of the low-density housing.
- Verdugo Canyon Trailer site is vacant. There are no current uses that would be displaced.
- A pump station, owned and maintained by the Santa Margarita Water District, for the Nichols Institute is located in the eastern portion of Planning Area 4. The Ranch Plan would not impact this pump station.

Planning Area 5. Mining operations by ONIS would be terminated with construction of the Ranch Plan. The ONIS lease is currently set to expire in February 1, 2013. This Planning Area is proposed for development between 2016 and 2020. The ONIS operations would no longer be located onsite when construction is planned to begin. There would be no impacts to this land use. Impacts on Mineral Resources are discussed in Section 4.13.

Planning Areas 6, 7, and 9. These planning areas are currently undeveloped. There are agricultural operations (orchards) within Planning Area 7. The orchards would be eliminated with the construction of the Ranch Plan. No significant land use impacts would occur. Impacts to Agricultural Resources are discussed in Section 4.2.

Planning Area 8. The Northrop Grumman Space Technology TRW Capistrano Test Site is located within Planning Area 8. This would be displaced by development. The lease with Northrop Grumman extends through 2018. Construction is proposed in Planning Area 8 between 2020 and 2025. The lease for the TRW Capistrano Test Site would have expired prior to the initiation of construction.

Planning Areas 10, 11, 12, and 13. These areas are currently undeveloped. GERA is located in Planning Area 12. No development is proposed for Planning Areas 10 through 12; therefore, there would be no land use impact in these planning areas. Planning Area 13 is proposed as a regional park.

Conflict with the Policies of the General Plan or Zoning

The Ranch Plan would result in a change in character of the project site. The site is currently designated on the *General Plan* as Open Space (5). The zoning for the site is A-1, General Agriculture and SG, Sand and Gravel Extraction. The *Land Use Element* states, “The Open Space (5) category indicates the current and near-term use of the land, most of which is zoned agricultural. It is not necessarily an indication of long-term commitment to open space use.” The project proposes to amend the General Plan and zoning to have the land use designations and zoning compatible with the uses proposed.

Under the thresholds of significance, a conflict with General Plan Policies would be viewed as a significant impact if the policy was put in place to protect environmental resources.

Implementation of the Ranch Plan would result in the ultimate conversion of open space land to urban uses on approximately 34 percent of the project site. This would result in a change in the character of the area, as viewed from surrounding uses (viewshed impacts are discussed further in Section 4.10, Aesthetics and Visual Resources). Since the majority of the project site would be retained in open space, a rural setting would be intermixed with the urban development. Additionally, the development onsite would reflect a continuation of development similar in nature to the urban development in the communities surrounding the Ranch Plan project site.

Orange County General Plan

As previously indicated, the project is within unincorporated Orange County; therefore, the provisions of the *Orange County General Plan* are applicable. The following analysis identifies the goals, policies and objectives applicable to the Ranch Plan project and discusses the consistency of the Ranch Plan with these goals, policies and objectives. The only goals, policies and objectives that have not been included are ones that are not applicable to the project or relate to countywide programs that would be implemented by the County or other agency (such as those pertaining to pursuing funding sources, public education, and representing the County at trade shows). Where appropriate, the goals, policies and objectives have been grouped together where similar issues are being addressed by more than one of the goals, policies and objectives. The analysis found the project consistent with the *General Plan* goals, policies, and objectives.

Land Use Element

The *Land Use Element* identifies policies, rather than goals. There are 12 policies that would be applicable to the Ranch Plan. The following is an evaluation of those policies:

General Plan Provision:

> Policy 1: Balanced Land Use – To plan urban land uses with a balance of residential, industrial, commercial, and public land uses.
>
> Policy 9: Employment Development – To encourage development of employment land uses to achieve balanced phasing of development.

Consistency Evaluation:

> The Ranch Plan proposes a balanced land use plan providing a mix of residential, employment, commercial and recreational uses. The project would provide a jobs/housing balance. The phasing plan identifies Planning Area 1 as being constructed as the first phase. This would allow the development of a portion of the Urban Activity Center uses; thereby allowing the housing and employment uses to be phased concurrently. The Ranch Plan would be consistent with *General Plan Land Use Element* Policies 1 and 9.

General Plan Provision:

> Policy 2: Phased Development – To phase development consistent with the adequacy of public services and facilities within the capacity defined by the General Plan.

Consistency Evaluation:

> The applicant has initiated coordination efforts with the utility and service providers to ensure adequate infrastructure and utilities would be in place as each phase of the project is occupied. The Area Plan process would provide detail on the implementation of facilities for each phase of development. The project is consistent with *General Plan Land Use Element* Policy 2.

General Plan Provision:

> Policy 3: Housing Densities – To provide a variety of residential densities that permit a mix of housing opportunities affordable to the county's labor force.

Consistency Evaluation:

Approximately 14,000 residential dwelling units are proposed for the project site. Types of housing units proposed include single-family, multi-family, senior (age-restricted) housing, and apartment units. The housing densities would range from estates to clustered units and apartments. The proposed project would be consistent with *General Plan Land Use Element* Policy 3.

General Plan Provision:

Policy 4: Land Use/Transportation Integration – To plan an integrated land use and transportation system that accommodates travel demand.

Consistency Evaluation:

The project would provide a comprehensive circulation plan for the project area, connecting internal streets to key arterials. This circulation plan would be created to accommodate proposed land uses and the anticipated traffic volumes resulting from the project. The proposed project would be consistent with *General Plan Land Use Element* Policy 4.

General Plan Provision:

Policy 5: Commercial and Industrial Centers/Transportation Access − To locate major commercial and industrial centers in areas that are easily accessible to existing or planned major transportation facilities.

Consistency Evaluation:

The Ranch Plan proposes development of urban activity center uses in close proximity to the key arterial highways (Antonio Parkway, New Ortega Highway, and Cristianitos Road), as well as the proposed extension of SR-241. This would allow easy access to the employment and retail centers from outside the project limits, as well as from within the project. The larger General Plan designation for UAC allows some flexibility to respond to the ultimate improvements proposed as part of the SOCTIIP project. The proposed project would be consistent with *General Plan Land Use Element* Policy 5.

General Plan Provision:

Policy 6: New Development Compatibility – To require new development to be compatible with adjacent areas.

Policy 7: Creative Design Concepts – To encourage innovative concepts that contribute to the solution of land use problems.

Policy 8: Enhancement of Environment – To guide development so that the quality of the physical environment is enhanced.

Consistency Evaluation:

Land uses for the Ranch Plan site have been designated with the intention of minimizing potential land use conflicts, both internal to the project site and with existing uses adjacent to the project site. Use of the natural ridgelines for buffering, placement of similar development types adjacent to existing uses, and preservation of 66 percent of the site in

open space enhances compatibility. The proposed project would be consistent with *General Plan Land Use Element* Policies 6, 7, and 8.

General Plan Provision:

Policy 10: Childcare Improvement − To encourage and facilitate provision of childcare facilities to address the growing County demand.

Consistency Evaluation:

Childcare uses are consistent with both the residential and UAC designation, which is located in multiple planning areas. This type of use would be viable in the town center use proposed in Planning Area 3. The proposed project would be consistent with *General Plan Land Use Element* Policy 10.

General Plan Provision:

Policy 11: Hazardous Waste Management Facilities − To protect the health and welfare of the public and quality of the environment, while preserving the economic vitality of Orange County through a comprehensive countywide program and to ensure the safe and efficient management of hazardous wastes.

Policy 12: Recycling/Materials Recovery – To encourage and facilitate establishment of recycling/materials recovery facilities to address the State mandate given through the California Integrated Waste Management Act of 1989 (AB 939).

Consistency Evaluation:

The project would be served by a waste hauler who participates in collection of recyclable materials. Similarly, facilities for collection of household hazardous waste would be consistent with the level of service applicable to the rest of the County. Consistent with state law, the waste hauler would be required to implement a waste reduction program; therefore, the proposed project would be consistent with *General Plan Land Use Element* Policies 11 and 12.

General Plan Provision:

Policy 13: Urban and Storm Water Runoff Regulations-Establishes framework for the reduction of water pollution. Policies for meeting updated objectives for permits in the San Diego Region include:

a. Look for opportunities to minimize the amount of impervious surfaces in areas of new development and redevelopment; and where feasible, identify the need to slow runoff and maximize on-site infiltration runoff.

b. Implement appropriate pollution prevention methods supplemented by pollutant source controls and treatment, as needed. Encourage the use of small collection strategies located at, or close to as possible to, the source runoff and pollutants off-site and into MS4.

c. Look for opportunities to preserve, and where possible, create or restore areas that provide, create, or restore areas that provide important benefits, such as riparian corridors, wetlands, and buffer zones. Encourage land acquisition of such areas.

d. Seek to limit disturbances of natural drainage systems caused by development including roads, highways, and bridges.

e. Prior to making land use decisions, look for opportunities to utilize methods available to estimate the increase in pollutant loads and flows resulting from projected future development. Require incorporation of structural and non-structural BMPs to mitigate the projected increases in pollutant loads and flows.

f. Identify and seek to avoid development of areas that are particularly susceptible to erosion and sediment loss; or establish development guidance that identifies these areas and protects them from erosion and sediment loss.

g. Look for the opportunities to reduce pollutants with vehicles and increasing traffic resulting from development. Coordinate local traffic management reduction efforts with Orange County Transportation Authority's Congestion Management Plan.

h. Look for design opportunities to manage post-development runoff from a site in such a manner that, to the maximum extent practicable, it shall not contain pollutant loads that cause or contribute to exceedances of receiving water quality objectives.

Consistency Evaluation:

The project proposes to maintain 66 percent of the project site as open space, which would minimize the amount of impervious surface. A Water Quality Management Plan (WQMP) has been developed to maximize onsite filtration of water and incorporates natural treatment systems. The project has incorporate bridges and use of open space to protect creeks. These measures would be further developed and refined during subsequent levels of approval. Section 4.9, Biological Resources, provides an evaluation of consistency with the SAMP Planning Principals. The project is consistent with *General Plan Land Use Element* Policy 13.

The *Land Use Element* identified eight programs to facilitate the implementation of the land use policies. These are summarized below, with an evaluation of the Project's consistency with these programs.

Growth Management Program. The Growth Management Program is intended to implement the Phased Development and Land Use/Transportation Integration policies of the *Land Use Element* Policy 4 through a requirement that developers of major projects submit annual reports identifying any deficiencies in infrastructure and applicable mitigation. The *Land Use Element* notes that where a project can demonstrate that conditions have been placed on a project to balance development with public service demands, the project should be exempt from the annual monitoring report requirement. Through the mitigation program (project design features, standard conditions of approval and mitigation measures), provisions for adequate public services have been incorporated into the project (see Section 4.15, Public Services and Facilities). The precise detail for these provisions, such as school locations, placement of fire stations, and refinement on the sizing of water facilities, would be clarified through the Area Plan approval process and service agreements when detailed design for the project has been developed. These subsequent discretionary approvals would ensure adequate provision of services. (Also, see the Growth Management Element discussion later in this section.)

*Housing Density Bonus Program***.** The Density Bonus Program is an incentive based program to developers to facilitate compliance with the County's affordable housing

requirements (Policy 3). The *Land Use Element* notes that the purpose of the program is to permit increased residential density to reduce development costs and selling prices. The Ranch Plan proposes to provide a range of housing types with different price ranges. While a housing density bonus is still allowable under State law, at this time provisions for a density bonus have not been incorporated into the comprehensive zoning program (*The Ranch Plan Planned Community*) because the project is not requesting consideration of a housing density bonus.

Community Planning Program. The Community Planning Program provides "detailed planning and specific guidance at the community level that formalizes County policy uniquely appropriate to certain areas through the preparation of specific plans, redevelopment plans, rehabilitation plans, local coastal plans, planned community zoning, and/or neighborhood plans" (Policy 6). The Ranch Plan would be processing a series of Area Plans and would be addressing detailed community level issues prior to approval of tentative tract maps and construction permits.

Environmental Review Process. The program "minimizes environmental impacts of development through the County's environmental review procedure. This program implements state and federal environmental protection laws in Orange County." The Ranch Plan is being processed pursuant to the County's environmental procedures. This Program EIR identifies a mitigation program, whose purpose is the reduction of environmental impacts.

Natural Community Conservation Planning Program (NCCP). An NCCP establishes a habitat reserve system for native habitat. The focus of the NCCP Program is to protect target sensitive species, such as the coastal California gnatcatcher. As addressed in this EIR (see Section 4.9, Biological Resources), the Ranch Plan site is located within the proposed Southern Subregion NCCP. As indicated in Section 3.3, Project History, Planning Areas 2, 3, and 7 of the original filing plan were modified as a result of the development of the Draft Southern NCCP Guidelines and Draft Watershed and Sub-basin Planning Principles. Also, as discussed in Section 2.2, although the GPA/ZC for the Ranch Plan is being processed before completion of any NCCP, it would provide a conservation plan that would be complementary to any such program that is completed in the future.

Annual Land Use Element Review Program. The Annual Land Use Element Review Program requires the County to annually review the policies, land use categories, and programs of the *General Plan Land Use Element* and to make modifications based on the "previous year's experience and to facilitate innovative planning concepts." (Policies 7 and 9) Generally, projects that have a development agreement are not subject to the annual review program because performance criteria and improvement phasing requirements have been incorporated into the development agreement.

Childcare Improvement Program. The Childcare Improvement Program is intended to ensure that childcare facilities are accommodated in areas of greatest need (Policy 10). Childcare facilities for infants (0 to 2 years old) and preschool (2 to 5 years old) are encouraged to be concentrated in employment areas. Extended day care facilities (school-age children, before and/or after school) are considered to be more appropriate near residential area and school facilities. New developments are required to participate in the Childcare Improvement Program through conditions placed on projects in unincorporated south Orange County. Coordination between the County, school districts, community programs, and developers is encouraged. The project would participate in this program. The residential and UAC designations would permit the development of childcare programs within the Ranch Plan.

Recycling/Materials Recovery Program. The Recycling/Materials Recovery Program is intended to ensure that recycling and/or materials recovery facilities are accommodated in areas of greatest need. The County of Orange Integrated Waste Management Department is responsible for the implementation of the County's Source Reduction and Recycling Element, which identifies programs and facilities to divert waste from landfills, including Materials Recovery Facilities (MRFs). MRFs are considered most appropriate in urban activity centers, employment areas, property designated for public facilities, solid waste facility districts, and open space areas. As indicated above, the waste hauler serving the Ranch Plan project site would be required to comply with state law (AB 939), which requires the reducing of solid waste in landfills.

Transportation Element

The *Transportation Element* includes the *Circulation Plan*, *Bikeway Plan* and *Scenic Highway* Plan. The following are applicable goals, policies, and objectives from the *Circulation Plan* component of the *Transportation Element*.

General Plan Provision:

Goal 1: Provide a circulation plan, which supports land use policies of the County.

Policy 1.1: Implement the circulation plan in a manner that supports the implementation of adopted overall land use policies and which is consistent with financing capabilities.

Policy 1.2: Apply conditions to land use development projects to ensure that the direct and cumulative impacts of these projects are mitigated consistent with established level of service policies.

Objective: 1.1: Establish a circulation plan, which accommodates the General Plan Land Use Element of the County.

Objective 1.2: Establish a circulation plan designed to serve as part of a balanced transportation system (auto, rail, transit, bus, truck, bicycle, pedestrian, etc.).

Objective 1.3: Develop a program to monitor arterial highway conditions at intersections with the unincorporated areas to ensure that an acceptable Level of Service is maintained.

Objective 1.4: Prepare circulation monitoring reports to evaluate the cumulative impacts of major land use developments within unincorporated County areas.

Goal 3: Provide a circulation plan that facilitates the safe, convenient, and efficient movement of people and goods throughout unincorporated areas of the County.

Policy 3.1: Maintain acceptable levels of service on arterial highways pursuant to the Growth Management Element of the General Plan.

Policy 3.2: Ensure that all intersections within the unincorporated portion of Orange County maintain a peak hour Level of Service "D," according to the County Growth Management Plan Transportation Implementation Manual.

Policy 3.3: Evaluate all proposed land use phasing plans for major development projects to ensure maintenance of acceptable Levels of Service on arterial highway links and intersections.

Objective 3.1: Establish minimum roadway specifications necessary to ensure safe and efficient movement of vehicles and other modes of transportation.

Consistency Evaluation:

The land use plan and the circulation plan for the Ranch Plan have been developed together to ensure that the project would meet applicable level of service standards. The project applicant would be paying fair share for improvements to existing roadways and intersections to address cumulative project impacts. Provisions for phasing of circulation improvements with development would be provided for in the Development Agreement. The project would be consistent with *General Plan Circulation Plan Element* Goals 1 and 3, Policies 1.1, 1.2, and 3.1 through 3.3 and Objectives 1.1, through 1.4 and 3.1.

General Plan Provision:

Goal 2: Provide a circulation (arterial highway) plan that is integrated with that of adjacent jurisdictions.

Policy 2.1: Coordinate with the following transportation planning agencies: Caltrans (State), Orange County Transportation Authority (OCTA), the Transportation Corridor Agencies (County corridor planning and construction) and Orange County cities on various studies relating to freeway, tollway and transportation corridor planning, construction, and improvement in order to facilitate the planning and implementation of an integrated circulation system.

Policy 2.2: Support the implementation and development of the south leg of the Foothill Transportation Corridor as viable means of improving traffic circulation within Orange County.

Policy 2.3: Coordinate Circulation Plan planning with OCTA for the purpose of promoting existing and future transit programs.

Policy 2.4: Apply conditions to development projects to ensure compliance with OCTA's transit goals and policies.

Policy 2.5: Apply conditions to development projects to ensure implementation of the Circulation Plan as applicable.

Policy 6.3: Work with adjacent jurisdictions to cooperatively implement needed measures that would provide high occupancy vehicle lanes, emergency lanes or additional travel lanes, necessary channelization, and/or bicycle lanes whenever warranted and feasible.

Objective 2.1: Plan, develop, and implement a circulation system in the unincorporated areas, which is consistent with the Master Plan of Arterial Highways and circulation plans of adjacent jurisdictions.

Consistency Evaluation:

The analysis of the project's proposed circulation system is being coordinated with the County and surrounding and affected jurisdictions. The project applicant and the County solicited input regarding the proposed project from the appropriate agencies and jurisdictions. The proposed MPAH Amendment is undergoing the Cooperative Study Process, pursuant to OCTA MPAH guidelines. Participants in the Cooperative Study

Process include the cities of San Clemente, San Juan Capistrano, Mission Viejo, Rancho Santa Margarita, and Laguna Niguel, Caltrans, the TCA, OCTA and the County of Orange. Each concern raised in conjunction with the Cooperative Study Process was evaluated and, when appropriate, applied to the circulation planning for the project. It is recognized that the Cooperative Study Process strives to achieve a concurrence among the members of the process on what changes to the MPAH should be made. The project would implement key components of the MPAH and Circulation Plan within the project limits and participate on a pro-rata share for arterial highway improvements affected by the project. As indicated in Section 3.9, Caltrans, the TCA and OCTA have all been identified as responsible agencies for the project. The project would accommodate the extension of the Foothill Transportation Corridor (SR-241), which is depicted on the applicable project graphics. The traffic analysis has been conducted both with and without the SR-241 extension and the project acknowledges that modifications to the land use plan may be required should an alignment other than the locally preferred alignment be selected for SR-241. Additionally, all anticipated future roadway or intersection improvements were taken into account when planning for the project circulation system. The project would encourage alternative modes of transportation through the construction of bikeways and trails. The Area Plans would identify transportation facilities, including measures to support and encourage transit. The project would be consistent with *General Plan Transportation Element* Goal 2 and Policies 2.1 through 2.5, and 6.3, and Objective 2.1.

General Plan Provision:

Policy 5.1: Establish "traffic impact fees" for application to county development projects with measurable traffic impacts, as defined in the Growth Management Plan Element of the General Plan. These fees may serve as local matching funds for Orange County Measure M, state and federal highway funding programs.

Policy 5.7: Require, as a condition of approval, that a development mitigation program, development agreement or developer fee program be adopted to ensure that development is paying its fair share of the costs associated with that development pursuant to Policy 5.1.

Consistency Evaluation:

Project-related traffic would contribute traffic on surrounding roadways and intersections. Therefore, the project applicant would be responsible for payment of the project's fair share of any required improvements of existing roadways or intersections and payment of established traffic impact fees. The project would be consistent *General Plan Transportation Element* Policies 5.1 and 5.7.

General Plan Provision:

Goal 5: Manage peak hour traffic congestion to achieve an acceptable level of services on existing and future circulation plan facilities in the unincorporated areas of the County.

Policy 5.2: Use uniform analytical methods, in conformance with the Congestion Management Program, to aid in transportation planning and impact evaluation and support the development and utilization of sub-area models to address detailed transportation issues.

Policy 5.3: Use adopted Orange County forecasts for all projections of future year population, housing, employment, and other socioeconomic data to assure consistency among other General Plan Elements.

Policy 5.4: Develop traffic forecast for County unincorporated areas utilizing the adopted Orange County forecast.

Objective 5.2: Develop traffic forecasts for County unincorporated areas that are consistent with those of OCTA.

Objective 6.3: Maximize the efficient movement of traffic through congested areas by using approved Orange County signal coordination methods.

Consistency Evaluation:

Section 4.6 of the EIR provides analysis of the existing and proposed circulation plans. The analysis was performed according to County standards and in consultation with County staff. OCTA has validated the transportation model used for the analysis as consistent with the model used by OCTA. The circulation system for the project was created to serve the future population of the project. Roadway and intersection capacities would be designed to adequately support future Orange County forecasts and the additional project-related population. Additionally, intersection and signal design would comply with standard designs as set forth by the County of Orange. The project is consistent with *General Plan Transportation Element* Goal 5, Policies, 5.2 through 5.4, and Objectives 5.2 and 6.3.

General Plan Provision:

Objective 6.2: Develop Park and Ride facilities in County unincorporated areas to integrate multi-modal transportation facilities and promote ridesharing. These activities should be done in coordination with OCTA and the development community.

Objective 6.6: Enhance the continuous movement of vehicles along bus routes by providing bus turnouts.

Policy 6.6: Encourage commercial developments to provide park and ride lots if practical and feasible.

Consistency Evaluation:

At General Plan/zoning, specific design features, such as park and ride lots and bus turnouts, are not identified. These design level issues would be evaluated at the Area Plan and tentative tract level of approval. The project does not propose any features that would preclude incorporation of these features, if warranted. Currently, OCTA has not identified any major transit corridors within the project study area. As the project is developed, these types of facilities may be warranted to accommodate transit and ride-share programs. These issues would be evaluated as part of the Master Area Plan and Area Plans, which are subsequent discretionary actions. The project would be consistent with *General Plan Transportation Element* Objectives 6.2 and 6.6 and Policy 6.6.

General Plan Provision:

Objective 1.5: Develop a circulation phasing plan to ensure that adequate roadway capacity is available on the circulation network to accommodate increments of new development.

Policy 5.6: Establish comprehensive traffic improvement programs to ensure that circulation improvements are built, as a condition of approval, to accommodate each phase of

development. For a more detailed discussion regarding traffic improvement programs, refer to the *General Plan Growth Management Plan Element*.

Consistency Evaluation:

Phasing of the project would ensure that the necessary level of roadway facilities would be constructed to serve the increasing population as individual phases were implemented. The project would be consistent with *General Plan Transportation Element* Objective 1.5 and Policy 5.6.

General Plan Provision:

Goal 4: Ensure that the circulation plan conforms to applicable environmental quality standards.

Objective 4.1: Ensure that development of the circulation plan is sensitive to the environmental character of communities and neighborhoods throughout the unincorporated areas of the County.

Objective 4.2: Plan and develop, through design and alignment studies, roads in a manner which minimizes impacts associated with crossing of flood plains or drainage courses; known earthquake fault zones, wildlife, unique geological, and resource conservation and open space areas and currently designated agricultural areas.

Objective 4.3: Maintain a circulation system that is compatible with the physical environment, to the extent practical, and allows for the preservation of the natural resources of the County.

Policy 4.1: Implement the Circulation Plan in a manner consistent with Federal, State and local environmental quality standards and regulations.

Consistency Evaluation:

The Program EIR provides an analysis of the environmental impacts of the entire project, including the proposed circulation system. All roadways would be subject to County and State regulations governing project and roadway design, as well as noise and air quality impacts. In addition, the EIR provides analysis of potential incompatibilities of the roadways with surrounding uses, aesthetic implications of the circulation system, and other environmental impacts. Each applicable section of the Program EIR provides recommended mitigation to reduce any potential environmental impacts resulting from the proposed circulation system. Compatibility of the circulation system with the surrounding neighborhoods would be addressed through the Area Plan, though design features to ensure traffic calming and discourage the use of neighborhood streets for through traffic. Development of roadway landscape plans would complement neighborhood character. The project is consistent with Goal 4, Objectives 4.1 through 4.3, and Policy 4.1 of the *General Plan Transportation Element*.

General Plan Provision:

Policy 6.4: Assist businesses in County unincorporated areas in the implementation of the policies of the County Transportation Demand Management (TDM) Ordinance.

Policy 6.5: Require employment centers (e.g., shopping malls, business parks, etc.) with total employment of more than 100 to form Transportation Management Associations (TMA), or to be affiliated with an established TMA, to coordinate ridesharing for the purpose of reducing single-occupant vehicle trips to their site.

Consistency Evaluation:

The project applicant would encourage property owners to implement programs to reduce the number of vehicle trips to and from the site through establishment of Transportation Management Programs, ride-share programs, and other policies of the County TDM Ordinance (see Standard Condition 4.6-1. Implementation of this policy would be done at the subdivision map phase. Therefore, the project would be consistent with *General Plan Transportation Element* Policies 6.4 and 6.5.

General Plan Provision:

Objective 5.1: Implement the circulation system in a manner which achieves the established Traffic Level of Service Policy pursuant to the applicable Growth Management Plan (GMP) Element. Appendix 2: GMP Transportation Implementation Manual contains traffic LOS policies applicable to County unincorporated areas.

Policy 5.5: Require as conditions of approval that the necessary improvements to arterial highway facilities, to which a project contributes measurable traffic, be constructed and completed within a specified time period or ADT milestone to attain a Level of Service D at the intersections under the sole control of the County. LOS C shall be maintained on Santiago Canyon Road links until such time as uninterrupted segments of the roadway (i.e., no major intersections) are reduced to less than three miles. For a detailed discussion of LOS policies, refer to Appendix 2: Growth Management Plan Transportation Implementation Manual.

Goal 6: Implement Transportation Demand Management (TDM) and Transportation Systems Management (TSM) strategies, which reduce peak hour vehicle travel demand and minimize single occupant vehicles and trip length on the unincorporated county roadway system.

Objective 6.1: Develop and promote a transportation system and strategies that are consistent with Rule 1501 of the South Coast Air Quality Management District (SCAQMD) and the County Transportation Demand Management (TDM) Ordinance (Ordinance No. 3820).

Objective 6.4: Implement arterial highway intersections to their Maximum Feasible Intersection capabilities when LOS deficiencies are noted.

Objective 6.5: Enhance the efficient movement of vehicles through the circulation system by providing bike lanes and restricting parking on arterials whenever feasible.

Objective 6.7: Require developers of more than 100 dwelling units, or 25,000 square feet of non-residential uses to: 1) demonstrate consistency between the local transportation facilities, services, and programs, and the regional transportation plan; and b) to submit, as part of their development proposal (non-residential), a Transportation System Management/ Transportation Demand Management (TSM/TDM) plan which includes strategies, implementation programs and an annual monitoring mechanism to ensure a reduction of single-occupant automobile travel associated with development.

Policy 6.1: Apply conditions to development projects to ensure compliance with applicable TDM/TSM regulations and the County's TDM ordinance.

Policy 6.2: Encourage new developments to support means of enhanced pedestrian and bikeway use by providing linkages between land uses such as residential areas, parks, schools, businesses and commercial areas which typically generate a large number of peak hour trips.

Consistency Evaluation:

The traffic analysis contained in Section 4.6 of this Program EIR addresses the Level of Service at key intersections affected by the project. The applicable significance thresholds are provided and are the basis of analysis. As discussed in Section 4.6, Transportation and Circulation, the proposed circulation system accommodates the projected traffic levels associated with the project. At key intersections, additional turn lanes would be provided to optimize intersection capacity.

The project provides for 6,000 senior dwelling units. The travel characteristics associated with senior units would reduce the number of peak hour trips compared to conventional non-age-restricted development. This is consistent with the TSM strategies.

Rule 1501 pertaining to Transportation Demand Management was repealed. However, the project would be required to comply with the Transportation Demand Management Ordinance. This would be accomplished through submittal of a Transportation Systems Management/Transportation Demand Management Program for the urban activity center areas in conjunction with tentative tract maps. This is provided for in the mitigation program in Section 4.6, Transportation and Circulation.

During the Area Plan review process, provisions (such as walking trails and internal bikeways) would be developed to link residential areas with employment and retail development. The intent for Planning Area 3 is to develop a town center that would be a focal point for the community. This is provided for in the mitigation program in Section 4.12, Recreation.

The project would be consistent with *General Plan Transportation Element* Goal 6 and Policies 5.5, 6.1, and 6.2, and Objectives 5.1, 6.1, 6.4, 6.5, and 6.7.

The applicable goals, policies, and objectives from the *Bikeway Plan* component of the *Transportation Element* are discussed below. In addition, there are several policies and objectives within the *Bikeway Plan* that are to be implemented by the County rather than a project applicant. Those policies, which are not addressed below, pertain to pursuing funding sources, updating the *Bikeway Plan*, and representing the County at trade shows and rideshare fairs.

General Plan Provision:

Goal 1: Develop and implement a bikeway plan that maximizes the opportunities for non-motorized vehicle transportation, and meets the recreation and local transportation needs of the residents of Orange County's unincorporated areas.

Objective 1.1: Develop a bikeways network for the unincorporated areas, which provides non-motorized alternatives for commuter travel as well as recreational opportunities.

Objective 1.2: Plan and develop the County's Bikeways Plan in coordination with the cities, OCTA, and Caltrans. This system will be designed to complement and interface with the overall transportation network existing and planned for Orange County, including the individual cities' bikeways and circulation plans.

Policy 1.1: Role of the Bikeways Plan: Coordinate and facilitate the implementation of the unincorporated County's bikeway system, utilizing input from the bicycling community, the cities, and other agencies.

Policy: 1.3: Arterial Highways: Provide for bicycle access to arterial highways as depicted on the Circulation Plan. Bicycle travel will also be accommodated on arterial highways during roadway construction, widening or other improvements, whenever feasible and practical.

Policy 1.4 Commuting: Design bicycle routes to connect residential areas with major activity centers (employment, educational, civic, etc.) by requiring, through the subdivision process, the dedication of right-of-way and construction of designated bikeways as conditions of development within the unincorporated areas.

Policy 1.5: Recreation: Plan bicycle routes to facilitate access to recreational areas such as regional parks, beach areas, and major tourist commercial/recreational facilities.

Policy 1.6: System Connectivity: Plan a bikeway network to interface with other modes of transportation (train or transit stations and Park-N-Ride lots, etc.) to plan for, and provide space for carrying recreational and commuting bicyclists on public transportation systems where feasible.

Policy 1:7: Modal Interaction: Encourage other modes of transportation (buses, trains, etc.) to plan for, and provide space for carrying recreational and commuting bicyclists on public transportation systems where feasible.

Policy 1.8: Scenic Value: Locate bikeways along designated scenic highways wherever environmentally, physically, or economically feasible, and encourage the development of scenic vista points and rest areas where feasible and appropriate.

Policy 1.9: Rights-of-Way: Construct bikeways in existing and abandoned public rights-of-way along flood control channels, parks, roads, and utility and railroad rights-of-way where feasible, and where a need can be demonstrated.

Policy 1.13: User Convenience: Encourage the provision of bicycle racks, showers, lockers, and other storage facilities, where practical and economically feasible, when reviewing discretionary permits for major activity centers.

Policy 1.14: Regional Continuity: Encourage other jurisdictions to adopt a system of bikeways that complements the County system and the Commuter Bikeways Strategic Plan administered by OCTA.

Consistency Evaluation:

Proposed project design includes alignment of the San Juan Creek Class I bike way within project boundaries to serve both the project population as well as regional recreational users from throughout south Orange County. The bikeway would serve as an extension of the regional networks located in south Orange County, providing a scenic route and connectivity

to arterial highways and local circulation network. Additionally, the bikeway would function as an alternative form of transportation within the project site. Actual design of the bikeway and trail would be accomplished through the Area Plan process. Design would conform to applicable County standards. Dedication of right-of-way would be required through the subdivision process. The Ranch Plan provides for all the bikeways designated on the Bikeway Plan, as well as those on the OCTA Bikeway Map. The project would be consistent with *General Plan Transportation Element*, Bikeway Plan Goal 1, Objectives 1.1 and 1.2, and Policies 1.1, 1.3 through 1.9, 1.13, and 1.14.

General Plan Provision:

Objective 1.3: Develop a bikeway network, which maximizes the safety and convenience of users of all levels of experience within that system.

Policy 1:11: Design Standards: Design and construct bikeways in accordance with County and Caltrans standards in order to maximize safety and minimize potential conflicts with pedestrians and motor vehicles.

Policy 1.12 Bicycle Safety: Separate bicycle and automobile traffic wherever possible, taking into consideration safety, users of the facility, economic factors, and physical feasibility, and by designing only one-way bike lanes, thereby minimizing conflicts at intersections and reducing the hazards of bicyclists traveling against traffic.

Policy 1.17: Development Commitment: Encourage developers to provide local bicycle trails, as well as require construction of applicable Bikeways Plan bikeways within their projects as conditions of development approval.

Consistency Evaluation

The bikeways would be designed to meet the County standard plan for bikeways and would be implemented in conjunction with adjacent development. The project would be consistent with *General Plan Transportation Element*, Bikeway Plan Objective 1.3 and Policies 1.11, 1.12, and 1.17.

The following are applicable goals, policies, and objectives from the *Scenic Highway Plan* component of the *Transportation Element*.

General Plan Provision:

Goal 1: Preserve and enhance unique or special aesthetic and visual resources through sensitive highway design and the regulation of development within the scenic corridor.

Objective 1.1: Protect and enhance the County's beauty, amenities, and quality of like within the unincorporated areas.

Objective 1.2: Add to the pleasure of its residents and visitors by enhancing scenic routes.

Objective 1.3: Coordinate the development of new scenic corridors with Caltrans, OCTA, the cities, and the development community, in order to preserve the aesthetic qualities of the environment.

Objective 1.4: Preserve established Scenic Highways in order to protect the existing scenic qualities of these corridors.

Objective 1.5: Develop the roadway portion of the scenic corridors in a manner that recognizes the natural scenic resources of the corridor and is sensitive to them to the maximum extent feasible.

Objective 1.6: Require sufficient setback from the scenic corridor, where feasible, for the purpose of preserving the corridor's scenic qualities.

Policy 1.1 Project Consistency: Require preparation and approval of highway plans demonstrating project consistency with the intent of the Scenic Highway Component, prior to tract map recordation. This can be accomplished through the subdivision, discretionary permit, Feature or Area Plan review process.

Policy 1.2 Offer of Dedication: Where necessary to preserve unique or special visual features, impose conditions on development within a scenic highway corridor to require dedication of scenic easements consistent with the adopted corridor plan.

Policy 1.3 Addition to the Scenic Highway Plan: Preserve scenic routes which have exceptional or unique features, but are not necessarily designated as arterial highways on the County Circulation Plan, by placing them on the Scenic Highways Plan. Development of scenic highways shall be in conformance with a Specific Plan prepared in accordance with the Scenic Highways Implementation Planning Guidelines.

Policy 1.4 Cooperative Planning: Connect County-designated scenic highways with city-designated scenic highways; adjacent-County-designated scenic highways, and/or those in the State Scenic Highway system so as to form a linked system.

Policy 1.5 View Design: Where feasible, through the design process and alignment studies, develop the scenic highway in a manner which takes into account the cone of vision of the motorist. Consider both the short and long-range views available along the way while enhancing them with foreground framing.

Policy 1.6 Highway Design: Design the roadway to have the visual quality ad riding comfort resulting from its horizontal and vertical design. Introduce curves where feasible to take advantage of natural or man-made scenic features.

Policy 1.7 Inclusion of Trails: Incorporate pedestrian, equestrian, and bicycle trails into the right-of-way of scenic highways as designated by the County's Bikeways Plan and the Master Plan of Regional Riding and Hiking Trails.

Policy 1.8 Road Slope Improvement: Where feasible, utilize contour grading and slope rounding to gradually transition graded road slopes into the natural configuration consistent with the topography of the area.

Consistency Evaluation:

Within the project boundaries, Ortega Highway is designated as a Viewscape Corridor east of Antonio Parkway and as a Landscape Corridor west of Antonio Parkway. The project proposes two modifications to the *Scenic Highway Plan*. The first is to delete the segment of Ortega Highway that is proposed for abandonment from the State Highway System (the segment parallel to New Ortega Highway). The second is to add New Ortega Highway as a Landscape Corridor. Antonio Parkway is already designated as a Landscape Corridor. This would recognize the intent of the *Scenic Highway Plan* by having Ortega Highway/New Ortega Highway, including the connecting segment of Antonio Parkway, designated as a

Landscape Corridor throughout the project limits. The proposed project would incorporate the required design and landscape features in compliance with the *Scenic Highway Plan*.

The project would design New Ortega Highway to meet all requirements of the Scenic Highway Plan for a Landscape Corridor, including design of the roadway to avoid significant natural or man-made scenic features. Land uses bordering New Ortega Highway would also be subject to requirements of the *Scenic Highway Plan* for a Landscape Corridor in that land uses would be sufficiently shielded from views of passing motorists. This shielding would be accomplished through landscape features, use of existing and manufactured topography to provide elevational differences, location and orientation of proposed structures, etc. These design elements would be determined at a Master Area Plan level. The Ranch Plan would also incorporate all designated riding and hiking trails and bikeways within the project design. This would include the Class I Bikeway and Riding and Hiking Trail in the vicinity of San Juan Creek.

The project would be consistent with the *Transportation Element*, Scenic Highway Plan Goal 1, Objectives 1.1 through 1.6, and Policies 1.1 through 1.4 and 1.7 and 1.8.

Public Services and Facilities Element

The following are applicable goals, policies, and objectives from the *Public Services and Facilities Element* pertaining to General Public Services and Facilities.

General Plan Provision:

Goal 1: Provide a network of public services and facilities that are integrated, complementary, and compatible with other countywide regional land use and development goals.

Objective 1.1: To plan public services and facilities consistent with the Orange County General Plan.

Policy 3 Land Use Compatibility: To coordinate facility planning in a manner compatible with surrounding land uses and to review planned land uses adjacent to facilities for their compatibility with facility operations.

Consistency Evaluation:

As part of the analysis of the project, each utility and service provider has been contacted and consulted regarding the proposed project. Ongoing coordination would be required as Area Plans are prepared to ensure the anticipated increased demands for services resulting from the project are met. The specifics are discussed in Section 4.15, Public Services and Facilities. This process would also take into consideration land use compatibility concerns when locating facilities. The proposed project would be consistent with the *Public Services and Facilities Element*, General Provisions Goal 1, Objective 1.1 and Policy 3.

General Plan Provision:

Goal 2: Encourage the funding and development of public services and facilities to meet the County's existing and future demand.

Objective 2.1: To achieve target service levels through the coordination of funding programs and planning efforts.

Objective 2.2: To develop adequate and dependable public serves and facilities, which support existing and future development as defined by the General Plan.

Consistency Evaluation:

Through analysis of utility and public service needs, the mitigation program, which includes project design features, has been developed to provide sufficient service levels. The proposed project would be consistent with the *Public Services and Facilities Element* General Provisions Goal 2 and Objectives 2.1 and 2.2.

The following are applicable goals, policies, and objectives from the *Public Services and Facilities Element* pertaining to the Orange County Fire Authority.

General Plan Provision:

Goal 1: Provide a safe living environment ensuring adequate fire protection facilities and resources to prevent and minimize the loss of life and property from structural and wildland fire damages.

Goal 2: To provide an adequate level of paramedic service for emergency medical aid in order to minimize trauma of injury or illness of patients.

Objective 1: To achieve desired level of fire protection and paramedic service through coordinated land use and facility planning.

Objective 2: To develop comprehensive fire and paramedic facility planning to include phased capital improvements consistent with the County General Plan.

Consistency Evaluation:

The proposed project would develop land uses over approximately 7,694 acres, which would require additional public safety and fire protection services. Section 4.15, Public Services and Facilities, provides an analysis of these additional demands for services and provides mitigation to adequately support the demands of the project. Through provision of additional personnel, equipment, and/or facilities, police, fire protection, and emergency medical services would be adequate to serve the project. The proposed project would be consistent with the *Public Services and Facilities Element*, Fire Goals 1 and 2 and Objectives 1 and 2.

General Plan Provision:

Policy 1 Facility Siting: Fire/paramedic facilities shall be sited in locations so as to assure efficient fire rescue and paramedic response for the service area. General criteria for site selection shall include:

a) Call response time: for 80 percent of the service area, first fire engine to reach the emergency scene within 5 minutes and paramedic to reach the scene within 8 minutes.

b) Land use compatibility: stations shall be located in commercial or industrial, or open space zones in order to avoid the disturbance to residential areas, wherever possible.

c) Street access: stations shall be located adjacent to arterial highways with controlled traffic signalization.

Policy 3 Site Design Criteria: Require all land use proposals to implement adequate site design so as to maximize fire protection and prevention in order to minimize potential damages. The site design criteria shall be established to reflect the levels of protection needed for projects in various fire hazard areas.

Such criteria shall include consideration as to: structure type and density, emergency fire flow and fire hydrant distribution, street pattern and emergency fire access, fuel modification programs, automatic fire sprinkler systems, and other requirements as determined by the Fire Chief.

In accordance with the Insurance Services Officer (ISO) suggested standards, ultimate fire protection rating shall be maintained by General Plan land uses categories as follows: (1) ISO 3 for all urban developments including Residential (1C and 1B), Commercial (2A and 2B), Employment (3.9) and Public Facilities (4.0), which are within 5 miles from a fire station and less than 1,000 feet from a hydrant; and (2) ISO 4 for Rural Residential (1A), which are within 5 miles from a fire station and less than 1,000 feet from a hydrant. For areas greater than 5 miles or 1,000 feet, the ISO suggested standard is 9.

Consistency Evaluation:

The project applicant shall continue to consult with the service providers to site necessary facilities in appropriate locations in order to maximize each service area's coverage. The proposed project would be consistent with the *Public Services and Facilities Element*, Fire Policies 1 and 3.

General Plan Provision:

Policy 2 Phased Development: Require phased development whereby land use proposals shall display the ability to provide adequate fire and paramedic services prior to project development. The service provision shall include station site acquisitions, construction, equipment, and station staffing. The level of service shall be established in accordance with the criteria identified in Policy 1.

Consistency Evaluation:

The applicant would work with individual service providers to develop a Comprehensive Phasing Plan to ensure that adequate service would be available as each phase of the project is occupied. Implementation of the project would occur over 20 to 25 years. The phasing of the project and implementation of the required services and infrastructure would ensure the necessary circulation system and public services and utilities are provided in a timely manner. The project is consistent with the *Public Services and Facilities Element* Policy 2.

The following are applicable goals, policies, and objectives from the *Public Services and Facilities Element* pertaining to the Orange County Sheriff-Coroner.

General Plan Provision:

Goal 1: Assure that adequate Sheriff patrol service is provided to ensure a safe living and working environment.

Objective 1.1: To maintain adequate levels of Sheriff patrol services through coordinated land use and facility planning efforts.

Policy 1 Land Use Review: To continue to coordinate land use proposal reviews with the County Sheriff-Coroner Department to assure that Sheriff patrol service shall be adequately addressed.

Consistency Evaluation:

The proposed project would develop land uses over approximately 7,694 acres, which would require additional public safety and fire protection services. Section 4.15, Public Services and Facilities, provides an analysis of these additional demands for services and provides mitigation to adequately support the demands of the project. The proposed project would be consistent with the Public Services and Facilities Element, Sheriff-Coroner, Goal 1, Objective 1.1, and Policy 1.

The following are applicable goals, policies, and objectives from the *Public Services and Facilities Element* pertaining to Water Systems.

General Plan Provision:

Goal 1: Encourage the planning and development of a water conveyance and distribution system to meet the County's future demand.

Objective 1.1: To achieve desired water system service levels through the coordination of land use and water system planning.

Objective 1.2: To implement state, regional, and local facility plans for water delivery to Orange County.

Objective 1.3: To increase storage and delivery capacity for water supplies in Orange County.

Policy 1 System Capacity and Phasing: To ensure the adequacy of water system capacity and phasing, in consultation with the service providing agency(ies), in order to serve existing and future development as defined by the General Plan.

Policy 2 Water Delivery System: To support water facility planning and development efforts for Orange County water supplies conducted by local and regional water agencies.

Policy 3 Intergovernmental Coordination: To actively encourage opportunities for increased coordination between the County and the water agencies through cooperative water facility planning and implementation efforts.

Consistency Evaluation:

The Santa Margarita Water District has assessed the water requirements of the project and verified that the 20-year projection of water supply is sufficient to meet projected water demands of the Ranch Plan. Infrastructure would be built to provide the necessary conveyance and storage capacity to serve the project. This is discussed in greater detail in Section 4.15, Public Services and Facilities. Additionally, a General Plan-level Water Quality Management Plan has been prepared for the project and is discussed in Section 4.5, Water Resources. More detailed WQMPs would be required at subsequent levels of

development. Therefore, the project is consistent with Public Services and Facilities Element, Water, Goal 1, Objectives 1.1, through 1.3, and Policies 1 through 3.

The following are applicable goals, policies, and objectives from the *Public Services and Facilities Element* pertaining to the Wastewater Systems.

General Plan Provision:

Goal 1: Support the planning and development of a wastewater system to meet the County's demand and attain water quality goals.

Objective 1.1: To maintain wastewater system service levels through the coordination of land use and wastewater system planning.

Objective 1.2: To implement wastewater agency facility and water quality plans for Orange County.

Policy 1 Water Quality: To protect quality in both delivery systems and groundwater basins through effective wastewater system management.

Policy 2 Intergovernmental Coordination: To actively encourage opportunities for increased coordination between the County and wastewater agencies through cooperative wastewater studies, planning, and facility implementation efforts.

Consistency Evaluation:

The Santa Margarita Water District has assessed the demand associated with the increased wastewater generation related to the project. Conveyance facilities are proposed that would deliver the wastewater to the Chiquita Reclamation Plant. Sufficient capacity exists or is planned at the Reclamation Plant to serve the proposed project. Therefore, the project is consistent with the *Public Services and Facilities Element*, Goal 1, Objectives 1.1 and 1.2, and Policies 1 through 2.

General Plan Provision:

Policy 3 System Capacity and Phasing: To ensure the adequacy of wastewater system capacity and phasing in consultation with the service providing agency(ies) in order to serve existing and future development as defined by the General Plan.

Consistency Evaluation:

The Plan of Works developed and approved by SMWD would provide adequate capacity and phasing of improvements to ensure adequate service is available to serve the Ranch Plan as each phase of the project is occupied. A Project Design Feature is the incorporation of provisions for the implementation of the Plan of Works. The project is consistent with the *Public Services and Facilities Element*, Wastewater, Policy 3.

The following are applicable goals, policies, and objectives from the *Public Services and Facilities Element* pertaining to Schools.

General Plan Provision:

Goal 1: Encourage the funding and development of adequate school facilities to meet Orange County's existing and future demand.

Objective 1.1: To achieve the desired level of school facilities through coordinated land use and facility planning.

Policy 1: To coordinate land use proposal reviews with appropriate school districts to assure that facility needs shall be adequately addressed, including the notification and participation of school district planners in initial County studies of all major developments.

Policy 2: To encourage periodic updating of School District Master Plans and analysis of school facility needs by appropriate school districts and County agencies.

Consistency Evaluation:

The project applicant has been in consultation with Capistrano Valley School District, the school district serving the project site. As part of the project, sites for adequate school facilities would be made available onsite. These schools would primarily serve residents of the project site. Mitigation for any impacts to the school district would be reduced through payment of fees and/or provision of facilities. The project is consistent with the *Public Services and Facilities Element* Goal 1, Schools, Objective 1.1, Policies 1 and 2.

The following are applicable goals, policies, and objectives from the *Public Services and Facilities Element* pertaining to Waste Management.

General Plan Provision:

Goal 1: Provide for the systematic collection, disposal, and reuse of solid wastes in a manner, which will protect the environment and ensure the continued management of wastes in Orange County.

Objective 1.2: Protect and maintain the projected operating life of existing solid waste facilities through the coordination of land use and solid waste planning.

Policy 2 County Solid Waste Management Plan: To support and implement the adopted Solid Waste Management Plan to achieve waste management objectives.

Policy 3 Solid Waste Recycling and Reuse: Promote the utilization of waste recycling and reuse measures, which extend the operating life of existing solid waste facilities.

Consistency Evaluation:

The proposed project would develop land uses over approximately 7,694 acres. Section 4.15, Public Services and Facilities, provides an analysis of the additional demands for solid waste collection and disposal services. Existing facilities would be adequate to serve the project. Accordingly, the proposed project would be consistent with the *Public Services and Facilities Element*, Waste Management, Goal 1, Objective 1.2 and Policies 2 and 3.

Resources Element

The following are applicable goals, policies, and objectives established in the Natural Resources Component of the *Resources Element*.

General Plan Provision:

> Goal 2: Promote the wise management of agricultural and mineral resources in order to protect these resources for existing and future needs.
>
> Objective 2.2: Enhance the conservation of agricultural resources through sound management of local agricultural lands.
>
> Policy 2 Agriculture: To encourage to the extent feasible the preservation and utilization of agricultural resources as a natural resource and economic asset.

Consistency Evaluation:

> The proposed project would eliminate 827.2 acres of land designated as Important Farmland through proposed development of urban uses. The project does propose the continued operation of a portion of the citrus and avocado orchards in Planning Areas 7 and 10 for the life of the existing trees. Additionally, the size of the ranching operations would remain the same even with project implementation. Even though there would be a loss of farmland, the project is consistent with the goal of wise management of agricultural resources by balancing the protection of agricultural resources and meeting the housing needs outlined in the Housing Element of the General Plan (see discussion of Regional Housing Needs Allocation in Section 4.3). The project is consistent with the *Resources Element*, Natural Resources Component, Goal 2, Objective 2.2, and Policy 2.

General Plan Provision:

> Goal 2: Promote the wise management of agricultural and mineral resources in order to protect these resources for existing and future needs.
>
> Objective 2.1: To reduce dependence on imported resources through sound management of local mineral lands.
>
> Policy 3: To ensure the efficient use of all mineral lands consistent with sound resource management practices.

Consistency Evaluation:

> As indicated in Section 4.13 of the Program EIR, the project site contains areas that are designated as mineral resource zones in the *County of Orange General Plan Resources Element*. These areas, although within the boundaries of the project site, would be located within the proposed regional park. As discussed in Section 4.13, the designation of the mineral resource zone is not intended as a commitment to mine the resources; however, the designation of the regional park in this location and removal of the S&G zoning would limit the ability to recover these resources at a future date. While the loss of the resources is identified as a significant impact, the project balances the need for the mineral resource with the protection of sensitive biotic resources in San Juan Creek. While the loss of the resource is identified as significant, the project would still be considered consistent with Goal 2,

Objective 2.1, and Policy 3 of the *Resources Element, Natural Resources Component*, because it recognizes the need to balance the protection of resources.

The following are applicable goals, policies, and objectives from the *Resources Element, Energy Resources Component*.

General Plan Provision:

Goal 1: Maximize the conservation and wise use of energy resources in all residences, businesses, public institutions, and industries in Orange County.

Objective 1.1: Achieve a reduction in projected per capita energy demand and consumption by the year 2000.

Policy 3: Energy Conservation – To encourage and actively support the utilization of energy conservation measures in all new and existing structures in the County.

Consistency Evaluation:

All proposed structures would be constructed in compliance with the California Uniform Building Code. Standard construction would support energy conservation by reducing cooling and heating costs. The project is consistent with the *Resources Element, Energy Resources Component*, Goal 1, Objective 1.1, and Policy 3.

General Plan Provision:

Objective 3.1: To achieve target residential densities along transportation corridors and in urban activity centers as set forth in the Air Quality Management Plan (AQMP).

Consistency Evaluation:

The air quality analysis in Section 4.7 of the Program EIR has been prepared in compliance with AQMD requirements. Final site design, such as the development of the Town Center in Planning Areas 3, would be in accordance with recommendations set forth in the AQMP. The project is consistent with the *Resources Element, Energy Resources Component*, Objective 3.1.

General Plan Provision:

Objective 3.2: To reduce transportation demand by establishing balanced communities which provide housing, employment, recreational, and cultural opportunities for all segments of the population.

Consistency Evaluation:

The project proposes up to 14,000 dwelling units with a balance of employment, retail, and community uses. The project is consistent with the *Resources Element, Energy Resources Component*, Objective 3.2.

General Plan Provision:

Policy 4: Transportation – To provide incentives for transportation system management programs and support regional public transportation programs that reduce energy consumption.

Consistency Evaluation:

Design features to enhance transportation systems management and transit use would be evaluated as part of the Area Plans. The project does not propose any features that would impede public transportation programs. The project is consistent with the *Resources Element, Energy Resources Component*, Policy 4.

The following are applicable goals, policies, and objectives from the *General Plan Resources Element, Water Resources Component*.

General Plan Provision:

Goal 1: Ensure an adequate dependable supply of water of acceptable quality for all reasonable uses.

Policy 1: Water Supply – To ensure the adequacy of water supply necessary to serve existing and future development as defined by the General Plan.

Policy 3: Groundwater Resources – To support groundwater management efforts that are conducted by county water agencies.

Policy 5: Water Quality – To protect water quality through management and enforcement efforts.

Consistency Evaluation:

The applicant has consulted with SMWD, the water purveyor and wastewater collector for the project area. Section 4.15, Public Services and Facilities, provides an analysis of the anticipated water needs and wastewater generation related to the project. Additionally, the analysis provides a summary of the Water Supply Assessment, prepared for the project by SMWD, which provides water supply information and verification that the 20-year projection of water supply is sufficient to meet anticipated water demands of the Ranch Plan, in addition to SMWD's existing and approved new development uses. Protection of water quality is addressed through the project's Water Quality Management Plan (WQMP) (see Section 4.5, Water Resources, for further discussion of the WQMP). The project is consistent with the *Resources Element, Water Resources Component* Goal 1, and Policies 1, 3, and 5.

The following are applicable goals, policies, and objectives from the *Resources Element* of the *General Plan, Open Space Resources Component*.

General Plan Provision:

Goal 1: Retain the character and natural beauty of the environment through the preservation, conservation, and maintenance of open space.

Objective 1.1: To designate open space areas that preserve, conserve, maintain, and enhance the significant natural resources and physical features of unincorporated Orange County.

Consistency Evaluation:

The Ranch Plan provides for 11,765 acres of open space lands, which is roughly 52 percent of the project site. This acreage, however, does not include an additional 3,356 acres of open space internal to the planning areas. In total, there are 15,121 acres of open space proposed for the Ranch Plan project, or approximately 66 percent of the total land area of the site. This land is set aside in both open space and a 1,034 regional park. Much of the open space area would be in large, contiguous areas, providing for retention of land in a natural, undisturbed state. The project is consistent with the *Resources Element, Open Space Component* Goal 1, and Objective 1.1.

General Plan Provision:

Goal 3: Conserve open space lands needed for the preservation of natural processes and the managed production of resources.

Objective 3.1: To preserve open space lands that prevent erosion, siltation, flood, and drought, and to promote the production of food and fiber products.

Policy 3.2 – To ensure the wise use of County resources by identifying, planning, or assisting in the planning for and assuming management responsibility when appropriate for open space areas used for the managed production of resources including, but not limited to, forest lands, rangeland, agricultural lands, and areas of economic importance for the production of food or fiber; areas required for recharge of groundwater basins, tidelands, beaches, bays, estuaries, marshes, rivers, and streams which are important for the management of commercial fisheries and for beach sand replenishment; and areas containing mineral deposits.

Consistency Evaluation:

A portion of the 15,121 acres of open space lands set aside on the Ranch Plan project site would allow for a continuation of cattle grazing activities. The preservation of ranching on the Ranch Plan project site contributes to the managed, local production of food sources. The project is consistent with the *Resources Element, Open Space Component* Goal 3, Objective 3.1, and Policy 3.2.

The following are applicable goals, policies, and objectives from the *Resources Element* of the *General Plan, Cultural Resources Component*.

General Plan Provision:

Goal 2: To encourage through a resource management effort the preservation of the county's cultural and historic heritage.

Objective 2.2: Take all reasonable and proper steps to achieve the preservation of archaeological and paleontological remains, or their recovery and analysis to preserve cultural, scientific, and education values.

Objective 2.3: Take all reasonable and proper steps to achieve the preservation and use of significant historic resources including properties of historic, historic architectural, historic archaeological, and/or historic preservation value.

Consistency Evaluation:

As part of the Program EIR process, a series of archaeological and paleontological studies were prepared which address the project site. The specific findings of these reports are detailed in Section 4.11, Cultural Resources. This Program EIR section also identifies the standard conditions which would be applied to the project to avoid impacts to known and unknown cultural resources. Additionally, and as stated by Project Design Feature 4.11-1, the design of the project would avoid or minimize significant impacts to known cultural resources. The project is consistent with the *Resources Element, Cultural Resources Component* Goal 3, Objectives 2.2 and 2.3.

Archaeological Resources Policies

Policy 1 – To identify archaeological resources through literature and records research and surface surveys.

Policy 2 – To evaluate archaeological resources through subsurface testing to determine significance and extent.

Policy 3 – To observe and collect archaeological resources during the grading of a project.

Policy 4 – To preserve archaeological resources by:

a) Maintaining them in an undisturbed condition, or

b) Excavating and salvaging materials and information in a scientific manner.

Paleontological Resources Policies

Policy 1 – To identify paleontological resources through literature and records research and surface surveys.

Policy 2 – To monitor and salvage paleontological resources during the grading of a project.

Policy 3 – To preserve paleontological resources by maintaining them in an undisturbed condition.

Historic Resources Policies

Policy 1 – To identify historic resources through literature and records research and/or on-site surveys.

Policy 2 – To evaluate historic resources through comparative analysis or through subsurface or materials testing.

Policy 3 – To preserve significant historic resources by one or a combination of the following alternatives, as agreed upon by PFRD and the project sponsor:

a) Adaptive reuse of historic resources;

b) Maintaining the historic resource in an undisturbed condition.

c) Moving the historic resource and arranging for its treatment.

d) Salvage and conservation of significant elements of the historic resources.

e) Documentation (i.e., research narrative, graphics, photography) of this historic resource prior to destruction.

Consistency Evaluation:

As part of project implementation, a Cultural Resources Management (CMP) Plan would be developed for the project which would identify methods for preservation and avoidance of cultural resources. Specifically, the CMP Plan would address the presence of cultural resources, evaluate the significance of any resource finds, provide final mitigation recommendations, and determine proper retention or disposal of resources. The project is consistent with the *Resources Element, Open Space Component* Archaeological Resources Policies 1, 2, 3, and 4, Paleontological Resources Policies 1, 2, and 3, and Historic Resources Policies 1, 2, and 3.

Recreation Element

The following are applicable policies from the *Recreation Element* of the General Plan, Master Plan of Regional Recreational Facilities Component.

General Plan Provision:

Goal 1: To provide a regional recreation network to meet the regional recreation needs of existing and future residents of the entire county.

Objective 1: To designate sites for regional recreation facilities to meet the regional recreation needs of existing and future county residents.

Goal 2: To develop regional recreation facility park sites with recreation facilities designed to respond to the diverse regional recreation interests of the citizens of the county.

Objective 2: To establish an integrated regional recreation network that meets the diverse regional recreation interests of the citizens of Orange County.

Consistency Evaluation:

Development of the project site would include dedication of a 1,034-acre regional park within its boundaries, which would be intended to serve both the population generated by the project and regional recreational users from south Orange County. The project is consistent with the *General Plan Recreation Element, Master Plan of Regional Recreational Facilities Component*, Goals 1 and 2 and Objectives 1 and 2.

The following are applicable policies from the *Recreation Element* of the *General Plan, Local Parks Component*.

General Plan Provision:

Goal 1: Provide adequate local park sites to meet the recreation needs of existing and future residents and preserve natural resources within unincorporated Orange County.

Objective 1.1: Designate local park sites which provide recreation development potential for existing and future county residents.

Goal 2: Develop local park sites with recreation facilities designed to meet the active recreational needs and preserve natural resources of each community within unincorporated Orange County.

Objective 2.1: Develop local park sites to provide recreational facilities to meet the active recreational needs of each community within the unincorporated county.

Consistency Evaluation:

Section 4.12 of the Program EIR provides analysis of the anticipated parkland needs based on the project's projected population and the parkland to population ratio as defined within the General Plan Recreation Element. The project would accommodate this calculated need through dedication of parklands, in addition to the regional park. Currently, a 20- to 25-acre Sports Park is proposed for Planning Area 3. The precise location of additional local/community parks would be determined at the Area Plan stage of review. The project is consistent with the General Plan Recreation Element, Local Parks Component, Goal 1, Objective 1, Goal 2 and Objective 2.

The following are applicable policies from the *Recreation Element Master Plan of Regional Riding and Hiking Trails Component*.

General Plan Provision:

Goal 1: Provide a useful, enjoyable, safe, and efficient public regional riding and hiking trail system to meet the needs and desires of the citizens of the entire County.

Goal 2: Create trail linkages between open space and recreation facilities, between community, municipal, state, and federal trail systems, and between the trail systems of surrounding counties.

Objective 1: Implement and maintain a public regional riding and hiking trail system as depicted conceptually on the Trails Map.

Objective 5: Develop a regional trail system to meet the recreational needs of equestrians, pedestrians (walkers, hikers, and joggers), and mountain bikers (non-motorized).

Consistency Evaluation:

The Ranch Plan would accommodate the three regional riding and hiking trails to be located within the project boundaries to serve the project population as well as regional recreational users from throughout south Orange County. Additionally, the plan sites a staging area within Planning Area 1. The project is consistent with the *General Plan Recreation Element, Regional Riding and Hiking Trails Component*, Goals 1 and 2 and Objectives 1 and 5.

Noise Element

The following are applicable policies from the *General Plan Noise Element*.

General Plan Provision:

Policy 4 Noise Monitoring and Abatement: To monitor noise levels, and adopt and enforce noise abatement programs.

Policy 4.1: To enforce the County's Noise Ordinance to prohibit or mitigate harmful and unnecessary noise within the County.

Policy 5 Noise/Land Use Planning Integration: To fully integrate noise considerations in land use planning to prevent new noise/land use conflicts.

Policy 5.1: To utilize the criteria of acceptable noise levels for various types of land uses as depicted on Tables VIII-2 and VIII-3 in the review of development proposals.

Policy 5.2: To prohibit new residential land uses within the 65-decibel CNEL contour from any airport or air station.

Policy 5.3: To limit new non-residential noise-sensitive land uses located within a 65-decibel CNEL area from any source. Noise sensitive land uses will be permitted if, and only if, appropriate mitigation measures are included such that the standards contained in this Element and in appropriate State and Federal Codes are met. Specifically, non-residential noise-sensitive land uses include: hospitals, rest homes, convalescent hospitals, places of worship, and schools.

Consistency Evaluation:

Anticipated sources of noise shall be limited to the duration and CNEL levels which are identified by the County of Orange Noise Ordinance. New construction would be required to comply with applicable noise standards. This compliance would be accomplished through final site design and the location of noise producing uses versus noise sensitive uses. Appropriate noise attenuation resulting from building materials, distance from noise sensitive uses, and elevation/topographic differences would be considered in project design. The project would be consistent with *Noise Element* Policies 4, 4.1, 5, 5.1, 5.2, and 5.3.

General Plan Provision:

Policy 5.4: To stress the importance of building and design techniques in future site planning for noise reduction.

Policy 6 Noise Sensitive Land Uses: To identify and employ mitigation measures in order to reduce the impact of noise levels and attain the standards established by the Noise Element, for both interior areas and outdoor living areas for noise sensitive land uses.

Policy 6.2: To continue enforcement of Chapter 35 of the Uniform Building Code, currently adopted edition, and the California Noise Insulation Standards (Title 25 California Administrative Code).

Policy 6.3: To require that all new residential units have an interior noise level in living areas that is not greater than 45 decibels CNEL with it being understood that standard

construction practices reduce the noise level by 12 decibels CNEL with the windows open and 20 decibels CNEL with the windows closed. Higher attenuation than listed above may be claimed if adequate field monitoring or acoustical studies are provided to and approved by the County.

Policy 6.5: All outdoor living areas associated with new residential uses shall be attenuated to less than 65 decibels CNEL.

Policy 6.7: To apply noise standards as defined in the Noise Element for noise-sensitive land uses.

Consistency Evaluation:

All proposed structures would comply with adopted noise levels identified in the *County of Orange General Plan* and County Noise Ordinance standards for both indoor and outdoor areas. In addition to compliance with the California Uniform Building Code standards for noise insulation and structure design, additional mitigation measures would be applied. The project would comply with Noise Element Policies 5.4, 6, 6.2, 6.3, 6.5, and 6.7.

General Plan Provision:

Policy 5.5: To utilize the California Noise Standards for Airports in planning for areas surrounding military as well as civilian airports.

Policy 6.4: To require that all new residential units have an interior noise level in habitable rooms that does not exceed acceptable levels as caused by aircraft fly-overs or as caused by individual passing railroad trains.

Consistency Evaluation:

The southern portion of the project is more than two miles from the airfield at MCB Camp Pendleton. Based on current information, the area is not in an area identified as being incompatible; however, the RCUZ study will be updated in 2004. At the time the Area Plan for Planning Area 8 (the area closest to MCB Camp Pendleton) is processed, the most current RCUZ shall be considered in determining if residential uses would be compatible or if special design features would be required to ensure compatibility. Though the area may not be in a 65 CNEL zone, there may be disturbances from helicopter over flights and artillery fire. Provisions for a buyer notification program are identified as a potential mitigation measure. The project is consistent with *Noise Element* Policies 5.5 and 6.4.

Safety Element

The following are applicable policies from the *Safety Element*.

General Plan Provision:

Goal 1: Provide for a safe living and working environment consistent with available resources.

Objective 1.1: To identify public safety hazards and determine the relative threat to people and property in Orange County.

Goal 2: Minimize the effects of public safety hazards through implementation of appropriate regulations and standards, which maximize protection of life and property.

Consistency Evaluation:

The Program EIR provides evaluation of potential hazards on the project site including, but not limited to, seismic and geologic hazards, presence of hazardous materials, and wildfire hazards. The project site would potentially be exposed to each of these hazards; however, the mitigation program, including project design features, reduces these hazards to less than significant levels. Therefore, the project is consistent with the *Safety Element* Goals 1 and 2 and Objective 1.1.

Housing Element

The following are applicable policies from the *Housing Element*.

General Plan Provision:

Goal 1: An adequate supply of housing that varies sufficiently in cost, style, tenure, and neighborhood type to meet the economic and social needs of every existing and future resident of the county; and which provides sufficient housing opportunities for employees of county businesses and public service providers to ensure the continued economic vitality of the county.

Strategy 1b: Ensure that new large-scale development includes a sufficient range of housing types and densities in appropriate locations to facilitate the production of housing for all economic segments consistent with the County's quantified objectives.

Consistency Evaluation:

The Ranch Plan would include up to 14,000 dwelling units, providing a variety of housing types for a range of income categories. Proposed housing types, include, but are not limited to, single-family, multi-family and apartments. Additionally, approximately 6,000 of the 14,000 dwelling units would be senior housing. The proposed project would be consistent with *Housing Element*, Goal 1 and Strategy 1b.

General Plan Provision:

Goal 2: To promote equal housing opportunities for all persons without discrimination on the basis of race, religion, ethnicity, sex, age, marital status, disability, or household composition.

Consistency Evaluation:

Rancho Mission Viejo is an equal opportunity developer that is committed to equal housing opportunities and does not discriminate on any legally recognized basis including, but not limited to, veteran status, race, color, religion, sex, national origin, age, and physical or mental disability. The proposed project would be consistent with *Housing Element* Goal 2.

General Plan Provision:

Goal 5: Reduce residential energy use within the County.

Strategy 5a: Encourage the use of energy conservation features in residential construction, remodeling and existing homes.

Consistency Evaluation:

At the GPA/ZC level, specific design and energy efficiency features are not available. However, evaluation of these features is a standard practice as part of the tentative tract map process. Development would be required to comply with the Uniform Building Code and other applicable requirements.

Growth Management Element

The following are applicable policies from the *Growth Management Element*.

General Plan Provision:

Objective 1 Development Phasing: Development shall be phased in a manner consistent with applicable Comprehensive Phasing Plan (CPP).

Policy 1 Development Phasing: Development shall be phased in accordance with any applicable CCP adopted by the County. It is the intent that such CPPs shall include development phasing plans which establish both a phasing allocation of development commensurate with roadway and public facility capacities and an overall build-out development plan which can be supported by implementation of the planned infrastructure system.

Consistency Evaluation:

CPPs are road and infrastructure improvement and financing plans, which address impacted Community Analysis Areas (CAAs). Currently, a CPP has not been developed for the study area. The project would be phased to ensure adequate infrastructure and utilities would be in place as each phase of the project is occupied. The Development Agreement, which would tie provision of infrastructure to development milestones, would serve as the CPP. The project is consistent with the intent of *Growth Management Element* Objective 1 and Policy 1.

General Plan Provision:

Objective 2 Transportation: The circulation system shall be implemented in a manner which achieves the established Traffic Level of Service Policy.

Policy 4 Traffic Improvement Programs: Comprehensive traffic improvement programs shall be established to ensure that all new development provides necessary transportation facilities and intersection improvements as a condition of development approval. Participation in such programs shall be on a pro-rata basis and shall be required of all development projects except where an increased level of participation exceeding these requirements is established through negotiated legal mechanisms, such as a public facilities development agreement.

Consistency Evaluation:

The proposed project includes implementation of a circulation plan to serve the anticipated population of the project. Section 4.6 provides a detailed analysis of the proposed

circulation system and how it conforms to County of Orange standards and accommodates the projected traffic levels through the project. The project is consistent with the intent of the *Growth Management Element* Objective 2 and Policy 4.

General Plan Provision:

Policy 2 Balanced Community Development: Balanced community development shall be established which encourages employment of local residents and provides for both employment and employee housing opportunities within the County or Growth Management Area except in "Transition Areas for Rural Communities" which may be established pursuant to this Element or where a Specific Plan or Feature Plan dictates otherwise.

Consistency Evaluation:

The project proposes a balance of residential, employment and community uses. The proposed project would be consistent with *Growth Management Element* Policy 2.

General Plan Provision:

Policy 5 Public Facility Plans: Comprehensive public facility plans shall be established for fire, sheriff/police, and library facilities. All development projects shall participate in such plans on a pro-rata basis and as a condition of development approval except where an increased level of participation exceeding these requirements is established in negotiated legal mechanisms, such as a public facilities development agreement.

Objective 3 Sheriff/Fire/Paramedic: Adequate facilities and equipment, as determined through GMA Facility implementation Plans developed in consultation with the Fire and Sheriff Departments, shall be financed and implemented in a manner that ensures that the costs of necessary facilities and equipment for new development are borne by new development. The service levels established in the GMA Facility implementation Plans shall be, at a minimum, equivalent to those service levels specified in the General Plan.

Objective 4 Library Facilities: Adequate facilities and equipment, as determined through GMA Facility Implementation Plans, shall be financed and implemented consistent with a general service standard of one 10,000 square-foot branch library facility per 50,000 residents, or if appropriate, one 15,000 square-foot regional library per 75,000 residents.

Consistency Evaluation:

As part of the analysis of the project, each utility and service provider has been contacted and consulted regarding the proposed project. As the project moves forward into project design and Area Plans are processed, the applicant would be required to coordinate with each provider to meet the increased demand for services resulting from the project. The Master Area Plan for each planning area must include a phasing plan for infrastructure for the entire Planning Area, including roads, sewer, storm drainage, and an Urban Water Master Plan. The proposed project would be consistent with *Growth Management Element* Policy 5 and Objectives 3 and 4.

<u>Zoning</u>

The project proposes a zone change from the General Agricultural (A-1) and Sand and Gravel Extraction (S&G) to Planned Community (PC). As discussed in Section 3, in accordance with *Orange County Zoning Code Section 7-9-103*, “PC ‘Planned Community’ District,” the Ranch

Plan Planned Community would be comprised of four components and would be adopted by the Board of Supervisors by ordinance. The Planned Community District would include:

- A *Ranch Plan Planned Community Program Text*, specifying the regulations applicable to all areas of the Ranch Plan.
- A Zoning Map, showing the exterior boundaries of the Ranch Plan. This Zoning Map includes a statistical summary regulating the maximum/minimum of certain aspects of development within the Ranch Plan as a whole.
- A Development Map, providing general and, in certain instances, detailed information about the Ranch Plan.
- A Statistical Table regulating land uses within each planning area.

The *Ranch Plan Planned Community Program Text* represents the first component of the Planned Community Zoning and establishes a framework for processing development applications that are consistent with the provisions and requirements set forth in the Orange County General Plan and the Ranch Plan PC. The Zoning Map, Development Map, and Statistical Table are all provided in Section 3, Project Description. The *Ranch Plan Planned Community Program Text* is available for review at the County of Orange offices. The *Ranch Plan Planned Community Program Text* is broken out into three main areas: (1) General Regulations; (2) Implementation Procedures; and (3) Use Regulations and Development Standards. These sections are supported with a definitions section and exhibits. These regulations would apply to all development that would occur within the Ranch Plan boundaries. The project would be required to comply with these regulations and as such would be considered consistent with the zoning.

A component of the *Ranch Plan Planned Community Program Text* is the provision for the processing of Master Area Plans, which would cover an entire Planning Area, as well as Subarea Plan for smaller areas within each Planning Area. These plans address the project's compliance with the zoning regulations, compliance with applicable policies, acres of park, recreation and other open space uses, traffic analysis, and infrastructure phasing and provisions including roads, sewer, storm drainage, and an Urban Water Master Plan (if applicable). The Area Plan also provides for an OCFA Master Fire Plan, including a preliminary fuel modification plan. For full discussion of Area Plan requirements refer to the *Ranch Plan Planned Community Program Text*, which are summarized in Section 3, Project Description of this Program EIR.

Conflict with Policies of the Regional Planning Agency Applicable to the Proposed Project

SCAG is the regional Metropolitan Planning Organization (MPO) for Orange County. In that role, SCAG has adopted various regional planning programs that would apply to the Ranch Plan. These programs are designed to meet the comprehensive planning needs for the region. These programs include the *Regional Comprehensive Plan and Guide.* The following discussion evaluates the consistency of the project with this planning program. Inconsistency with the planning program is identified as an impact because these planning programs are designed as tools to help the region achieve environmental standards in areas such as air quality and traffic. If the programs are not implemented, or appropriately revised to reflect modifications made by local jurisdictions, it may lead to a physical impact pursuant to CEQA.

Impact 4.1-2: *The Ranch Plan would provide 14,000 dwelling units, or approximately 68 percent of the development assumed for the area in local and regional planning documents. Although the project would not meet fully the housing goal, it would substantially advance the attainment of this goal.*

SCAG Regional Comprehensive Plan and Guide, Growth Management Chapter

The following are applicable Core Regional Plan Policies from the SCAG *Regional Comprehensive Plan and Guide, Growth Management Chapter*.

Regional Plan Policy:

Policy 3.01: The population, housing, and jobs forecasts, which are adopted by SCAG's Regional Council and that reflect local plans and policies, shall be used by SCAG in all phases of implementation and review.

Policy Evaluation:

In February 2004, Orange County Council of Governments (OCCOG) adopted the OCP-2004 dataset. In April 2004, the Regional Transportation Plan (RTP) was adopted by SCAG, which incorporated the OCP-2004 projections. The Board of Supervisors adopted the OCP-2004 data set in May 2004. The OCP-2004 projections are not developed at a project level. At this point the OCP-2004 numbers have not been allocated into Traffic Analysis Zones and therefore are not available for use in traffic modeling. As a result, the population, housing, and employment forecasts used in this analysis were created using the Orange County Projections-2000 Modified (OCP-2000M). However, at a Regional Statistical Area (RSA) level, the OCP-2004 growth projections do not seem to substantially vary from the previously adopted OCP-2000M. Therefore, it is presumed that the OCP-2004 projections assume a comparable level of development for the Ranch Plan area as OCP-2000M. The socioeconomic projections, including a comparison of portions of OCP-2000M and OCP-2004 relevant to the project area, are more fully discussed in Section 4.3, Population and Housing. Using this presumption, the project would not be consistent with the regional growth projections, which are a basis for the regional planning documents. However, the project provides for more growth than existing land use designations. Therefore, while it is less than projected, it is closer to achieving regional projections than the status quo. The OCP-2000M assumed 20,468 dwelling units would be developed on the Ranch Plan site. The project would only provide about 68 percent of that assumed growth. The Ranch Plan would not fully complement Policy 3.01 of the SCAG *Regional Comprehensive Plan and Guide, Growth Management Chapter*. For an analysis of the balancing of environmental and housing objectives, see Alternative B-11 in Section 5, Alternatives, to the proposed project.

Regional Plan Policy:

Policy 3.03: The timing, financing, and location of public facilities, utility systems, and transportation systems shall be used by SCAG to implement the region's growth policies.

Policy Evaluation:

Implementation of the project would occur within several distinct phases over 20 to 25 years in response to market demand and ability to provide sufficient infrastructure. The changes in the assumed circulation network would be incorporated into the MPAH, which would

provide input to the regional planning programs. The project would be consistent with the intent of this policy.

Regional Plan Policy:

Policy 4.01: Transportation investments shall mitigate environmental impacts to an acceptable level.

Policy 4.04: Transportation control measures shall be a priority.

Policy Evaluation:

Section 4.6 of the Program EIR provides analysis of the project's proposed circulation system and impacts to existing roadways. Measures to reduce or eliminate potential impacts to circulation have been incorporated into the proposed project. The project would be consistent with the intent of this policy.

Regional Plan Policy:

Policy 5.11: Through the environmental document review process, ensure that plans at all levels of government (regional, air basin, county, subregional and local) consider air quality, land use, transportation, and economic relationships to ensure consistency and minimize conflicts.

Policy Evaluation:

The EIR provides analysis of the proposed project's consistency with all applicable plans and policies, including the County of Orange General Plan and SCAG's RCPG. The project would be consistent with the intent of this policy.

The following are applicable Ancillary Regional Plan Policies from the *SCAG Regional Comprehensive Plan and Guide, Growth Management Chapte*r.

Regional Plan Policy:

Policy 3.04: Encourage local jurisdictions' efforts to achieve a balance between the types of jobs they seek to attract and housing prices.

Policy 3.11: Support provisions and incentives created by local jurisdictions to attract housing growth in job-rich subregions and job growth in housing-rich subregions.

Policy Evaluation:

The proposed project would partially fulfill a need for housing in Orange County through the development of approximately 14,000 dwelling units of varying densities and price ranges. The project proposes a jobs/housing balance and would contribute jobs within a Growth Management Area that is considered to be jobs poor. The project would be consistent with the intent of these policies.

Regional Plan Policy:

Policy 3.05: Encourage patterns of urban development and land use which reduce costs on infrastructure construction and make better use of existing facilities.

Policy Evaluation:

Project design and phasing would take into account existing infrastructure in an effort to reduce the need for construction of new infrastructure facilities. The project would be consistent with the intent of this policy.

Regional Plan Policy:

Policy 3.12: Encourage programs aimed at designing new land uses which encourage the use of transit and thus reduce the need for roadway expansion, reduce the number of auto trips and miles traveled, and create opportunities for residents to walk and bike.

Policy 3.15: Support local jurisdictions' strategies to establish mixed-use clusters and other transit-oriented developments around transit stations and along transit corridors.

Policy Evaluation:

The project proposes a mix of density types and uses. The inclusion of jobs, recreation, commercial, and community uses in close proximity to the housing would reduce the dependence on the automobile and encourage non-motorized transportation. The project would be consistent with the intent of these policies.

Regional Plan Policy:

Policy 3.17: Support and encourage settlement patterns which contain a range of urban densities.

Policy Evaluation:

The proposed project proposes a range of densities, including both multi-family and single-family housing as well as senior housing. The project would be consistent with the intent of this policy.

Regional Plan Policy:

Policy 3.18: Encourage planned development in locations least likely to cause adverse environmental impact.

Policy 3.19: SCAG shall support policies and actions that preserve open space areas identified in local, state, and federal plans.

Policy 3.20: Support the protection of vital resources such as wetlands, groundwater recharge areas, woodlands, production, lands, and lands containing unique and endangered plants and animals.

Policy 9.08: Develop well-managed viable ecosystems or known habitats of rare, threatened and endangered species including wetlands.

Policy Evaluation:

The project has been planned in an effort to develop a land use plan that protects the most sensitive biotic resources. The project would maintain 66 percent of the land in open space. An Adaptive Management Plan is proposed as part of the project. This is discussed in more

detail in Section 4.9, Biological Resources. The project would be consistent with the intent of these policies.

Regional Plan Policy:

Policy 3.21: SCAG shall encourage the implementation of measures aimed at preservation and protection of recorded and unrecorded cultural sites and archeological sites.

Policy Evaluation:

Section 4.11 of the EIR provides analysis of the cultural resources on the project site. In order to sufficiently protect both recorded and unrecorded cultural and archaeological sites, conditions have been recommended to ensure resource protection of resources. The project is required to develop and implement a Cultural Resources Management Plan for the protection of these resources. The project would be consistent with the intent of this policy.

Regional Plan Policy:

Policy 3.22: SCAG shall discourage development, or encourage the use of special design requirements, in areas with steep slopes, high fire, flood, and seismic areas.

Policy Evaluation:

Potentially hazardous areas within the project boundaries have been identified and evaluated in this Program EIR. Design features, such as fuel modification, the Wildland Fire Management Plan, building design and water detention basins would provide sufficient protection to reduce potential hazards to less than significant levels. The project would be consistent with the intent of this policy.

Regional Plan Policy:

Policy 3.23: Encourage mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and to develop emergency response and recovery plans.

Policy Evaluation:

Where deemed necessary, mitigation measures are recommended for the project. These measures would reduce potentially significant impacts such as exposure to high noise levels and exposure to seismic hazards to less than significant levels. The project would be consistent with the intent of this policy.

Regional Plan Policy:

Policy 3.24: Encourage efforts of local jurisdictions in the implementation of programs that increase the supply and quality of housing and provide affordable housing as evaluated in the Regional Housing Needs Assessment.

Policy Evaluation:

The Ranch Plan would include up to 14,000 dwelling units of varied types and for a range of income categories. Approximately 6,000 of the 14,000 dwelling units would be senior

housing in a range of income categories. The project would be consistent with the intent of this policy.

Regional Plan Policy:

Policy 3.27: Support local jurisdictions and other service providers in their efforts to develop sustainable communities and provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, social services, recreational facilities, law enforcement, and fire protection.

Policy Evaluation:

The *Ranch Plan Planned Community Program Text* provides the framework for future development in the study area. The project proposes a jobs-housing balance and a mix of housing types that would accommodate a range of housing costs. The UAC designation is a broad category that allows development of a mix of uses, including employment, public services, and health care. The project would provide for recreational facilities through the development of local parks, a regional park and golf courses. Public services, such as schools and fire stations would be provided as part of the project development.

Regional Plan Policy:

Policy 9.01: Provide adequate land resources to meet the outdoor recreation needs of the present and future residents in the region and to promote tourism in the region.

Policy 9.02: Increase the accessibility to open space lands for outdoor recreation.

Policy 9.03: Promote self-sustaining regional recreation resources and facilities.

Policy 9.04: Maintain open space for adequate protection of lives and properties against natural and man-made hazards.

Policy Evaluation:

The proposed project proposes over 15,000 acres of the project site to be designated as open space. Portions of this open space acreage would be available for a variety of uses, including recreation, as set forth in the General Plan. The Ranch Plan proposes the designation of a new 1,034-acre regional park, as well as a 20 to 25-acre Sports Park. Other park and recreational facilities would be identified through the Area Plan process. The project would be consistent with the intent of these policies.

4.1.4 MITIGATION PROGRAM

Project Design Features

PDF 4.1-1 The Proposed Project includes approximately 15,121 acres of open space. The landowner will enter into a two-part agreement with the County regarding the open space. The first part of the agreement shall address the approximately 11,455 acres of open space not located within a Development Sensitive Area (DSA, as defined in the Project Description). Phase I of the Open Space Agreement shall address the following:

- Method of preservation for this open space;

- Permitted uses within the open space. Permitted uses will include adaptive management and monitoring, grazing, and agriculture, public access and recreation, and maintenance of infrastructure facilities;

- Non-permitted uses within the open space;

- Phasing of open space preservation areas. Phasing of open space areas will be consistent with development phasing; and

- Funding mechanism for implementation of the Adaptive Management Program (AMP).

Phase 2 of the Open Space Agreement will address the 3,666 acres of open space DSAs. Phase 2 of the Open Space agreement shall address the following:

- The precise acreage of open space located within the DSAs;

- Permitted uses within the DSA open space. Permitted uses shall include adaptive management and monitoring, grazing and agriculture, public access and recreation, infrastructure facilities and maintenance of infrastructure facilities;

- Non-permitted uses within the DSA open space;

- Phasing of DSA open space preservation areas. Phasing of open space areas shall be consistent with development phasing; and

- Funding mechanism for implementation of the AMP.

PDF 4.1-2 A component of the *Ranch Plan Planned Community Program Text* is the provision for the processing of Master Area Plans, which would cover an entire Planning Area, as well as Subarea Plans for smaller areas within each Planning Area. These plans would address the project's compliance with the zoning regulations, as well as other applicable codes and requirements. The Master Area Plan shall cover the entire Planning Area and address the provisions for a Master Area Plan as defined in Section II.B.3a of the *Ranch Plan Planned Community Program Text*. In addition to a Master Area Plan, Soba area Plans addressing the provisions outlined in Section II.B.3b of the *Ranch Plan Planned Community Program Text* shall be required for all development areas. Multiple Soba area Plans addressing portions of a Planning Area may be prepared, provided a Master area Plan for all development areas has prepared. (The requirements for the Master Area Plan and the Subarea Plan are provided in Section 3.4.5.)

PDF 4.1-3 The project proposes a mix of uses and housing densities, including estates, single-family conventional housing, multi-family units, senior housing, and apartments that would provide housing opportunities for a range of income levels. Of the 14,000 dwelling units proposed within the Ranch Plan PC Area, the Environmental Impact Report has analyzed the provision of approximately 6,000 senior citizen housing dwelling units. Each Master Area Plan shall provide a statistical table estimating the proposed senior citizen housing dwelling units by Planning Subarea. Each subsequent Subarea Plan shall then specify the

location and number of Senior Housing dwelling units as regulated by Section III.A.5 of this Ranch Plan PC Text. An Annual Monitoring Report (per General Note 11) will be prepared each year as an inventory of dwelling units.

PDF 4.1-4 In conjunction with the processing of the site development permit for any golf course, the applicant will submit an Integrated Golf Course Management Plan (IGCMP), which will provide direction for the operation of the golf course. The IGCMP will provide overall structure and guidance for turf grass management that creates desirable playing conditions while protecting adjacent sensitive habitats and species. The IGCMP would:

a. Describe the cultural, mechanical, biological, fertilizer, and irrigation strategies necessary to achieve and maintain turf health and vigor.

b. List anticipated pests, monitoring methods, area-specific damage thresholds, and control strategies for each identified pest.

c. Provide information on the type and class of pesticide, selection considerations, methods and restrictions for application, and environmental considerations.

d. Describe methods for monitoring chemicals in surface, storm, and groundwater. Mitigation and corrective actions would be identified.

Implementation of the IGCMP will be the responsibility of the golf course operator. The IGCMP shall be approved by the County of Orange in accordance with the applicable water quality requirements. The County of Orange will not be responsible for the management or maintenance of the proposed facility.

Standard Conditions of Approval

There are no standard conditions of approval applicable to land use.

Mitigation Measures

MM 4.1-1 Prior to sale, lease, or rental of any residential structure or portion thereof within Planning Area 8, the applicant/owner shall provide to each prospective purchaser, lessee, or tenant a notice and statement of acknowledgment that shall be executed by the prospective purchaser, lessee or tenant that the property within Planning Area 8 may be subject to overflight and sound of military operations of MCB-Camp Pendleton. The form and method of distribution of said notice and statement of acknowledgment shall be as approved by the Manager, Building Permits.

MM 4.1-2 At the time of Area Plan approval for Planning Area 8, the Planning Director shall evaluate the most current RCUZ for MCB Camp Pendleton to ensure that noise sensitive land uses are not constructed in areas that would exceed state noise standards.

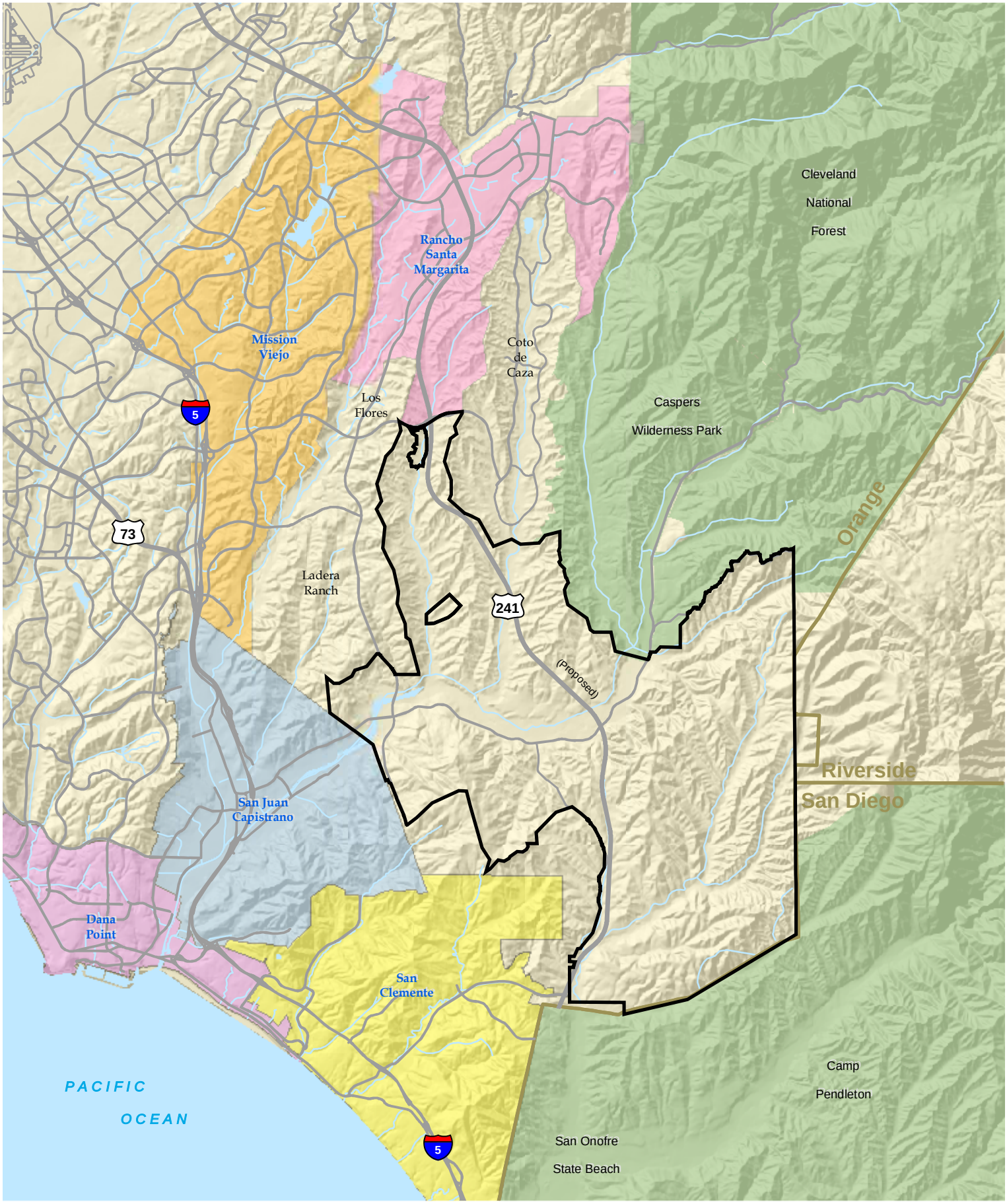
MM 4.1-3 Prior to the sale, lease or rental of any residential, commercial or industrial structure or portion thereof within Planning Area 5, the applicant/owner shall provide to each prospective purchaser, lessee, or tenant a notice and statement of acknowledgement that shall be executed by the prospective purchaser, lessee

or tenant that the property within Planning Area 5 is located immediately adjacent to Prima Deshecha Landfill, a facility that will continue to operate until its scheduled closure in 2067 or until it reaches its design capacity in accordance with the 2001 General Development Plan and all subsequent amendments thereto. The form and method of distribution of said notice and statement acknowledging same shall be approved by the Director, Integrated Waste Management Department or his designee.

4.1.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Two potentially significant land use impacts have been identified: one pertaining to potential impacts associated with MCB Camp Pendleton and the other associated with regional growth forecasts. The potential impact associated with impacts from MCB Camp Pendleton on noise sensitive uses in Planning Area 8 (Impact 4.1-1) can be mitigated to a level of less than significant through the evaluation of the applicable RCUZ at the time development is proposed, and implementation of a buyer notification program.

The inconsistency of the Ranch Plan with adopted regional growth projections (Impact 4.1-2) could be eliminated through updating of the socioeconomic projections for Orange County and the associated plans that are based on the adopted projections. However, it is not certain that the County would be able to incorporate the revised projections, and the next regularly scheduled OCP update will not occur until 2008. Accordingly, this may be considered an unavoidable, significant impact.



Jurisdictional Boundaries

Exhibit 4.1-1

The Ranch Plan

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2 1 0 2 Miles

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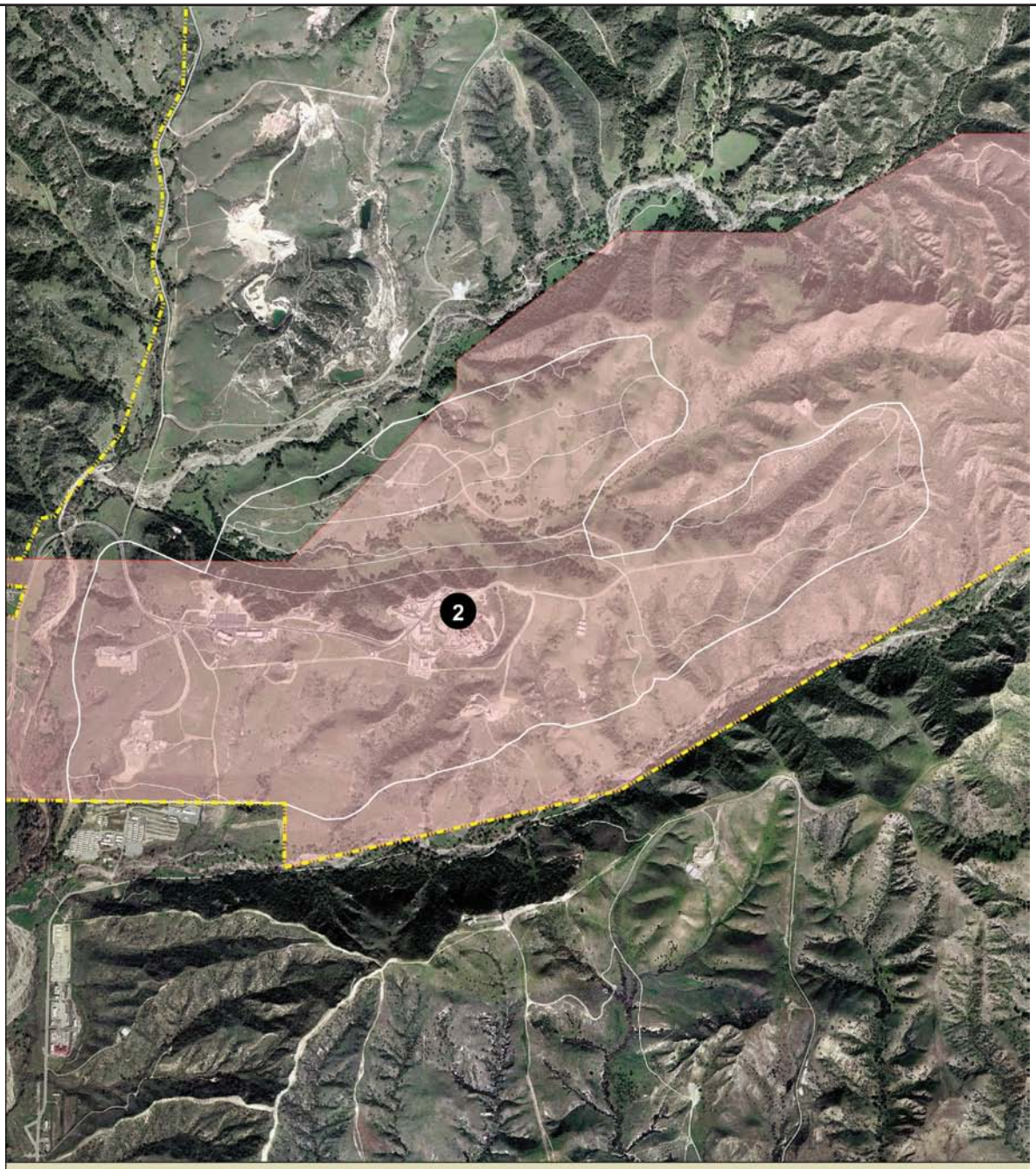

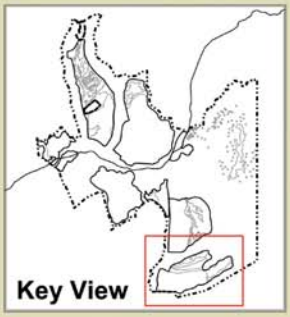

2 Northrop Grumman - Capistrano Test Site

Planning Boundaries

Planning Area Boundary

Development Boundary

Ranch Plan Boundary

Existing Land Use Legend

Lease Areas

Existing Land Uses in Planning Area 8

Exhibit 4.1-10

The Ranch Plan

1" = 2,500'

N W E S

Source: EDAW, Inc. 2004

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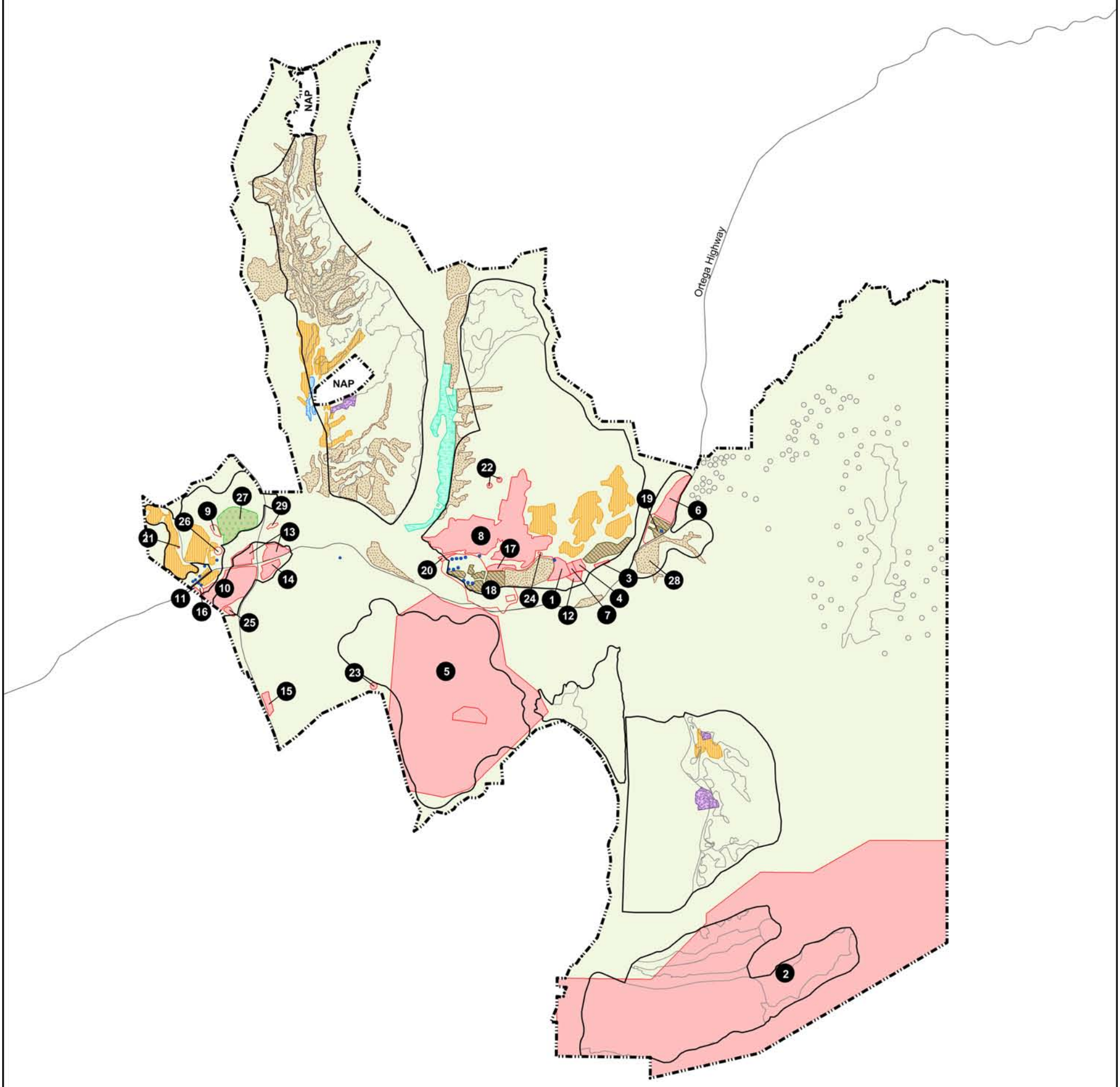

Location Names

1. California Portland Cement aka Catalina Pacific Concrete - North
2. Northrop Grumman - Capistrano Test Site
3. John B. Ewles, Inc. aka Ewles Materials
4. Solag Disposal, Inc.
5. Oglebay Norton Industrial Sands
6. Tree of Life Nursery
7. Transit Mixed Concrete Co. aka City Concrete/ Southdown
8. Color Spot Nursery
9. Ladera Ranch Construction Yard
10. The Blenheim Oaks Rancho Mission Viejo Riding Park
11. The Oaks Corrals
12. Olsen Pavingstones Inc.
13. DM Color Express
14. TruGreen Nurseries
15. Tierra Verde Industries, Inc. aka La Pata Greenwaste
16. Ranch Buildings
17. RMV Maintenance Shop - Cow Camp
18. RMV Cow Camp
19. RJO Horse Ranch
20. St. Augustine's Training Center
21. Antenna Site (Lemon Grove)
22. Antenna Site (North) Airtouch, Pacbell Wireless
23. Antenna Site (South) Bell South, Saddleback KSBR, SDG & E, SCE.
24. O' Connell Landscaping Yard
25. Sierra Soils
26. RMV Headquarters
27. Seasonal Row Crops
28. South Forty
29. SMWD San Juan Creek Lift Station

Planning Boundaries

- Planning Area Boundary
- Development Boundary
- Ranch Plan Boundary

Existing Land Use Legend

- Existing Uses
- Lease Areas
- GERA Mitigation Area
- Chiquita Canyon Mitigation Site
- RMV Residence

Existing Agriculture

- Avocado Trees
- Seasonal Row Crops
- Citrus Trees
- Irrigated Pasture Land
- Barley Fields

Existing Onsite Land Uses

Exhibit 4.1-2

The Ranch Plan

1" = 4,500'

N W E S

Source: EDAW

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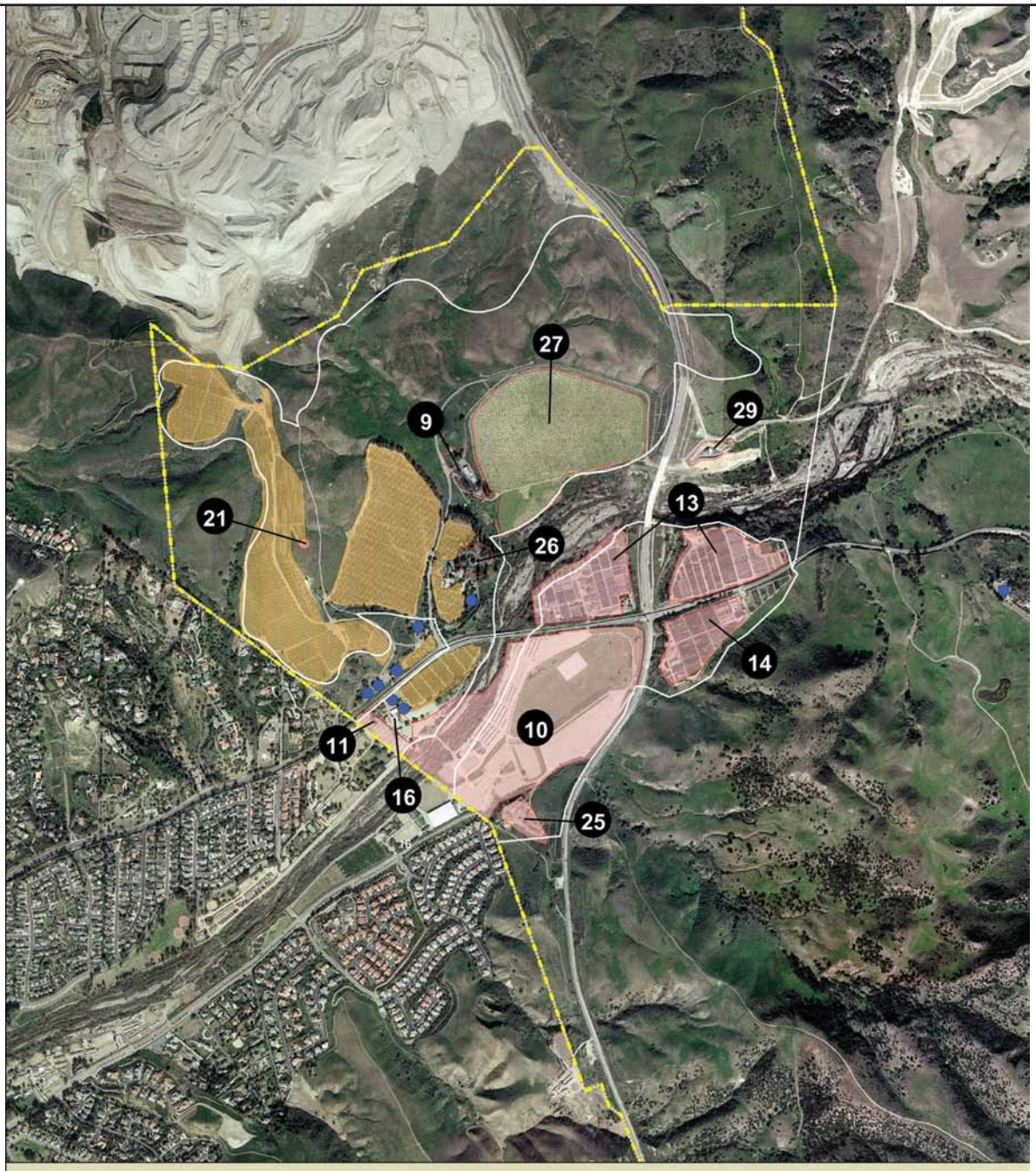

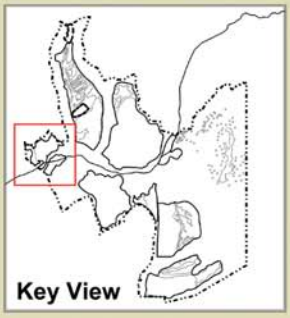

Legend

- 9 Ladera Ranch Construction Yard
- 10 The Blenheim Oaks Rancho Mission Viejo Riding Park
- 11 The Oaks Corrals
- 13 DM Color Express
- 14 TruGreen Nurseries
- 16 Ranch Buildings
- 21 Antenna Site (Lemon Grove)
- 25 Sierra Soils
- 26 RMV Headquarters
- 27 Seasonal Row Crops
- 29 SMWD San Juan Creek Lift Station

Planning Boundaries

- Planning Area Boundary
- Development Boundary
- Ranch Plan Boundary

Existing Land Use Legend

- Existing Uses
- Lease Areas
- RMV Residence

Existing Agriculture

- Seasonal Row Crops
- Citrus Trees

Existing Land Uses in Planning Area 1

Exhibit 4.1-3

The Ranch Plan

1" = 2,000'

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Source: EDAW, Inc. 2004

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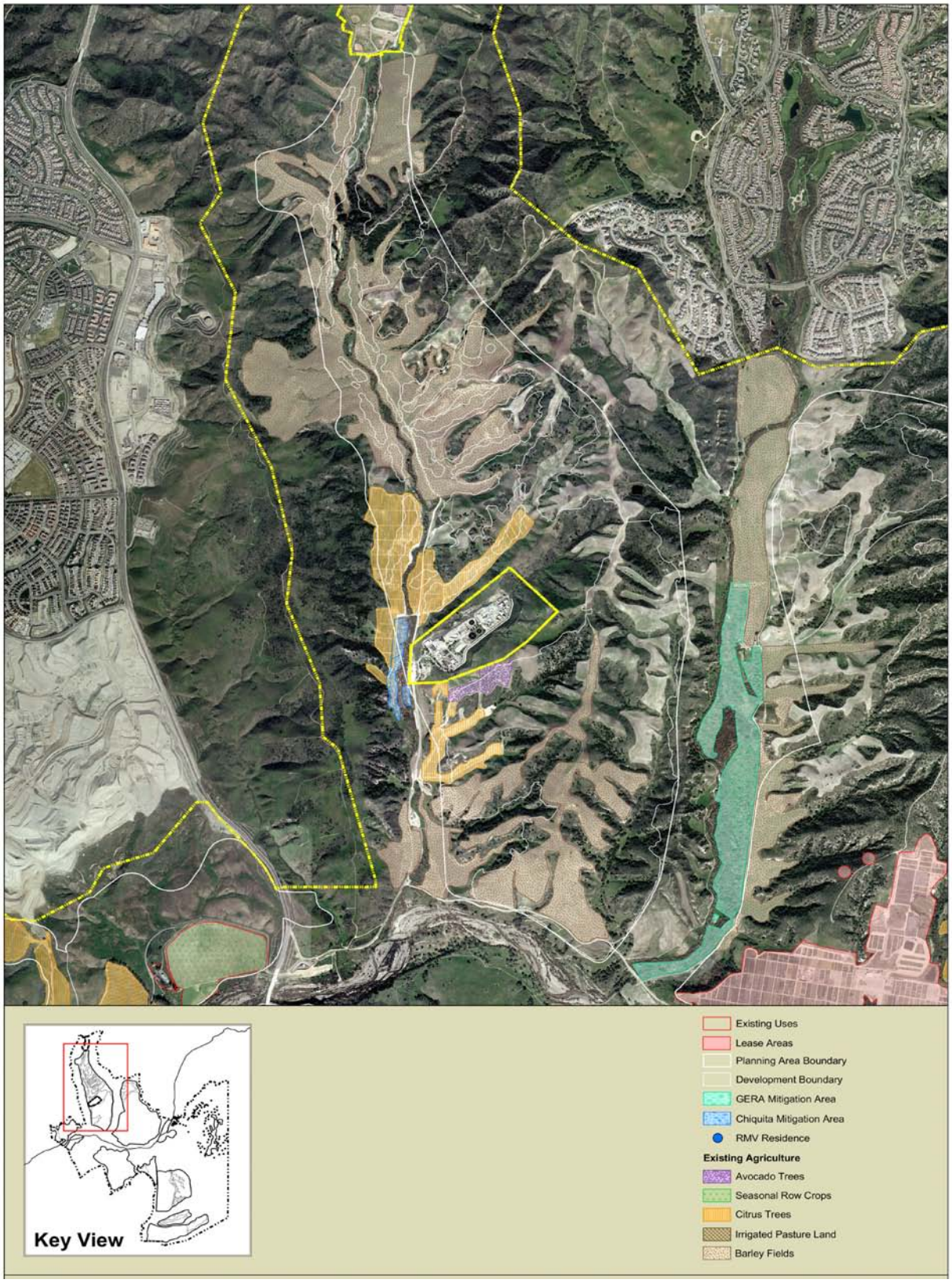

Existing Land Uses in Planning Area 2

Exhibit 4.1-4

The Ranch Plan

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Source: EDAW, Inc. 2003

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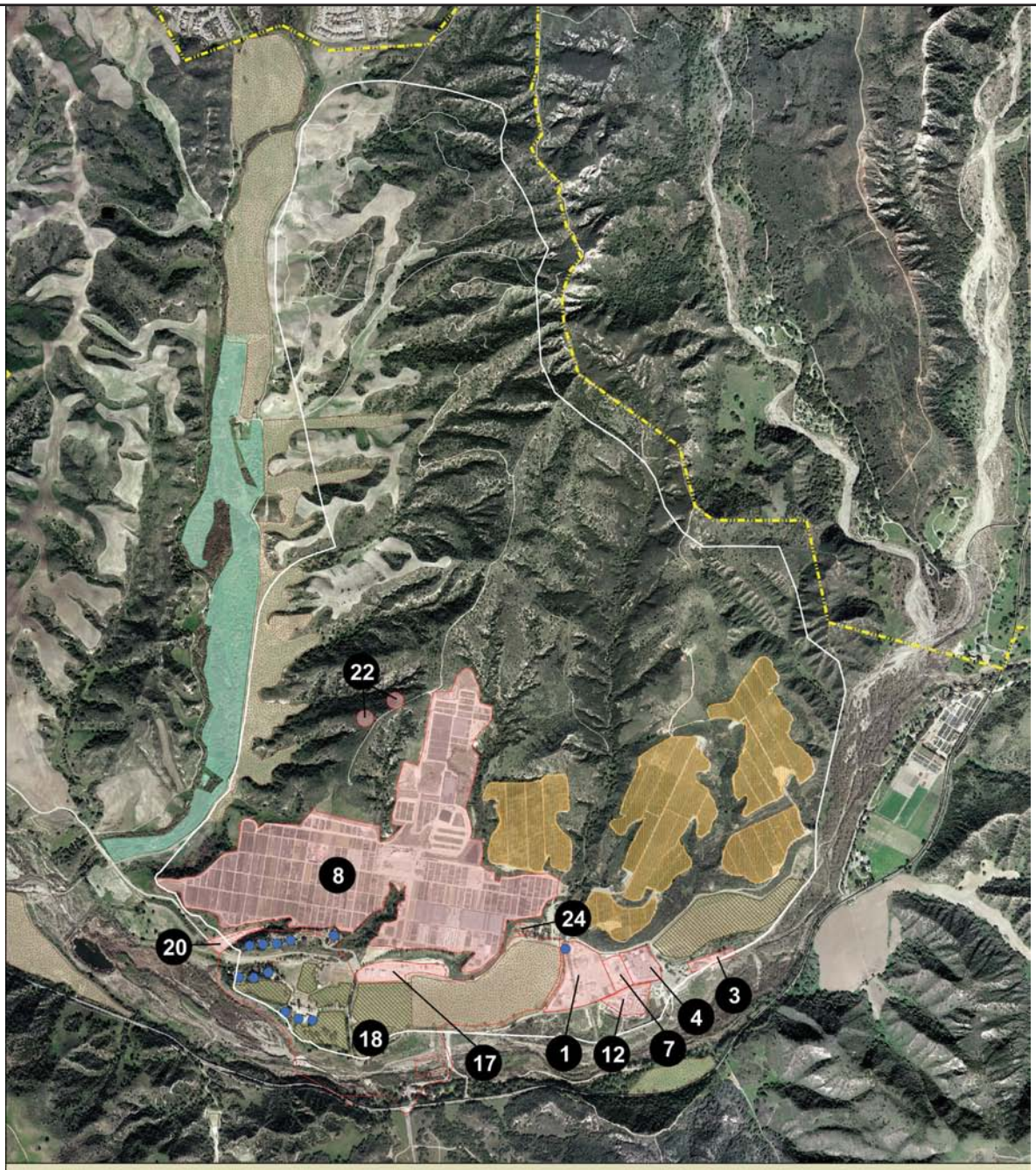

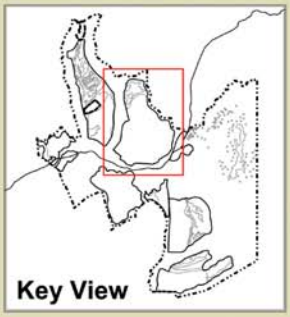

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24 O' Connell Landscaping Yard

Planning Boundaries
- Planning Area Boundary
- Development Boundary
- Ranch Plan Boundary

Existing Land Use Legend
- Existing Uses
- Lease Areas
- GERA Mitigation Area
- RMV Residence

Existing Agriculture
- Citrus Trees
- Irrigated Pasture Land
- Barley Fields

Existing Land Uses in Planning Area 3

Exhibit 4.1-5

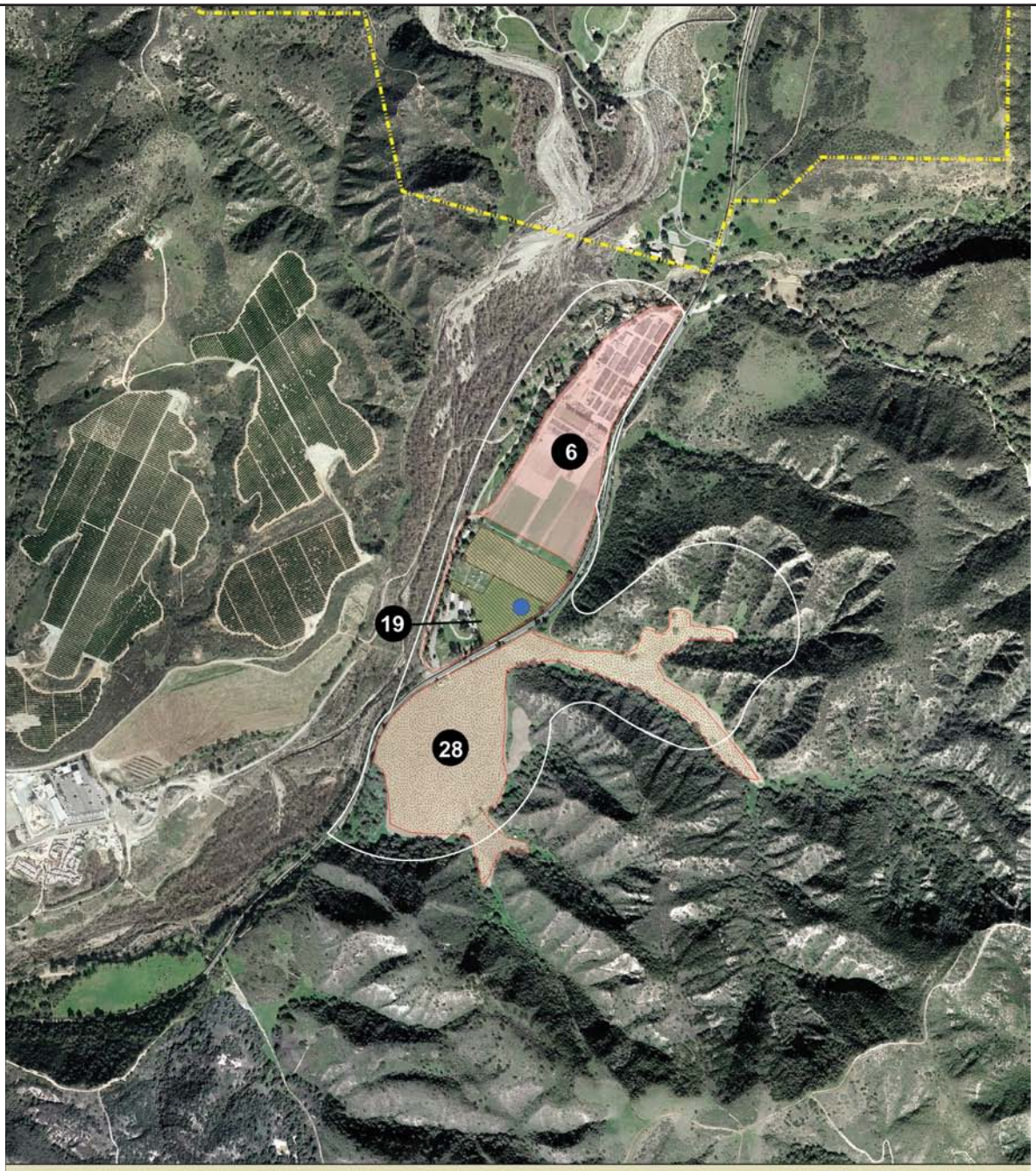
The Ranch Plan

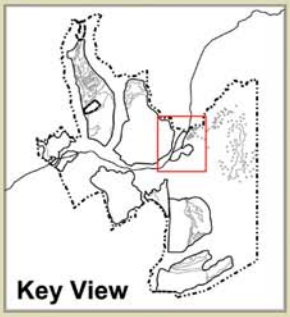
1" = 2,500'

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex4.1-5_ELU_PA3_060704.pdf





6 Tree of Life Nursery
19 RJO Horse Ranch
28 South Forty

Planning Boundaries
- Planning Area Boundary
- Development Boundary
- Ranch Plan Boundary

Existing Land Use Legend
- Existing Uses
- Lease Areas
- RMV Residence

Existing Agriculture
- Irrigated Pasture Land
- Barley Fields

Existing Land Uses in Planning Area 4

Exhibit 4.1-6

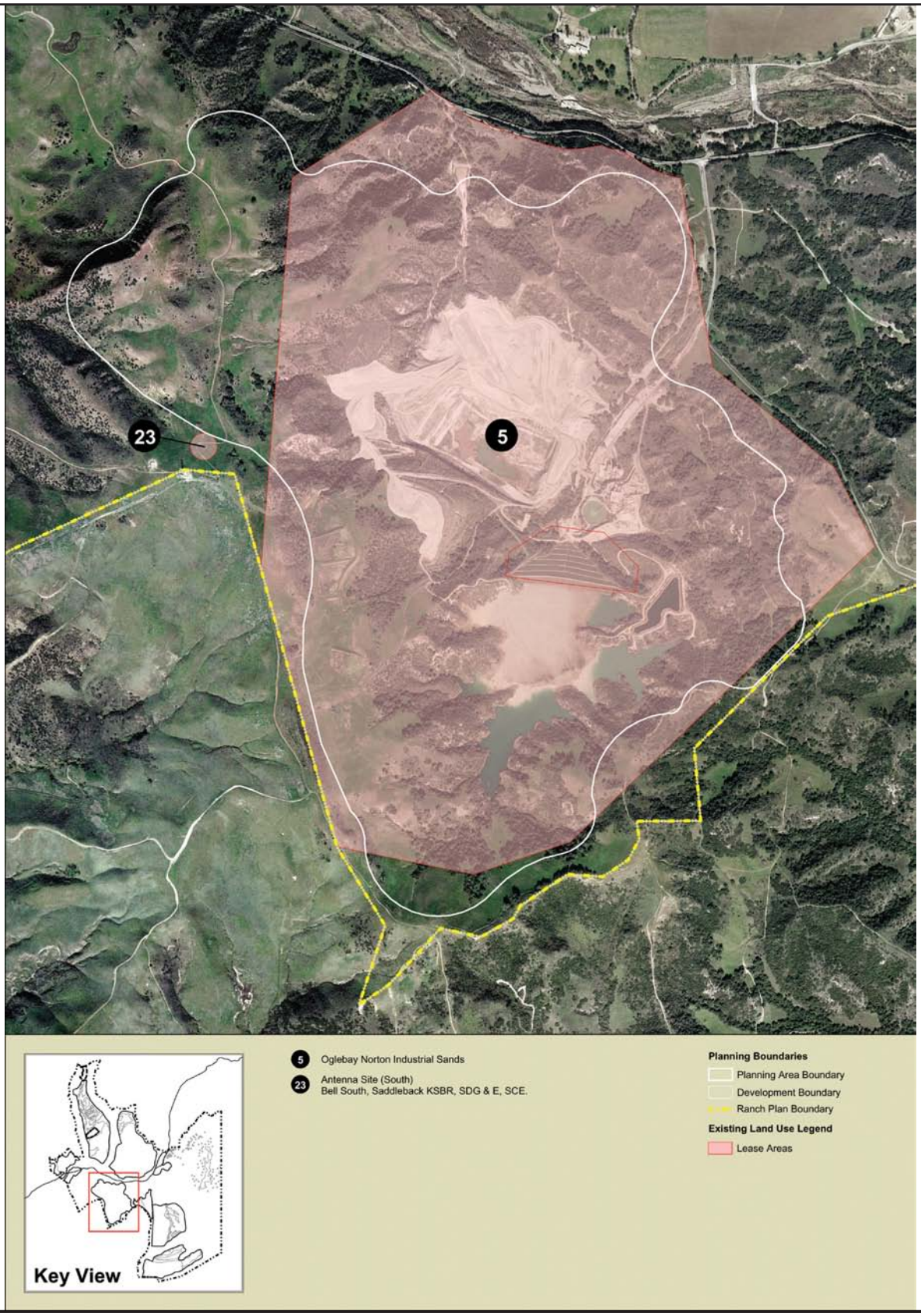
The Ranch Plan

1" = 1,500'

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex4.1-6_ELU_PA4_060704.pdf



Existing Land Uses in Planning Area 5

Exhibit 4.1-7

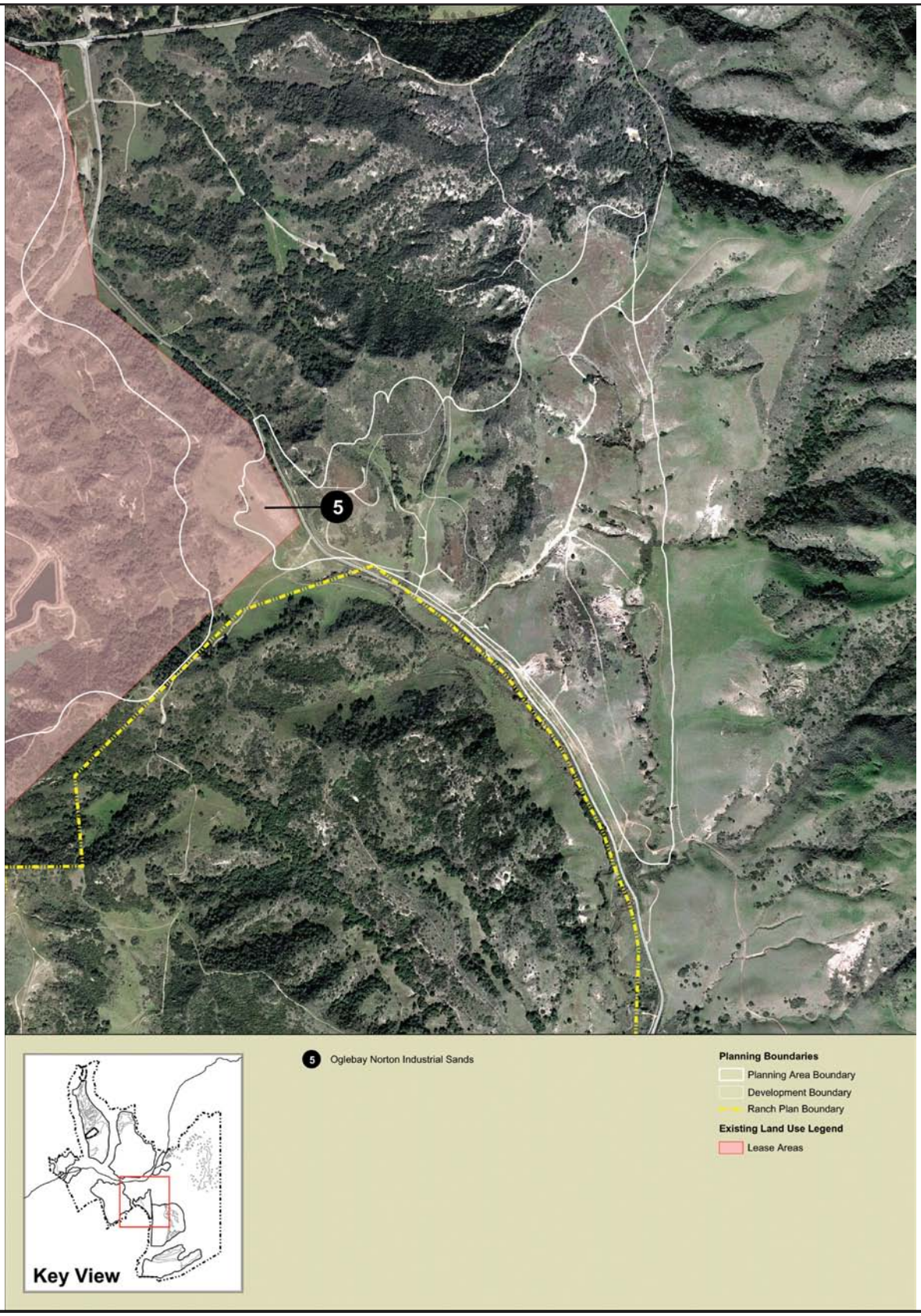
The Ranch Plan

1" = 2,000'

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex4.1-7_ELU_PA5_060704.pdf



Existing Land Uses in Planning Area 6

Exhibit 4.1-8

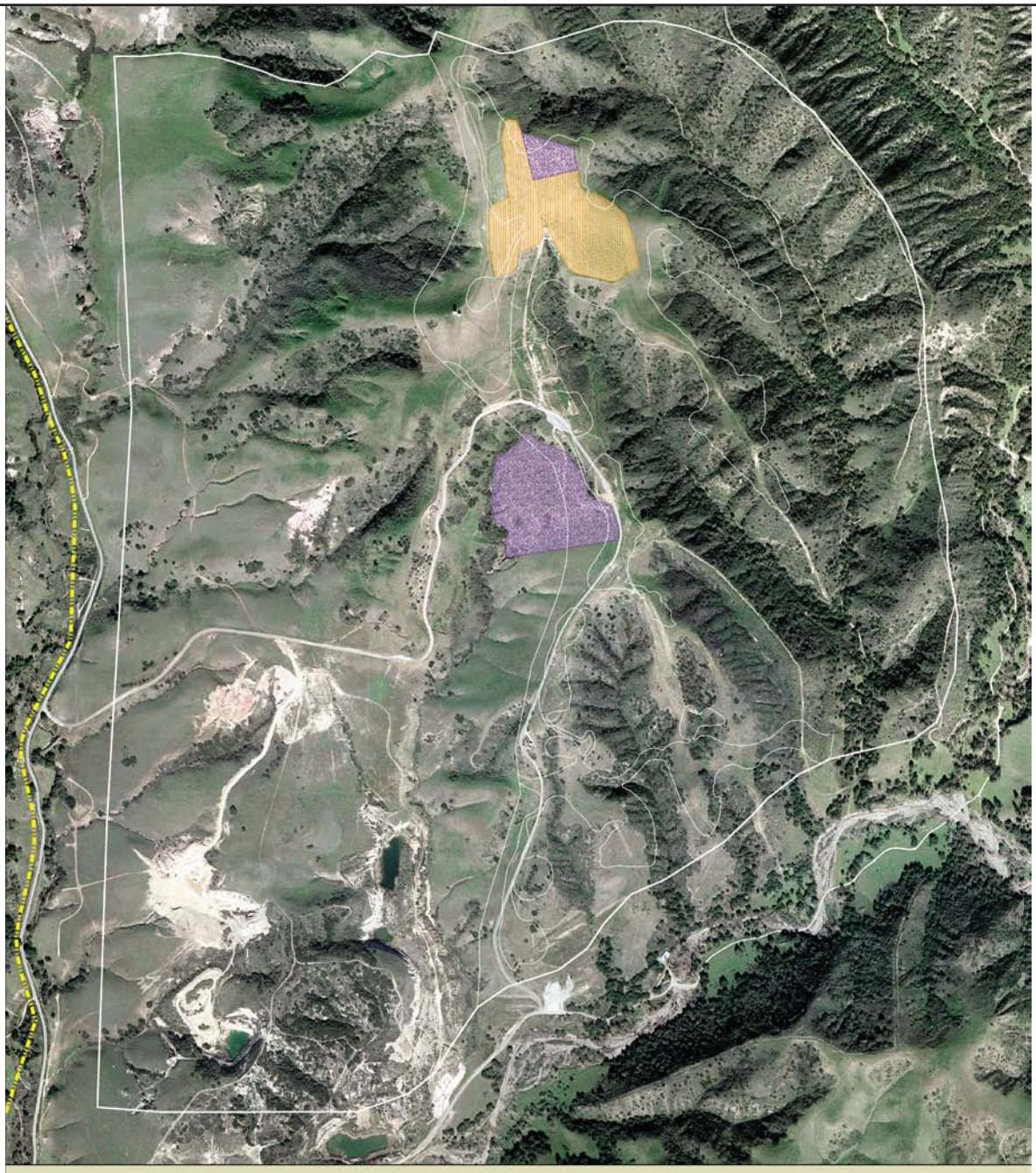
The Ranch Plan

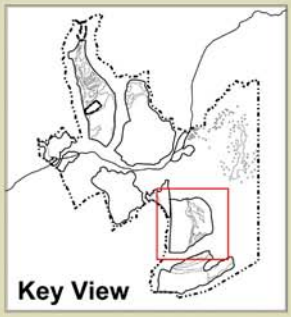
1" = 1,500'

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex4.1-8_ELU_PA6_060704.pdf





Planning Boundaries
- Planning Area Boundary
- Development Boundary
- Ranch Plan Boundary

Existing Agriculture
- Avocado Trees
- Citrus Trees

Existing Land Uses in Planning Area 7

Exhibit 4.1-9

The Ranch Plan

1" = 1,500'

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex4.1-9_ELU_PA7_060704.pdf

4.2 AGRICULTURE

4.2.1 INTRODUCTION

Methodology

The methodology used was to overlay the development areas on known agricultural resources (i.e., crop areas, Important Farmland or Williamson Act contract areas) to determine if these resources would be affected by the project. The California Department of Conservation (CDC) Office of Land Conservation, "A Guide to the Farmland Mapping and Monitoring Program," was the resource used for identification of Important Farmland. Current lease information and mapping of ongoing agricultural activities was provided by Huitt-Zollars for the impact analyses.

Study Area

The study area for the agricultural impacts is limited to the Ranch Plan project area. The Ranch Plan project area is described in detail in Section 3.0, Project Description. No agricultural impacts are anticipated offsite since there are limited agricultural activities surrounding the project site.

4.2.2 EXISTING CONDITIONS

To provide a context for the agricultural discussion, according to the California Farm Bureau Federation, Orange County is ranked 19th in the state for value of agricultural production, grossing approximately $344.3 million in 2002. When all economic factors are considered, including payroll, purchase of goods and transportation, agriculture has a total value to the local Orange County economy of $1 billion.

Avocados were the fifth ranked crop in Orange County by value in 2002 with a value of $8.1 million. This was a slight reduction from 2001. The Orange County Agricultural Commission produces Crop Reports that highlight the productivity of the County's agriculture industry. According to the commission's "Million Dollar Enterprises" for 2001 of the Crop Report, lemons had an Annual Production Value of slightly more than one million dollars.

As discussed in Section 4.1, the majority of the project site is zoned A-1, General Agricultural. The A-1 District is established to provide for agriculture, outdoor recreational uses and low intensity uses that have a predominately open space character. Portions of the project site are used for a variety of agricultural uses, including crops, orchards, nursery stock, and grazing. These resources are discussed further below.

Agricultural Production on Rancho Mission Viejo

Crops. Agricultural operations have been ongoing on the RMV property for over 120 years. RMV had the largest wheat and barley fields, as well as rows of black-eyed peas and sugar beets in Orange County during the late 1880's through the 1920's. Also, for some time after the 1960's the agricultural land was used to produce grain crops.

Today, some parcels of the Ranch Plan project site are being cultivated to produce lemons and avocados. There are currently 398 acres of lemon orchards and 32 acres of avocado orchards. Of these 430 acres used in production of lemons and avocados, a total of 354 acres are on lands designated as Important Farmland (see discussion of Important Farmland below). The locations of the existing orchards, as well as row crops, barley fields, and irrigated pastures, are depicted on Exhibit 4.2-1. The success of the lemon orchards has allowed the ranch to become

the largest producer of lemons in Orange County. In 2001, the RMV orchards produced an estimated 5,702 tons of lemons with an estimated crop value of approximately $2,373,000 prior to the deduction of picking, hauling, and packing expenses. In 2002 this increased to 6,233 tons of lemons with a value of $3,313,700 before deduction of picking, hauling and packing expenses and in 2003, it is projected to be 8,103 tons and $4,509,300 prior to expenses. The increased number reflects an increased yield, as well as more acres in cultivation. The avocado orchards were not mature enough to produce a salable crop.

The lemon orchards were planted in three groups: 1979, 1992 to 1995, and 1998 to current. The avocado orchards were planted between 2001 and current. In general, lemon orchards are commercially viable for up to 28 years and are productive at the end of their second year. After this period of time production is not always sufficient to be economically viable. Avocados start bearing fruit in limited amounts after three years and are considered mature between six and seven years of age. Avocado trees are generally commercially viable for approximately 30 years.

Additionally, RMV plants between 800 and 1,000 acres of barley in several locations north of Ortega Highway. In 2003, 886 acres of barley were planted. The fields are not irrigated and levels of production are inconsistent dependent on weather conditions (i.e., amount of rainfall). This limited barley crop primarily serves as feed for RMV cattle. In years where the crop produces more than is needed for RMV cattle, the excess is sold to other local agricultural operations. The amount of revenue from the sale of excess is minimal; therefore, barley sales are not considered toward agricultural revenue.

In 2003, an approximately 52-acre parcel located at the northwest quadrant of the Ortega Highway and La Pata Avenue intersection was cultivated with green beans. This site is designated as Prime Farmland. This site was previously a pasture. It is anticipated that this field will continue to be planted with a variety of row crops.

Infrastructure used to serve the agricultural operation, namely citrus and avocado production and limited irrigated pasture (horse grazing), includes mainline water lines, irrigation systems, and ranch roads. With the exception of Cristianitos Road, all of the ranch roads are graded dirt roadways. Verdugo Road is a gravel surface road.

Nursery. RMV leases land to commercial nurseries for landscape and greenhouse production. Table 4.2-1 lists the nurseries on site, the size of the operation, type of production and the end date of the lease. The location of these nurseries is shown on Exhibit 4.1-2, in the Land Use and Related Planning Programs section.

TABLE 4.2-1
NURSERY LEASES ON THE RMV PROPERTY

Leaseholder	Size of Lease	Type of Production	Lease Expiration
Tree of Life Nursery	35 acres	Wholesale nursery	Renewed yearly in July
Color Spot Nursery	243.7 acres	Wholesale nursery	December 31, 2006
DM Color Express Nurseries	29.4 acres	Wholesale nursery	July 31, 2004 and monthly
Miramar Wholesale Nurseries	17 acres	Wholesale nursery	monthly
Source: RMV, 2003.			

Presently, there are approximately 325 acres used by commercial nurseries on the project site. The nursery stock is grown in containers rather than in the ground plantings. According to the Orange County Farm Bureau, nursery stock and cut flowers represented the number one crop

in Orange County by value. The estimated value for 2002 was $232.1 million. The estimated value of the container plants is between $50,000 and $100,000 per acre.

Ranching Operations. Historically, the RMV property supported several thousand head of cattle. In recent years there have been an average of 500 head of cattle that graze on the approximately 19,100 acres of pasture located within the current RMV boundary. Within the Ranch Plan boundary, approximately 86 percent of the area is designated as Grazing Land as part of the CDC Farmland Mapping and Monitoring Program. This constitutes 52 percent of the lands designated for grazing in Orange County.

Historically, RMV had 22 designated pasture areas for grazing of cattle. Currently, only 11 pastures within the project boundaries are being used. These pastures are depicted in Exhibit 4.2-2. In addition, there are several irrigated pastures in the vicinity of San Juan Creek. The irrigated pastures are depicted in Exhibit 4.2-1, along with the other agricultural operations. The following provides a brief overview of the characteristics of each pasture. More detail on the pastures can be obtained from the Grazing Management Plan, which is a component of the Adaptive Management Program being proposed as part of the Ranch Plan project. The Grazing Management Plan can be found in Appendix J (Section 4.9, Biological Resources discusses the biological effects of grazing activities).

- Lower Chiquita and Lower Chiquita Pasture – These two areas are currently being grazed as one pasture. Other agricultural operations, in the form of citrus, avocados and barley fields, are also carried out in this area. Cattle are excluded from the agricultural production areas. Water is provided by cattle trough and via Chiquita Creek. The troughs are filled by pipeline.

- Vineyard Pasture – Located within the valley floor of the Gobernadora sub-basin, the pasture is enclosed by four-strand barbed wire fence. Barley is often grown in the alluvial valley of this pasture. Annual grasslands are also used for grazing. The internal fencing keeps the cattle out of GERA. Cattle troughs and Gobernadora Creek provide water to the pasture.

- River Pasture – This pasture straddles San Juan Creek. There are agricultural activities (barley) within this area. Water is provided via San Juan Creek and water troughs when the creek is dry.

- Bull Pasture – Located west of Gobernadora Creek, the pasture is enclosed by four-strand barbed wire fence. Barley is often grown in the alluvial valley of this pasture. Annual grasslands are also used for grazing. A cattle trough provides water to the pasture.

- Lower Gobernadora – Located south of Bull Pasture, this area shares fencing with the adjacent pasture areas. Barley is often grown in alluvial valley of this pasture. Annual grasslands are also used for grazing. The internal fencing keeps the cattle out of GERA. Cattle troughs provide water to the pasture.

- South 40 Pasture – This pasture is located south of Ortega Highway. Barley is grown on the lower elevations in this area. Annual grasslands are also used for grazing. Water is provided via water troughs.

- Gabino – This pasture is located in the eastern portion of the study area. Water is provided via Jerome's Lake, water troughs, and Gabino Creek (when water is available).

- Cristianitos – Located south of Ortega Highway and east of Cristianitos Road, this pasture does have limited agricultural areas. Lemons and avocados are grown in the southeastern portion of this pasture. Fencing is used to keep the cattle from the adjacent pastures and out of the citrus areas. Water is provided via three defunct mining ponds and water troughs.

- Rinconada – This pasture is located south of Ortega Highway and east of the Sierra Pasture. Fencing keeps the cattle from the roadway, the adjacent landfill, and the Donna O'Neill Conservancy to the south. This area is disturbed from the Olgebay Norton Industrial Sands (ONIS) operation. No agricultural activities are located in this area. Water is provided via water troughs and the mining pond associated with ONIS.

- Sierra – Located south of Ortega Highway and east of La Pata Avenue. Fencing separates this pasture from the roadways and the Prima Deshecha landfill. Cattle are also excluded from the Ranch House area. Water is provided via water troughs.

The cattle are rotated between the pastures taking into account available water, forage productivity and a desire to maintain an average of 25 percent residual dry matter (RDM) for natural pastures[1]. Generally, the cattle are grazed in the natural southern pastures (South 40, Sierra, Rinconada, Cristianitos, Gabino and Talega) from October to May. In late May or early June the cattle are moved to the northern pastures. This allows the pastures a fallow period and the cattle are able to benefit from the areas planted with barley.

Planned Agriculture. It is the intention of Rancho Mission Viejo to continue agricultural production within the Ranch Plan area. Based on current plans, approximately 100 acres of citrus orchards are scheduled for planting on the project site within Cristianitos Pasture in the 2004 to 2005 timeframe. The area planned for planting is in the eastern portion of Planning Area 7. The precise location has not been determined. A 200-acre candidate site has been identified and is depicted on Exhibit 4.2-1 as future citrus. Within this 200-acre area, 100 acres would be planted. Soil type, water availability and exposure are factors that would determine the location for the future orchards. Existing habitat type would also be considered in an effort to avoid potential environmental impacts. Orchard uses are permitted by the current Orange County agricultural (A-1) zoning designation.

Farmland Classification

The California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) produces maps and statistical data used for analyzing impacts on California's agricultural resources. Agricultural land is rated according to soil quality and irrigation status. The best quality land is called Prime Farmland. The maps are updated every two years with the use of aerial photographs, a computer mapping system, public review, and field reconnaissance. The goal of the FMMP is to provide consistent and impartial data to decision makers for use in assessing present status, reviewing trends, and planning for the future of California's agricultural land resources.

For Prime Farmland or Farmland of Statewide Importance the soil must meet the physical and chemical criteria as determined by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). NRCS compiles lists of which soils in each survey area meet the quality criteria. Factors considered in qualification of a soil by NRCS include:

[1] RDM standards are discussed more fully in the Grazing Management Plan (see Appendix J).

- Water moisture regimes, available water capacity, and developed irrigation water supply
- Soil temperature range
- Acid-alkali balance
- Water table
- Soil sodium content
- Flooding (uncontrolled runoff from natural precipitation)
- Erodibility
- Permeability rate
- Rock fragment content
- Soil rooting depth

For CEQA purposes, Prime Farmland, Farmland of Statewide Importance and Unique Farmland are collectively defined as "Important Farmland." Grazing lands are also considered farmland, though are not included as Important Farmland. The use of the grazing lands for ranching activities is discussed below. The following identification of the farmland classifications is excerpted from the CDC Office of Land Conservation, "A Guide to the Farmland Mapping and Monitoring Program:"

- **Prime Farmland (P).** Prime Farmland is land, which has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Prime Farmland must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.

- **Farmland of Statewide Importance (S).** Farmland of Statewide Importance is land other than Prime Farmland, which has a good combination of physical and chemical characteristics for the production of crops. It must have been used for the production of irrigated crops within the last three years. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.

- **Unique Farmland (U).** Unique Farmland is land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance. It must be currently used for the production of specific high economic value crops (as listed in the last three years of California Agriculture produced by the California Department of Food and Agriculture). It has the special combination of soil quality, location, growing season and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. Examples of such crops may include oranges, olives, avocados, rice, grapes, and cut flowers. It does not include publicly owned lands for which there is an adopted policy preventing agriculture use.

- **Farmland of Local Importance (L).** Farmland of Local Importance is either currently producing crops, or has the capability of production. Farmland of Local Importance is land other than Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. This land may be important to the local economy due to its productivity.

- **Grazing Land (G).** Grazing Land is land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock. The minimum mapping unit for Grazing Land is 40 acres. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.

- **Urban and Built-up Land (D).** Urban and Built-Up Land is used for residential, industrial, commercial, construction, institutional, public administrative process, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, and other development purposes. Highways, railroads, and other transportation facilities are mapped as a part of Urban and Built-up Land, even though they are associated with agriculture

- **Other Land (X).** Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

Based on a review of the 2002 Orange County Important Farmland map, prepared by the CDC, the project site contains approximately 956 acres of Important Farmland. Table 4.2-2 provides a breakdown of the number of acres of classified farmland types within the Ranch Plan area, Orange County, and Statewide. As shown in the table, the Ranch Plan contains approximately six percent of the Important Farmland in Orange County and approximately one-one hundredth of a percent of the Important Farmland statewide. Exhibit 4.2-3 visually depicts the locations of Important Farmland within the Ranch Plan project boundary relative to Planning Areas and Exhibit 4.2-4 depicts the location of agricultural activities on Important Farmland.

TABLE 4.2-2
ACRES OF FARMLAND BY CLASSIFICATION

Farmland Classification	Acres within the Ranch Plan	Acres within Orange County	Acres Statewide
Prime Farmland	319	10,127	4,784,390
Farmland of Statewide Importance	61	763	2,383,024
Unique Farmland	576	6,063	1,224,328
Farmland of Local Importance[a.]	0	0	3,036,514
Grazing	20,016	37,964	13,553,757

[a.] Orange County has not designated any farmland as being locally important.
Source: CDC 2000, utilizing Ranch Plan mapping

Williamson Act

In 1965, the State enacted the California Land Conservation Act, more commonly known as the Williamson Act (Government Code Section 51230 *et seq*.). The Williamson Act was adopted as a means of encouraging the preservation of the state's agricultural lands. As a means to implement the act, a land contract is established, whereby the County Board of Supervisors or City Council stabilizes the taxes on qualifying lands in return for an owner's guarantee to keep the land in agricultural preserve status for a 10-year length of time. Each year, on the anniversary date of the contract, the contract is automatically renewed unless a notice of non-renewal is filed.

In 1969, an agricultural preserve boundary for Rancho Mission Viejo was established that encompassed 36,619 acres. Since the date of execution of the original Williamson Act contract agreement, approximately 26,779 acres have been removed from the agricultural preserve either because they were subsequently identified as exceptions to the land conservation agreement, were added to O'Neill Regional Park, or (i.e., notices of non-renewal were filed and

the contract was allowed to expire). Currently, only 9,840 acres remain within the Williamson Act contract and notices of non-renewal have been filed for all of those acres. Regardless of the project, the contract is set to expire on 289 acres on December 31, 2005, 1,733 acres on December 31, 2006, and 7,818 acres on December 31, 2008. Exhibit 4.2-5 depicts the lands within the project study area currently within the agricultural preserve and when the contract obligations for the individual areas are set to expire.

Exhibit 4.2-6 depicts the boundaries of the Agricultural Preserve overlaid on the Important Farmland data. Within the Agricultural Preserve areas, there are 121 acres of Prime Farmland, 21 acres of Farmland of Statewide Importance, and 12 acres of Unique Farmland.

Factors Influencing Agricultural Uses

Agricultural production and the amount of land dedicated to agriculture have been reduced substantially over the past few decades as the County has become more urbanized. Many factors influence the long-term viability of large-scale agricultural production in Orange County. The economic factors that influence the viability of agricultural uses include 1) the cost of land; 2) the cost of operation, including water, fuel, labor and property taxes; 3) competition; and 4) the impact of environmental regulation. These factors have led to a change in the type of crops grown in the County. There is a need to grow the high ”cash” crops, such as strawberries, avocados, and nursery stock to provide greater revenue. Additionally, they are factors that contribute to the pressure for other lands to convert from agriculture to other uses.

In Orange County, land prices range from about $5,000 per acre in remote canyon areas to well over $1,000,000 per acre by the coast. The variables that influence price include location, existing infrastructure, existing land use entitlements, land constraints, and other issues. In the mid-1990’s, County of Orange, Public Facilities and Resources Department, estimated that on any parcel valued at more than $20,000 to $25,000 per acre, the viability of agricultural production is limited because a reasonable rent based on these land values would be prohibitive to a profitable agricultural operation (County of Orange, Recirculated Sections of EIR 564, 1998).

When establishing the viability of agricultural operations, the cost of irrigation water is a crucial element. Currently SMWD does not provide irrigation water to RMV. Water is pumped from wells or surface water. During drought years when supplemental water is needed, water is purchased but there is not a discounted agricultural rate. The cost of water in the RMV area is more expensive than the cost of water for growers in the major comparable growing areas elsewhere in many parts of California (California Department of Water Resources, California Water Plan, Bulletin 160-98, Appendix 4A).

There is a sufficient labor supply available for south Orange County growers. Labor costs used by the University of California Cooperative Extension (UCCE) in its Establishment and Production Costs for Avocados was estimated at $12 per hour in 2001 for the San Diego and Riverside counties area. These rates are comparable to other areas for skilled farm labor and slightly higher than is paid to field laborers in other areas in California, but are substantially higher than in other countries. The influence of cheaper labor is a factor in the globalization of the market, discussed below.

Property taxes are also a factor in agricultural costs. A portion of the project site is still within areas subject to the Williamson Act, thereby holding the property tax rates below market. Given that the landowner has filed notices of non-renewal on the remaining 9,840 acres onsite, the property taxes will increase subject to the constraints of Proposition 13. Additionally, with the request by the landowner to rezone the site, the tax base would be reassessed.

Another factor is the level of competition, especially as globalization has influenced the market. Steve Blank, an agricultural economist at the University of California, Davis, reported, "The price a farmer receives is determined by global supply and demand … because it is possible to import commodities from any continent on the globe." While supply and demand may be increasing globally, the production costs are always local. The California Farm Bureau reports, the North American Free Trade Agreement (NAFTA) have expanded the markets for California food products; however, prices for many of the state's food commodities have been greatly reduced because of foreign imports. The American Farm Bureau sites that imports of fresh vegetables from Mexico have increased by 60 percent since 1994, NAFTA's first year. The overall competition is a factor in the ability of farmers in Orange County to overcome the high cost of agricultural activities in the competitive market. Crops can be produced at dramatically lower costs elsewhere due to availability of land and resources, cheap labor, farm friendly environments, and the lack of regulatory requirements.

The cost of agricultural operations is becoming increasingly affected by the regulation of agricultural activities. State regulations, such as the Clean Air Act and the Clean Water Act, present additional requirements on farmers.

4.2.3 IMPACTS

Thresholds of Significance

The project would have a significant impact on agricultural resources if it would:

- Convert farmlands listed as "Prime", "Unique," or of "Statewide Importance," as shown on the State Farmland Mapping and Monitoring Program, to non-agricultural use.

- Conflict with existing Williamson Act contract.

Impacts

Conversion of Important Farmland to Non-Agricultural Use

Impact 4.2-1 *The project would result in the development of urban uses on lands designated as Important Farmland. The project would result in the removal of 266 acres of Prime Farmland, 32.9 acres of Farmland of Statewide Importance, and 528.3 acres of Unique Farmland. In the aggregate, development of the project would result in the loss of 827.2 acres of Important Farmland.*

The potential impact associated with the conversion of Important Farmland to non-agricultural use must be evaluated for the direct conversion impacts (i.e., conversion within the Ranch Plan boundary), as well as indirect impacts (i.e., pressure on land adjacent to the Ranch Plan to convert to non agricultural use). The conversion to non-agricultural uses would be limited to the area within the Ranch Plan boundary because of the lack of agricultural uses adjacent to the project site. The surrounding uses are either urban or open space uses and are not currently in agricultural production. The project is surrounded by urban development in Ladera Ranch, Mission Viejo, San Juan Capistrano, Rancho Santa Margarita, and San Clemente. MCB Camp Pendleton, Caspers Wilderness Park, and the Cleveland National Forest are also contiguous to the project site and are in public ownership. Although there are large agricultural leases on MCB Camp Pendleton, the closest being in the San Mateo Valley south of the project study area, the urban development in Orange County would not influence the continuation of this agricultural uses because the Base would not be available for urban development. The

Department of the Navy controls the allowed uses on MCB Camp Pendleton. Therefore, there would be no significant indirect (offsite) agricultural impacts.

Crops and Nursery. As indicated above, within the Ranch Plan boundaries there are citrus and avocado orchards, limited row crops, as well as nursery operations. The citrus and avocado operations are currently located in Planning Areas 1, 2, 3, 7, and 10. Development is proposed in all but Planning Area 10. Agricultural land included in development planning areas would be converted to a non-agricultural use. The proposed development would result in the removal of majority of the orchards, the nurseries, and row crops. For purposes of analysis, an agricultural area was only assumed to be viable if a minimum of an acre would remain after development. This size parcel was assumed because currently there are locations where sites of approximately one-acre are in agricultural production. Table 4.2-3 identifies the amount of orchards and agricultural fields within each planning area, the amount that would be removed by development and the amount remaining after project implementation.

TABLE 4.2-3
IMPACTS TO ORCHARDS AND AGRICULTURAL FIELDS
BY PLANNING AREA

Planning Area	Acres Of Existing Agricultural Activity	Acres Of Agricultural Land Impacted By Development	Acres Of Agricultural Land Remaining
Planning Area 1			
Lemon Orchards	101	101	0
Row Crops	52	52	0
Planning Area 1 Total	153	153	0
Planning Area 2			
Lemon Orchards	86	36	50
Avocado Orchards	10	8	2
Planning Area 2 Total	96	44	52
Planning Area 3			
Lemon Orchards	166	166	0
Planning Area 3 Total	166	166	0
Planning Area 7			
Lemon Orchards	23	19	4
Avocado Orchards	22	15	7
Planning Area 7 Total	45	34	11
Planning Area 10			
Lemon Orchards	22	0	22
Planning Area 10 Total	22	0	22
Ranch Plan Total	**482**	**397**	**85**

Source: BonTerra Consulting, 2004. Based on mapping by agricultural mapping Huitt Zollars (2003) and EDAW Ranch Plan mapping, 2004.

All of the nursery operations are on leaseholds in areas proposed for development. The leases are proposed to expire by 2006, as shown in Table 4.2-1. While the leases may be extended a short time to allow the continuation of the nursery stock production while development is phased, this would be an interim use. Ultimately, the project would result in the removal of the approximately 325 acres of commercial nursery uses.

As previously indicated, the amount of barley that is planted each year varies. In 2003, 886 acres were planted. Using the 2003 footprint as a basis for evaluating the potential impact of the Ranch Plan, approximately 430 acres of area used for planting barley would be displaced.

As previously indicated, the landowner intends to plant approximately 100 acres of citrus orchards in 2004 or 2005 within the eastern portion of Planning Area 7. This area is in the sixth phase of development, which is anticipated in approximately the year 2020. Therefore, the orchards would exist for approximately 15 years. Lemon orchards are considered commercially viable for 28 years. While it is possible that viable portions (larger than one acre) of the future orchards may remain after development (given that the precise location for the 100 acres is not presently known), a worst-case evaluation assumes that the full 100 acres of planned orchards would be displaced by development. As previously indicated, the location of the planned orchards would take into consideration sensitive habitat type in an effort to avoid potential environmental impacts.

The impacts associated with conversion to non-agricultural uses that would occur on the Ranch are associated with the loss of the value of the land (i.e., Important Farmland) rather than the loss of the agricultural use. A total of 827.2 acres of Important Farmland (Prime Farmland, Farmland of Statewide Importance, and Unique Farmland) on the proposed project site would be converted to nonagricultural uses through implementation of the project. Specifically, the project site is divided into 13 planning areas, of which nine are proposed for varying levels of development. Important Farmland within the proposed development areas would be completely converted to urban (non-agricultural) uses. However, there are no Important Farmland designations in Planning Areas 5 through 13. The loss of Important Farmland would be in Planning Areas 1 through 4. The loss of Important Farmland is considered a significant impact. Table 4.2-4 provides a breakdown of Important Farmland losses according to Planning Area.

TABLE 4.2-4
IMPACTS TO IMPORTANT FARMLAND

Planning Area[a.]	Prime Farmland	Farmland of Statewide Importance	Unique Farmland	Total Important Farmland
1	56.3		147.1	203.4
2	9.6	7.2	3.5	20.3
3	133.6	16.3	365.2	515.1
4	66.5	9.4	12.5	88.4
Total	**266.0**	**32.9**	**528.3**	**827.2**

[a] Important Farmland is not designated in other planning areas.
Source: CDC, 2000, utilizing Ranch Plan mapping.

All land designated as Important Farmland and located outside of the planning areas proposed for development would remain under its current FMMP classification.

Ranching Operations. Currently, approximately 20,016 acres of land within the project site boundaries are designated as being suitable for livestock grazing. Grazing land is not considered an Important Farmland by the CDC. Based on the current practice of livestock grazing, only portions of the grazing area are in use at any given time. Throughout the project site, livestock grazing is conducted on a rotating schedule, thereby allowing areas to replenish their vegetation while active grazing is occurring elsewhere on the project site. As with farmland, all grazing lands located within areas proposed for development would be eliminated over time. The project would eliminate grazing in substantial portions of the Lower Chiquita, Gobernadora, Rinconada and Talega pastures. The project proposes to continue grazing practices in Planning Areas 9, 10, 11, and 12. The project would result in a loss of approximately 7,288 acres land currently used for grazing.

Future grazing would maintain the existing grazing pattern. Cattle would still use the natural southern pastures in the fall and winter months and rotate to the north in spring and summer months. To protect biotic resources, some fencing improvements would occur to ensure exclusion of the cattle from certain areas supporting sensitive resources, as well as developed areas. Both seasonal and permanent exclusions are proposed. Generally, the areas proposed for permanent exclusion include GERA, the Donna O'Neill Conservation area and the slope wetlands in Chiquita, Rinconada, and Sierra pastures. In these areas, cattle would only be used for limited fuel management periods.

The number of cattle that can be supported onsite without substantially degrading the biotic resources within the open space areas is dependent upon the amount of RDM available. The Grazing Management Plan establishes standards for RDM needed to support each head of cattle. Therefore, the stocking rates are designed to be adapted to the conditions in any given year to ensure the recommended residue is maintained. Other factors that influence the decision of how many cattle to stock are related to expenses, such as insurance, interest, utilities, health costs, transportation, materials and labor. The combination of forage availability, expenses, and market demand for beef ultimately would determine the herd size. Based on the evaluation in the Grazing Management Plan, the grazing areas that would be retained even with project approval and loss of grazing land would support the 500 head of cattle currently grazing onsite. And, although there would be no reduction in current stocking levels, there would be a reduction in the overall carrying capacity of the project site because there would be a reduction in the amount of grazing lands available. This would not be a significant impact.

Conflict with Williamson Act Contract

Impact 4.2-2 *The project would result in the early removal of 1,856 acres from the existing Williamson Act contract and associated Agricultural Preserve.*

The project is requesting cancellation of the contract covering 1,856 acres within the Agricultural Preserve. This covers the land within the Williamson Act contract proposed for development. Notices of non-renewal have been filed for all the areas on the RMV property. The lands will be removed from the preserve between December 31, 2005 and December 31, 2008, regardless of this project as a result of the non-renewal process. The current proposal would cancel the Williamson Act contract within development areas upon approval of the project, with the exception of areas within Planning Areas 7 and 9, resulting in the early removal of a portion of the acres from the Agricultural Preserve. Ranch-wide, without cancellation, 289 acres would be removed from the Williamson Act contract in 2005 as a result of the non-renewal process. In 2006, the Williamson Act contract will expire on 1,733 acres and, in 2008, the Williamson Act contract will expire on the remaining 7,818 acres. The project would result in the early removal of certain acreage from the Agricultural Preserve. Table 4.2-5 identifies the amount of acreage proposed for early withdrawal from the Williamson Act contract. These locations are depicted in Exhibit 4.2-7.

TABLE 4.2-5
ACREAGE PROPOSED FOR EARLY WITHDRAWAL
FROM WILLIAMSON ACT CONTRACT

Planning Area	Scheduled To Expire In 2005	Scheduled To Expire In 2006	Scheduled To Expire In 2008	Total Acres Proposed
2	250		45	**295**
3		477	534	**1,011**
4		144	28	**172**
5			180	**180**
6		198		**198**
Total Acres	**250**	**819**	**787**	**1,856**
Source: Huitt-Zollars, 2004.				

The project would remove these acres from the Agricultural Preserve one to four years earlier than if the contract were allowed to expire in accordance with the provisions of the Williamson Act. Given the proposed phasing plan, it is likely that most of the areas within the Agricultural Preserve would not be developed until after the expiration of the Agricultural Preserve contract. Therefore, the project would not conflict with the existing contract because if project is phased as planned, there would not be an early loss of agricultural uses, except for 45 acres that are anticipated to be graded up to one year prior to the time of expiration of the Williamson Act contract. However, given that the project is requesting cancellation, the continued use of the lands in compliance with the Williamson Act contract cannot be assumed. This would be a significant, adverse impact.

As set forth in Government Code Section 51282, the Board of Supervisors may grant tentative approval for cancellation of a contract only if it makes one of the following findings: (1) that the cancellation is consistent with the purposes of the Williamson Act; or (2) that cancellation is in the public interest.

In making the first finding that the cancellation is consistent with the purposes and intent of the Williamson Act, the Government Code requires that the Board of Supervisors be able to make all of the following findings:

(1) That the cancellation is for land on which a notice of non-renewal has been served pursuant to Section 51245.

(2) That cancellation is not likely to result in the removal of adjacent lands from agricultural use.

(3) That cancellation is for an alternative use, which is consistent with the applicable provisions of the city or county general plan.

(4) That cancellation will not result in discontiguous patterns of urban development.

(5) That there is no proximate non-contracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of proximate non-contracted land.

In evaluating the five required findings outlined above, the following information is applicable:

- A notice of non-renewal was prepared and served for each portion of the project area that remains encumbered by the contract.

- The project area is surrounded by a collection of urban, parkland and other non-agricultural uses/areas. Accordingly, cancellation of the contract and development of the Ranch Plan would not result in the removal of adjacent lands from agricultural use.

- The Ranch Plan application filed with the County of Orange identifies the applicant's request to amend certain portions of the Orange County General Plan to allow for development of the mixed-use project. Specifically, the application proposes to (i) modify the General Plan land use map to reclassify certain portions of the project area from 5 (Open Space) to 1A (Rural Residential), 1B (Suburban Residential), 3 (Employment) and 6 (Urban Activity Center) and (ii) amend portions of the Land Use, Transportation, Resources and Recreation elements of the General Plan. Upon the Board of Supervisors' adoption of the requested amendments/modifications, development of the Ranch Plan (i.e., a use which is alternative to the stated purpose of the contract) would be consistent with the express provisions of the General Plan.

- The project area is an integrated landholding that is neither bisected nor isolated by other properties. The Ranch Plan represents a comprehensive plan for development and conservation that would be implemented in accordance with a planned phasing schedule. Accordingly, development of the Ranch Plan would not result in discontiguous patterns of urban development or compromise the use/development of surrounding areas.

- The Ranch Plan area, comprised of approximately 22,815 acres, is the last remaining large-scale, integrated landholding in southern Orange County. There are no other integrated landholdings in the subregion that would permit development of a comprehensive project similar in size, scope, and purpose to the Ranch Plan. Any attempt to create an assemblage of parcels in the subregion to fulfill the intent and purpose of the Ranch Plan would result in a set of geographically disparate properties and promote a discontiguous pattern of urban development.

In making the second finding that the cancellation of the contract shall be in the public interest, the Board of Supervisors must make the following findings:

(1) That other public concerns substantially outweigh the objectives of this chapter; and

(2) That there is no proximate non-contracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of proximate non-contracted land.

In providing support for these two findings, the following information is applicable:

- The construction of the Ranch Plan would provide a portion of the needed housing as identified by the regional growth forecasts. Development of the Ranch Plan would assist in meeting housing needs by providing up to 14,000 new dwelling units for the benefit of the County's/State's current and future generations. In addition to addressing the present jobs-housing imbalance, implementation of the Ranch Plan would contribute to the conservation and environmental protection goals held by both the County and the state.

- As described above, no proximate, non-contracted land is, or will be, available and suitable for the implementation of a development and conservation program that is of similar size and scope of the Ranch Plan. The Ranch Plan represents the last large, undeveloped landholding in south Orange County. Other land in proximity to the Ranch Plan is either developed or in public ownership.

4.2.4 MITIGATION PROGRAM

Project Design Features

PDF 4.2-1 The project has incorporated provisions into the project design to continue the cattle ranching activities and maintain the agricultural operation or portions of The Ranch. The ongoing grazing will be conducted in compliance with the Grazing Management Plan proposed as part of the Adaptive Management Plan (Appendix J) to ensure protection of sensitive species.

PDF 4.2-2 The project provides for continued citrus production in Planning Areas 2, 7, and 10 and avocado orchards in Planning Areas 2 and 7. The location and amounts of the agricultural resources shall be identified as part of the Master Area Plan for Planning Areas 2, 7, and 10.

PDF 4.2-3 The project provides for the continuation of agricultural and ranching uses as an interim use within portions of the project area proposed for development until the time of project implementation. The project phasing plan (see Exhibits 3-25 and 3-26) identifies grading operations occurring generally after the non-renewal dates for the Williamson Act contract. This would minimize the early loss of agricultural land associated with cancellation of the Agricultural Preserve contract. Mitigation Measure 4.2-1 further supports this project design feature.

Standard Conditions and Regulations

SC 4.2-1 With the cancellation of the Agricultural Preserve on 1,856 acres, the project applicant will be required to comply with the conditions/requirements set forth in the Government Code Sections 51282 to 51287 and County EMA Policy No. 2.3.101 prior to the execution and recordation of a final certificate of cancellation.

Mitigation Measures

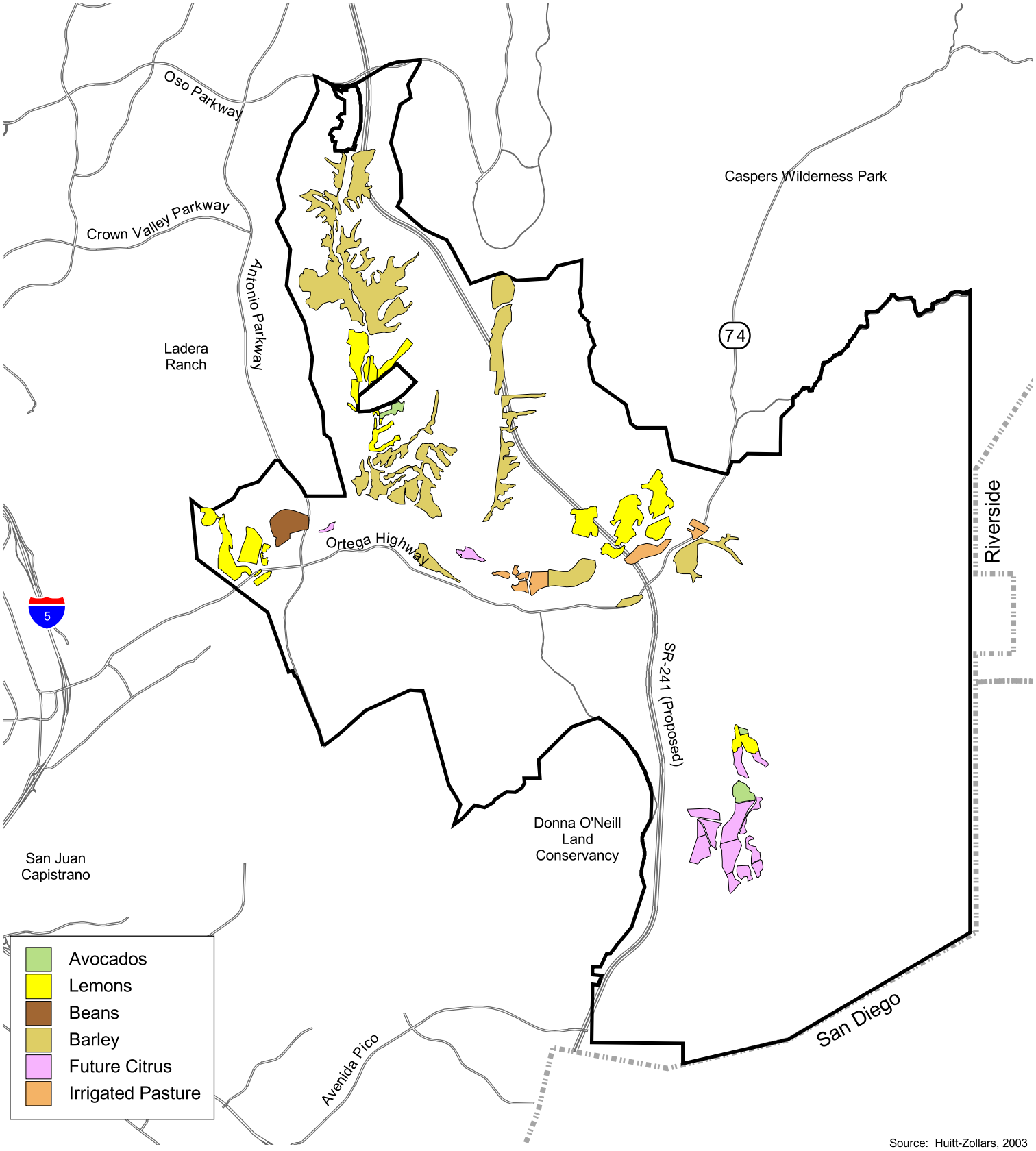
MM 4.2-1 Prior to planting of the planned orchards in Planning Area 7, a qualified biologist shall survey the site for listed species to avoid potential environmental impacts. Should any listed species be identified the location of the planned orchards will be modified to avoid the resources or a mitigation plan consistent with the applicable requirements outlined in Section 4.9, Biological Resources, shall be developed and implemented.

4.2.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the proposed mitigation program would ensure the continuation of a level of farming prior to, during, and after project implementation. While the proposed project would eliminate 827.2 acres of Important Farmland, it is the project applicant's intent to continue both grazing operations and limited agriculture in the form of citrus and avocado orchards on the

project site. There are no feasible mitigation measures that would reduce the loss of Important Farmland to less than significant. The identification of development areas took into consideration the need to avoid and minimize impacts to sensitive habitat and species. Relocation of agriculture to other locations within the Ranch Plan is limited because consideration must be given to the sensitive habitat, suitable soils, topography, and availability of water. Therefore, the impacts to Important Farmland would be considered a significant, unavoidable impact. It should also be noted that while the nurseries are located on what is considered Important Farmland the plant material is being grown in containers, although the impact on Important Farmland is unaffected. These uses would be able to relocate outside of the Ranch Plan area and continue operation elsewhere.

The cancellation of the Williamson Act contract would potentially result in the early loss of agricultural lands. Through the non-renewal process the lands would be removed from the Agricultural Preserve between December 31, 2005 and December 31, 2008. Application of the mitigation program would minimize the potential early loss of farmland for all areas within the Agricultural Preserve, except a 45-acre area in Planning Area 2 in the vicinity of the Chiquita Water Reclamation Plant. This area is scheduled for removal from the Agricultural Preserve on December 31, 2008, though the phasing plan shows this area as being graded between 2007 and 2008. This would potentially result in the early removal of this 45-acre parcel prior to expiration of the Agricultural Preserve contract. This would be an unavoidable significant impact.



Source: Huitt-Zollars, 2003

Location of Agricultural Operations on the Project Site

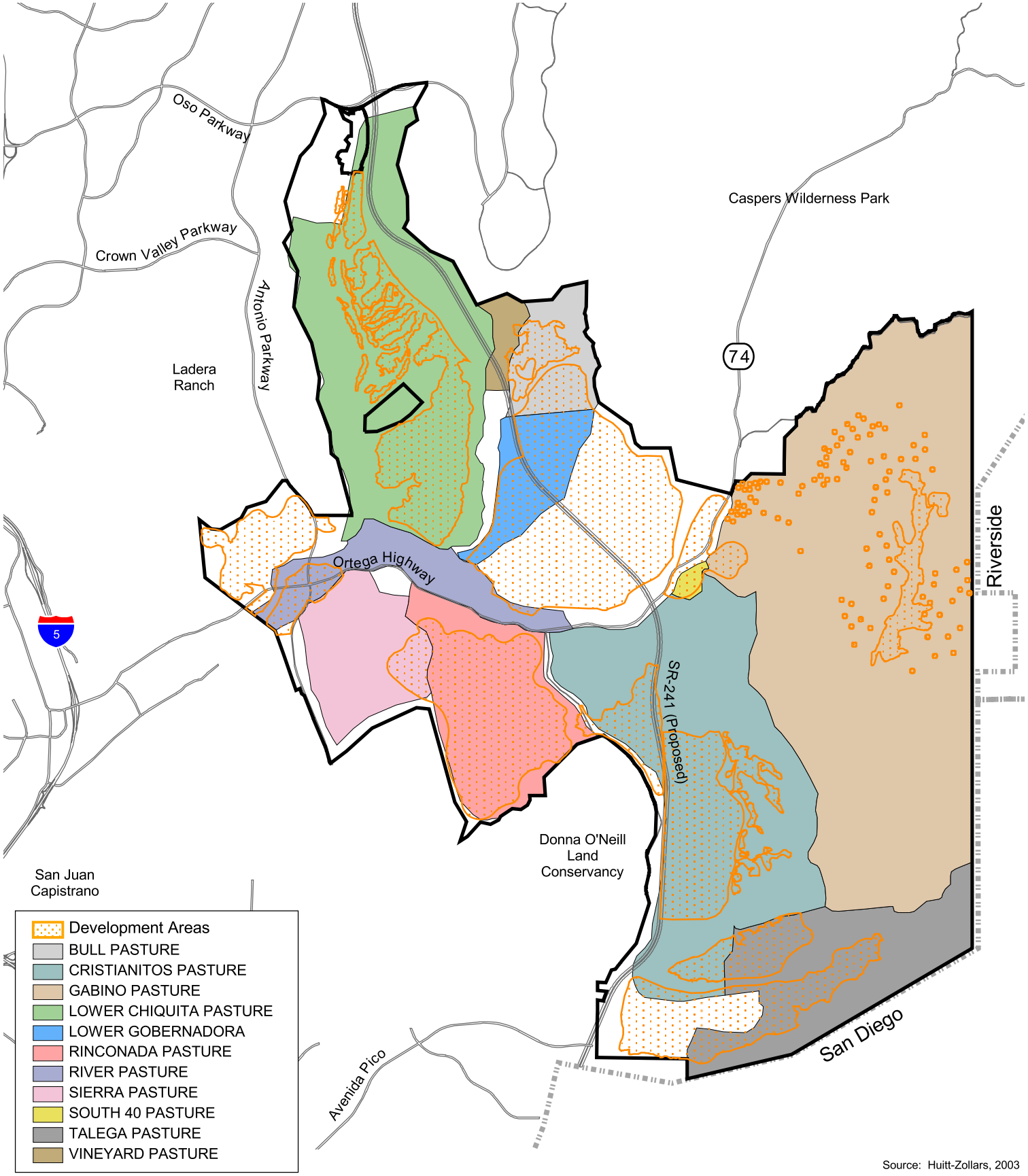
Exhibit 4.2-1

The Ranch Plan

N W E S

0 1.25 Miles

S:/GIS_Exhibits/RMV/J008/Ex4.2-1_AO_052704.pdf



Source: Huitt-Zollars, 2003

Existing Pastures

Exhibit 4.2-2

The Ranch Plan

N W E S

0 1.25 Miles

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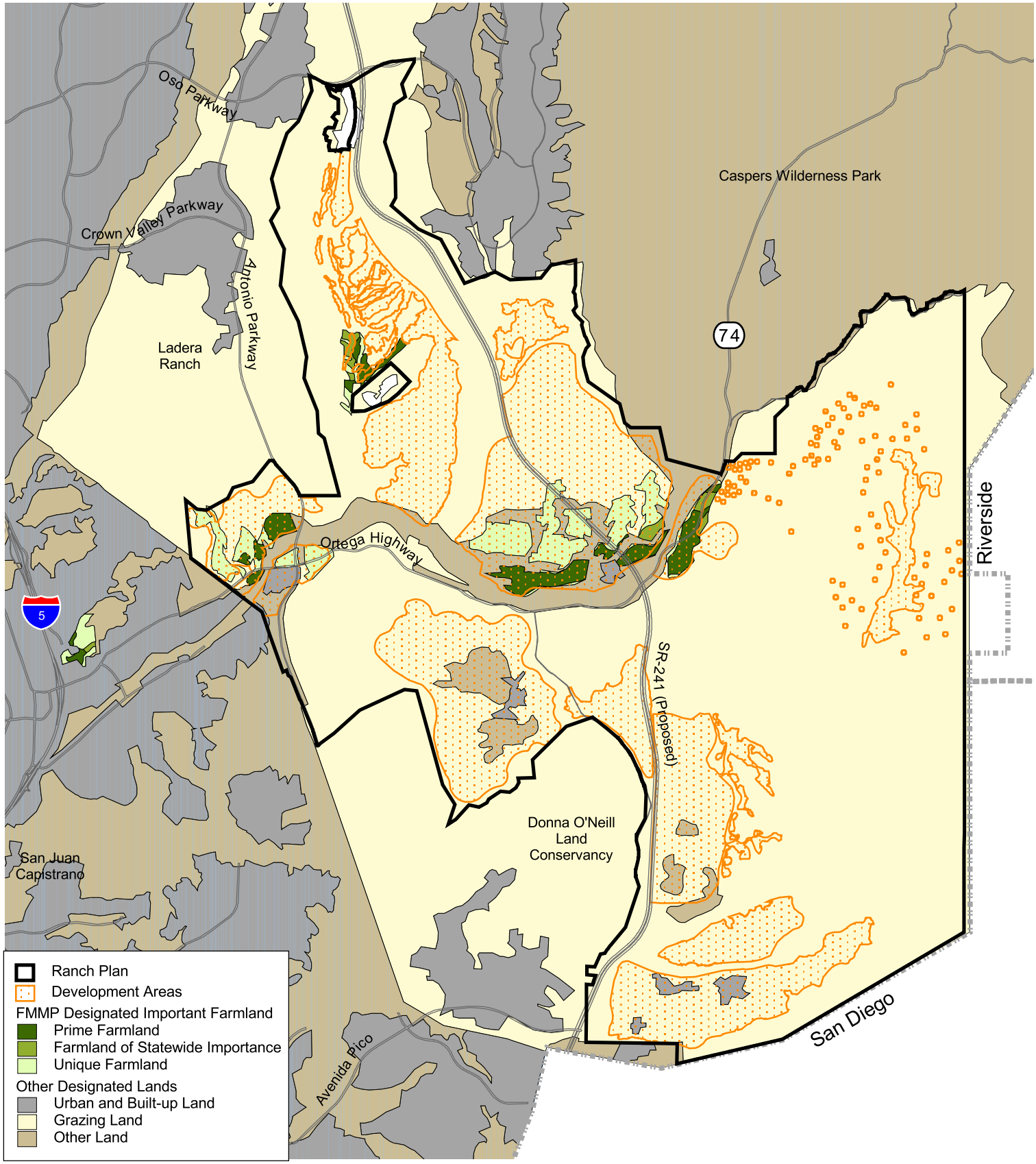


Source: California Department of Conservation, 2002

Important Farmland

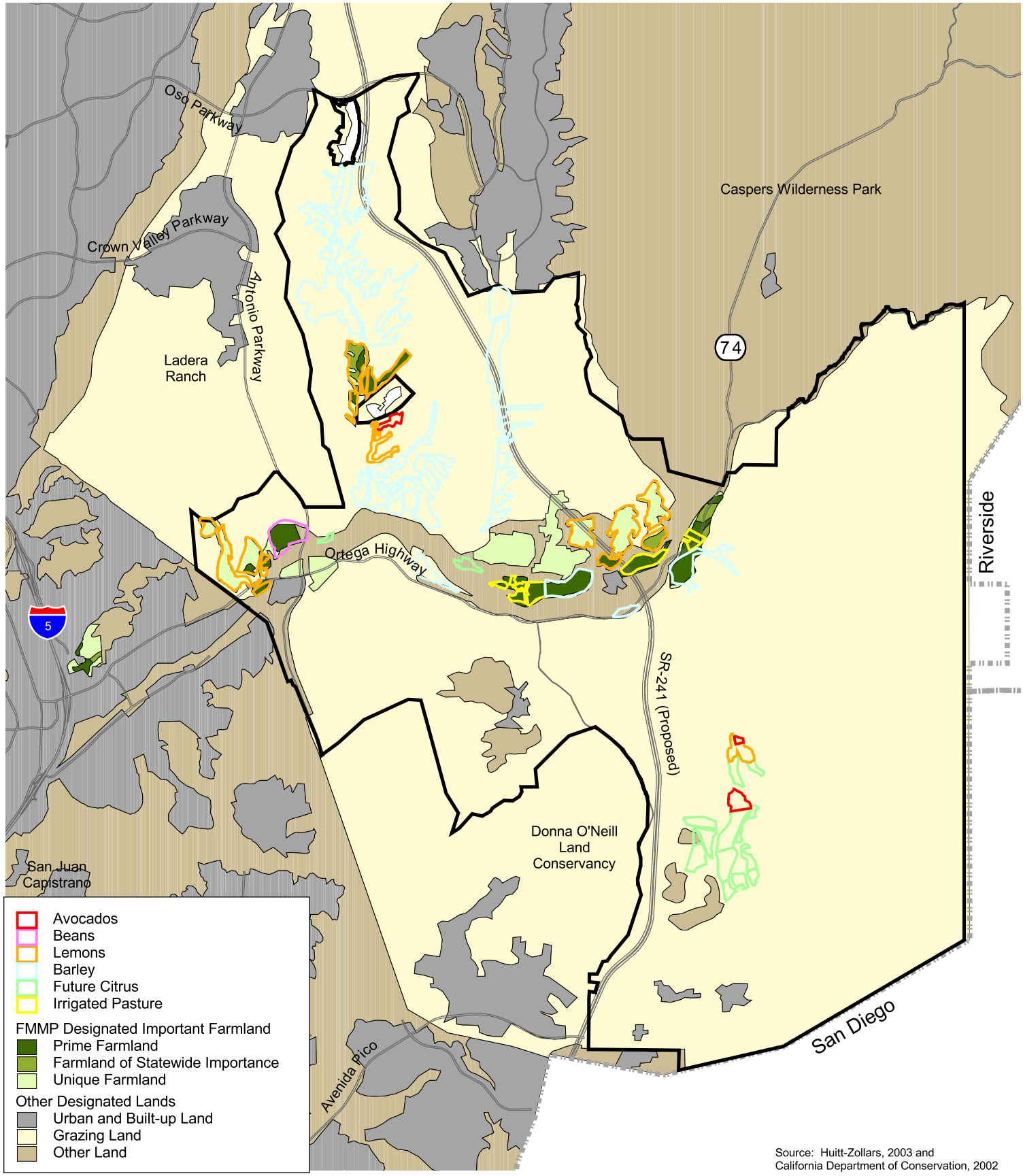
Exhibit 4.2-3

The Ranch Plan

N W E S

0 1.25 Miles

S:/GIS_Exhibits/RMV/J008/Ex4.2-3_IF_052704.pdf



Source: Huitt-Zollars, 2003 and California Department of Conservation, 2002

Agricultural Activities on Important Farmland

Exhibit 4.2-4

The Ranch Plan

N W E S

0 1.25 Miles

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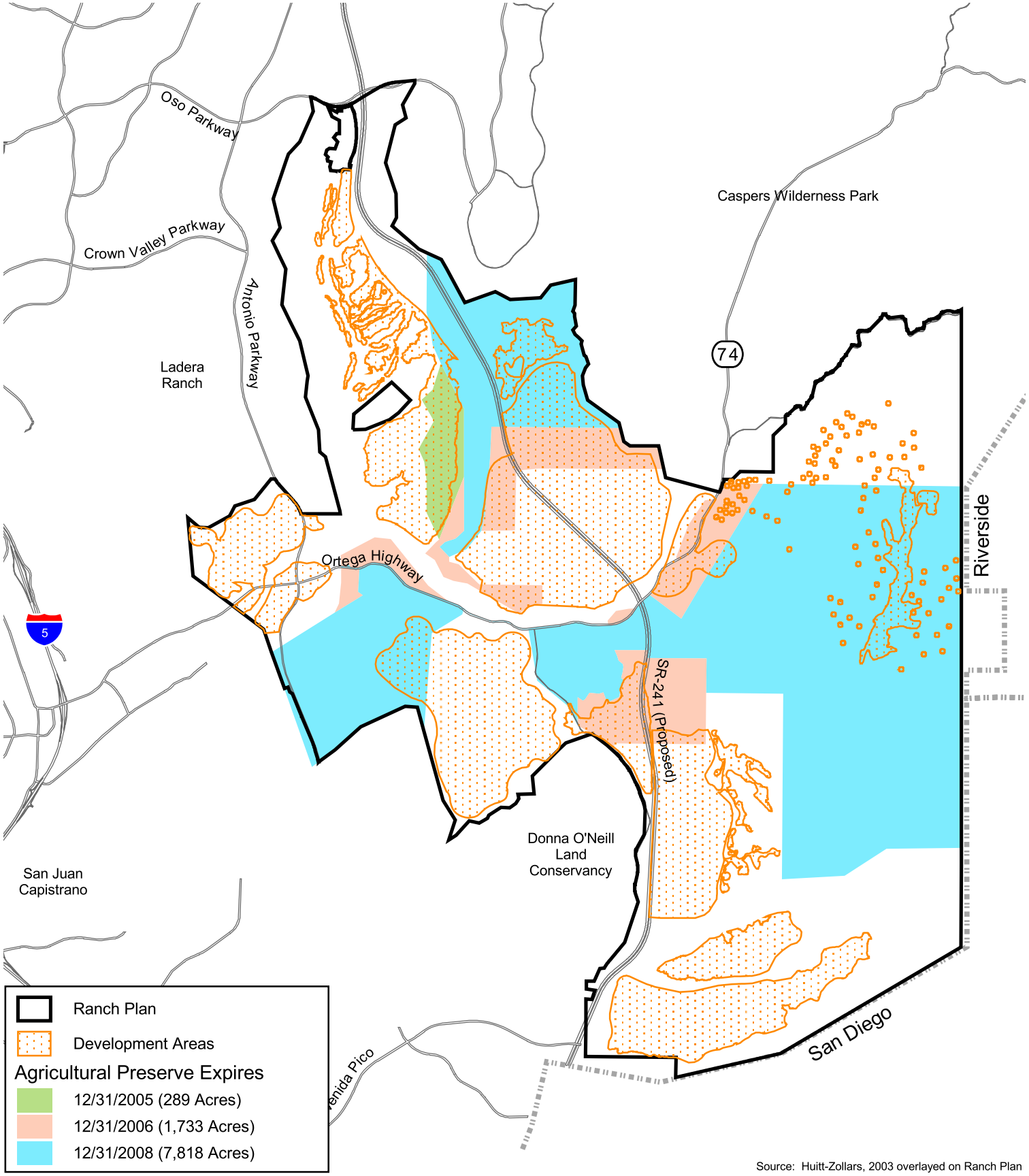


Source: Huitt-Zollars, 2003 overlayed on Ranch Plan

Williamson Act Locations

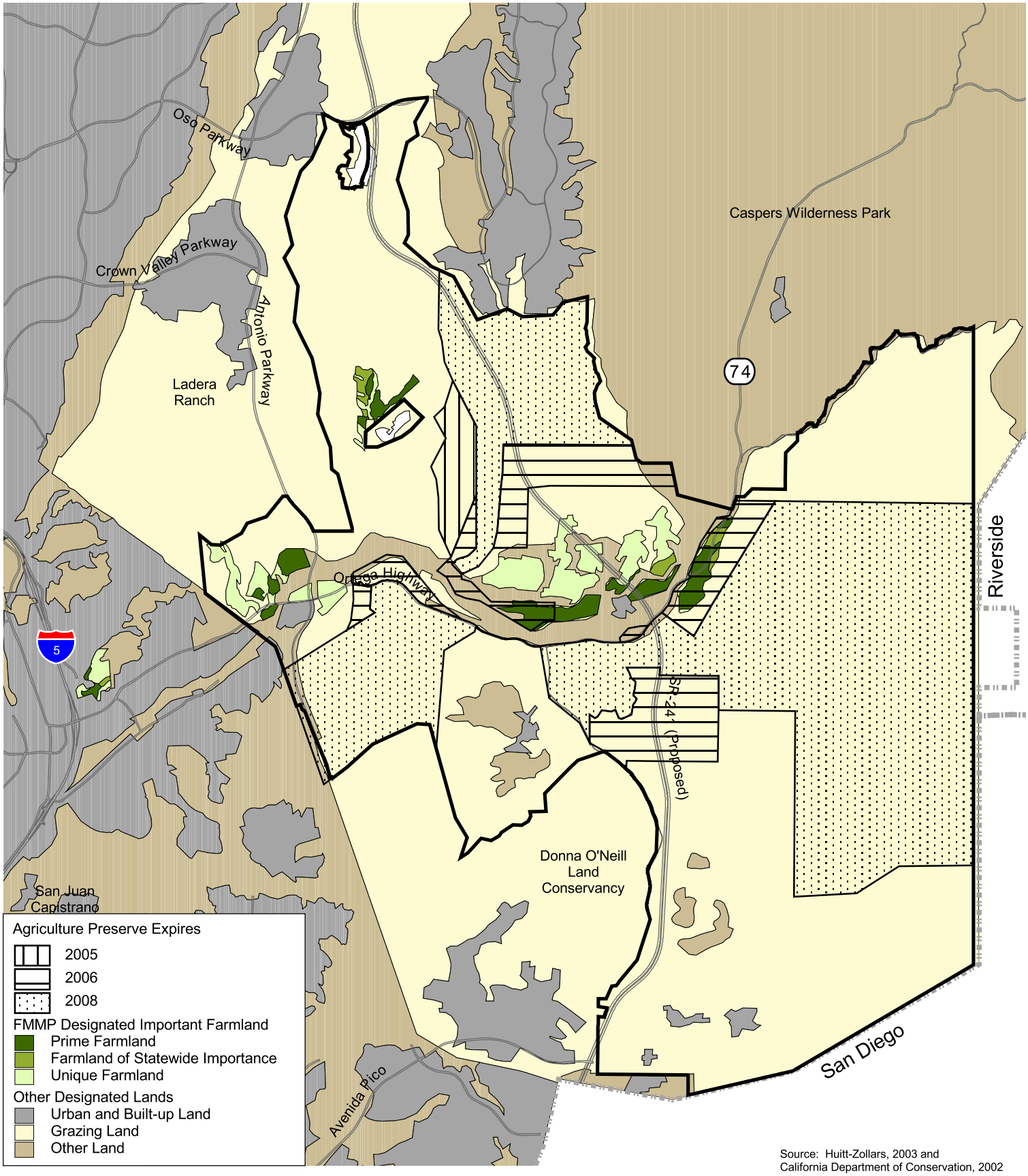
Exhibit 4.2-5

The Ranch Plan

N W E S

0 1.25 Miles

S:/GIS_Exhibits/RMV/J008/Ex4.2-5_WA_052804.pdf



Source: Huitt-Zollars, 2003 and California Department of Conservation, 2002

Agricultural Preserve on Important Farmland

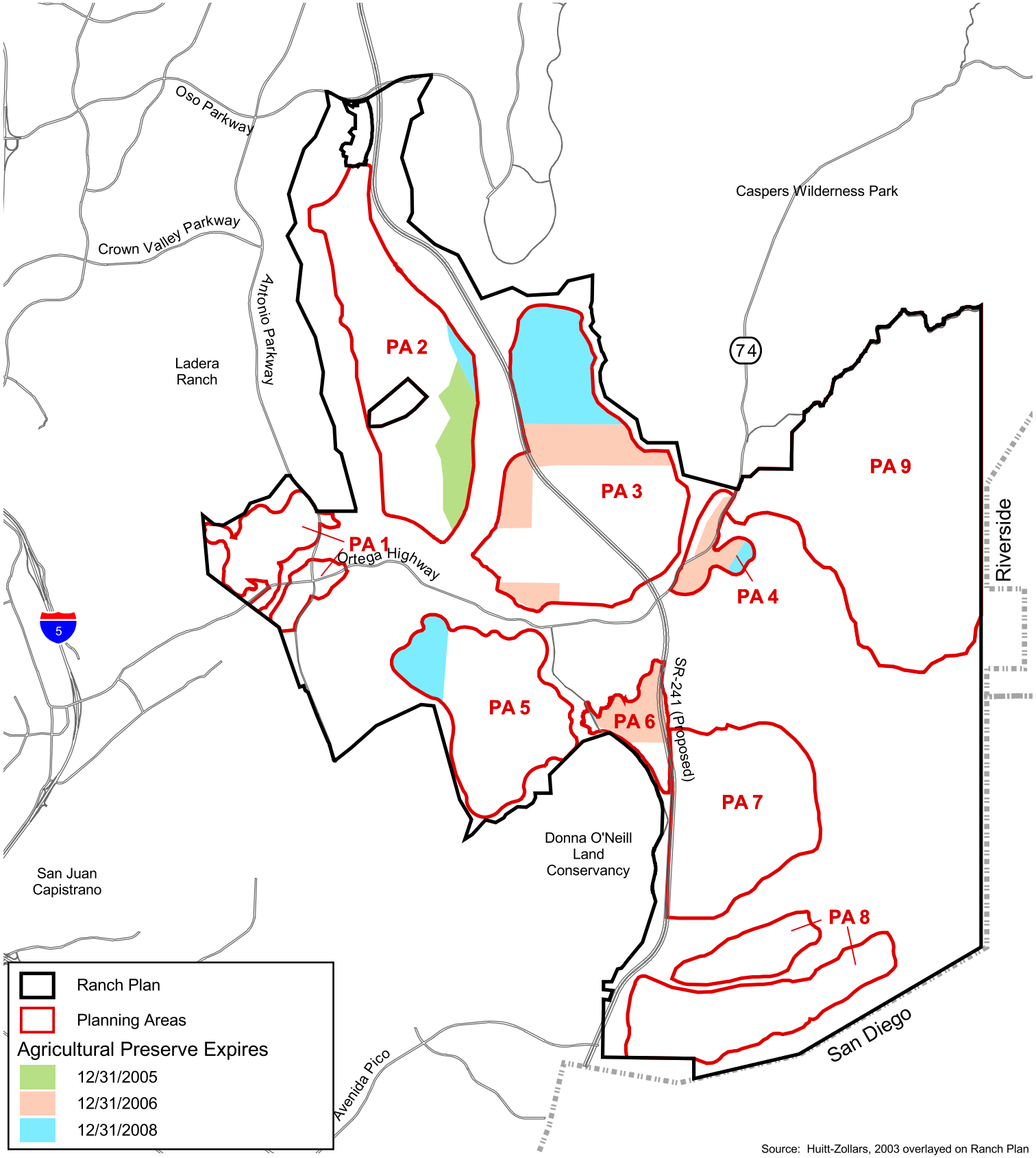
Exhibit 4.2-6

The Ranch Plan

N W E S

0 1.25 Miles

S:/GIS_Exhibits/RMV/J008/Ex4.2-6_APIF_012904.pdf



Source: Huitt-Zollars, 2003 overlayed on Ranch Plan

Agricultural Land Proposed for Removal from the Agricultural Preserve

Exhibit 4.2-7

The Ranch Plan

N W E S

0 1.25 Miles

S:/GIS_Exhibits/RMV/J008/Ex4.2-7_PresPlan_052804.pdf

4.3 POPULATION AND HOUSING

This section discusses the existing population, housing, and employment conditions in the County of Orange, as well as estimated population growth and trends related to future housing and employment anticipated in the County. As a result of the existing socioeconomic conditions and future growth anticipated, population, housing, and employment impacts associated with the proposed project are analyzed and mitigation measures are proposed, as appropriate. This analysis focuses on impacts related to population, housing, and employment growth, and the project's consistency with adopted regional or local projections. The environmental effects of increased population, housing, and employment (e.g., traffic, air quality, and noise) are addressed in their respective sections of this Program EIR.

4.3.1 INTRODUCTION

According to the County of Orange General Plan (2004), Orange County's economy was based largely on agriculture until the 1940s. With the rapid southward expansion of Los Angeles' population and industrial development, Orange County's economy began to change rapidly, particularly in the northern portions of the County. In 1940, twice as many workers were employed in agriculture as in manufacturing. The largest increase in Orange County's population began with the onset of the military build-up for World War II and continued with the post-war expansion of California. Between 1940 and 1960, Orange County's population grew from 130,000 to more than 700,000, transforming the County into a major suburb of Los Angeles County.

During the past 20 years, the focal point of Orange County's growth has shifted gradually southward. In the 1950s and 1960s, the majority of new development occurred in the northern areas of the County such as Anaheim, Fullerton, Garden Grove, Huntington Beach, Orange, Westminster, and Fountain Valley. As vacant land became scarcer during the 1970s, the center of growth shifted to the south with the rise of new communities in the areas of Irvine, Mission Viejo, and Laguna Niguel. During the 1980s and 1990s, the growth in southern Orange County continued in new planned communities such as Aliso Viejo, Foothill Ranch, Portola Hills, and Rancho Santa Margarita.

Despite the loss of unincorporated areas of the County with the incorporation of the cities in the late 1980s and 1990s (i.e., Dana Point, Lake Forest, Laguna Hills, Laguna Niguel, Laguna Woods, and Mission Viejo), the County of Orange anticipates that development within unincorporated areas of Orange County will be a significant contributor to future population, housing, and employment trends for the County.

Methodology

Information in this section is generally based on data from the County of Orange General Plan (2004); the Southern California Association of Governments (SCAG), including their Regional Housing Needs Assessment (2000); and the Center for Demographic Research (CDR) at California State University, Fullerton (CSUF).

SCAG is a Joint Powers Agency established under California Government Code §6502 *et seq*. SCAG is designated as Council of Governments (COG), a Regional Transportation Planning Agency (RTPA), and a Metropolitan Planning Organization (MPO) for the six-county region of Orange, Los Angeles, Ventura, San Bernardino, Riverside, and Imperial counties. The region encompasses a population exceeding 16.4 million persons in an area of more than 38,000 square miles.

The Orange County MPO obtains its census data and projections from the CDR. The CDR is governed and supported by the following sponsor agencies: County of Orange, League of Cities, Orange County Sanitation District, Orange County Transportation Authority, Transportation Corridors Agencies, Municipal Water District of Orange County, Orange County Water District, and California State University, Fullerton. The goal of the CDR is to provide accurate and timely information regarding population, housing, and employment characteristics in an efficient and cost-effective manner.

Existing and projected population, housing, and employment data for the study area is based on Orange County Projections–2000 Modified (OCP-2000M) (CDR, 2001). OCP–2000M was developed by the CDR, and was developed for incorporation into the SCAG'S growth forecast for the 2001 Regional Transportation Plan (RTP) and the South Coast Air Quality Management District's (SCAQMD) Air Quality Management Plan (AQMP). These projections are recognized by the agencies that sponsor the CDR as the uniform data set for use in local planning applications. The OCP-2000M population projections were developed by using a multistage process that combined several procedures and methodologies into a "top down" and "bottom up" process. Generally, total population, housing, and employment were projected and then allocated to smaller geographic areas based on an analysis of local policy, land use capacity, demographic changes, and assumed market focus. Small area projections were developed and these were reviewed by local jurisdictions; adjustments were then made based on local jurisdictions' input where warranted.

Since the Orange County Board of Supervisors approved OCP-2000M in July 2001, the CDR prepared OCP-2004. The Orange County Council of Governments (OCCOG) adopted OCP-2004 numbers in February 2004 and the Board of Supervisors adopted the projections in May 2004. Additionally, the OCP-2004 numbers were incorporated into the RTP adopted by SCAG on April 1, 2004. Within the study area, the projections in OCP-2004 are very similar to those contained in OCP-2000M. The differences reflect minor "clean ups," especially in built-out areas where the ultimate densities are known. One difference between the two sets of projections is the horizon year. OCP-2000M projects growth to 2025, whereas OCP-2004 projections extend to 2030. Despite the availability of these more current projections, OCP-2004 are not used in this analysis because they have not been allocated to traffic analysis zones (TAZ), which is necessary for traffic modeling. Additionally, without the data at the TAZ level it is not possible to determine the precise population, number of units, or jobs anticipated for the project site. To ensure consistency between the sections of this Program EIR, OCP-2000M is the basis for the evaluation. However, the findings of the analysis would not be substantially different because the differences between the two datasets are limited. Table 4.3-1 provides a comparison of the OCP-2000M and the OCP-2004 data sets for the project study area.

TABLE 4.3-1
COMPARISON OF OCP 2000M AND OCP- 2004 FOR PROJECT STUDY AREA

Geographic Area	2000		2005		2010		2015		2020		2025		2030	
	OCP 2000M	OCP 2004	OCP 2000M	OCP 2004	OCP 2000M	OCP 2004	OCP 2000M	OCP 2004	OCP 2000M	OCP 2004	OCP 2000M	OCP 2004	OCP[a.] 2000M	OCP 2004
POPULATION														
RSA 40	292,366	290,163	306,811	318,298	320,929	336,256	327,151	342,902	334,054	347,133	339,012	349,212	–	351,254
CAA 68	40,028	40,922	42,422	43,517	44,795	48,354	46,679	49,216	47,940	49,833	48,359	50,137	–	50,331
CAA 69	42,606	42,694	45.794	47,398	48,399	49,892	48,315	51,262	48,453	52,105	48,936	52,579	–	52,764
RSA C-43	251,981	259,247	274,266	278,835	310,245	312,275	338,829	333,297	349,465	353,052	363,236	371,006	–	372,086
CAA 58	106,029	106,442	107,789	111,714	108,875	114,362	110,911	116,504	112,617	117,775	113,359	118,357	–	118,450
CAA 59[b.]	57,686	52,592	69,789	65,492	86,431	83,638	104,151	95,411	107,146	107,046	113,725	118,342	–	118,529
CAA 60[b.]	2,927	2,738	5,853	11,335	19,363	17,672	25,702	23,100	31,188	28,614	36,701	34,047	–	34,125
CAA 70[b.]	23,888	24,710	25,319	26,057	29,933	31,107	31,066	32,354	31,462	32,968	31,670	33,288	–	33,569
Project Study Area	273,164	270,098	251,218	305,513	337,796	345,025	366,824	367,847	378,806	388,341	392,750	406,750	–	407,768
EMPLOYMENT														
RSA 40	125,580	122,211	141,689	126,192	154,650	139,950	165,155	147,198	170,570	150,563	174,531	153,002	–	155,691
CAA 68	18,957	18,287	20.187	18,761	21,276	20,133	22,415	20,946	23,367	21,565	23,991	22,094	–	22,477
CAA 69	18,848	19,906	23,950	20,904	26,708	23,963	28,452	25,621	29,230	26,074	29,825	26,391	–	26,889
RSA C-43	81,004	69,356	98,796	75,683	108,794	110,472	115,997	119,996	124,707	126,248	133,342	132,007	–	132,750
CAA 58	27,547	35,387	31,428	36,486	31,691	37,409	32,034	37,691	32,350	37,892	32,452	38,067	–	38,191
CAA 59[b.]	19,092	10,749	23,181	12,121	25,569	15,928	16,985	16,945	28,994	18,539	31,896	21,832	–	22,130
CAA 60[b.]	1,581	1,674	2,442	2,044	3,154	3,060	6,078	5,547	9,225	7,768	12,433	9,620	–	9,698
CAA 70[b.]	2,198	2,066	2,199	2,083	2,222	2,174	2,229	2,197	2,291	2,244	2.294	2,356	–	2,372
Project Study Area	88,223	88,069	103,387	92,399	110,620	102,667	118,193	108,947	125,457	114,073	132,891	120,360	–	–
HOUSING														
RSA 40	122,083	122,211	129,189	126,192	132,063	139,950	132,943	147,198	133,386	150,563	133,640	153,002	–	155,691
CAA 68	14,085	14,667	14,845	15,420	15,626	16,818	16,063	16,895	16,240	15,922	16,292	16,943	–	17,003
CAA 69	18,252	17,779	19,115	19,194	19,979	19,508	20,173	19,752	20,283	19,862	20,367	19,946	–	20,021
RSA C-43	84,058	86,804	90,292	96,479	104,894	106,341	110,607	111,625	115,626	116,574	120,629	121,526	–	121,902
CAA 58	36,450	36,180	37,473	37,330	37,569	37,632	37,677	37,632	37,728	37,632	37,771	37,632	–	37,662
CAA 59[b.]	17,567	19,949	21,302	25,235	28,695	29,779	31,339	32,445	33,955	35,061	36,617	37,720	–	37,790
CAA 60[b.]	830	861	1,835	3,546	7,493	6,969	10,047	9,213	12,298	11,450	14,540	13,690	–	13,710
CAA 70[b.]	6,915	7,578	7,356	7,971	8,736	9,559	9,109	9,932	9,206	10,029	9,259	10,082	–	10,184
Project Study Area	94,099	97,014	101,926	108,696	118,098	120,265	124,408	125,869	129,710	129,956	134,846	136,013	–	136,370

a. OCP-2000M did not provide projections for year 2030..
b. Contains a portion of the project site.
Sources: Center for Demographic Research, 2001 and 2004.

Study Area

For the purpose of statistical research and analysis, the County of Orange is divided into ten Regional Statistical Areas (RSA), which are combinations of census tracts designated by SCAG for planning purposes. Each RSA is divided into Community Analysis Areas (CAAs), which are planning areas used in Orange County to approximate cities, areas within a city (e.g., Anaheim Hills), unincorporated communities, or special use areas (e.g., MCAS El Toro). They provide a level of geography large than census tracts but smaller than RSAs. Exhibit 4.3-1 depicts the RSAs and CAAs, as well as the project limits. The project site is located within RSA C-43, which comprises the southern-central portion of Orange County and includes portions or all of the cities of Lake Forest, Mission Viejo, Rancho Santa Margarita, San Juan Capistrano, San Clemente, as well the unincorporated communities of Ladera Ranch, Las Flores, and Coto de Caza. RSA C-43 has been subdivided into seven CAA (CAA 55, 56, 57, 58, 59, 60, and 70). However the project site is only located within CAAs 59 and 60. Because population, housing, and employment impacts are often not limited to the immediate project site, this section will also analyze and discuss CAAs 58 (in RSA C-43), 68 and 69 (in RSA D-40), which are located adjacent to those CAAs encompassing the project. CAA 700 is north of and adjacent to the project site; however, this CAA includes Caspers Wilderness Park, the Starr Ranch Audubon Sanctuary, and the Cleveland National Forest, and would not experience a noticeable amount of population, housing, and employment impacts. To summarize, the "project study area" for socioeconomic analysis contained in this section will consist of CAAs 58, 59, 60, 68, 69, and 70; however, the project is only located within CAAs 59 and 60.

4.3.2 EXISTING CONDITIONS

This section presents the existing conditions for socioeconomics for the project study area, as described in Section 4.3.1. Both existing and projected population, housing, and employment levels are provided.

Existing and Projected Population

According to the CDR, and as shown in Table 4.3-2, the project study area (inclusive of the project site) had a 2000 population of 273,164 persons, equating to approximately 10 percent of Orange County's total 2000 population.

As discussed in Section 4.3.1, the population forecasts for the project study area were developed and provided by the CDR. Table 4.3-2 also provides a summary of the population projections for those RSAs and CAAs relevant to the proposed project study area. Of the RSAs and CAAs located within the project study area, CAA 60 would experience the most growth in population between 2000 and 2025, with an increase of approximately 1,150 percent. Population growth is normally attributed to either an increase in births, decrease in deaths, or increase in net migration; however, the unusual amount of growth projected for CAA 60 is attributed to growth associated with the projected, proposed future development within the CAA.

TABLE 4.3-2
EXISTING AND PROJECTED OCP-2000M POPULATION

Area		2000	2005	2010	2015	2020	2025
RSA 40		292,366	306,811	320,929	327,151	334,054	339,012
	%Change[a.]		*4.94%*	*4.60%*	*1.94%*	*2.11%*	*1.48%*
CAA 68		40,028	42,422	44,795	46,679	47,940	48,359
	%Change[a.]		*5.98%*	*5.59%*	*4.21%*	*2.70%*	*0.87%*
CAA 69		42,606	45,794	48,399	48,315	48,453	48,936
	%Change[a.]		*7.48%*	*5.69%*	*-0.17%*	*0.29%*	*1.00%*
RSA C-43		251,981	274,266	310,245	338,829	349,465	363,236
	%Change[a.]		*8.84%*	*13.12%*	*9.21%*	*3.14%*	*3.94%*
CAA 58		106,029	107,789	108,875	110,911	112,617	113,359
	%Change[a.]		*1.66%*	*1.01%*	*1.87%*	*1.54%*	*0.66%*
CAA 59[b.]		57,686	69,789	86,431	104,151	107,146	113,725
	%Change[a.]		*20.98%*	*23.85%*	*20.50%*	*2.88%*	*6.14%*
CAA 60[b.]		2,927	5,853	19,363	25,702	31,188	36,701
	%Change[a.]		*99.97%*	*230.82%*	*32.74%*	*21.34%*	*17.68%*
CAA 70[b.]		23,888	25,319	29,933	31,066	31,462	31,670
	%Change[a.]		*5.99%*	*18.22%*	*3.79%*	*1.27%*	*0.66%*
Project Study Area		273,164	296,966	337,796	366,824	378,806	392,750
	%Change[a.]		*8.71%*	*13.75%*	*8.59%*	*3.27%*	*3.68%*

a. Percentages shown in italics represent the percentage change in population for the RSA or CAA from the previous time period shown.
b. Contains a portion of the project site.

Source: Center for Demographic Research, 2001.

Housing

As identified in Table 4.3-3, there were 98,815 housing units within the project study area in 2000; this accounts for approximately 10 percent of Orange County's entire housing stock. The majority of these units were single-family units, accounting for approximately 78 percent of all housing units within the project study area.

Table 4.3-3 also provides a summary of the housing projections for those RSAs and CAAs relevant to the proposed project study area by housing type. As discussed above for population, CAA 60 would experience the most growth in housing between 2000 and 2025, with an increase of approximately 1,650 percent. When compared to the overall growth for the entire County during this period (14 percent), this percentage increase in housing units is substantial. This growth in housing units is attributed to growth associated with projected development of the CAA. Within the project study area, there is a projected increase of 40,747 housing units between 2000 and 2025. Of these, OCP-2000M provides for 20,468 units within the Ranch Plan boundary.

TABLE 4.3-3
EXISTING AND PROJECTED OCP-2000M HOUSING

Area	Housing Type	2000	2005	2010	2015	2020	2025
RSA 40	All Units	122,083	129,189	132,063	132,943	133,386	133,640
	% Change[a.]		*5.82%*	*2.22%*	*0.67%*	*0.33%*	*0.19%*
	Single-Family	78,296	79,750	84,009	84,936	86,464	87,333
	% Change		*1.86%*	*5.34%*	*1.10%*	*1.80%*	*1.01%*
	Multi-Family	48,213	50,040	50,103	50,362	50,062	50,224
	% Change		*3.79%*	*0.13%*	*0.52%*	*-0.60%*	*0.32%*
CAA 68	All Units	14,085	14,845	15,626	16,063	16,240	16,292
	% Change		*5.40%*	*5.26%*	*2.80%*	*1.10%*	*0.32%*
	Single-Family	11,998	12,660	13,326	13,704	13,862	13,908
	% Change		*5.52%*	*5.26%*	*2.84%*	*1.15%*	*0.33%*
	Multi-Family	2,087	2,185	2,300	2,359	2,378	2,384
	% Change		*4.70%*	*5.26%*	*2.57%*	*0.81%*	*0.25%*
CAA 69	All Units	18,252	19,115	19,979	20,173	20,283	20,367
	% Change		*4.73%*	*4.52%*	*0.97%*	*0.55%*	*0.41%*
	Single-Family	10,714	11,545	12,334	12,417	12,466	12,501
	% Change		*7.76%*	*6.83%*	*0.67%*	*0.39%*	*0.28%*
	Multi-Family	7,538	7,570	7,645	7,756	7,817	7,866
	% Change		*0.42%*	*0.99%*	*1.45%*	*0.79%*	*0.63%*
RSA C-43	All Units	84,058	90,292	104,894	110,607	115,626	120,629
	% Change		*7.42%*	*16.17%*	*5.45%*	*4.54%*	*4.33%*
	Single-Family	70,489	76,366	86,443	91,424	94,049	94,842
	% Change		*8.34%*	*13.20%*	*5.76%*	*2.87%*	*0.84%*
	Multi-Family	17,991	18,973	23,018	25,887	28,359	32,648
	% Change		*5.46%*	*21.32%*	*12.46%*	*9.55%*	*15.12%*
CAA 58	All Units	36,450	37,473	37,569	37,677	37,728	37,771
	% Change		*2.81%*	*0.26%*	*0.29%*	*0.14%*	*0.11%*
	Single-Family	32,713	33,654	33,668	33,696	33,737	33,770
	% Change		*2.88%*	*0.04%*	*0.08%*	*0.12%*	*0.10%*
	Multi-Family	3,737	3,819	3,901	3,981	3,991	4,001
	% Change		*2.19%*	*2.15%*	*2.05%*	*0.25%*	*0.25%*
CAA 59[b.]	All Units	17,567	21,302	28,695	31,339	33,955	36,617
	% Change		*21.26%*	*34.71%*	*9.21%*	*8.35%*	*7.84%*
	Single-Family	13,546	16,404	21,142	24,488	25,223	25,459
	% Change		*21.10%*	*28.88%*	*15.83%*	*3.00%*	*0.94%*
	Multi-Family	7,421	7,949	9,678	10,980	12,857	15,237
	% Change		*7.11%*	*21.75%*	*13.45%*	*17.09%*	*18.51%*
CAA 60[b.]	All Units	830	1,835	7,493	10,047	12,298	14,540
	% Change		*121.08%*	*308.34%*	*34.09%*	*22.40%*	*18.23%*
	Single-Family	814	1,779	5,169	6,286	7,971	8,325
	% Change		*118.55%*	*190.56%*	*21.61%*	*26.81%*	*4.44%*
	Multi-Family	16	56	2,324	3,761	4,327	6,215
	% Change		*250.00%*	*4050.00%*	*61.83%*	*15.05%*	*43.63%*
CAA 70[b.]	All Units	6,915	7,356	8,736	9,109	9,206	9,259
	% Change		*6.38%*	*18.76%*	*4.27%*	*1.06%*	*0.58%*
	Single-Family	7,722	8,166	9,787	10,106	10,139	10,172
	% Change		*5.75%*	*19.85%*	*3.26%*	*0.33%*	*0.33%*
	Multi-Family	509	503	503	506	507	508
	% Change		*-1.18%*	*0.00%*	*0.60%*	*0.20%*	*0.20%*
Project Study Area	All Units	94,099	101,926	118,098	124,408	129,710	134,846
	% Change		*8.32%*	*15.87%*	*5.34%*	*4.26%*	*3.96%*
	Single-Family	77,507	84,208	95,426	100,697	103,398	104,135
	% Change		*8.65%*	*13.32%*	*5.52%*	*2.68%*	*0.71%*
	Multi-Family	21,308	22,082	26,351	29,343	31,877	36,211
	% Change		*3.63%*	*19.33%*	*11.35%*	*8.64%*	*13.60%*

a. Percentages shown in italics represent the percentage change in housing for the RSA or CAA from the previous time period shown.
b. Contains a portion of the project site.

Sources: Center for Demographic Research, 2001.

Regional Housing Needs Assessment

State law requires all regional councils of government, which includes SCAG, to determine the existing and future housing needs for its region (Government Code Section 65580 et. seq.). SCAG is also required to determine the share of need allocated to each city and county within the SCAG region. This is called the Regional Housing Needs Assessment (RHNA). The RHNA identifies the housing needs for the upcoming five-year period. The State Department of Housing and Community Development (HCD) and federal Department of Housing and Urban Development (HUD), in cooperation with SCAG, approved the final RHNA allocation for Orange County from 1998 to 2005 in November 2000.

For RHNA purposes, HCD, HUD, and SCAG have defined "future needs" as the number of additional housing units by income level that will have to be added to stock, or the share of the region's housing needs that have been allocated to a community. SCAG calculates future housing needs based upon their household growth forecast, plus a certain amount of units needed to account for a normal and appropriate level of vacancies and the replacement of units that are normally lost to conversion or demolition.

SCAG's housing allocation for Orange County unincorporated areas and cities are divided into four affordability categories, which were developed by the State of California. These categories are consistent with federal and state housing programs (e.g., Section 8 and State Density Bonus Law). These income categories must be considered in calculating future housing needs:

- Very Low – Less than 50 percent of the Orange County median family income.
- Low – 51 to 80 percent of the Orange County median family income.
- Moderate – 81 to 120 percent of the Orange County median family income.
- Upper – More than 120 percent of the Orange County median family income.

The affordability distribution of new units is derived from the household income distribution of households in Orange County in 1990, plus a fair share adjustment determined by SCAG. Table 4.3-4 summarizes the share of the region's future housing for the unincorporated areas of Orange County, and provides the relative breakdown by affordability level. Approximately 31 percent of the RHNA must be affordable to lower income (i.e., low and very low income) households.

Housing overpayment occurs when renters or homeowners pay more than 30 percent of their gross incomes for rent or mortgage payments. As in other communities in California, housing overpayment is not uncommon in southern Orange County. A high cost of housing can result in those on fixed-income, the elderly, and lower income families using a disproportionate percentage of their income for housing. In contrast, housing overpayment can also occur among the upper income owner-occupied households; this situation occurs because some families intentionally choose to pay more for housing when moving up into larger homes. Because of their relatively higher income, these families still have more disposable income despite higher cost burdens.

TABLE 4.3-4
RHNA ALLOCATION OF HOUSING UNITS FOR UNINCORPORATED AREAS OF ORANGE COUNTY FROM 1998 TO 2005

Income Group	Income Threshold	Unincorporated Areas of Orange County		All Areas within Orange County	
		RHNA Allocation	Percentage	RHNA Allocation	Percentage
Very Low	<$34,250	4,084	18%	5,147	18%
Low	<$50,200	2,950	13%	3,613	13
Moderate	<$82,200	4,992	22%	6,127	22
Upper	Above	10,661	47%	13,143	47
Total		**22,687**	**100%**	**28,029**	**100%**
Source: SCAG, 2001.					

Employment

According to the monthly labor force data for California counties from the California Employment Development Department (EDD), the annual average unemployment rate for Orange County for March 2004 was 3.6 percent. This compares to an unemployment rate for California of 6.6 percent for the same period. As a result of the County's low unemployment rate, Orange County was rated second (tied with Marin County), behind San Luis Obispo County, in terms of low unemployment.

Existing and projected employment data for the project area and Orange County are listed in Table 4.3-5. As identified in Table 4.3-5, the CDR states that there were 87,892 employed persons within the project study area in 2000; this accounts for almost 16 percent of Orange County's entire work force. The majority of those employed persons were engaged in jobs not related to retail or service positions.

Jobs/Housing Balance

SCAG has identified the growth imbalance between the location of jobs and housing in southern California as a factor in contributing to the worsening of traffic congestion and air quality. The premise behind improving the jobs/housing balance is to promote land use decisions that reduce vehicle travel in the region by establishing a better balance of jobs and residential development.

Jobs and housing are considered in balance when a subregion has enough employment opportunities for most people who live there and enough housing opportunities for most of the people who work there. Because the southern California region, as a whole, is presumed by SCAG to be balanced, SCAG also considers a subregion to be balanced if its ratio of jobs to housing matches the ratio for the region. The jobs/housing ratio for the southern California region was 1.27[1] (total number of jobs divided by total number of housing units) in 2001 and is projected to be 1.33 in 2025. In general, job-rich subregions have ratios greater than the regional average, and housing-rich subregions have ratios lower than the regional average.

[1] Rather than using a typical ratio (#:#) where the number of jobs are listed first, followed by the number of housing units, SCAG divides the number of jobs by the number of housing units.

TABLE 4.3-5
EXISTING AND PROJECTED OCP 2000M EMPLOYMENT

Geographic Area	Employment Type	2000	2005	2010	2015	2020	2025
RSA 40	Total	125,580	141,689	154,650	165,155	170,570	174,531
	% Change[a.]		*12.83%*	*9.15%*	*6.79%*	*3.28%*	*2.32%*
	Retail	25,528	28,572	30,008	31,335	32,361	33,221
	% Change		*11.92%*	*5.03%*	*4.42%*	*3.27%*	*2.66%*
	Service	36,875	42,349	47,872	53,309	56,094	58,293
	% Change		*14.84%*	*13.04%*	*11.36%*	*5.22%*	*3.92%*
	Other[b.]	63,477	72,293	77,630	81,366	83,022	83,963
	% Change		*13.89%*	*7.38%*	*4.81%*	*2.04%*	*1.13%*
CAA 68	Total	18,957	20,187	21,276	22,415	23,367	23,991
	% Change		*6.49%*	*5.39%*	*5.35%*	*4.25%*	*2.67%*
	Retail	3,803	4,004	4,125	4,279	4,459	4,591
	% Change		*5.29%*	*3.02%*	*3.73%*	*4.21%*	*2.96%*
	Service	5,221	5,685	6,143	6,650	6,970	7,223
	% Change		*8.89%*	*8.06%*	*8.25%*	*4.81%*	*3.63%*
	Other	9,933	10,498	11,008	11,486	11,938	12,177
	% Change		*5.69%*	*4.86%*	*4.34%*	*3.94%*	*2.00%*
CAA 69	Total	18,848	23,950	26,708	28,452	29,230	29,825
	% Change		*27.07%*	*11.52%*	*6.53%*	*2.73%*	*2.04%*
	Retail	2,821	3,644	3,852	4,020	4,137	4,233
	% Change		*29.17%*	*5.71%*	*4.36%*	*2.91%*	*2.32%*
	Service	3,719	4,797	5,534	6,203	6,475	6,737
	% Change		*28.99%*	*15.36%*	*12.09%*	*4.38%*	*4.05%*
	Other	12,308	15,509	17,322	18,229	18,618	18,855
	% Change		*26.01%*	*11.69%*	*5.24%*	*2.13%*	*1.27%*
RSA C-43	Total	81,004	98,796	108,794	115,997	124,707	133,342
	% Change		*21.96%*	*10.12%*	*6.62%*	*7.51%*	*6.92%*
	Retail	17,081	19,265	20,415	20,970	22,241	23,092
	% Change		*12.79%*	*5.97%*	*2.72%*	*6.06%*	*3.83%*
	Service	18,159	26,920	32,286	36,050	39,683	42,621
	% Change		*48.25%*	*19.93%*	*11.66%*	*10.08%*	*7.40%*
	Other	45,906	52,781	56,965	60,006	64,259	68,815
	% Change		*14.98%*	*7.93%*	*5.34%*	*7.09%*	*7.09%*
CAA 58	Total	27,547	31,428	31,691	32,034	32,350	32,452
	% Change		*14.09%*	*0.84%*	*1.08%*	*0.99%*	*0.32%*
	Retail	6,448	7,352	7,349	7,377	7,427	7,448
	% Change		*14.02%*	*-0.04%*	*0.38%*	*0.68%*	*0.28%*
	Service	6,616	8,175	8,297	8,442	8,545	8,612
	% Change		*23.56%*	*1.49%*	*1.75%*	*1.22%*	*0.78%*
	Other	14,483	15,901	16,045	16,215	16,378	16,392
	% Change		*9.79%*	*0.91%*	*1.06%*	*1.01%*	*0.09%*
CAA 59	Total	19,092	23,181	25,569	26,985	28,994	31,896
	% Change		*21.42%*	*10.30%*	*5.54%*	*7.44%*	*10.01%*
	Retail	3,219	3,792	3,816	3,965	4,042	4,102
	% Change		*17.80%*	*0.63%*	*3.90%*	*1.94%*	*1.48%*
	Service	4,792	6,594	8,253	8,783,	9,443	9,999
	% Change		*37.60%*	*25.16%*	*6.42%*	*7.51%*	*5.89%*
	Other	11,291	13,035	14,243	15,109	16,375	17,971
	% Change		*15.45%*	*9.27%*	*6.08%*	*8.38%*	*9.75%*

TABLE 4.3-5 (Continued)
EXISTING AND PROJECTED OCP 2000M EMPLOYMENT

Geographic Area	Employment Type	2000	2005	2010	2015	2020	2025
CAA 60 [b.]	Total	1,581	2,442	3,154	6,078	9,225	12,433
	% Change		*54.46%*	*29.16%*	*92.71%*	*51.78%*	*34.78%*
	Retail	16	16	60	261	1,002	1,518
	% Change		*0.00%*	*275.00%*	*335.00%*	*283.91%*	*51.50%*
	Service	271	1,096	1,589	3,274	4,682	6,357
	% Change		*304.43%*	*44.98%*	*106.04%*	*43.01%*	*35.78%*
	Other	249	285	460	1,498	2,496	3,513
	% Change		*14.46%*	*61.40%*	*225.65%*	*66.62%*	*40.75%*
CAA 70 [b.]	Total	2,198	2,199	2,222	2,229	2,291	2,294
	% Change		*0.05%*	*1.05%*	*0.32%*	*2.78%*	*0.13%*
	Retail	490	482	517	500	500	500
	% Change		*-1.63%*	*7.26%*	*-3.29%*	*0.00%*	*0.00%*
	Service	631	661	704	755	770	784
	% Change		*4.75%*	*6.51%*	*7.24%*	*1.99%*	*1.82%*
	Other	1,581	1,571	1,726	1,750	1,741	1,730
	% Change		*-0.63%*	*9.87%*	*1.39%*	*-0.51%*	*-0.63%*
Project Study Area	Total	*88,223*	*103,387*	*110,620*	*118,193*	*125,457*	*132,891*
	% Change		*17.19%*	*7.00%*	*6.85%*	*6.15%*	*5.93%*
	Retail	*16,797*	*19,290*	*19,719*	*20,402*	*21,567*	*22,392*
	% Change		*14.84%*	*2.22%*	*3.46%*	*5.71%*	*3.83%*
	Service	*21,250*	*27,008*	*30,520*	*34,107*	*36,885*	*39,712*
	% Change		*27.10%*	*13.00%*	*11.75%*	*8.14%*	*7.66%*
	Other	*49,845*	*56,799*	*60,804*	*64,287*	*67,546*	*70,638*
	% Change		*13.95%*	*7.05%*	*5.73%*	*5.07%*	*4.58%*

a. Percentages shown in italics represent the percentage change in housing for the RSA or CAA from the previous time period shown.
b. According to the U.S. Census Bureau, "other employment" consists of all employment less retail and service employment. Examples of "other employment" include agricultural, mining, construction, manufacturing, transportation and public utilities, FIRE (finance, insurance, and real estate), and government jobs.
c. Contains a portion of the project site.

Source: Center for Demographic Research, 2001.

The proposed project is located in the Orange County SCAG subregion. This subregion is not considered to be balanced, although projections indicate balance in the southwestern portion of Orange County in the year 2025. SCAG determined in its 2001 *The New Economy and Jobs/Housing Balance in Southern California* that northern Orange County had high jobs/housing ratios and eastern and southern Orange County had low jobs/housing ratios. SCAG determined in the 1994 Growth Management Plan that the Orange County Subregion had a job/housing ratio of 1.52 in 1997 and a projected ratio of 1.91 in the year 2025.

4.3.3 PROJECT IMPACTS

The implementation of the proposed project could result in a variety of impacts related to population, housing, and employment. This section provides thresholds of significance; analyzes and discusses any potential impacts related to population, housing, and employment; and discusses the project's consistency with adopted planning programs and their requirements.

Thresholds of Significance

The proposed project would result in a significant impact on population, housing, or employment if it would:

- Exceed adopted regional or local population projections.
- Displace existing housing affecting a substantial number of people.

Impacts

Consistency with Adopted Regional and Local Population Projections

As discussed in Section 3, Project Description, the proposed project would allow for the development of a maximum of 14,000 residential units. Of those 14,000 units, 7,020 would be single-family attached and detached units; 6,000 would be senior housing units (including both single-family units and apartments); and 980 units would be multi-family units. Population and employment projections were developed, using factors from CDR based on the land use plan for the proposed project. Population projects were based on the number of proposed housing units, using a generation factor of 3.13 persons per single-family unit, 2.5 persons per multi-family unit, and 1.4 persons per senior unit. Employment projections were based the following generation factors:

- 2.3 jobs per 1,000 square feet of general and specialty retail uses;
- 3 jobs per 1,000 square feet of research and development/business park uses;
- 3.5 jobs per 1,000 square feet of office uses;
- 0.5 jobs per acre for golf courses;
- 0.11 jobs per students for elementary, middle, and high schools; and
- 0.9 jobs per room for resort hotel uses.

Based on this information, the Ranch Plan has the potential to generate 32,823 new residents living within the project area and 16,508 jobs. This would result in the proposed project representing 8.4 percent, 10.0 percent, and 12.4 percent of the population, housing, and employment forecasted for 2025 for the project area by OCP-2000M, respectively.

The proposed project would not exceed OCP-2000M projections for the project area. Since exceeding the projections is the threshold for this section, there would not be a significant impact. The shortfall of development compared to the OCP-2000M projections has been addressed through the evaluation of consistency with regional planning programs in Section 4.1, Land Use and Related Planning Programs. Again, it should be noted while it is less than projected, it is closer to achieving regional projections than the status quo.

Regional Housing Needs Assessment

The RHNA, adopted in November 2000, provided housing allocations between 1998 and 2005. The Ranch Plan project would not be under construction within the timeframe covered by the 2000 RHNA allocation. The OCP-2000M projections did not assume housing development within the year 2000 to 2005 timeframe for the project site; therefore, it would not have been assumed that the Ranch Plan would contribute to meeting the County's RHNA requirement. However, subsequent RHNA (post-2005 timeframe) allocations would have growth assumptions for the Ranch Plan. The County would be required to comply with the RHNA allocations and the Ranch Plan would be responsible for contributing to County's portions for regional housing. The

project would not conflict with the RHNA. The proposed project would not be inconsistent with projected regional housing need, and no project impact would occur related to RHNA.

Jobs/Housing Balance

Based on the jobs projected for the proposed project area, the Ranch Plan would generate approximately 16,509 jobs, resulting in a jobs-to-housing ratio of 1.18. This means that the Ranch Plan would be housing rich, which is consistent with the current trends in southern Orange County. However, of the 14,000 dwelling units proposed, 6,000 would be age-restricted units (i.e., one resident must be aged 55 or older), resulting in a lower ratio. Based on national labor force participation rates (U.S. Census Bureau), it has been assumed that approximately 32 percent of the senior residents (aged 55 and older) would continue to work. As a result of the reduced employment rates for residents of the 6,000 age-restricted units, the adjusted jobs/housing ratio for the project site would be approximately 1.7 jobs per household; the project site would be jobs rich. This jobs-to-housing ratio would exceed SCAG's regional jobs/housing ratio of 1.33 for the Orange County Subregion projected for 2025. The project would not be inconsistent with the jobs/housing balance goal; as a result, the project would not result in adverse jobs/housing balance impacts.

Housing Displacement

As discussed in Section 4.1, Land Use and Related Planning Programs, the proposed project would displace approximately 11 housing units. These housing units are owned by RMV and occupied by people affiliated with RMV. These residents would be relocated to comparable housing units by Rancho Mission Viejo. Because of the small number of units affected, as well as relocation of the residents by RMV, the impact resulting from the displacement of housing would be less than significant.

4.3.4 MITIGATION PROGRAM

Project Design Features

PDF 4.3-1 The Ranch Plan would provide a slightly higher jobs/housing ratio than SCAG's assumed ratio for Orange County. This would increase the overall jobs/housing balance for southern Orange County, which is currently below the SCAG ratio.

PDF 4.3-2 Rancho Mission Viejo would relocate displaced residents prior to approval of demolition permits. Mitigation Measure 4.3-1 further supports this project design feature.

Standard Conditions and Regulations

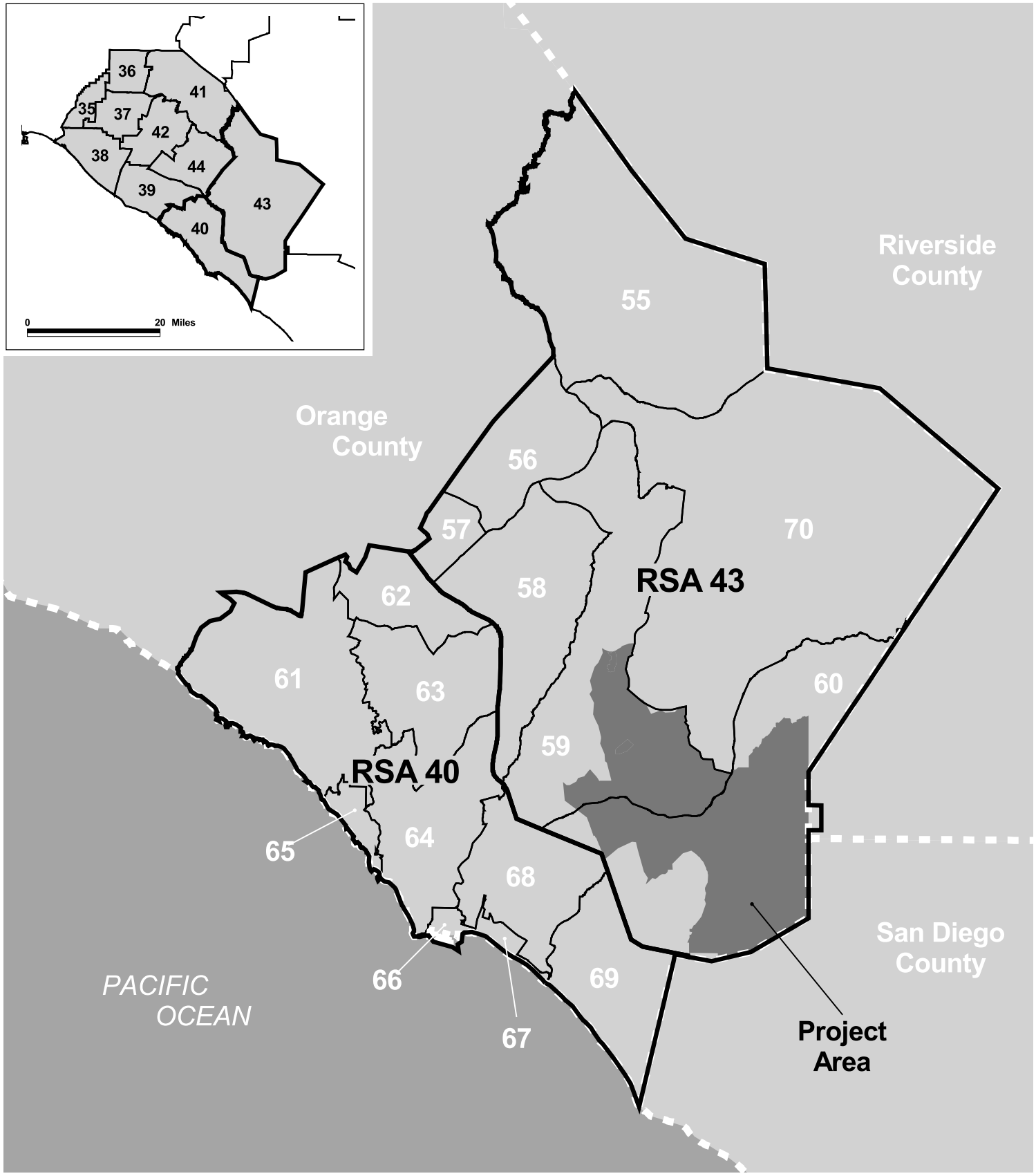
There are no standard conditions and regulations related to population, housing, or employment impacts.

Mitigation Measures

MM 4.3-1 In conjunction with approval of an Area Plan for those portions of Planning Areas 1 and 3 where existing residential units would be displaced, the applicant shall provide evidence of relocation of any remaining residents.

4.3.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Based on the thresholds of significance, there would be no significant impacts associated with population, housing, and employment.



Regional Statistical Areas/
Community Analysis Areas

Exhibit 4.3-1

The Ranch Plan

N W E S

4 0 4 Miles

BonTerra CONSULTING

R:/Projects/RMV/J008/Ex4.3-1_RSA_CAA_020404.pdf

4.4 GEOLOGY AND SOILS

4.4.1 INTRODUCTION

Methodology

This section summarizes the findings of the *Baseline Geomorphic and Hydrologic Conditions* report prepared by PCR Services Corporation, PWA, Ltd., and Balance Hydrologics, Inc., in February 2002, and the *Geotechnical Studies to Support Ranch Plan EIR* report prepared by Goffman, McCormick, and Urban, Inc. in May 2004. The geotechnical investigation included a preliminary assessment of the potential geologic, soils, and seismic hazards associated with development of the site. These reports are included in this Program EIR as Appendix B.

The geotechnical report was based on a review of existing literature, field surveys, and data analysis. The literature review focused on existing topographical maps, reports of subsurface explorations, and ongoing available research performed on or adjacent to the project site. This review included reports prepared for the *South Orange County Transportation Infrastructure Improvement Project Draft EIR/Subsequent EIR*. These reports included data from surface and subsurface investigations, with approximately 290 borings and 25 trenches excavated within the limits of the planning areas for this study.

The field survey included surface mapping of all of the planning areas, including mapping exposures of surficial soils, bedrock materials, and geologic structure, such as faulting and folding. Subsurface explorations were performed to determine the general conditions of the site at a programmatic level of analysis. Additional subsurface explorations occurred at and adjacent to some of the planning areas, including six drill holes excavated to depths up to approximately 30 feet, and two fault trenches excavated to depths of approximately five feet. Data collected during the literature review and field surveys was analyzed to determine potential impacts and mitigation for those planning areas proposed for development as a part of the proposed project.

A probabilistic seismic hazard analysis (PSHA) of horizontal ground shaking was performed to determine the likelihood of future earthquake ground motions on the project site. A PSHA is a mathematical process based on probability and statistics that is used to estimate the mean number of events per year (Annual Frequency of Exceedance) in which the level of some ground motion parameter exceeds a specified risk level. The commercial computer program *FRISKSP* ver. 4.00 was used to make the mathematical computations for this analysis. The seismic source model used for the PSHA computation was the California Department of Conservation Geological Survey (CGS) Statewide Database of 182 faults. A search radius of 50 miles was selected because this distance is the maximum site-to-source distance applicable to the attenuation relationship used in the PSHA computations. Review of the California Geological Survey database indicates that 21 active or potentially active faults are located within a 50-mile radius of the project site.

4.4.2 EXISTING CONDITIONS

Regional Geologic Setting

The project site lies on the southwestern flank of the Santa Ana Mountains, in the Peninsular Ranges geomorphic province of California. Geologic units in the project region are laterally transitional between the units of the Los Angeles basin and San Diego County. These units form a generally homoclinal (sloping in one direction) sequence of marine and non-marine sedimentary rocks ranging in age from late Cretaceous to early Miocene (from 20 to 140 million

years old [myo]), offset by regional faulting. Regional structure shows these units dipping gently westward with local folding observed predominately near faults. The sequence is overlain in some areas by Quaternary sediments (up to 1.6 myo). The regional geologic setting for the project site is depicted in Exhibit 4.4-1.

Local Geologic Setting

Physiographic features of the project site range from rugged, irregular topography to wide creek channels. North- to south-trending ridges and valleys dominate the topography north of San Juan Creek, and east- to west-trending ridges and valleys dominate the topography to the south of San Juan Creek. The southwest-trending San Juan Creek bisects these ridges across the center of the site.

Major named valleys on the project site are Cañada Chiquita, Cañada Gobernadora, Trampas Canyon, Cristianitos Canyon, Gabino Canyon, Talega Canyon, Verdugo Canyon, and Blind Canyon. Cañada Chiquita, Cañada Gobernadora, and Trampas Canyon are bound to the west by gentle to moderate topography. Topography is moderately steep to rugged east of Cañada Gobernadora and Cristianitos Canyon. Fluvial terrace deposits have resulted in nearly flat mesas stepping down to the creek channel and overlaying the flanks of the ridges north of San Juan Creek, east of Cristianitos Creek, south of Gabino Canyon, and north of Talega Canyon. Elevations on the project site range from 60 to 1,326 feet above mean sea level (msl).

Geologic Units

In general, the project site's bedrock units increase in age towards the east. These units comprise the ridges and slopes, and underlie surficial units on flanks and canyon bottoms. The bedrock units at the site are described below for the planning areas on the project site proposed for development, from youngest to oldest. Bedrock and surficial units on the project site are depicted in Exhibits 4.4-2 through 4.4-6 for the planning areas that are proposed for development.

Principal Bedrock Units

Capistrano Formation (Tc). Bedrock of the Capistrano Formation is exposed in the westernmost portions of Planning Area 1. In general, the bedrock is composed of clayey siltstone, siltstone, and sandy siltstone. It is generally massive (i.e., irregular in form) and overlies the Monterey Formation. Bedding (i.e., a characteristic of sedimentary rocks in which parallel planar surfaces separating different grain sizes or compositions indicate successive depositional surfaces that existed at the time of sedimentation) in the Capistrano Formation is infrequent and tends to be localized and discontinuous. Bedding mapped adjacent to the western boundary of the project site indicates that the formation is dipping gently to the west approximately five to 15 degrees. Because of to its fine-grained texture and the presence of thin clay beds, the Capistrano Formation is subject to landslides.

Monterey Formation (Tm). The Monterey Formation is exposed in Planning Areas 1 and 5. The formation has been mapped in the western portion of Planning Area 1, and in the far western portion of Planning Area 5. Where encountered, the Monterey Formation consists of well- and thinly-bedded tuffaceous (i.e., composed of pyroclastic fragments) and diatomaceous (i.e., composed of fossilized diatoms) siltstone and clayey siltstone, with local beds of bentonitic (i.e., composed of weathered volcanic ash) clay. Bedding within the Monterey Formation in Planning Area 1 dips gently north-northwest. Within Planning Area 5, bedding is highly variable and folded because of its proximity to the Cristianitos fault zone. The Monterey Formation overlies the Topanga Formation, but across most of the site, the two units are faulted against

one another. The Monterey Formation is subject to slope failure because of thinly bedded clays. Examples of this occurrence include deep-seated landslides in Planning Area 1.

Topanga Formation (Tt). The Topanga Formation is exposed in Planning Areas 1 and 5 adjacent to and east of the Monterey Formation. It is exposed on both sides of the Cristianitos fault zone. Where exposed, the Topanga Formation consists of moderately well bedded, well-cemented sandstone interbedded with lenticular (i.e., containing well-preserved sand lenses within mud layers) poorly bedded siltstone. Sandstone beds dominate the unit. Found within the sandstone are rare conglomerate beds and pebble units. Bedding in the Topanga Formation in Planning Area 1 dips east-northeast, and is locally folded because of its proximity to the Cristianitos fault zone. In Planning Area 5, the bedding is locally folded and fractured because of faulting. The Topanga Formation is interfingered with the San Onofre Breccia member of the Topanga Formation; it is also in faulted contact with the Monterey Formation. Large, deep-seated landslides overlie the Topanga Formation within Planning Areas 1 and 5.

Topanga Formation, San Onofre Breccia (Ttso). The San Onofre Breccia is also exposed in Planning Areas 1 and 5, on the eastern side of the Cristianitos fault zone. Bedrock of this member of the Topanga Formation consists of poorly bedded to massive, poorly to well-cemented, poorly sorted angular breccia (i.e., rock consisting of sharp fragments embedded in a fine-grained matrix). The matrix (i.e., the fine grained material surrounding larger grains in a sedimentary rock) consists of sands and silts; the clasts (i.e., broken fragments of pre-existing rocks or minerals) are of variable composition and size. Interbedded with the units of breccia are poorly bedded siltstones and sandstones. Bedding is difficult to determine because of the massive nature of the unit. Where observed, bedding is randomly oriented and steeply dipping because of its proximity to the Cristianitos fault zone. The San Onofre Breccia lies in faulted contact with the Santiago Formation and is overlain locally by the Monterey Formation. Multiple large, deep-seated landslides overlie the San Onofre Breccia in Planning Area 5, proximate to the Cristianitos fault zone. These large landslides are the largest failures mapped on the project site.

Sespe Formation (Ts). The Sespe Formation is exposed in the northern portion of Planning Area 2, east of the Cristianitos fault zone. Where visible in outcrops, the Sespe Formation consists of massive sandstone. The sandstone is coarse and conglomeratic and forms resistant ridges and outcrops near the base of the formation. Minor thin lenses of siltstone are interbedded with the sandstone throughout the formation. Where observed, bedding within the formation is inclined to the northwest with dips generally ranging from zero to ten degrees. Locally steeper beds were observed near faults. The Sespe Formation has a gradational contact with the underlying Santiago Formation and is in faulted contact with the Topanga Formation and San Onofre Breccia.

Santiago Formation (Tsa). The Santiago Formation covers the majority of the western and central portions of the project site, between the Cristianitos and Mission Viejo fault zones. The formation is exposed in Planning Areas 2, 3, and 5 through 9. The Santiago Formation, where observed in surface outcrops and in drill holes, consists of fine- to medium-grained sandstone interbedded with siltstone and sandy siltstone with local interbeds of coarse sandstone and claystone. The lower portion of the formation generally consists of massive, friable sandstone. Generally, the Santiago Formation is poorly bedded to massive. Where bedding was observed during surface mapping, inclinations ranged from zero to 15 degrees to the northwest.

Local folding has been mapped in the Santiago Formation in Planning Areas 2, 3, and 6. The Santiago Formation has a gradational contact with the overlying Sespe Formation and has a pronounced unconformity with the underlying Silverado Formation. This formation also appears in faulted contact with the San Onofre Breccia, the Pleasants Sandstone Member of the

Williams Formation and the Silverado Formation. Small, scattered landslides have been mapped within the Santiago Formation, primarily in Planning Area 2.

Silverado Formation (Tsi). The Silverado Formation is exposed in Planning Areas 3, 6, 7, and 8, adjacent to and west of the Mission Viejo fault. The Silverado Formation, where encountered in surface outcrops and drill holes, consists of sandstone, silty sandstone, sandy siltstone, siltstone, and claystone. Bedding dips west between five and 15 degrees, except in proximity to faulting, where bedding is severely folded. The Silverado Formation underlies the Santiago Formation and is in faulted contact with the Pleasants Sandstone Member of the Williams Formation. It also overlies the Pleasants Sandstone Member of the Williams Formation. Some landslides of small to moderate extent have been mapped in the Silverado Formation of Planning Area 6.

Williams Formation. The Williams Formation is comprised of two members: Pleasants Sandstone and Schulz Ranch.

- ***Pleasants Sandstone Member (Kwp).*** The Pleasants Sandstone member of the Williams Formation is found in Planning Areas 3, 4, 7, 8, and 9. This member generally consists of fine- to medium-grained sandstone with siltstone interbeds. The unit is massive to locally well-bedded, biotite-rich, and well indurated (i.e., hardened by heat or compression). Where observed, bedding dips gently to the west, between five and ten degrees. The Pleasants Sandstone member overlies the Shulz Ranch member of the Williams Formation. Several landslides have been mapped in the Pleasants Sandstone member of Planning Areas 7 and 8.

- ***Shulz Ranch Member (Kws).*** The Shulz Ranch member of the Williams Formation is exposed in Planning Areas 4, 8, and 9. The Schulz Ranch member consists of moderately well bedded to thickly bedded, siltstone and fine- to coarse-grained sandstone with conglomeratic sandstone interbeds. Bedding has been mapped dipping westerly between five and ten degrees. In the finer grained units of the Shulz Ranch member, scattered small landslides have been mapped in Planning Area 9.

Ladd Formation. The Ladd Formation, exposed in Planning Area 9, is comprised of two members, Holz Shale member and Baker Canyon member.

- ***Holz Shale Member, Ladd Formation (Klh).*** The Holz Shale member is exposed in the central and eastern portions of the site. The unit generally consists of poorly bedded shale, interbedded with conglomeratic limestone, sandstone, and coquina (i.e., whitish limestone formed of broken shells and corals). Bedding in the unit dips westerly between 5 and 10 degrees. The Holz Shale member grades downward into the Baker Canyon member of the Ladd Formation in the eastern portion of Planning Area 9. No landslides have been mapped within this unit on the site.

- ***Baker Canyon Member, Ladd Formation (Klb).*** The Baker Canyon member generally consists of interbedded sandstone, and conglomeratic sandstone. The conglomeratic sandstone contains well-rounded pebble to cobble sized clasts. The member is medium to coarse-grained, and well indurated. The unit grades into a basal conglomerate that is indurate, massive to well bedded, with well-rounded clasts in a sandstone matrix. This basal conglomerate unit overlies the Trabuco Formation, exposed in the eastern portion of Planning Area 9. Bedding in this unit dips westerly between five and 15 degrees. No landslides have been mapped in this unit on the site.

Trabuco Formation (Kt). The Trabuco Formation generally consists of conglomerate. The conglomerate is massive, poorly indurated, deeply weathered, with well-rounded pebble to boulder sized clasts. The matrix of the conglomerate consists of sand and silt with abundant stone fragments. Bedding in this unit is difficult to determine, based on the massive nature of the material. Where observed, local bedding indicates westerly dips between five and 20 degrees. The Trabuco Formation underlies the Ladd Formation. It is prone to slope failure, including landslides, because of the highly weathered nature of the material. Examples of this occurrence are landslides mapped in Planning Area 9.

Principal Surficial Units

Surficial units are found overlying bedrock formations across much of the site. These Quaternary-age units consist of sediments placed by wind, water, or mass movements.

***Native Soil*.** Native soil covers much of the planning areas as a thin veneer. Constituents of native soil units vary depending on the underlying material, but are generally composed of clayey sand to clayey silt with a moderate to high organic content. Native soil generally contains roots and can contain gravels, cobbles, and/or boulders. It is present throughout the project site and is therefore not depicted in Exhibits 4.4-2 through 4.4-6.

***Artificial Fill*.** Artificial fill is found across the project site in localized areas. Deposits include engineered fill placed for structures or roads and loose, non-engineered fill placed for ranching purposes. The composition of these soils varies and can consist of clayey sand to silty sand, depending on the location.

***Alluvium (Qac)*.** Deposits of alluvium are located in and adjacent to San Juan Creek and other major drainages in all planning areas. Alluvium generally consists of sand with some silt, and scattered to abundant gravels, cobbles, and boulders. It tends to be laminated (i.e., composed of layers of firmly united material) with no developed soil structure.

***Landslide Debris (Qls)*.** Several, small landslides have been mapped in all of the planning areas proposed for development, with the exceptions of Planning Areas 4 and 6. These deposits are composed of blocks and bedrock fragments that have moved down slope. Landslide debris composition varies widely, depending on the source material. The deposits tend to consist of siltstone or sandstone blocks surrounded by a silty or sandy clay matrix. The material tends to be fractured and weathered. Landslide debris is usually found on the lower flanks of slopes where the material has come to rest after failure. In addition, Planning Areas 1 and 5 contain large, deep-seated landslides. The remaining planning areas contain scattered mapped landslides that are small to moderate in size.

***Lake Deposits*.** Lake deposits have been mapped in the Cañada Chiquita and Cañada Gobernadora areas of Planning Areas 2 and 3. Lake deposits generally consist of silts, sands, and clays. The material is locally organic, slightly porous, firm, and thinly bedded with a well-developed soil structure.

***Perched Soil*.** Local deposits of perched soil are located across the project site, predominately on the slopes and ridges of Cañada Chiquita and Cañada Gobernadora. Perched soil deposits are remnant soils from colluvium or slopewash deposited prior to uplift or erosion of canyons. Perched soil deposits vary in composition, depending on the underlying material, but are generally clayey with some silts and sands. Perched soil deposits high in clay content have a low permeability.

Terrace Deposits (Qt). Terrace deposits are found in Planning Areas 1, 2, 3, 4, 7, 8, and 9. These deposits are located predominately adjacent to San Juan Creek. They are deposited by ancient streams and subsequently undercut by stream erosion. The units generally form tabular surfaces, either flat-lying or very gently dipping and consist predominately of sands and gravels, with local zones of clayey or silty material; cobbles and boulders are common. Terrace deposits are generally more consolidated than alluvium.

Geologic Structure

The geologic structure of the project site consists of westerly dipping bedrock units, offset by two major fault zones−the Cristianitos and Mission Viejo fault zones−and overlain by Quaternary (i.e., to 1.6 myo) sediments. The Cristianitos fault zone crosses Planning Areas 1 and 5. In the Cristianitos fault zone, multiple sub-parallel faults occur in the eastern portion of Planning Area 1. The Forster fault, in the western portion of the Cristianitos fault zone, crosses Planning Area 1 in a predominately north to south direction.

In Planning Area 5, the Cristianitos fault zone lies in the western portion of the site. The main branch of the Cristianitos fault zone, which is approximately the eastern limit of the fault zone, lies in the west-central portion of the planning area. Bedding in and adjacent to the fault zone is irregular and ranges from flat-lying to steeply dipping. Large landslides overlie or are adjacent to this fault zone.

The Mission Viejo fault zone crosses Planning Areas 3, 7, 8, and 9. The fault trends generally north to south through the eastern portion of Planning Area 3. It divides into two branches in the southeastern portion of Planning Area 3. General bedding inclinations are gently dipping westerly on both sides of the Mission Viejo fault, with localized folding in proximity to the fault zones. The western branch of the Mission Viejo fault was not observed during the mapping south of San Juan Creek. The eastern branch of the fault continues south across San Juan Creek through Planning Areas 7, 8, and 9. Sub-parallel, discontinuous faulting has been mapped in Planning Areas 2, 5, and 9.

Groundwater

Groundwater on the project site occurs in shallow to deep deposits. Shallow groundwater generally occurs within alluvium in drainages on the project site that have perennial or seasonal flow. Perched zones of groundwater may occur in surficial deposits or bedrock formations.

Groundwater in alluvium has been encountered in shallow depths (i.e., from zero to 25 feet below the ground surface) in Planning Areas 1, 2, and 3 in the major drainages of San Juan Creek, Cañada Chiquita, and Cañada Gobernadora. Groundwater in alluvial deposits has been encountered in moderate to deep deposits (i.e., at least 40 feet below the ground surface) in Planning Areas 5, 6, and 7 in Trampas and Cristianitos Canyons. Planning Areas 4, 8, and 9 may contain groundwater in shallow deposits in the major drainages where alluvium is known. Perched water occurs throughout the project site in localized pockets of terrace deposits, landslide debris, and bedrock formations.

Faulting and Seismicity

Southern California contains several surface faults considered active or potentially active pursuant to the guidelines of the Alquist-Priolo Earthquake Fault Zone Act. The fundamental elements of the regional structure are steeply dipping major faults that slice the older rocks into northwest-trending blocks. The principal faults and fault zones in southern California are depicted in Exhibit 4.4-7, and include the San Joaquin Hills Blind Thrust, Newport-Inglewood,

Whittier, Palos Verdes, Chino, Elsinore, Cristianitos, and San Jacinto faults. The nearest of these faults identified on published geologic maps, the strike-slip Newport-Inglewood, is located approximately 9.3 miles west of the Ranch Plan project site. The San Joaquin Hills Blind Thrust is a low-angle fault system, the fault surfaces of which do not necessarily break the ground surface during earthquakes. The location of San Joaquin Hills Blind Thrust fault is not currently illustrated on published California Geological Survey maps. However, discussions with representatives of the California Geological Survey indicate this fault is located approximately 6.8 miles west of the site. Historic earthquake data is provided in Table 4.4-1 for earthquakes with a magnitude (M) of 5.0 or greater within an approximate 200-mile radius of the project site.

No known active or potentially active faults are known to cross the project site. The site is not in a designated Alquist-Priolo Earthquake Fault Zone. Two Cenozoic faults cross the project site, the Cristianitos and Mission Viejo faults. Neither the Cristianitos Fault Zone nor the Mission Viejo fault is considered active or potentially active pursuant to the Alquist-Priolo Earthquake Fault Zone Act. The main branch of the Cristianitos fault zone is a northwest-trending, high-angle normal fault that crosses the western portion of the project site along the ridge west of Trampas Canyon. Several inactive faults associated with this fault zone are mapped on the project site. The fault zone is depicted on Exhibit 4.4-8. The Mission Viejo fault crosses the eastern portion of the project site, generally trending north to northwest. This fault is a vertical to steeply dipping normal fault (Exhibit 4.4-8).

As with all development in southern California, development on the project site would be subject to earthquake ground motion. The level of ground motion from an earthquake is a function of several factors including earthquake magnitude, type of faulting, rupture propagation path, distance from the epicenter, earthquake depth, duration of shaking, site topography, and site geology. Active faults in the project region and their respective Maximum Moment Magnitudes (M_W) are presented in Table 4.4-2.

Secondary Seismic Effects

***Surface Displacement*.** Surface displacement generally occurs from surface expression of active faulting, or proximate to active faulting. Because no active or potentially active faults have been mapped on or adjacent to the any of the planning areas, inclusive of the planning areas proposed for development, the potential for surface displacement on the project site is considered to be less than significant.

Seismically-Induced Landslides. Portions of all the planning areas may be susceptible to seismically-induced landslides (source: Seismic Hazard Zones Maps). Locations of slopes susceptible to seismically-induced landslides are depicted in Exhibit 4.4-9.

TABLE 4.4-1
HISTORIC EARTHQUAKES

Date	Name	Magnitude[a., b., c.]	Epicentral Distance from Site (miles)	Fault(s)
12/8/1812	Wrightwood	M_W~7.5	59	Most likely San Andreas Fault near Wrightwood
1/9/1857	Fort Tejon	M_W~8	176	San Andreas Fault
2/24/1892	Laguna Salada	M_W~7	93	Laguna Salada Fault Zone
7/22/1899	Cajon Pass	M_L~5.7	54	Uncertain
12/25/1899	San Jacinto	M_L~6.5	38	San Jacinto Fault
5/15/1910	Elsinore	M_L 6	16	Most likely Elsinore Fault near Glen Ivy
6/23/1915	Imperial Valley	M_L 6.1	130	Imperial Fault
6/23/1915	Imperial Valley	M_L 6.3	130	Imperial Fault
4/21/1918	San Jacinto	M_L 6.8	37	San Jacinto Fault
7/23/1923	North San Jacinto	M_L 6.3	38	San Jacinto Fault
3/11/1933	Long Beach	M_W 6.4	22	Newport-Inglewood Fault
3/25/1937	Terwouldiger Valley	M_W 6.0	76	San Jacinto Fault
5/19/1940	Imperial Valley	M_W 6.9	132	Imperial Fault
7/21/1952	Kern County	M_W 7.5	130	White Wolf Fault
3/19/1954	San Jacinto Fault	M_W 6.4	82	San Jacinto Fault
4/9/1968	Borrego Mountain	M_W 6.5	87	Coyote Creek Fault
2/9/1971	San Fernando	M_W 6.4	77	San Fernando Fault Zone
10/15/1979	Imperial Valley	M_W 6.4	145	Imperial, Brawley and Rico faults
7/8/1986	North Palm Springs	M_L 5.6	65	Banning or Garnet Fault
7/13/1986	Oceanside	M_L 5.4	41	San Diego Trough or Palos Verdes-Coronado Bank fault zones
10/1/1987	Whittier Narrows	M_W 6.0	47	Puente Hills Fault
12/3/1988	Pasadena	M_L 5.0	53	Raymond Fault
1/18/1989	Malibu	M_L 5.0	65	Uncertain
2/28/1990	Upland	M_L 5.4	42	San Jose Fault
6/28/1991	Sierra Madre	M_W 5.8	56	Clamshell-Sawpit Fault
4/23/1992	Joshua Tree	M_W 6.1	78	Eureka Peak Fault (?)
6/28/1992	Landers	M_W 7.3	81	Johnson Valley, Landers, Homestead Valley, Emerson & Camp Rock faults
6/28/1992	Big Bear	M_W 6.4	64	Uncertain
1/17/1994	Northridge	M_W 6.7	72	Northridge Thrust Fault
10/16/1999	Hector Mine	M_W 7.1	105	Lavic Lake & Bullion Faults

a. Magnitudes from SCEC web page http://www.scecdc.scec.org/clickmap.html
b. M_W = moment magnitude; M_L = local magnitude
c. ~ = approximately

Source: *Geotechnical Studies to Support Ranch Plan EIR*, Goffman, McCormick & Urban, Inc., May 2004.

TABLE 4.4-2
REGIONAL FAULTS[a.]

Fault Name	Distance (miles)	Seismologic Parameters			
		Maximum MW[b.]	Fault Type[c.]	Fault Length (miles)	Slip Rate (inches/ year)[d.]
San Joaquin Hills Blind Thrust	6.8	6.6	bt	17.4	0.02
Newport-Inglewood (Offshore)	9.3	6.9	rl-ss	41.0	0.06
Elsinore-Glen Ivy	14.9	6.8	rl-ss	23.6	0.20
Elsinore-Temecula	15.5	6.8	rl-ss	26.1	0.20
Chino-Central Avenue	18.6	6.7	rl-r-o	17.4	0.04
Newport-Inglewood (Los Angeles Basin)	19.9	6.9	rl-ss	39.8	0.04
Whittier	22.9	6.8	rl-ss	22.9	0.10
Palos Verdes	25.5	7.1	rl-ss	59.7	0.12
Coronado Bank	26.1	7.4	rl-ss	114.9	0.12
Rose Canyon	28.6	6.9	rl-ss	34.2	0.06
Puente Hills Blind Thrust	28.6	4.4	bt	27.3	0.03
Upper Elysian Park Thrust	29.2	6.7	bt	21.1	0.06
Elsinore-Julian	34.2	7.1	rl-ss	46.6	0.20
San Jacinto-San Jacinto Valley	37.9	6.9	rl-ss	26.1	0.47
San Jacinto-San Bernardino	39.1	6.7	rl-ss	21.7	0.47
San Jose	39.1	6.5	ll-r-o	13.7	0.02
San Jacinto-Anza	41	7.2	rl-ss	55.9	0.47
Cucamonga	42.3	7.0	r	17.4	0.20
Sierra Madre	42.3	7.0	r	35.4	0.12
San Andreas-Southern	49.1	7.4	rl-ss	126.1	0.95
San Andreas-San Bernardino	49.1	7.3	rl-ss	66.5	0.95

a. California Geological Survey Statewide Fault Database (CDMG OFR 96-08)
b. "Maximum Moment Magnitude"
c. rl = right-lateral; ll = left-lateral; ss = strike-slip; r = reverse; o = oblique; bt = blind thrust (See Section 11 for definitions.)
d. numbers are rounded

Source: *Geotechnical Studies to Support Ranch Plan EIR*, Goffman, McCormick & Urban, Inc., May 2004.

***Liquefaction*.** Liquefaction is a seismically-induced effect that usually occurs in cohesionless soil with a high groundwater table, where ground shaking causes the soil to liquefy, potentially resulting in damage to structures. Cohesionless soils are generally sandy, coarse-grained, unconsolidated soils with little or no clay content. Portions of Planning Areas 1 through 13 may be susceptible to liquefaction (source: Seismic Hazard Zones Maps). Areas potentially susceptible to liquefaction are depicted on Exhibit 4.4-9.

***Tsunami*.** A tsunami is a large ocean wave, generally with a large amplitude and high velocity that is created by earthquakes or submarine landslides. At its nearest point, the project site is located approximately five miles northeast of the Pacific Ocean. Therefore, the potential for tsunami-related effects on the project site is negligible.

***Seiche*.** A seiche is a similar phenomenon to a tsunami, except that a seiche is a large wave created in an enclosed body of water, such as a lake or reservoir. No natural lakes or other

enclosed bodies of water of significant size are in the vicinity of the site. Planning Area 5 currently contains a small man-made lake used in association with ongoing silica mining operations. The water level within the lake is maintained at a minimum distance of approximately 20 feet below the dam crest. Given that the water level is maintained and that the man-made lake would be removed prior to grading of the planning area, the impact from a seiche in Planning Area 5 and all other planning areas is considered less than significant.

Mass Wasting

Mass wasting is the general term for down slope movement of soil and rock under the direct influence of gravity. Mass wasting can include landslides.

Landslides

Landslides are a type of mass movement in which soil and rock material moves as a large mass down slope under the force of gravity. Landslides on the project site include falls, topples, slides, spreads, and flows. Definitions for slides are provided in Section 11 of this Program EIR. The slides are shown in Exhibit 4.4-10.

Landslides have been mapped in all of the planning areas, except Planning Areas 4 and 6. However, some of these landslides are outside of the area proposed for development (Exhibits 4.4-2 through 4.4-6). Table 4.4-3 identifies the number of landslides and approximate minimum/maximum area in each planning area proposed for development.

TABLE 4.4-3
LANDSLIDE SUMMARY

Planning Area	Landslides in Development Area	Approximate Landslide Area (acres)			Development Acres	Development Area Covered by Landslide (%)
		Minimum	Maximum	Total		
1	22	<1	42	105	540	20
2	32	<1	8	39	1,030	4
3	18	<1	6	29	2,089	1
4	0	0	0	0	216	0
5	4	11	149	239	1,191	20
6	0	0	0	0	263	0
7	4	7	17	50	853	6
8	3	<1	6	7	1,092	1
9	4	<1	2	3	420	1

Source: *Geotechnical Studies to Support Ranch Plan EIR*, prepared by Goffman, McCormick & Urban, Inc., May 2004.

Shallow Failure

Shallow failures and surficial slumps are mass movements that generally occur in surficial units on slope faces. Such failures are typically localized and five to ten feet in depth. Surficial slumps have been observed during surface mapping, predominately in Planning Areas 1, 5, and 9. The potential for future shallow failures or surficial slumps is considered to be moderate to high in these planning areas. In Planning Areas 2, 3, 4, 6, 7, and 8, the potential for future shallow failures or surficial slumps is considered low.

Soil Creep

Soil creep is the almost imperceptibly slow movement of material due to gravity. Creep generally occurs on slopes mantled with clayey or expansive soils, or weathered bedrock prone to movement. Creep can be episodic, predominately occurring or increasing after periods of rainfall. This phenomenon generally occurs in the upper few feet of material, with no distinct basal failure surface. Based on observations made during surface mapping, the potential for future creep within Planning Areas 1, 4, 5, 9, and 11 is considered to be moderate. The potential for future creep within Planning Areas 2, 3, 6, 7, 8, 10, 12, and 13 is considered to be low.

Debris Flow

Debris flow is a mass of rock fragments, soil, and mud that moves under the influence of gravity and generally occurs during or shortly after a period of intense rainfall. Debris flows are common in the Capistrano Formation, Santiago Formation, Pleasants Sandstone member of the Williams Formation, Holz Shale member of the Ladd Formation, and the Trabuco Formation. Debris flows are less common in the Monterey Formation, Sespe Formation, Silverado Formation, and the Schulz Ranch member of the Williams Formation. Debris flows are infrequent to rare in the San Onofre Breccia and Topanga Formation, and the Baker Canyon member of the Ladd Formation. The potential for debris flows is moderate to high in Planning Areas 2 through 4 and 6 through 9; and low to moderate in Planning Areas 1 and 5.

4.4.3 IMPACTS

Thresholds of Significance

For the purposes of this Program EIR, impacts would be considered significant if the project would:

- Expose people or structures to major geologic hazards (e.g., earthquakes, expansive soils, liquefaction, subsidence, unique geologic feature or landslides/mudslides) and/or permit development in areas of unsuitable geologic conditions.

- Result in substantial erosion or the loss of topsoil associated with grading activities.

Impacts

Seismic Ground Shaking

Impact 4.4-1: *Development on the project site would be subject to ground shaking associated with seismic activity.*

There are no known active or potentially active faults that cross the project site and the site is not located in an Alquist-Priolo Earthquake Fault Zone. Ground rupture is not expected. The project site, as with most of southern California, is located in a seismically active region and ground shaking is expected. This is considered a significant impact.

Slope Stability

Impact 4.4-2: *The project has the potential to expose persons and structures to on-site landslides.*

Implementation of the proposed project would require approximately 288,461,000 cubic yards (cy) of cut and fill, inclusive of 153,235,000 cy of mass grading and 135,226,000 cy of remedial grading. The conceptual grading plan for the project is depicted in Exhibit 4.4-11. Review of Seismic Hazards Maps of the project site (source: California Geological Survey) indicates that portions of the project site are within a zone of required investigation for earthquake-induced landslides. Areas with a zone of required investigation does not conclude that a landslide is present but include "areas where previous occurrence of landslide movement or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacement…" This is considered a potentially significant impact prior to the implementation of remediation, as addressed in the following analysis.

Planning Area 1. Twenty-two landslides in the Capistrano and Monterey formations have been mapped within the proposed limits of development for Planning Area 1 (Table 4.4-3). These landslides range in size from one to 42 acres, and vary in depth from 25 feet to 157 feet. Approximately 14,250,000 cubic yards (cy) of cut and fill grading (4,500,000 cy of mass grading, and 9,750,000 cy of remedial grading), balanced within Planning Area 1 would be required. Grading in Planning Area 1 would require stabilization or buttressing of planned cut slopes. The large landslide complex located north of Ortega Highway and west of Antonio Parkway would require extensive corrective grading and slope stabilization. This grading can be accomplished through conventional grading techniques, including, but not limited to, slope stabilization, buttressing, angle reduction, and/or partial or complete removal of landslides. Maximum fill slope height at a 2:1 (horizontal to vertical) ratio would be 80 to 100 feet. Specific recommendations for fill slope construction including maximum fill slope height would be determined based on more detailed project-level field investigation, laboratory testing, geotechnical analyses, and review of engineered grading plans. These requirements are applicable to each planning area proposed for development.

Planning Area 2. Thirty-two landslides have been mapped within the limits of development for Planning Area 2. These landslides range in size from less than one to up to eight acres; the majority are less than one acre in size. Most of these failures are shallow and contain native soil, colluvium, and weathered bedrock. For purposes of the Program EIR, a shallow landslide is defined as being less than 25 feet in depth. Two larger landslides (i.e., greater than two acres in areal extent) are visible in the northeastern portion of Planning Area 2. Limited subsurface investigation of these two landslides indicates a landslide depth of approximately 30 to 35 feet. Available literature suggests that these landslides are transitional failures along or subparallel to bedding. One large landslide (approximately 123 acres), located between Planning Areas 2 and 10, is approximately 35 to 70 feet in depth. This landslide is anticipated to have occurred because of severe fracturing and faulting of the bedrock formations adjacent to and within the Cristianitos fault zone.

Approximately 37,300,000 cy of cut and fill would be required (18,650,000 cy each of mass grading and remedial grading), balanced within Planning Area 2. West-facing cut-slopes would require buttressing. All surficial units are highly susceptible to erosion with the exception of the terrace deposits and the perched soil horizon that caps some of the ridges. All cut-slopes are expected to require stabilization to reduce erosion because of the granular nature of the bedrock materials. Buttressing and slope stabilization can be accomplished using conventional grading techniques. Maximum fill slope height at a 2:1 (horizontal to vertical) ratio would be greater than 80 to 100 feet.

Planning Area 3. Eighteen landslides are mapped within the proposed limits of development for Planning Area 3. These landslides vary in size from less than one acre to approximately six acres; most are less than one acre in size. Based on the size and morphology of the landslides, most of the failures are shallow involving native soil, colluvium, and weathered bedrock.

Approximately 75,800,000 cy of cut and fill grading (42,400,000 cy of mass grading, and 33,400,000 cy of remedial grading), balanced within the planning area, would be required. Grading will require stabilization or buttressing. All westerly-facing cut slopes are expected to require buttressing to mitigate adverse bedding orientations. All surficial units are highly susceptible to erosion with the exception of the terrace deposits and the perched soil horizon that caps some of the ridges. Cut slopes that expose sandstone are expected to require stabilization or buttressing to prevent erosion or raveling of slope faces. Where the Mission Viejo fault may be exposed in the cut slope, stabilization would be required to mitigate the fractured nature of the bedrock. Cut slopes that expose landslide debris would require stabilization to prevent slope failure. Corrective grading and slope stabilization can be accomplished using conventional grading techniques.

In Planning Area 3, fill material consists of silty sands and sandy silts derived from surficial materials and bedrock of the Santiago, Silverado, and Williams formations. Maximum fill slope height at a 2:1 ratio would be greater than 80 to 100 feet.

Planning Area 4. There are no landslides mapped within the limits of proposed development for Planning Area 4. Grading would require approximately 3,244,000 cy of cut and fill (2,000,000 cy of mass grading, and 1,244,000 cy of remedial grading), balanced within Planning Area 4. Stabilization or buttressing would be required. All westerly-facing cut slopes are expected to require buttressing to mitigate adverse bedding orientations. Cut slopes that expose sandstone are expected to require stabilization or buttressing to prevent erosion or raveling of slope faces. Corrective grading and slope stabilization can be accomplished using conventional grading techniques. Fill material would consist of silty sands and some sandy silts derived from the surficial materials and the Pleasants Sandstone member and the Schulz Ranch member of the Williams Formation. Maximum fill slope height at a 2:1 ratio would be greater than 80 to 100 feet.

Planning Area 5. Planning Area 5 is underlain by bedrock of the Santiago Formation with small areas underlain by bedrock of the Monterey, Topanga, and San Onofre Breccia formations along its western boundary. In general, these units dip gently toward the west. The Cristianitos Fault Zone is located along the western boundary of Planning Area 5. Geotechnical reports and field investigations indicate the bedrock units along the western boundary of Planning Area 5 are moderately well-fractured proximate to the Cristianitos Fault Zone. This fracturing of the bedrock has weakened the bedrock units in this area and resulted in the multiple landslides adjacent to the fault zone.

Four landslides or landslide complexes have been mapped within the proposed limits of development for Planning Area 5. A landslide complex is a mappable area of landslides that includes multiple landslides. Within the limits of development, these landslides or landslide complexes vary in size from 11 to 149 acres. These large landslides have been mapped along the western margin of Planning Area 5 proximate to the Cristianitos fault zone. They are considered deep-seated failures with the landslide planes approximately 50 to 120 feet in depth. One very deep and areally extensive landslide complex is located across the boundaries of Planning Areas 5, 11, and 13 at the northern portion of Planning Area 5. This landslide complex extends outside of Planning Area 5 to the north beneath Ortega Highway and into San Juan Creek. Available documentation suggests that this landslide complex has experienced multiple episodes of failure and has a landslide rupture surface depth greater than 200 feet. All

landslides in Planning Area 5 are expected to have been caused by severe folding, fracturing, and faulting of bedrock formations adjacent to and in the Cristianitos fault zone.

Approximately 60,200,000 cy of cut and fill (25,200,000 cy of mass grading, and 35,000,000 cy of remedial grading) would be required. West-facing cut slopes and cut slopes in landslide debris of the planning area would require buttressing. Design cut slopes at other orientations are expected to require stabilization to reduce erosion. Buttressing and slope stabilization can be accomplished using conventional grading techniques with the exception of the very deep and areally extensive landslide complex previously addressed. Maximum fill slope height at a 2:1 ratio would be greater than 80 to 100 feet. Specific recommendations for fill slope construction including maximum fill slope height would be determined based on more detailed project-level field investigation, laboratory testing, geotechnical analyses and review of engineered grading plans. With respect to the very deep landslide complex, conventional grading would not be considered feasible because of the mapped horizontal and vertical extent of this landslide.

As previously addressed, Planning Area 5 currently contains a small man-made lake used in association with ongoing silica mining operations. The water level within the lake is maintained at a minimum distance of approximately 20 feet below the dam crest. This man-made lake would be removed prior to grading of the planning area.

Planning Area 6. Most of Planning Area 6 is underlain by sandstone of the Santiago Formation. No landslides have been mapped in this planning area. Approximately 9,345,000 cy of cut and fill (5,845,000 cy of mass grading, and 3,500,000 cy of remedial grading) would be required and would be balanced within the planning area. All westerly-facing cut slopes are expected to require buttressing to mitigate adverse bedding orientations. Cut slopes exposing sandstone are expected to require stabilization or buttressing. Corrective grading and slope stabilization can be mitigated using conventional grading techniques. On-site materials generated for fills would consist of silty sands and sandy silts from surface soils and the Santiago and Silverado formations. Maximum fill slope height at a 2:1 would be greater than 80 to 100 feet.

Planning Area 7. Most of Planning Area 7 is underlain by friable sandstone and siltstone of the Santiago and Silverado formations. Four landslides have been mapped within the limits of proposed development for the planning area. These landslides vary in size from approximately seven to 17 acres. Based on the size and morphology of these landslides, they appear to be relatively deep-seated landslides with failure surfaces estimated at 35 to 50 feet in depth.

Approximately 38,412,000 cy of cut and fill grading (24,000,000 cy of mass grading, and 14,412,000 cy of remedial grading) would be required. Cut slopes affected by these constraints are expected to require stabilization or buttressing. All west-facing cut slopes and cut slopes exposing sandstone and siltstone or landslide debris are expected to require stabilization or buttressing. Where the Mission Viejo fault may be exposed in a cut slope, stabilization would be required because of the fractured characteristics of the bedrock. Corrective grading and slope stabilization can be accomplished using conventional grading techniques. Material generated for fill in Planning Area 7 would consist primarily of silty sands and sandy silts from surface soils and the Santiago, Silverado, and Williams formations. Maximum fill slope height at a 2:1 (horizontal to vertical) ratio would exceed 80 to 100 feet.

Planning Area 8. Planning Area 8 contains sandstone of the Santiago and Williams formations; these bedrock units generally dip to the west. Four landslides have been mapped within the proposed limits of development for the planning area. These landslides vary in size from less than one acre to approximately six acres. Based on the size and morphology of these landslides, failures appear to be relatively shallow involving native soil, colluvium, and

weathered bedrock. A drill-hole excavation in one of the landslides in the southeastern portion of the planning area indicates that the landslide was approximately 18 feet deep.

Implementation of development would require approximately 48,141,000 cy of cut and fill (30,141,000 cy of mass grading and 18,000,000 cy of remedial grading). All west-facing cut slopes are expected to require buttressing because of unsupported bedding orientations. Cut slopes that expose sandstone or landslide debris or where the Mission Viejo fault may be exposed would require stabilization or buttressing to prevent erosion or raveling of slope faces. Corrective grading and slope stabilization can be implemented using conventional grading techniques. Material generated for fill in Planning Area 8 would consist primarily of silty sands and sandy silts from surficial materials and bedrock of the Santiago and Williams formations. Maximum fill slope height at a 2:1 (horizontal to vertical) ratio would be greater than 80 to 100 feet.

Planning Area 9. Bedrock units in Planning Area 9 generally dip gently to the west and four landslides have been mapped within the proposed development limits of planning area. The eastern portion of the planning area is underlain by the Trabuco Formation. Within the development area, these landslides vary in size from less than one acre to approximately two acres. Based on the size and morphology of these landslides, they appear to be relatively shallow involving native soil, colluvium, and weathered bedrock. There are larger landslides in Planning 9 outside of the planned development area of up to approximately 25 acres in size. No grading is assumed outside the boundaries of the development area for Planning Area 9.

Implementation of development would require approximately 1,769,000 cy of cut and fill grading, inclusive of 500,000 cy of initial grading, and 1,269,000 cy of remedial grading. Cut slopes are expected to require stabilization or buttressing. All west-facing cut slopes are also expected to require buttressing because of adverse bedding orientations. Cut slopes that expose the Trabuco Formation or landslide debris would require stabilization or buttressing because of the weak characteristics of the material. Corrective grading and slope stabilization can be accomplished using conventional grading techniques. Potential landslide impacts could also be mitigated by avoidance (i.e., relocating estate lots within or adjacent to mapped landslide).

Fill material would consist of silty sands and sandy silts derived from the surficial materials and the Williams, Ladd, and Trabuco formations. It is anticipated that the maximum fill slope height would be constructed at a 2:1 and exceed 80 to 100 feet.

Compressible and Expansive Soils

Impact 4.4-3: *Planning areas contain compressible and expansive soils.*

Collapsible and/or compressible soils are located throughout the planning areas. Surficial deposits, including native soil, colluvium, perched soil, portions of the terrace deposits, landslide debris, and weathered portions of bedrock, are considered collapsible or compressible. Removal and compaction of all collapsible or compressible soils would be required in areas proposed for development.

Expansive soils are also present in most of the planning areas, particularly within the surficial units. Some of the finer-grained units in the Sespe Formation, upper beds of the Santiago Formation, and the finer-grained units in the Williams and Ladd formations are moderately expansive. Some of the beds of the Monterey Formation are expansive, particularly those with bentonite content, as well as in the Silverado Formation, especially those with high clay content. The lower beds of the Santiago Formation, the San Onofre Breccia, and Topanga Formation

generally have low expansion potential. Significant impacts associated with the presence of expansive soils in areas proposed for development can be remediated with proper foundation design.

Many of the planning areas also contain isolated areas of undocumented fill material. Most of this fill material is located along ranch roads, in isolated areas, and in some tributary canyons of the project site. Areas of undocumented fill would need to be removed to expose stable, dense native materials and replaced with engineered fill in areas proposed for development.

Erosion

Impact 4.4-4: *Grading activities would expose soils to erosion.*

All surficial units are highly susceptible to erosion with the exception of the terrace deposits and the perched soil horizon that caps some of the ridges in Planning Areas 2 and 3. Terrace deposits have a low to moderate erosion potential, with sand lenses and unconsolidated beds more likely to be subject to erosion. Perched soil horizons are clay-rich and have a low erosion potential and low permeability. Bedrock of the Monterey, Capistrano, Trabuco, and Silverado formations has high erosion potential. Bedrock of the Sespe Formation has a moderate to high erosion potential because of the friable nature of the material. The Pleasants Sandstone member of the Williams Formation has a moderate erosion potential; the Schulz Ranch member of the formation has a high erosion potential. The upper beds of the Santiago Formation have high erosion potential; the lower beds of the Santiago Formation have low erosion potential. The Holz Shale member of the Ladd Formation has high erosion potential; the Baker Canyon member of this formation has very low erosion potential. Bedrock of the San Onofre Breccia and Topanga Formation has moderately low erosion potential. Areas of moderate to high erosion potential would be subject to potentially significant erosion. This is considered a significant impact. Erodibility can be mitigated during grading using conventional grading techniques such as slope stabilization and construction of drainage devices.

Groundwater and Liquefaction

Impact 4.4-5: *Several of the planning areas proposed for development contain areas of shallow groundwater and development would be susceptible to liquefaction. Potentially significant impacts can be mitigated.*

Liquefaction is an earthquake-induced effect that may cause damage to structures. Liquefaction usually occurs in a cohesionless soil with a high groundwater table, where ground shaking causes the soil to liquefy. Cohesionless soils are generally sandy, coarse-grained, unconsolidated soils with little or no clay content.

Seismic Hazard Zones Maps prepared by the California Geological Survey for the project site indicate that portions of Planning Areas 1 through 13 are within a zone of required investigation for liquefaction and therefore susceptible to liquefaction (Exhibit 4.4-9). Location within a zone of required investigation for liquefaction is not equivalent to the presence of a liquefaction hazard requiring mitigation; it notes that investigation is required.

The Seismic Hazards Mapping Act requires a site-specific geotechnical investigation to evaluate areas delineated as potential liquefaction hazards, and to determine specific mitigation measures for each of these hazards. These investigations would be performed at the grading plan stage of development. Measures to reduce the potential for liquefaction can be achieved

using conventional grading techniques. These methods may include removal and recompaction of soils. Alternate methods may include deep dynamic compaction, dewatering, and stone columns.

Planning Area 1. The majority of the alluvial areas in Planning Area 1 are susceptible to liquefaction according to seismic hazard maps prepared by the California Geological Survey. Groundwater was encountered in drill holes in the alluvium along and adjacent to San Juan Creek and in laterally discontinuous perched zones in landslide debris and the Capistrano and Monterey formations. Groundwater in the alluvium occurs at shallow depths (15 to 25 feet).

Planning Area 2. The majority of the main stem and associated tributaries of Cañada Chiquita in Planning Area 2 are mapped as susceptible to liquefaction according to the seismic hazard maps prepared by the California Geological Survey. Groundwater is present at shallow to moderate depths in Cañada Chiquita and several of the tributary canyons.

Planning Area 3. The majority of the alluvial areas in Planning Area 3 are susceptible to liquefaction. Groundwater was located in drill holes in the alluvium in portions of Cañada Gobernadora. Water occurs in laterally discontinuous perched zones in terrace deposits, landslide debris, and bedrock of the Santiago, Silverado, and Williams formations.

Planning Area 4. The majority of the alluvial areas in Planning Area 4 are susceptible to liquefaction. Groundwater may occur in shallow depths in the major drainages, particularly in the western portion of the site adjacent to San Juan Creek. Water may occur in laterally discontinuous perched zones within terrace deposits, landslide debris, and the Williams Formation. Review of available subsurface exploration indicates no groundwater was encountered in the alluvium south of Ortega Highway. No groundwater data is available for Planning Area 4 north of Ortega Highway. Document review did not report any historical or existing groundwater studies for the area north of Ortega Highway. There is no liquefaction potential in Planning Area 4, south of Ortega Highway; no groundwater has been encountered.

Planning Area 5. The majority of the main stem and associated tributaries of Trampas Canyon in Planning Area 5 is susceptible to liquefaction. However, groundwater monitoring of water levels in Trampas Canyon indicates that water in the alluvium is approximately 40 feet below the existing ground surface. Therefore, the potential for liquefaction is considered low.

Planning Area 6. The canyon bottoms in the southwestern portion of Planning Area 6 are susceptible to liquefaction. Groundwater was encountered in drill holes in the canyon. Groundwater was also observed at depth of 40 to 50 feet in wells in the same area. Water may occur in laterally discontinuous perched zones in landslide debris and the Santiago and Silverado formations.

Planning Area 7. Review of Seismic Hazard Maps for the area indicates that one small tributary canyon at the southern margin of the planning area is within a zone of required investigation for liquefaction. However, geologic mapping of this portion of the site indicate that alluvial materials in this area are no longer present. These materials were removed as a result of historic mining operations. Therefore, the potential for liquefaction within Planning Area 7 is not considered a significant impact.

Planning Area 8. One very small area of Blind Canyon in Planning Area 8 is mapped as being susceptible to liquefaction. Because no development is proposed in Blind Canyon, no impacts are anticipated. Therefore, liquefaction potential within Planning Area 8 is considered negligible.

Planning Area 9. Alluvial areas in Planning Area 9 are susceptible to liquefaction. Groundwater may occur in shallow depths in the major drainages of the planning area, particularly in the areas adjacent to Verdugo and Gabino Canyons. Water may occur in laterally discontinuous perched zones within terrace deposits, landslide debris, and the bedrock formations.

4.4.4 MITIGATION PROGRAM

The following project design features, standard conditions and regulations, and mitigation measures are recommended to reduce potentially significant project impacts.

Project Design Features

PDF 4.4-1 The earth-fill dams located within the boundaries of the development areas that impound the existing on-site reservoirs shall be removed concurrent with grading.

Standard Conditions and Regulations

Many of the standard conditions and regulations are enacted at subsequent levels of approval. The following are the County of Orange Standard Conditions associated with geological resources. These are listed because they would be applicable at subsequent levels of approvals (i.e., grading permits and tract maps). The number of the standard condition is listed in parentheses at the end of each condition.

SC 4.4-1 Prior to the issuance of a grading permit, the applicant shall submit a geotechnical report to the Manager of Subdivision and Grading, for approval. The report shall meet the requirements outlined in the County of Orange Grading Code and Manual. (County of Orange Standard Condition of Approval, G01)

SC 4.4-2 Prior to the issuance of any grading permits, the Manager of Subdivision and Grading shall review the grading plan for conformance with the grading shown on the approved tentative map. If the applicant submits a grading plan which the Manager of Subdivision and Grading determines to show a significant deviation from the grading shown on the approved tentative map, specifically with regard to slope heights, slope ratios, pad elevations or configurations, the Subdivision Committee shall review the plan for a finding of substantial conformance. If the Subdivision Committee fails to make such a finding, the applicant shall process a revised tentative map; or, if a final map has been recorded, the applicant shall process a new tentative map or a site development permit application per Orange County Zoning Code Sections 7-9-139 and 7-9-150. Additionally, the applicant shall process a new environmental assessment for determination by the decision making entity. (County of Orange Standard Condition of Approval, G02)

SC 4.4-3 Prior to the recordation of a subdivision map or prior to the issuance of any grading permit, whichever comes first, and if determined necessary by the County of Orange Manager, Subdivision and Grading, the applicant shall record a letter of consent from the affected property owners permitting off-site grading, cross lot drainage, drainage diversions and/or unnatural concentrations. The applicant shall obtain approval of the form of the letter of consent from the Manager, Subdivision and Grading Services before recordation of the letter. (County of Orange Standard Condition of Approval, G04)

SC 4.4-4 Prior to issuance of grading permits, the Manager of Subdivision and Grading shall determine that the proposed grading is consistent with the grading depicted within the approved planning application. (County of Orange Standard Condition of Approval, G09)

SC 4.4-5 The proposed development shall be designed in compliance with the Uniform Building Code (UBC), accepted industry standards, and the County's earthquake safety Municipal Code requirements.

Mitigation Measures

MM 4.4-1 Prior to the approval of the first tentative tract map in each Planning Area, the applicant shall submit a geotechnical report to the Deputy Director, Planning and Development Services, for approval. The report shall meet the requirements outlined in the County of Orange Grading Code and Manual, and as appropriate, shall adequately address each of the following issues to the satisfaction of the Deputy Director, Planning and Development Services:

a. Locate, define and map the activity status of any faults within the development area of the project site, and if any active faults are encountered, determine the appropriate structural setbacks.

b. Identify and map areas where grading activities may encounter unconsolidated soils (e.g., alluvial deposits, colluvium, native soil, debris flow deposits, etc.) susceptible to soil creep, liquefaction, landslides, or settlement. Define specific measures to be taken when such soils are encountered during grading (i.e., removal and replacement with compacted fill, slope stabilization, etc.).

c. Identify and map areas where fill is to be placed on top of unconsolidated soils (e.g., alluvium, colluvium, landslide debris, etc.). Define specific measures to be taken when such fills are anticipated during grading (i.e., removal and recompaction of unconsolidated soils, settlement monitoring in deep canyon areas, etc.).

d. Locate and map all landslides within the development area of the project site and evaluate the lateral extent, depth and potential instability as a result of grading and the potential effects of settlement due to fill loads. Define specific measures to be taken during grading (i.e., bury under proposed fills, complete or partial removal, slope stabilization, avoidance, etc.).

e. Identify and map areas susceptible to debris flows and surficial slumping, including potential debris flow volumes. Define specific measures to be taken during grading (i.e., removal during mass grading, containment within a debris basin, etc.).

f. Identify and map areas susceptible to expansive soils. Define specific measures to be taken during grading (i.e., pre-saturation of expansive soils during construction, reinforcement of building foundations and concrete slabs, removal and replacement with non-expansive granular soil beneath structures, etc.).

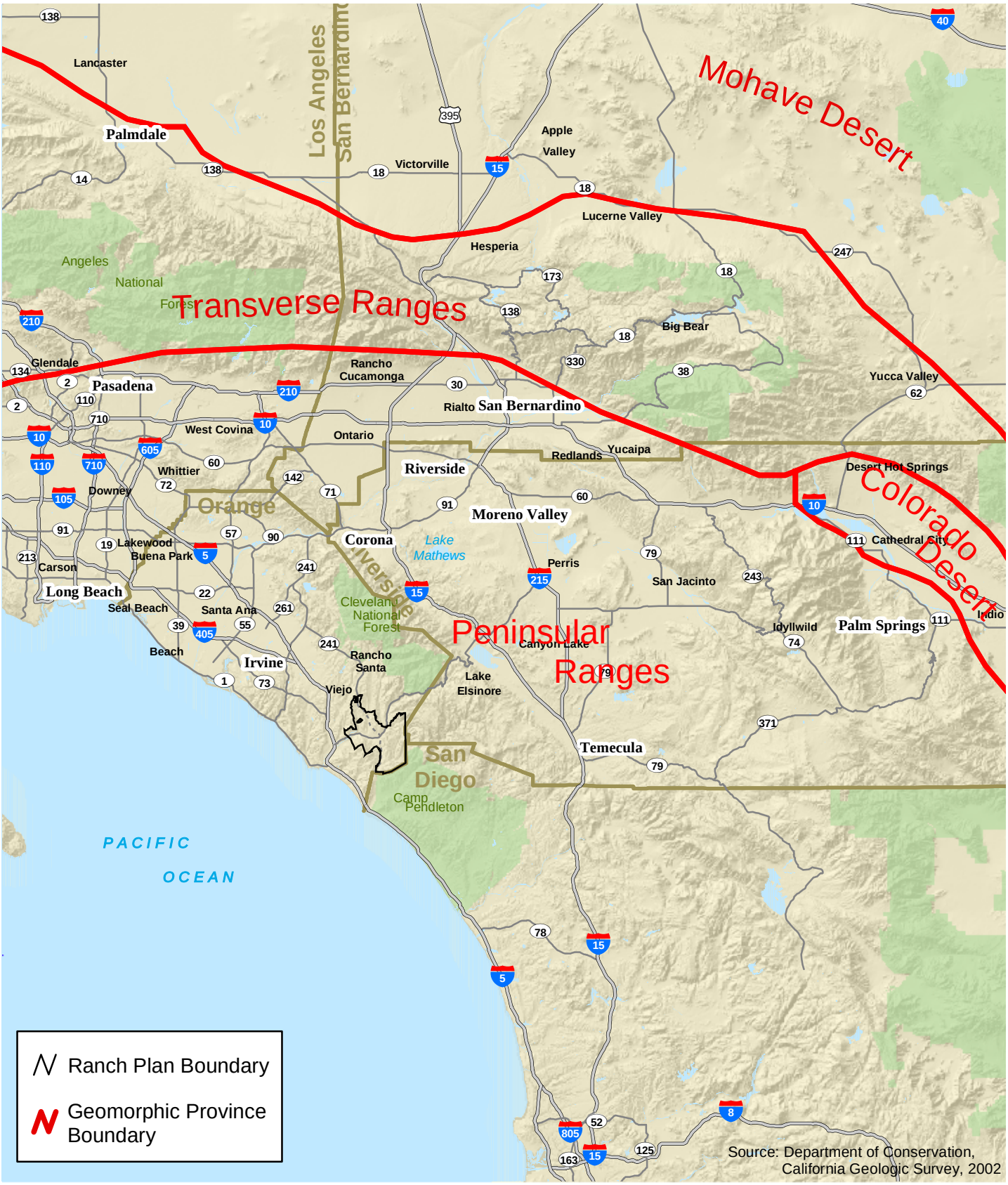
MM 4.4-2 Prior to the approval of the first tentative tract map for Planning Area 9, the applicant shall submit a geotechnical report to the Deputy Director, Planning and Development Services, for approval, and demonstrating that residential development shall be sited to avoid mapped landslides. The report shall meet the requirements outlined in the County of Orange Grading Code and Manual.

Erosion Control

Please refer to Section 4.5, Water Resources.

4.4.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of the Mitigation Program (i.e., project design features, standard conditions and regulations, and mitigation measures), all impacts can be reduced to a less than significant level.



Regional Geologic Setting

Exhibit 4.4-1

The Ranch Plan

N W E S

15 7.5 0 15 Miles

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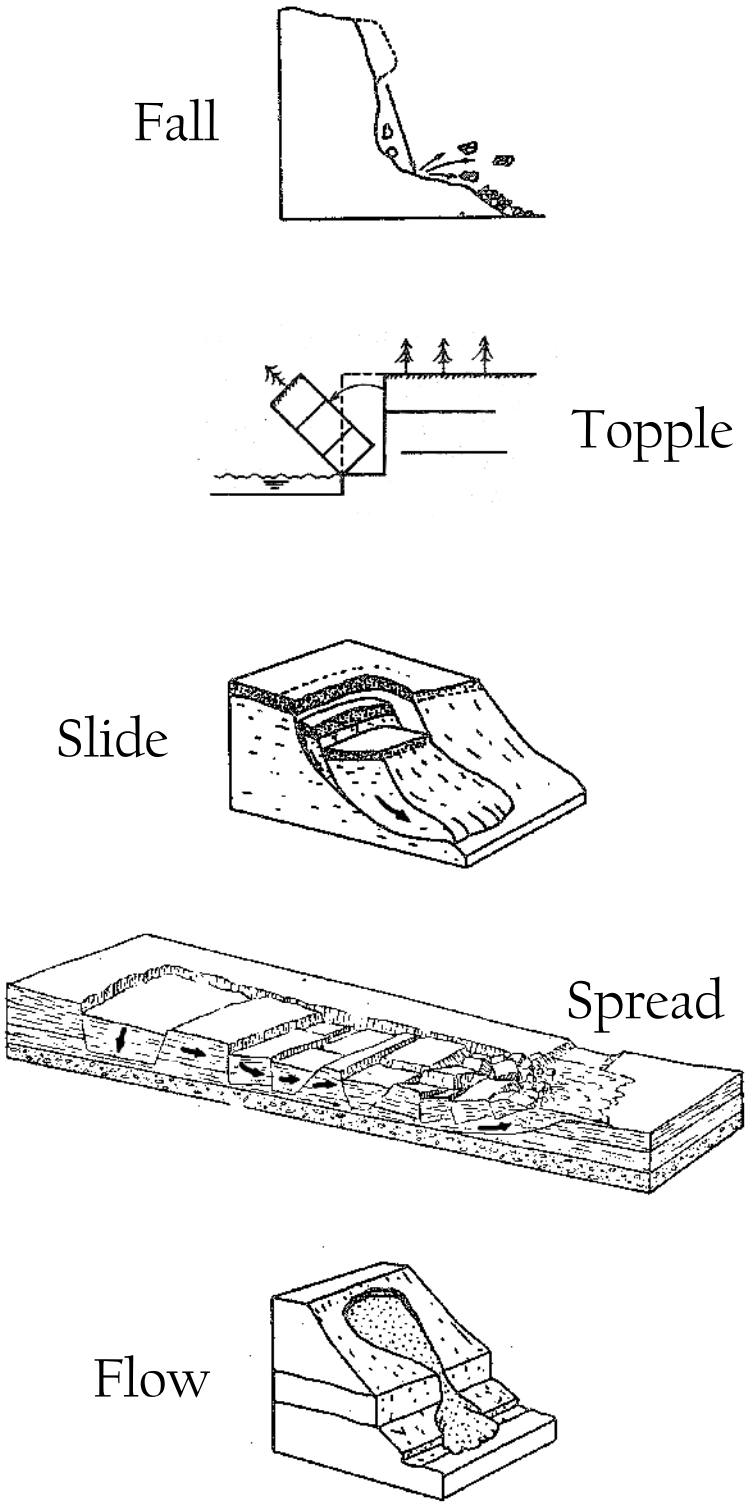


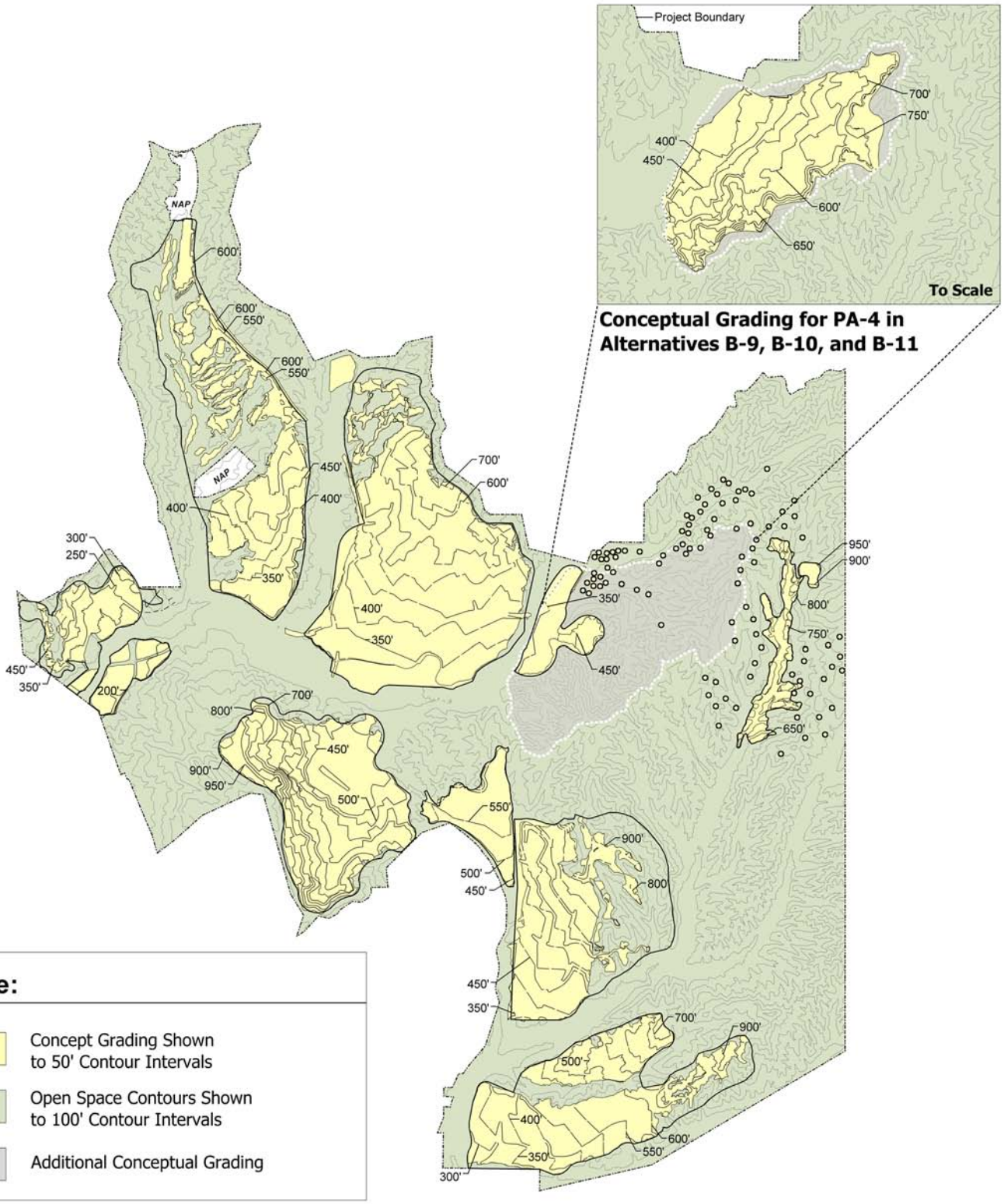
Source: Cruden and Varnes 1996

Landslide Types

Exhibit 4.4-10

The Ranch Plan

S:/GIS_Exhibits/RMVJ008_LStypes_030904.pdf



This is conceptual and subject to change in accordance with zoning requirements and subsequent project design and is only intended as a conceptual footprint of possible grading.

Concept Grading

Exhibit 4.4-11

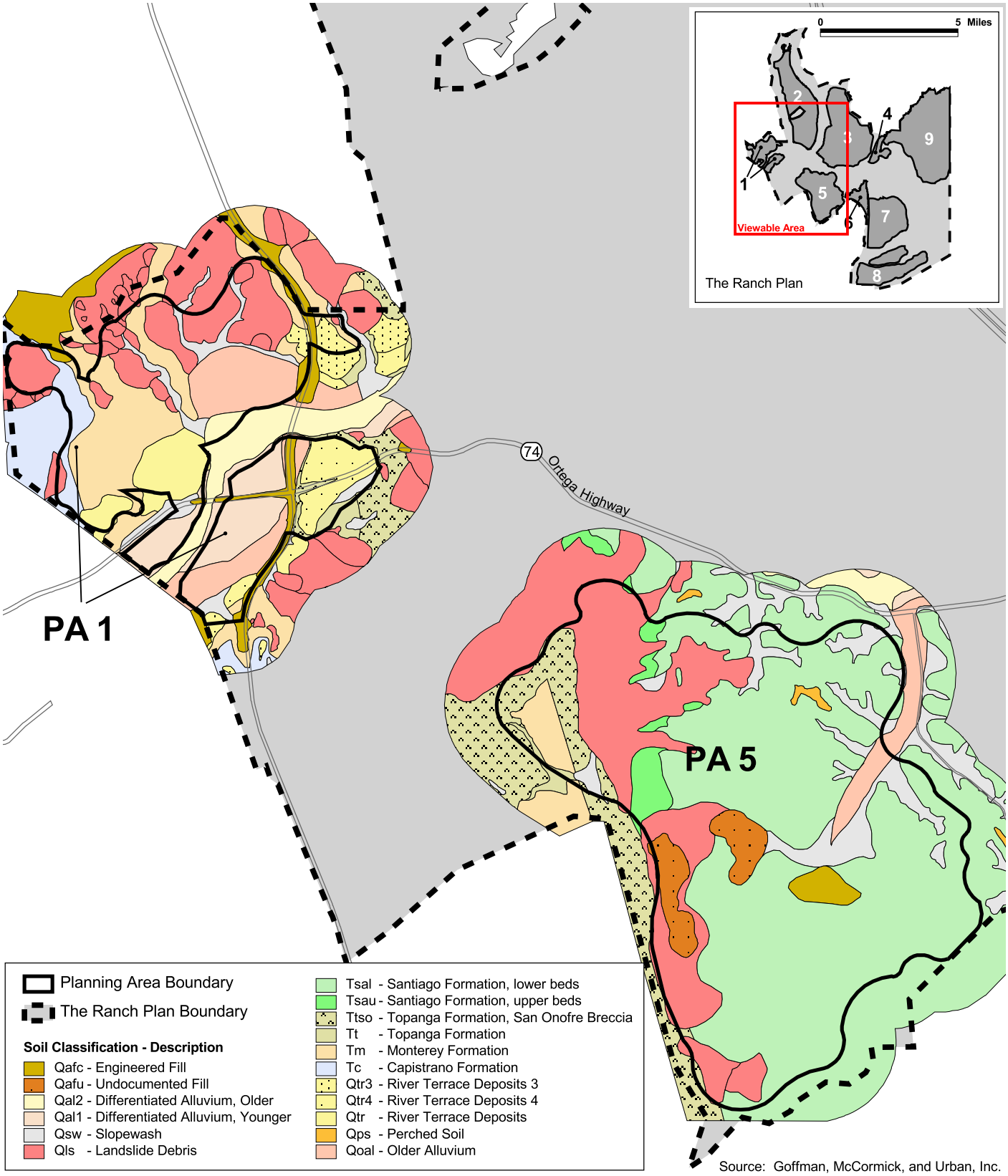
The Ranch Plan

1" = 7,000'

N
W E
S

Source: EDAW, Inc. 2004

R:\Projects\RMVJ008\Ex4.4-11_ConceptGrading_060704.pdf



Source: Goffman, McCormick, and Urban, Inc.

Planning Areas 1 and 5: Local Geologic Setting

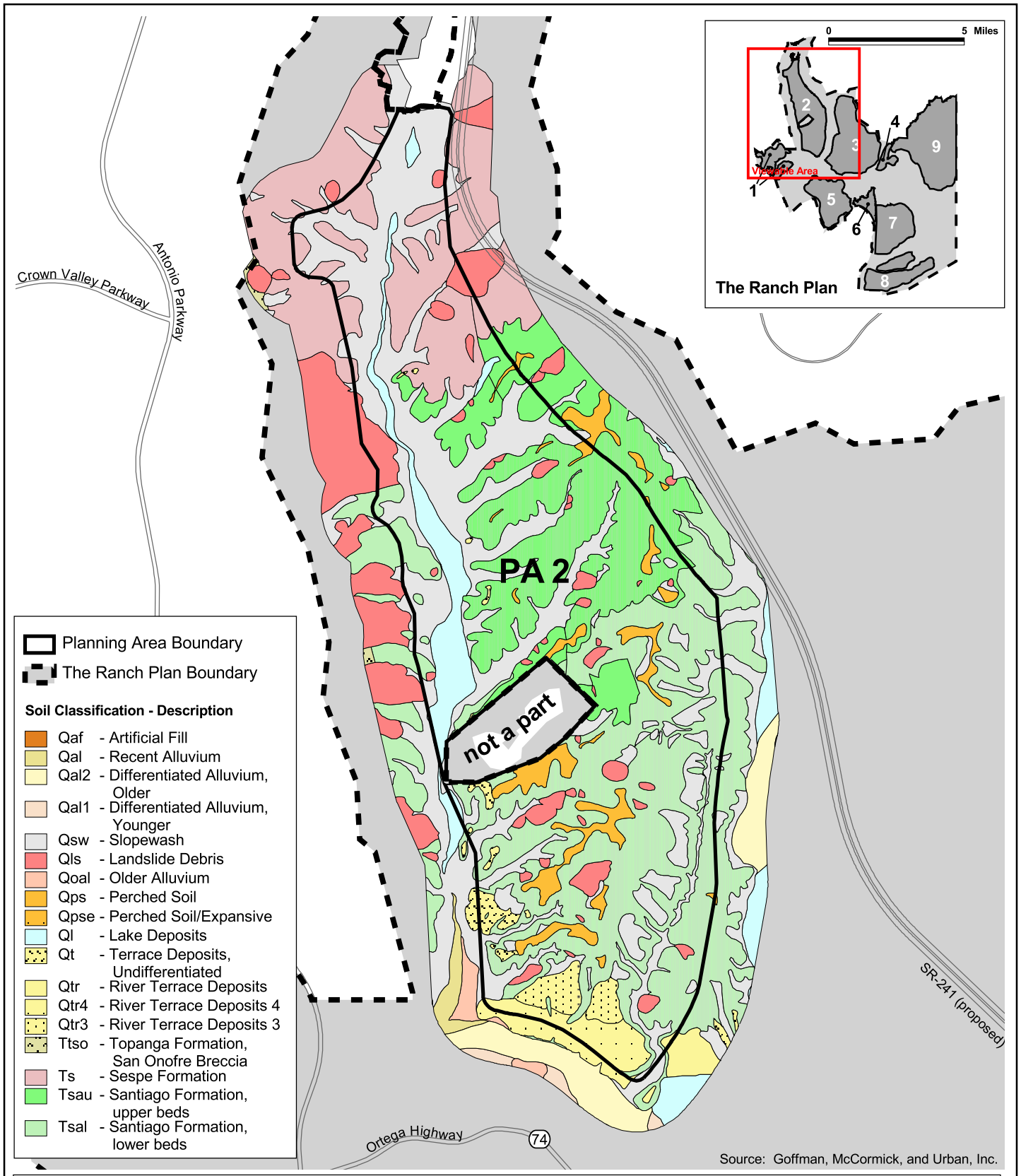
Exhibit 4.4-2

The Ranch Plan

N W E S

0 0.5 1

S:/GIS_Exhibits/RMVJ008_LGS_PA1_5_020404.pdf



Planning Area 2: Local Geologic Setting

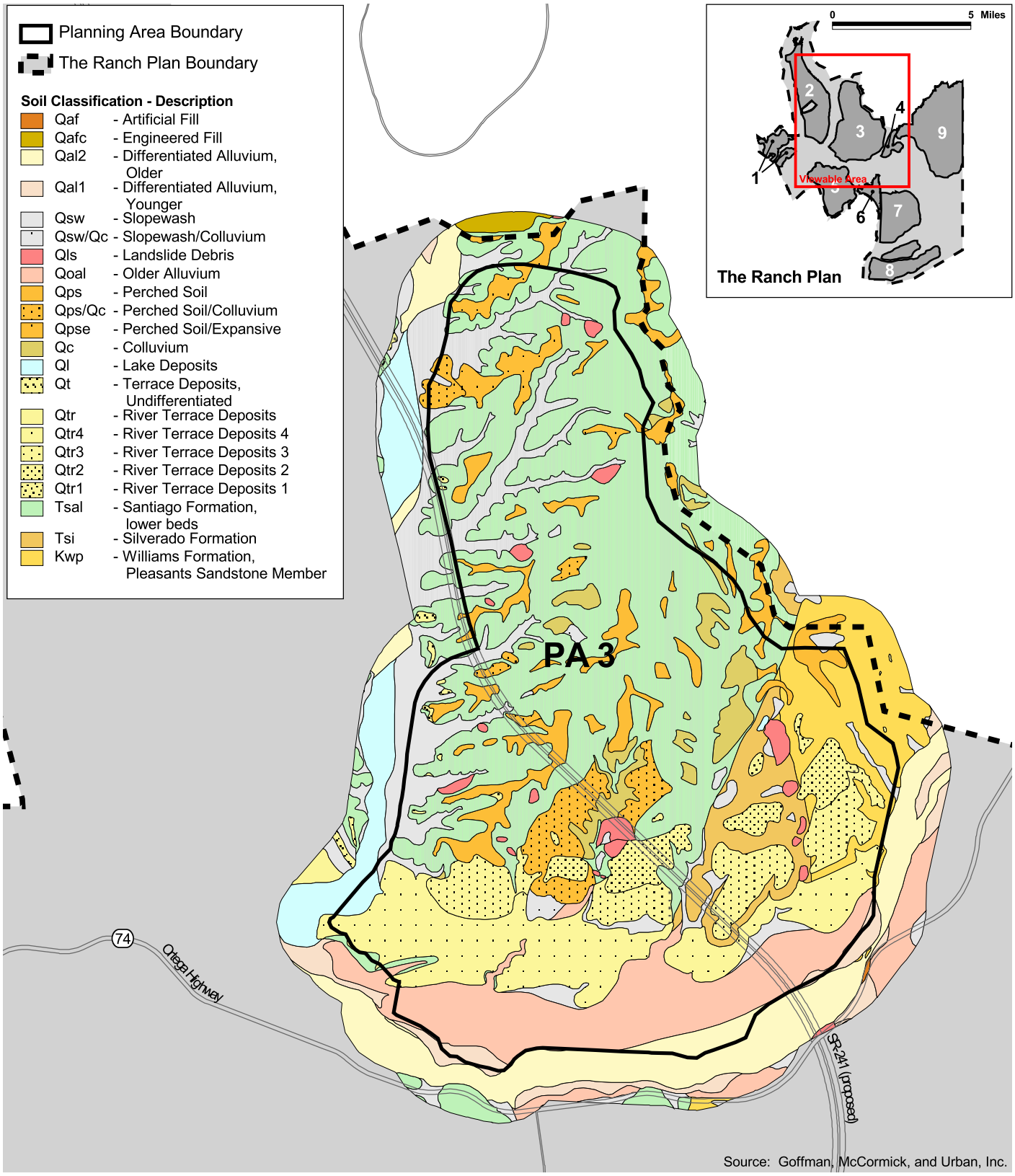
Exhibit 4.4-3

The Ranch Plan

N
W
E
S

0 0.5 1

S:/GIS_Exhibits/RMVJ008_LGS_PA2_020404.pdf



Planning Area 3: Local Geologic Setting

Exhibit 4.4-4

The Ranch Plan

N W E S

0 0.5 1 Miles

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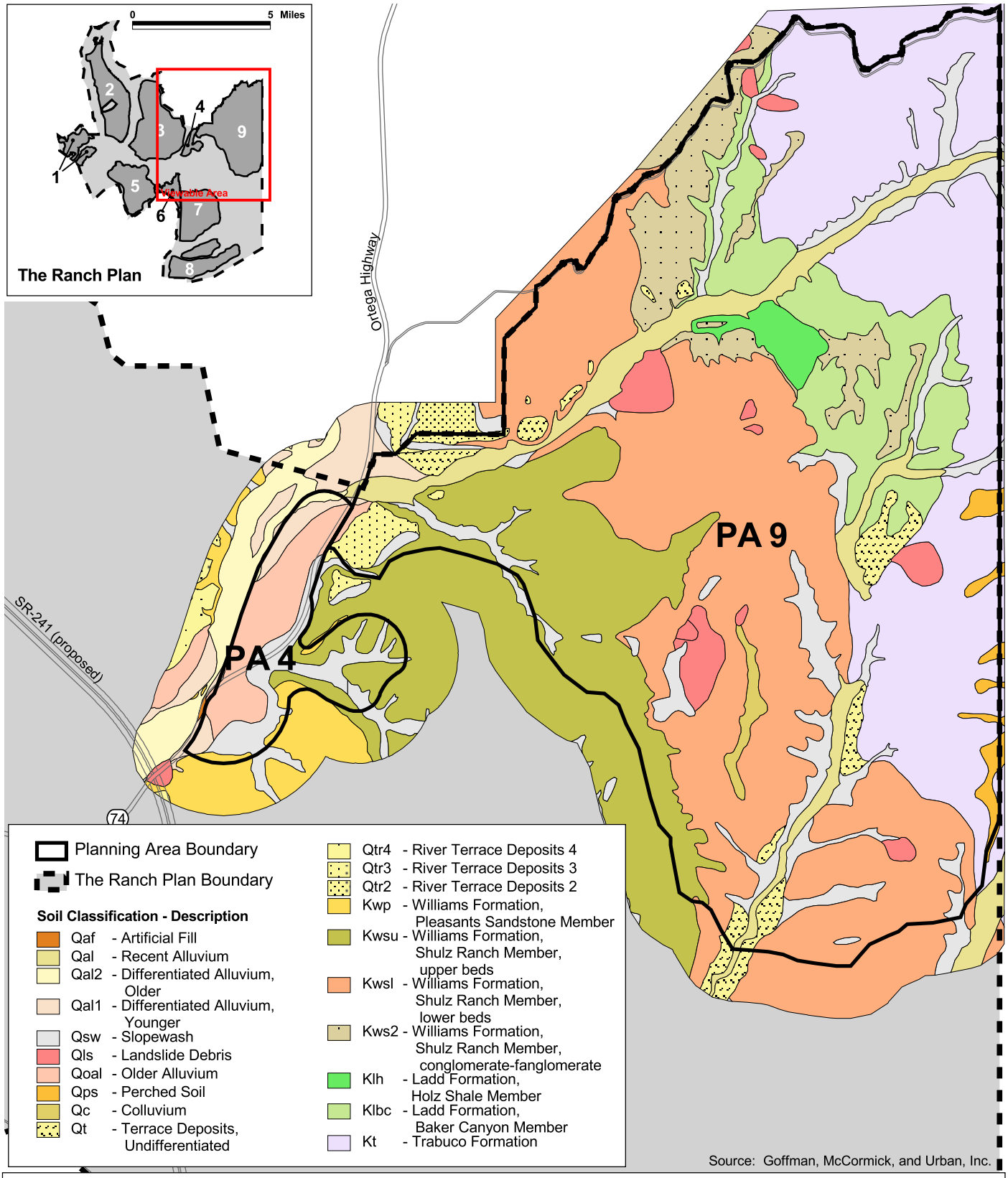


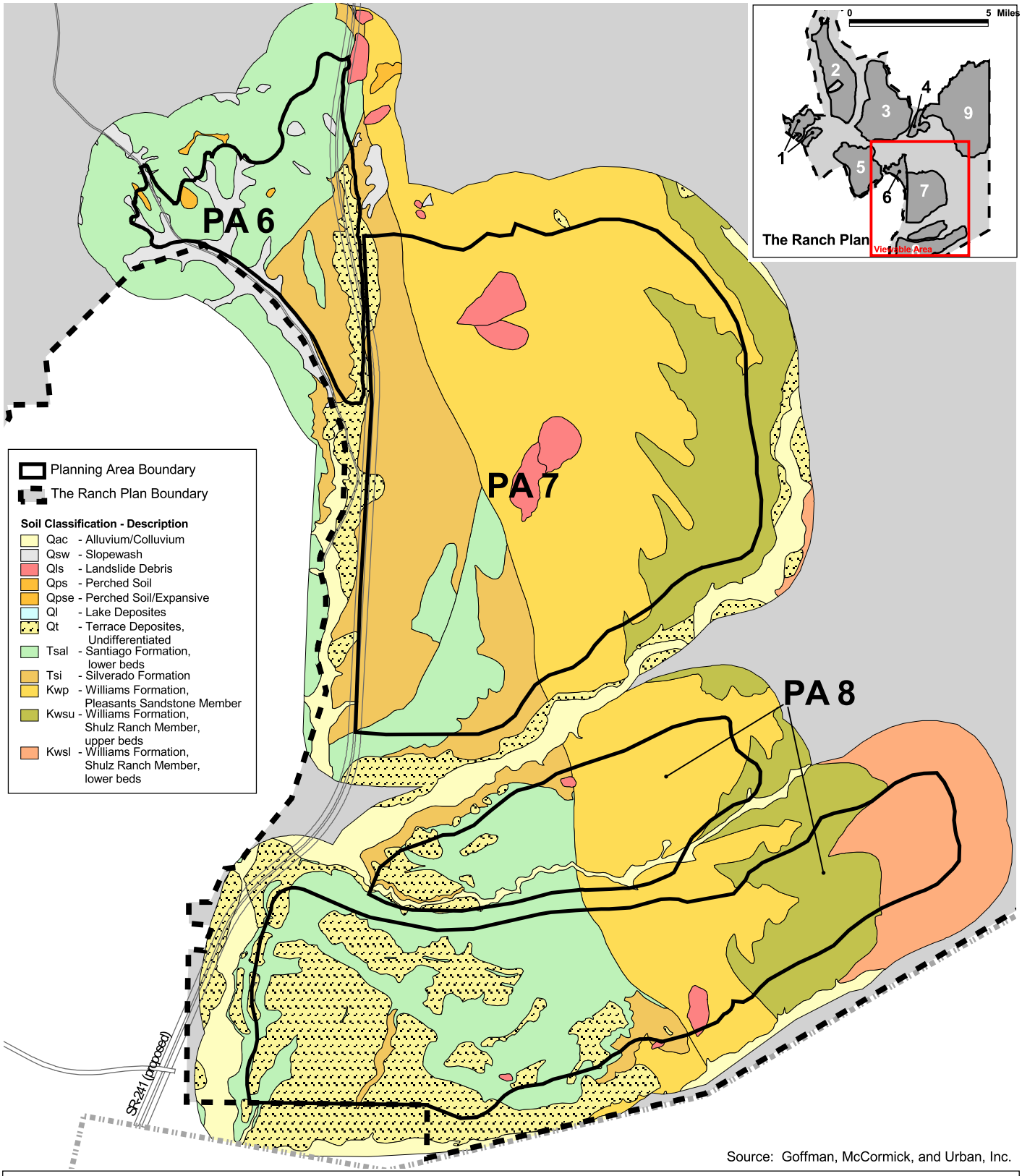
Planning Areas 4 and 9: Local Geologic Setting — Exhibit 4.4-5

The Ranch Plan

N W E S

0 0.5 1

S:/GIS_Exhibits/RMVJ008_LGS_PA4_9a_020404.pdf



Source: Goffman, McCormick, and Urban, Inc.

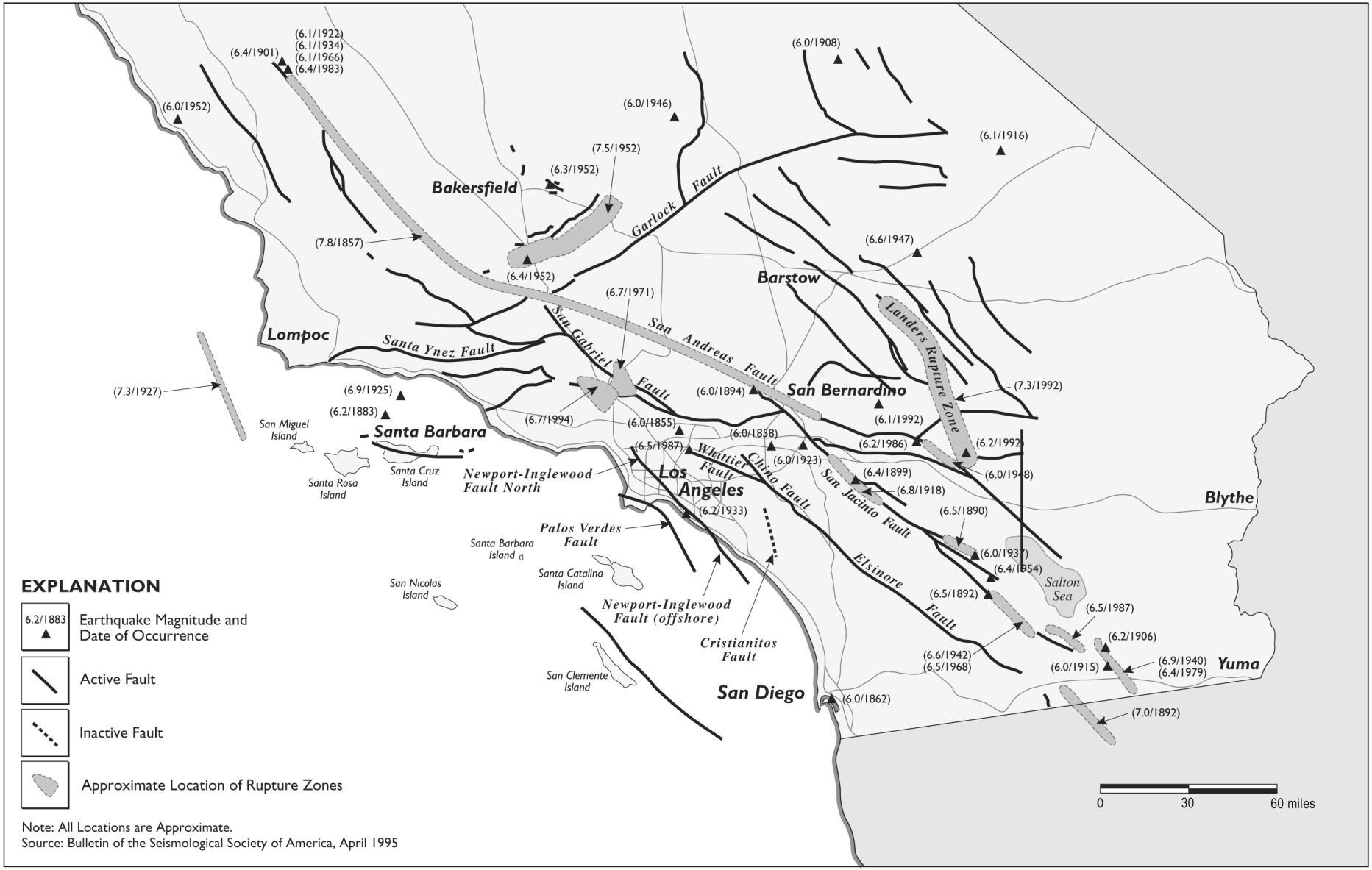
Planning Areas 6, 7, and 8: Local Geologic Setting — Exhibit 4.4-6

The Ranch Plan

N W E S

0 0.5 1

S:/GIS_Exhibits/RMVJ008_LGS_PA678_020404.pdf



Regional Faulting

Exhibit 4.4-7

The Ranch Plan

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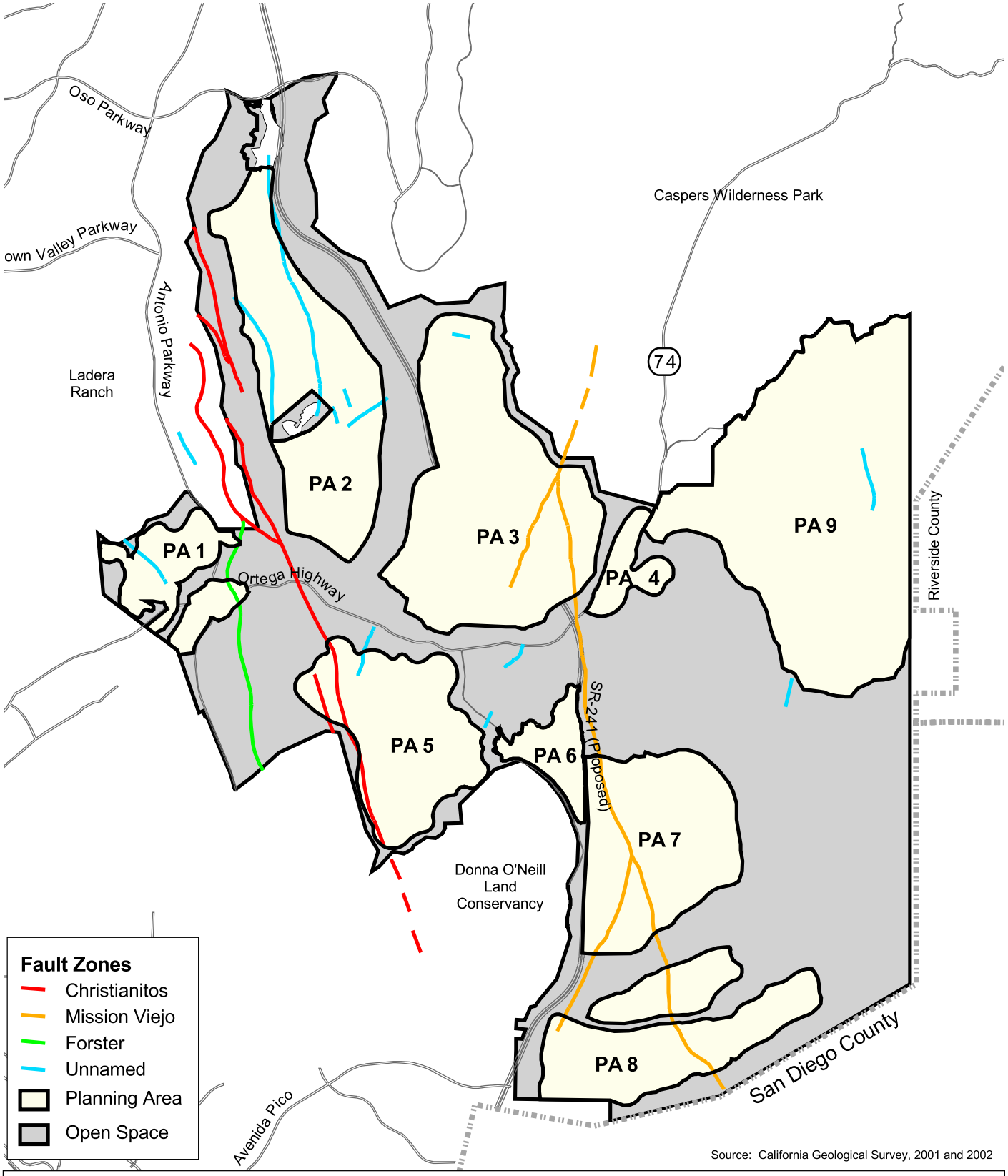

Source: California Geological Survey, 2001 and 2002

Local Faults

Exhibit 4.4-8

The Ranch Plan

N W E S

0 1.25 Miles

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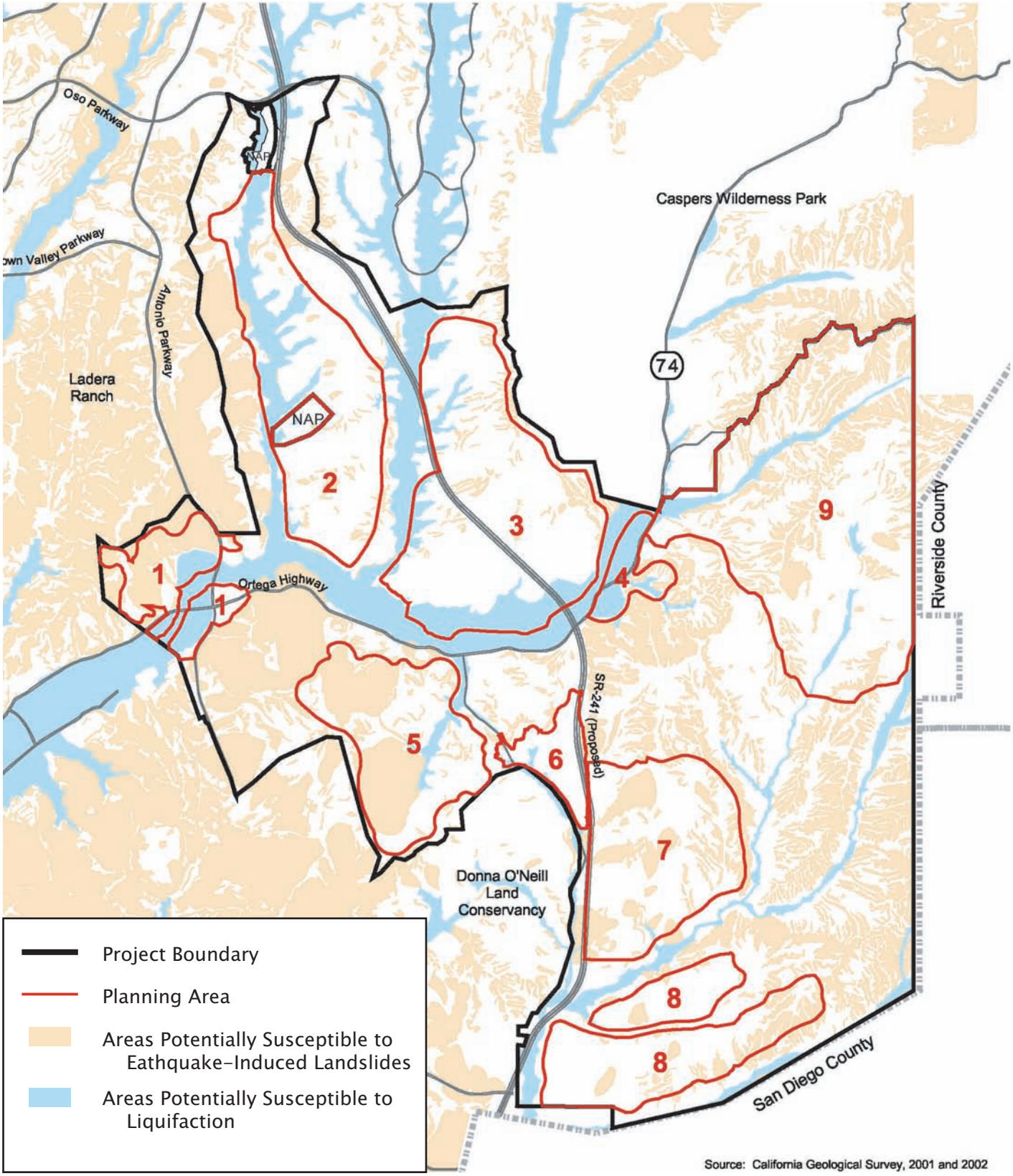

Seismic Hazards

Exhibit 4.4-9

The Ranch Plan

1" = 6,600'

N
W E
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4.5 WATER RESOURCES

This section addresses water resource issues in relation to the proposed implementation of the Ranch Plan project. Specifically, the section addresses hydrology (rainfall-runoff), sediment yield and transport, geomorphology, and water quality in the context of Ranch Plan development. In evaluating these issues, the section includes a detailed assessment of the existing conditions of the project watersheds, a comparison of pre- and post-project conditions, a determination of potential project-related water resource impacts, and recommended measures for mitigating said impacts.

The analysis provided herein is based upon the several reports, data sets and studies prepared by the many engineers, hydrologists, scientists, and professionals who have analyzed the project area and its relevant watersheds/sub-basins. The individual studies and reports utilized and relied upon in the preparation of this section include the following:

- *Draft- Rancho Mission Viejo Water Quality Management Plan,* prepared by GeoSyntec Consultants, Inc. (June 2004), hereafter referred to as the *Draft WQMP*

- *Hydrologic Comparison of Baseline and Alternative Landuse Conditions for San Juan and San Mateo Watersheds,* prepared by Philip Williams & Associates, Ltd. (March 2004)

- *Geomorphological Factors Affecting Sediment Generation and Transport Under Pre- and Post-Urbanization Conditions at Rancho Mission Viejo and in the San Juan and San Mateo watersheds, Orange County, California*, prepared by Balance Hydrologics (May 2004)

- *Baseline Geomorphic and Hydrologic Conditions, Rancho Mission Viejo: Portions of the San Juan and Western San Mateo Watersheds*, prepared by PCR, Philip Williams & Associates, Ltd, and Balance Hydrologics. (February 2002) This report is included as a technical appendix to the prior document.

- *Baseline Hydrologic Conditions, San Juan and Upper San Mateo Watersheds*, Philip Williams & Associates, Ltd. (May 2001)

- *Hydrologic Report to the Baseline Hydrologic Conditions – San Juan and Upper San Mateo Watersheds - Volume 1*, prepared by Huitt-Zollars. (April 2004)

- *Hydrologic Report to the Baseline Hydrologic Conditions – San Mateo Creek (La Paz / Gabino / Cristianitos) – Volume 2*, prepared by Huitt-Zollars. (April 2004)

- *Hydrologic Report to the Baseline Hydrologic Conditions – Trampas Canyon - Volume 3*, prepared by Huitt-Zollars. (April 2004)

- *Hydrologic Report to the Baseline Hydrologic Conditions – Canada Gobernadora - Volume 4*, prepared by Huitt-Zollars. (April 2004)

- *Hydrologic Report to the Baseline Hydrologic Conditions –Canada Chiquita - Volume 5*, prepared by Huitt-Zollars. (April 2004)

- *Detailed Detention Basin Analysis*, prepared by Huitt-Zollars (May 4, 2004)

- *Memorandum – RMV Sediment Yield from Amy Stewart, Setenay Bozkurt, Jeff Haltiner*, prepared by Philip Williams & Associates, Ltd. (May 21, 2004)

- *Memorandum – Impacts on Groundwater Water Quality from Peter Mangarella*, prepared by GeoSyntec Consultants (May 23,2004)

Copies of the individual reports and studies are included in the attached Appendix C.

4.5.1 INTRODUCTION

The Ranch Plan project area is located within the regional watersheds of San Juan Creek and the western San Mateo Creek of Southern Orange County. Rancho Mission Viejo ("RMV") is a participating landowner in the SAMP/MSAA and NCCP/HCP programs. Numerous technical studies and detailed baseline surveys have been prepared to support this effort that encompasses the entire project study area. This detailed data provided the analytical framework to complement the land use watershed planning while maintaining the hydrologic functions of the watershed. Participants in the NCCP/HCP and SAMP/MSAA processes, which included various watershed stakeholders and regulatory agencies, developed a set of draft watershed and sub-basin planning principles ('Watershed and Sub-basin Planning Principles") to assist in preserving the natural processes and functions of the watershed with future development. These principles (see 4.5.3 Regulatory Setting, Related Planning Programs) were used to guide the land use planning of the project to address protection of natural resources and management of the hydrologic functions within the watershed. The technical watershed studies produced for the project (see, in particular, the Draft WQMP at Appendix C) review the consistency of the proposed project with these principles. In addition, the consistency analysis is discussed in detail in the Biological Resources Section (see Baseline Conditions Watershed Principles Consistency Review).

The following is a sequential outline of the content and topics contained in the Water Resources Section, including technical subsections. These subsections identify the study area evaluated in the relevant technical studies/analyses, and describe the methodology utilized in preparing the individual studies/analyses. This outline is intended as a road map to assist in understanding the details contained in this section.

1. INTRODUCTION
    - Study Area
    - Methodology
2. EXISTING CONDITIONS
    - Physical Setting
    - Watershed Sub-Basin Conditions and Characteristics
    - Climatic Conditions
    - Geomorphic Setting
    - Historic Context
    - Existing Floodplain / Stream Characteristics
    - Watershed Surface Hydrology – General
    - Hydrologic Modeling
    - Groundwater
    - Sediment Processes
    - Water Quality
3. REGULATORY SETTING
    - Water Quality Regulations
    - Floodplain Regulations
    - Related Planning Program

4. IMPACTS
    - Thresholds of Significance
    - Project Impacts
    - Surface Runoff
        - Storm Runoff Hydrology – Complex Model
        - Storm Runoff Hydrology – Single Area Hydrograph Model
        - Flood Control Detention Mitigation Basins
    - Sedimentation
        - Sediment Yield
        - Sediment Transport
    - Stormwater Quality Analysis
        - Overview
        - Generalized Impacts
        - Impacts of Pollutants of Concern
            - Total Suspended Solids
            - Nutrient Loads
            - Trace Metals
    - Impacts of Hydrologic Conditions
        - Sizing and Design of Flow Duration Water Quality Basins
        - Water Quality Elements by Sub-basin
5. MITIGATION PROGRAM
    - Project Design Features
    - Standard Conditions and Requirements
        - Drainage / Flood
        - Water Quality
    - Mitigation Measures
6. LEVEL OF SIGNIFICANCE AFTER MITIGATION

Study Area

The Ranch Plan area is encompassed within portions of the two major regional watersheds for San Juan Creek and San Mateo Creek of Southern Orange County, 83 and 17 percent respectively (see Exhibit 4.5-1). These watersheds extend upstream from the Ranch boundary to the Cleveland National Forest and downstream to the Pacific Ocean. The boundaries for these regional watersheds include 176 square miles and 139 square miles of tributary drainage respectively for San Juan Creek and San Mateo Creek. Each of these major regional watersheds includes large tributary sub-watersheds or sub-basins within the Ranch Plan area that were analyzed in detail. The San Juan Creek sub-basins that were analyzed within the project area include Canada Chiquita, Canada Gobernadora, Verdugo Canyon, and Central San Juan Creek (which includes Trampas Canyon). The sub-basins within San Mateo Creek that were analyzed include Gabino Canyon, La Paz, Cristianitos, and Talega. See Exhibit 4.5-2 for illustration of the sub-basin locations relative to the regional watershed and the Ranch Plan project boundary.

Methodology

A variety of project specific studies were performed to provide the preliminary technical evaluation and analysis of the hydrology, geomorphology, water quality, sediment transport/stream stability, groundwater, and drainage requirements in order to assess the baseline conditions and project impacts. These analyses address the physical processes and conditions at the watershed and sub-basin scales that create an analytical framework within which the natural watershed process can be understood. Results of these technical analyses

and modeling were utilized to develop the project design features (PDFs) that provide appropriate mitigation for the project's impacts.

Geomorphology and Terrain Assessment

The analysis of geomorphology and terrains involved primarily a descriptive analysis of the watersheds using existing data on geology, soils, historic data and aerial photos, and past and present land uses. The results of these investigations were used to produce GIS maps showing the constraints and opportunities inherent to each terrain type, such as potential changes in runoff and recharge associated with development in various substrate types.

Hydrology Rainfall-Runoff Analysis

Surface runoff hydrology for the project watersheds was analyzed utilizing three different procedures in order to evaluate different watershed characteristics and provide validation of the results from the studies. These preliminary analyses were conducted at a level of detail corresponding to the level of planning associated with the proposed development plan formulation. The rainfall-runoff modeling procedures included: (1) a complex synthetic hydrograph model for hypothetical rainfall events composed of multiple hydrographs for the various watershed sub-basins (utilizing an industry standard model known as a HEC-1 model) using both County of Orange and ACOE hydrologic criteria, (2) a single area synthetic unit hydrograph analysis representing the total regional watershed drainage area applying Orange County Hydrology Manual (OCHM) criteria, and (3) a continuous rainfall simulation model utilizing many years of historical rainfall data (i.e., USEPA Storm Water Management Model [SWMM]). The synthetic hydrograph models were utilized to assess changes of peak flowrate and runoff volumes along the mainstem of the regional watershed while the continuous rainfall simulation was selected to evaluate modifications to the hydrologic balance. A description of the individual modeling procedures and the assumptions, parameters and variables identified for each is discussed in Appendix C.

Sediment Yield/Production Analysis

Sediment yield represents the potential for the watershed to generate the volume (or mass) of soil that is eroded from the hillsides of a watershed and delivered to the channel via overland flow type processes. The sediment production within the watershed can influence the stability of alluvial stream systems and the amount of sediment delivered for beach replenishment. The Modified Universal Soil Loss Equation (MUSLE) was used to estimate event-based sediment yield from sub-watersheds in the San Juan and San Mateo Creek watersheds. Sediment yields were calculated for existing conditions, for conditions representing the construction phase, and for developed Ranch Plan conditions. The estimates for the total sediment yield were also used to estimate the portion of coarse sediment yield that is more associated with streambed stability and beach replenishment.

Sediment Transport Analysis

The in-channel sediment transport processes were evaluated for both the existing conditions and the developed conditions (Ranch Plan) for nine sub-basins in the San Mateo and San Juan Creek watersheds. SAMWin (windows version for the ACOE software Hydraulic Design package for Channels) was used to calculate peak sediment transport rates and sediment yields during 2-, 10-, and 100-year flow events for several channel reaches in the San Juan and San Mateo Creek watersheds. Peak sediment transport rate is expressed in mass per time (tons/day) and is the capacity of the channel to pass its sediment load. In this analysis, the transport capacity was calculated for the peak discharge.

Water Quality Analysis

In the evaluation and assessment of water quality issues, three primary factors were addressed: 1) wet weather water quality/pollutant loads from rainfall events, 2) dry-weather water quality, and 3) hydromodification resulting in changes to runoff volume and duration.

Wet Weather

An empirical method was used that incorporates measured data of stormwater quality in runoff from specific land use types to compare pre- vs. post-development loads and concentrations for the pollutants of concern. The ideal form of the data is event mean concentrations, which are flow composite samples. Stormwater quality data is quite variable and the preferred sources of data are those where there are sufficient storm events sampled that statistical measures are reliable. Sources of land use runoff water quality data included those collected by (i) Wildermuth Environmental within the Project area, (ii) Los Angeles County (Los Angeles County, 2000), and (iii) Ventura County (VCFCD, 1997 - 2001). Pollutant loads were estimated by combining the water quality data with flow estimates obtained from the SWMM modeling. In addition to predicting runoff water quality, the effectiveness of proposed treatment facilities was predicted.

Dry Weather

The focus of the dry weather analysis is on constituents that tend to be dissolved (e.g., nitrate) or constituents that are as small as to be effectively transported (e.g., pathogens). The analysis conducted for dry weather flows was further simplified because most post-development dry weather flows will be infiltrated in the Flow Duration/Water Quality (FD/WQ) basins, or subsequent downstream facilities prior to any discharge downstream.

Hydromodification Assessment - Water Balance and Flow Duration

A preliminary Water Quality Management Plan (previously identified as the *Draft WQMP*) has been prepared for the developed conditions (Ranch Plan) project following the requirements of the Orange County Drainage Area Management Plan (DAMP). The DAMP requires a preliminary WQMP and ultimately approved project level WQMPs. Additional information on the WQMP content and general requirements is presented in more detail under Section 4.5.5, Mitigation Program, including PDF 4.5-3, SC 5-8, and SC 5-9. One of the ultimate goals of the *Draft WQMP* is to manage the overall balance, termed "***water balance***," of all the hydrologic components of the water cycle in order to reduce the potential for hydromodification. The water balance concept is a useful accounting tool for evaluating and controlling the effects of land use changes on hydrology. A water balance, like a checkbook balance, is intended to show the balance between the "deposits," which include precipitation and irrigation, and "withdrawals," which include (1) infiltration into the soils, (2) evapotranspiration and (3) water which runs off the surface of the land. This latter "withdrawal" is called surface runoff and occurs during storm events or wet weather conditions. The water balance is a monthly accounting of how precipitation and irrigation water becomes distributed among (a) surface runoff, (b) groundwater infiltration that contributes to base flows in streams or deep groundwater recharge, and (c) evapotranspiration. A conceptual schematic of the water balance model elements is shown on Exhibit 4.5-3.

Managing the frequency and duration of flows is referred to as "***flow duration matching***" and consists of matching the post-development flow duration conditions with pre-development conditions. This matching is achieved through appropriate sizing of a flow duration basin and the design of the water outlet structure. In order to achieve flow duration matching, "***excess flows***," defined as the difference in runoff volume between the post-development without

controls condition and the pre-development condition, must be captured and either infiltrated, stored and recycled, or diverted to a less sensitive stream or stream reach (all proposed diversions will be subject to County approval).

4.5.2 EXISTING CONDITIONS

Physical Setting

The entire Rancho Mission Viejo project boundary is encompassed within two larger regional watersheds, San Juan Creek and San Mateo Creek, that extend further upstream of the project and ultimately outlet downstream beyond the project boundary at the ocean (see Exhibit 4.5-1). The two regional watersheds contain, partially or entirely, several different tributary streams of sub-basins. As previously indicated, the San Juan Creek sub-basins that were analyzed within the project area include Canada Chiquita, Canada Gobernadora, Verdugo Canyon, and Central San Juan Creek (which includes Trampas Canyon). The sub-basins within San Mateo Creek that were analyzed include Gabino Canyon, La Paz, Cristianitos, and Talega. Exhibit 4.5-2 depicts the sub-basin locations within the regional watershed, and Exhibit 4.5-4 depicts all the major streams within the regional watershed systems. Detailed analyses were prepared to evaluate various hydrologic and geomorphic characteristics of the sub-basins which included: 1) description of local relief and topographic factors; 2) a geologic classification of the formations and surficial characteristics of the materials that comprise the sub-basin; 3) a classification of drainage complexes that characterize the sub-basin (stream classifications); 4) percentage composition of permeable and impermeable soils; 5) a description of existing uses; 6) description of watershed “drainage density” and the effect on watershed rainfall response; 7) generalized description of how existing and future constituents in water are predicted to occur in surface and sub-surface flows. Additional watershed hydrologic characteristics are summarized in Tables 4.5-1 and 2.

San Juan Creek

The San Juan Creek watershed is located in southern Orange County, California. The watershed encompasses a drainage area of approximately 176 sq. mi. and extends from the Cleveland National Forest in the Santa Ana Mountains to the Pacific Ocean at Doheny State Beach near Dana Point Harbor. The upstream tributaries of the watershed flow out of steep canyons and widen into several alluvial floodplains. The major streams in the watershed include San Juan Creek, Horno Creek, Bell Canyon Creek, Cañada Chiquita, Cañada Gobernadora, Verdugo Canyon Creek, Oso Creek, Trabuco Creek, and Lucas Canyon Creek. Elevations range from over 5,800 feet above sea level at Santiago Peak to sea level at the mouth of San Juan Creek (Corps, 1999).

The San Juan Creek watershed is bounded on the north by the Santa Ana River, Santiago Creek, and Aliso Creek watersheds, and on the south by the San Mateo Creek watershed. The Lake Elsinore watershed, which is a tributary of the Santa Ana River watershed, is adjacent to the eastern edge of the San Juan Creek watershed.

San Mateo Creek

The San Mateo Creek watershed is located in the southern portion of Orange County, the northern portion of San Diego County, and the western portion of Riverside County. The watershed is bounded on the north and west by the San Juan Creek watershed, to the south by the San Onofre Creek watershed, and to the northeast by the Lake Elsinore watershed. San Mateo Creek flows 22 miles from its headwaters in the Cleveland National Forest to the ocean just south of the City of San Clemente. The total watershed is approximately 139 sq. mi. and lies mostly in currently undeveloped areas of the Cleveland National Forest, the northern portion

of Marine Corps Base Camp Pendleton (MCBCP), and ranch lands in southern Orange County (Lang et al., 1998). Major (named) streams in the watershed include Cristianitos Creek, Gabino Creek, La Paz Creek, Talega Creek, Cold Spring Creek, and Devil Canyon Creek. The study area includes only the portion of the San Mateo Creek drainage within Orange County (approximately 17 percent of the watershed). Elevations range from approximately 3,340 feet above sea level in the mountains of the Cleveland National Forest to sea level at the mouth of San Mateo Creek.

Watershed Sub-basin Conditions and Characteristics

San Juan Creek Watershed

Canada Chiquita

Cañada Chiquita is the northwestern-most full sub-basin located in the project study area and has a catchment area of 9.24 sq. mi. that is aligned north-to-south. Local relief (from ridgetop to channel) gradually increases southward in this watershed, reaching a maximum of about 500 feet. Cañada Chiquita is the downstream-most major tributary before the confluence of Trabuco Creek, near Mission San Juan Capistrano. Approximately 60 percent of the San Juan Creek watershed lies upstream of the confluence with Cañada Chiquita.

Cañada Gobernadora

The 11.10 sq. mi. Cañada Gobernadora sub-basin is an elongated valley that is aligned north to south. At 9.7 miles, it is the longest watercourse in the San Juan Creek watershed and represents about 11.6 percent of the total watershed area upstream of the Cañada Gobernadora and San Juan Creek confluence.

Verdugo

The 4.80 sq. mi. Verdugo Canyon watershed has roughly an east-west orientation with several tributary channels entering the main valley stream from the north and south. Verdugo Canyon represents approximately 6.3 percent of the San Juan Creek watershed area.

Central San Juan

There is a 7.4 sq. mi. area in the central portion of the San Juan Creek watershed, about ten to 12 miles upstream from the coast (between the mouths of Cañada Gobernadora and Bell Canyon upstream), that contains several small tributary drainages which feed directly into the main stem of San Juan Creek. The central portion of the main stem of San Juan Creek, downstream of Bell, Lucas, and Verdugo Canyons, consists of a meandering river with several floodplain terraces in a wide valley bottom. These catchments represent approximately 7.4 percent of the upstream San Juan Creek watershed area.

San Mateo Creek Watershed

Gabino

Gabino Canyon is 8.3 sq. mi. in size and approximately ten miles long. Along with Talega Canyon, it represents one of the largest sub-basins in the upper San Mateo Creek watershed. Its size, along with its position high in the watershed, and steep terrain produce the highest absolute peak flows and runoff volumes in the upper San Mateo Creek watershed. This sub-basin contains approximately 6% of the San Mateo Creek watershed area.

La Paz

La Paz Creek is the major tributary drainage to Gabino Creek, and the two sub-basins share many common characteristics. Approximately two-thirds of the 7.3 sq. mi. La Paz sub-basin is located within the RMV boundary. The La Paz sub-basin represents approximately 5.2% of the San Mateo Creek watershed area

Cristianitos

The 3.7 sq. mi. Cristianitos Canyon drainage basin is located upstream of the confluence with Gabino Creek and represents approximately 2.7% of the San Mateo Creek watershed area.

Talega

The Talega Canyon drainage (approximately 8.3 sq. mi. in size) straddles the boundary of Rancho Mission Viejo and Camp Pendleton. Approximately one-third to one-half of the Talega Canyon drainage basin lies within the project boundary, most of which is occupied by the existing Northrop Grumman facilities. This sub-basin accounts for approximately 6 % of the San Mateo Creek watershed area.

Climatic Conditions

The Mediterranean climate in Southern California is characterized by brief, intense storms between November and March. It is not unusual for a majority of the annual precipitation to fall during a few storms in close temporal proximity to one another. The higher elevation portions of the watershed typically receive significantly greater precipitation due to the orographic effect of the Santa Ana Mountains. In addition, rainfall patterns are subject to extreme variations from year to year and longer term wet and dry cycles. The combination of steep, short watersheds, brief intense storms and extreme temporal variability in rainfall results in “flashy” systems where stream discharge can vary by several orders of magnitude over very short periods of time. Southern California is characterized by wet and dry cycles, typically lasting up to 15 to 20 years. The study area appears to be emerging from a wetter-than-normal cycle of years beginning in 1993. See additional discussion of wet/dry cycles below.

Geomorphic Setting

Regional Geology

The San Juan and San Mateo Creek watersheds are located on the western slopes of the Santa Ana Mountains, which are part of the Peninsular Ranges that extend from the tip of Baja California northward to the Palos Verdes peninsula and Santa Catalina Island. The geology of the region is complex and has been dominated by alternating periods of depression and uplift, mass wasting, and sediment. Younger sedimentary rocks comprise the bedrock between the Santa Ana Mountains, their foothills, and the Pacific Ocean. Most of the study watershed area is underlain by these marine and non-marine sandstones, limestones, siltstones, mudstones, shales, and conglomerates, many of which weather, erode, and/or hold groundwater in characteristic ways. Overlying them are Quaternary stream terrace deposits and Holocene stream channel deposits.

Terrains

Terrain designations are largely based on soils, geology and topography, as these provide many of the fundamental factors that influence the hydrology and geomorphology characteristics of each terrain. There are three major geomorphic terrains found within the San

Juan Creek and San Mateo Creek watersheds, namely: (a) sandy and silty-sandy; (b) clayey; and (c) crystalline. These terrains are manifested primarily as roughly north-south oriented bands of different soil types, and the terrains are graphically depicted on Exhibit 4.5-5.

Runoff Patterns and Channel Characteristics of Specific Terrains

Runoff patterns typical of each terrain are affected by basin slope, configuration of the drainage network, land use/vegetation, and, perhaps, most importantly the underlying terrain type. Although all three terrains Exhibit fairly rapid runoff, undisturbed sandy slopes contribute less runoff than clayey ones because it is easier for water to infiltrate into the coarser substrate. Runoff in crystalline terrains tends to be rapid and is highly influenced by the presence and density of coverage of impervious areas of rock outcrop that typify the terrain. As a result, the volume of runoff generated by the same amount and intensity of rainfall in a sandy watershed is generally lower than that generated in a clayey or crystalline watershed. When comparing clayey and crystalline terrains, the former seals and becomes impervious upon saturation, while the latter allows for some infiltration through shallow sands that overlay bedrock. Therefore, runoff in clayey terrains is generally more rapid than in crystalline terrains, not withstanding site-specific differences such as slope and land cover/vegetation.

Sandy and silt-sandy terrains are generally able to infiltrate larger volumes of water than are clayey and crystalline terrains. As a result: (a) sandy terrains play a vital role in groundwater recharge; (b) undisturbed sandy terrains are typified by lower runoff rates than clayey or crystalline terrains; (c) stream valleys in undisturbed sandy terrains tend to have wide floodplains and are often channel-less; (d) flows tend to persist longer after storms or further into the summer within sandy watersheds; and (e) there is a greater contrast between runoff conditions in undeveloped and urbanized watersheds in sandy terrains than in clayey or crystalline terrains. Of the three terrains present in the San Juan Creek watershed, streams in sandy terrains are the most vulnerable to channel incision or channel widening associated with land use changes.

Historic Context

Physical and biological conditions in the watersheds have been affected over time by both natural and anthropogenic forces. Natural events that have helped shape the current conditions in the watershed include wet and dry cycles, flooding and fires. Anthropogenic effects include changes in patterns of water use, urban development, mining, grazing, and agriculture. The spatial and temporal effect of key historical events is based on not only the scale of the event, but the timing relative to other events.

Wet and Dry Cycles

Wet and dry cycles, typically lasting up to 15 to 20 years, are characteristic of southern California. The region presently appears to be emerging from a wetter-than-normal cycle of years beginning in 1993. Previously, five consecutive years of sub-normal rainfall and runoff occurred in 1987 through 1991, which is illustrated on Exhibit 4.5-6.

Prior droughts of recent note include the brief, “hard” droughts of 1976 to 1977 and 1946 to 1951. Previous notable wet periods of the recent past were observed in 1937 to 1944 and 1978 to 1983. An unusually protracted sequence of generally dry years began in 1945 and continued through 1977. During this period, rainfall was approximately 25 percent below the average for the prior 70 years (Reichard, 1979; Lang et al., 1998). Both recharge and (especially) sediment transport were diminished to even greater degrees. Although wet years did occur during this period, dry conditions were sufficiently persistent to lower groundwater levels and contract the extent of riparian corridors. In many areas, landslide activity was much less than during strings

of wet years. Throughout Chiquita and Gobernadora canyons, many of the channel segments that may have cut across debris aprons formed by the 1938 floods and subsequent wet years may have re-filled during this period.

Floods

Major, flood-related disturbance of the channel and riparian systems may be expected with mean recurrences of ten to 20 years. Large floods occurred in coastal southern California in 1907, 1916, 1937, 1938, 1969, 1978, 1983, 1993, 1995, and 1998. Historical accounts of the 1916 flood indicate that San Juan Creek extended fully across the valley downstream from the mission and what is now Highway 5 (Corps, 1999). Peak runoff values were estimated to be in the range of 104 to 151 (cfs/mi.^{2}) for Aliso, Trabuco, San Juan, and San Onofre Creeks, and 234 cfs/mi.^{2} for Laguna Creek at Laguna Beach in a more clay-rich watershed. No data are available for either flood from San Mateo Creek or its major tributaries. The February 1969 peak flows were long-duration events, which eventually generated peak flows of 22,400 cfs at the La Novia gauging station in San Juan Capistrano, the highest reported flow prior to general urbanization in the watershed. (Note: In 1969, this stream gauge was not located in its current location at the La Novia bridge.) The January and March 1995 events led to peaks of 15,200 cfs and 25,600 cfs, respectively, the latter being the largest flow recorded on San Juan Creek. Five distinct major crests were observed in February 1998, with a peak flow of 17,000 cfs.

Watershed Scale Fires

Nearly all portions of the two watersheds have been subject to watershed-scale fires from one to three times (and in limited areas, four or five times) during the past century (Fife, 1979; Stephenson and Calcarone, 1999). The primary hydrologic effects of the fires are sharp increases in sediment yields and often aggradation in the channel. It should be noted that not all areas falling within a mapped fire periphery have actually been burnt. Generally, north-facing slopes and riparian corridors are much less likely to burn, and other areas may be affected only by a rapidly moving (and less destructive) ground fire. Pockets of soil and vegetation which have survived for many decades (or perhaps centuries) without high-intensity burning occur throughout the two watersheds. Much of the eastern San Juan Creek watershed was last burned in 1959. The combination of this fire and the subsequent 1969 floods (described above) may have resulted in considerable deposition within the channels and floodplains, which have subsequently incised for many years.

Existing Floodplain / Stream Characteristics

Streams within the San Juan and San Mateo Creek watersheds can be roughly divided into four different categories, based on bed sediment type affecting sediment transport, bank stability, habitat value and sensitive species use. These categories are based on observations made during various field studies within the project area, with said categories thereafter generalized to reach-scale descriptions of bed conditions and interpreted using regional geology and soils information. These generalizations were developed to provide a basis for the hydrology and sediment-transport modeling, as well as evaluate restoration potential and to highlight channels that are most likely to be susceptible to incision or other impacts caused by hydromodification.

The Chiquita, Gobernadora, Trampas, upper Cristianitos, and upper Gabino channels (along with several smaller tributaries of the central San Juan Creek sub-basin) are predominantly sand-bedded, with little or no gravel or cobble content in the bed material. Lower Gabino, La Paz, Bell, and the upper portions of San Juan, Verdugo, and Lucas creeks within or adjacent to Rancho Mission Viejo are predominately gravel-cobble bedded streams with coarse sand. The portion of the San Juan Creek channel downstream from the Gobernadora Canyon confluence, and Cristianitos Creek downstream of the Gabino confluence, is generally composed of sand

with significant gravel and cobble content. The San Juan Creek channel upstream of Gobernadora Canyon has a compound bed, with moderately-resistant bedrock exposed in several places along San Juan Creek between the mouths of Verdugo and Gobernadora Canyons.

Watershed Surface Hydrology – General

San Juan Creek

Drainage Network

Hydrologically, the San Juan Creek watershed can be organized into three regions: (1) the western portion of the watershed, with the highly developed Oso Creek sub-basin and the moderately developed Trabuco Creek sub-basin; (2) the relatively undeveloped sub-basins of the central San Juan Creek watershed (i.e., Cañada Chiquita, Cañada Gobernadora, Bell Canyon, Lucas Canyon, Trampas Canyon and Verdugo Canyon); and (3) the steeper eastern headwater canyons. The drainage density of the entire watershed is 10 mi/sq.mi.. Drainage density is the ratio of the total length of streams within a watershed to the total watershed area. A high value would indicate a rapid response by the watershed to rainfall events, and the identified value is low compared to other reports.

Infiltration

Infiltration was estimated using the USDA hydrologic soil group classification. This standard USDA classification is based upon estimated runoff potential based upon soil properties that influence runoff. Soils are classified into hydrologic soil groups, A, B, C, or D, depending upon infiltration rates measured when the soils are thoroughly wet. A-type soils have the highest infiltration rates while D-type soils have the lowest infiltration potential. In general, Type A soils contain a higher proportion of coarser textures (sand and gravel) and/or have a deeper soil profile. These conditions result in good drainage with higher rates of water transmission into the subsurface. In contrast, Type D soils are likely to contain a less permeable restricting clay layer, or are shallow, and this results in slower rates of water transmission into the subsurface. Conditions for B and C type soils are intermediate to A and D type soils.

Generally, infiltration in the San Juan Creek watershed is relatively low, due to the prominence of poorly infiltrating soils (e.g., 79.8 percent of the watershed in underlain by soil types C or D) and the significant proportion of development in the western watershed. However, there are significant pockets of the watershed, particularly in the central watershed, which do have more permeable soils and offer better potential infiltration. The distribution of the hydrologic soil values based on the NRCS (Natural Resources Conservation Service) mapping data is shown on Exhibit 4.5-7. The general watershed characteristics for the San Juan Creek watershed is presented in Table 4.5-1, which included hydrologic soil types and percent impervious areas for the different sub-basins. The watershed delineation for the sub-basins is shown on Exhibit 4.5-9.

The runoff potential of the watershed areas was also evaluated through the Soil Conservation Service (SCS) runoff curve number procedure, which assigns values ranging from 0 to 100, with higher values indicating a greater potential for runoff. The curve number is dependent on hydrologic soil type, impervious area, and vegetative cover (see Exhibit 4.5-8 for the SCS curve number distribution within the San Juan watershed). A relatively high runoff potential for the natural conditions is illustrated by the average curve numbers that range from 74 to 80 in Table 4.5-1.

TABLE 4.5-1
SAN JUAN CREEK WATERSHED PHYSICAL CHARACTERISTICS

Sub-Watershed Region	Area (mi.^{2})	Length (mi)	Elevation (ft)		Percentage Area with Hydrologic Soil Group				Area-Averaged Curve Number (AMC II)	Impervious Area (%) of Total Sub-Basin
			Max	Min	A	B	C	D		
Lucas Canyon	7.17	7.99	3,022	430	3.62	0.17	48.57	47.64	78.60	0.20
Verdugo Canyon	4.80	6.02	2,487	358	8.30	1.25	61.81	28.63	74.80	0.05
Bell Canyon	5.12	5.47	4,485	1,178	1.94	0.00	9.15	88.91	82.30	0.00
	9.10	6.86	3,061	584	3.41	2.95	43.29	50.34	78.80	7.44
	6.35	8.86	2,405	358	8.12	5.64	45.83	40.41	74.00	0.02
Area Averages	20.57				4.50	3.05	35.58	56.87	78.20	3.30
Cañada Gobernadora	2.99	3.17	1,237	656	3.43	35.25	54.36	6.96	79.50	29.84
	2.93	4.31	1,050	390	7.37	27.82	60.71	4.11	76.50	12.05
Wagon Wheel Canyon	1.77	3.49	1,063	390	0.69	30.59	62.96	5.76	74.50	1.77
	3.40	4.01	797	230	4.40	19.89	38.90	36.81	79.40	0.26
Area Averages	11.09				4.33	27.83	52.67	15.16	77.88	11.59
Cañada Chiquita	4.58	5.59	1,168	358	0.00	36.55	41.89	21.56	77.70	0.35
	4.66	3.82	656	154	3.27	14.95	31.65	50.13	79.20	1.72
Area Averages	9.24				1.65	25.65	36.73	35.98	78.49	1.04
Central San Juan Catchments	7.42	4.48	892	230	6.07	12.08	52.62	29.24	75.90	3.14
Entire Watershed	175.97				4.74	15.42	27.80	52.04	80.50	21.84

San Mateo Creek

Drainage Network

The 133.2 sq. mi. San Mateo Creek watershed has two principal drainage systems that join in the lower stream valley, 2.7 miles upstream of the ocean. The focus area of the analysis for the Ranch Plan project is the western watershed north of the main stem of San Mateo Creek. The sub-basins of interest include La Paz, Gabino, Cristianitos, Blind, and Talega Canyons upstream of the Cristianitos and San Mateo Creek confluence. Approximately 17 percent of the total runoff in the San Mateo Creek basin emanates from these tributaries (Carlson, pers. comm., 2000). The predicted drainage density for the San Mateo Creek watershed is eight sq. mi. and is a relatively low value compared to other Southern California watersheds.

Infiltration

Infiltration was estimated using the USDA hydrologic soil group classification. Overall, infiltration in the San Mateo Creek watershed is relatively low due to the prominence of poorly infiltrating soils (e.g., GIS mapping indicates that 89.8 percent of the watershed is underlain by soil types C or D and is shown on Exhibit 4.5-10 for the distribution of hydrologic soil types). However, there are pockets of the watershed, particularly in the upper western watershed, which do have more permeable soils and offer higher infiltration. SCS runoff curve numbers were also determined for the watershed to quantify infiltration for the hydrology analysis and this value provides a general indicator of runoff potential. The distribution of the runoff curve number is shown on Exhibit 4.5-11. The general measured hydrologic watershed characteristics for the San Mateo watershed are summarized in Table 4.5-2.

TABLE 4.5-2
SAN MATEO CREEK WATERSHED PHYSICAL CHARACTERISTICS

Sub-watershed Region	Area (mi.^{2})	Length (mi)	Elevation (ft)		Percentage Area with Hydrologic Soil Group				Area-averaged Curve Number (AMC II)	Impervious Area (%) of Total Sub-basin
			Max	Min	A	B	C	D		
La Paz Canyon	7.25	6.8	2,497	436	6.70	1.72	43.77	47.81	77.0	0.03
Upper Gabino Canyon	5.03	5.82	1,923	436	5.59	7.68	55.72	31.02	74.9	0.00
Lower Gabino Canyon with Blind Canyon	3.28	4.02	1,050	282	3.46	2.54	33.99	60.00	78.4	1.67
Upper Cristianitos Canyon	3.67	3.69	1,007	282	0.63	12.86	43.86	42.66	77.2	< 1.00
Talega Canyon	8.38	10.08	2,438	177	2.91	2.63	18.83	75.63	79.2	0.55
Entire Watershed	133.28	28.81	3,412	0	1.92	8.29	49.31	40.48	78.7	3.917

Source: PWA HEC-1 Analysis, 2000.

Hydrologic Modeling

Complex Hydrograph Model

San Juan Creek

The 2-year, 10-year, and 100-year storm events were analyzed using the HEC-1 model of the San Juan Creek watershed. Total runoff volumes and runoff per unit area for San Juan Creek

at the Pacific Ocean are shown for the three modeled events in Table 4.5-3. Runoff volume per unit area is generally higher for the overall San Juan Creek watershed than it is for the individual sub-basins because the individual sub-basins of the central watershed are generally undeveloped. Increased runoff from the more developed western portions of the watershed increases the overall watershed-averaged runoff volumes.

In general, absolute peak flow rates and volumes are greatest from the largest sub-basins: Bell Canyon in the San Juan Creek watershed and Gabino Canyon in the San Mateo Creek watershed. Peak flows and runoff volumes per unit area are fairly similar for the sub-basins within each watershed. However, discharge per unit area is generally greater for the sub-basins of the San Mateo Creek watershed than for the San Juan Creek watershed. This pattern reflects the steeper slopes and crystalline terrains found in the San Mateo Creek watershed, which are expected to produce larger peaks flows per unit area. Within the San Juan Creek watershed runoff volumes per unit area are lowest for the Chiquita, Gobernadora, and central San Juan Creek sub-basins, which have the sandiest terrains and the highest infiltration rates (i.e., highest relative proportion of Type A and Type B soils).

TABLE 4.5-3
PEAK DISCHARGE ON SAN JUAN CREEK

San Juan Creek	HEC-1 node	Peak Discharge, cfs		
		Existing Conditions		
		2-Year	10-Year	100-Year
D/S of Long Canyon	CSJ10	1,106	3,720	7,103
D/S of Lion Canyon	CSJ24	1,380	4,949	10,430
D/S of Lucas Canyon	CSJ3	1,806	7,348	17,622
U/S of Bell Canyon at Verdugo	CSJ9	1,832	7,531	18,420
at confluence w/central SJ catchments	CSJ13	2,441	10,145	25,304
D/S of Canada Gobernadora	CSJ63	2,502	11,131	28,059
U/S of Canada Chiquita	ERSJ8	2,499	11,111	28,011
D/S of Horno Creek	CSJ20	2,786	13,332	33,190
U/S of Trabuco Creek	LRSJ25	2,782	13,339	33,397
San Juan Creek at Pacific Ocean	CSJ18	3,978	17,614	49,085
D/S = downstream; U/S = upstream				

San Mateo Creek

The 2-year, 10-year, and 100-year storm events were analyzed for the San Mateo Creek watershed using the HEC-1 model and the estimated existing conditions peak discharges are summarized in Table 4.5-4. The individual sub-basins of the western San Mateo Creek watershed have generally higher infiltration conditions and less runoff per unit area than the overall San Mateo Creek watershed rates. Peak discharge per unit area for the San Mateo Creek sub-basins is generally higher than for the San Juan Creek sub- basins due to differences in terrain and slope between the two watersheds. In comparing runoff and discharge between the San Mateo Creek sub-basins, the absolute discharges are highest for the Gabino sub-basin due to its large area; however, discharge per unit area is slightly higher for Cristianitos and La Paz primarily due to their shape and predominance of poorly infiltrating soils.

TABLE 4.5-4
PEAK DISCHARGE ON SAN MATEO CREEK

Cristianitos Creek	HEC-1 node	Peak Discharge, cfs		
		Existing Conditions		
		2-Year	10-Year	100-Year
Upper Gabino	CCC49	534	2,461	4,836
D/S of Gabino Canyon	CCC45	583	2,900	6,444
D/S of Talega Canyon	CCC47	711	3,634	8,556
U/S of San Mateo Creek confluence	CCC43	729	3,868	9,370
San Mateo Creek at Pacific Ocean	CSM46	2,980	13,155	33,228
D/S = downstream; U/S = upstream				

Single Area Hydrograph Model

Procedure Overview

The single area unit hydrograph analysis, following the OCHM guidelines, was performed for various concentration points along the mainstem of Upper San Juan and San Mateo Creeks, Chiquita, Gobernadora, Trampas Canyon, La Paz, Gabino, and Cristianitos. The extent of the watersheds analyzed did not extend beyond the downstream boundary of the project area, unlike the Complex model analysis which extended to the ocean outlet for San Mateo and San Juan Creeks. The analysis generally performed "expected value" (EV) analysis for the 2-, 10-, and 100-year return periods and 100-year "high confidence" (HC). The procedures in the OCHM were calibrated to a single area unit hydrograph; thus, the study prepared a series of single area unit hydrographs along the mainstem of the watershed being analyzed. A rational method hydrology analysis was prepared to estimate the time of concentration for hydrograph lag time. Once the total tributary area within the rational method model exceeded one square mile, then a unit hydrograph was also calculated and the larger flow was used for the channel routing to the next downstream concentration point.

Results

The following tables (Tables 4.5-5 through 4.5-10) present the results of the single area hydrograph modeling which highlight specific calculated characteristics, specifically lag time and the estimated peak discharge and runoff volumes. The tables include the results of the analysis for San Mateo Creek (Tables 4.5-5 and 4.5-6), San Juan Creek (Tables 4.5-7 and 4.5-8), Gobernadora (Table 4.5-9), and Canada Chiquita (Table 4.5-10).

TABLE 4.5-5
SAN MATEO CREEK SINGLE AREA HYDROGRAPH-BASELINE CONDITIONS EXISTING WATERSHED CHARACTERISTICS

Conc. Point Location	Area (acres)	Longest Flowpath (ft)	Expected Value (EV) Lag Times (hours)		
			2-year	10-year	100-year
Ranch Boundary	2,114	18,351	0.59	0.42	0.38
Gabino Canyon	7,790	35,944	1.08	0.70	0.63
Blind Canyon	9,881	46,716	1.42	0.89	0.79
Cristianitos Canyon	12,304	48,106	1.46	0.92	0.80
Ranch Boundary	13022	53,710	1.64	1.02	0.89
Talega Canyon	18,581	56,077	1.73	1.07	0.93

TABLE 4.5-6
SAN MATEO CREEK SINGLE AREA HYDROGRAPH ANALYSIS – BASELINE CONDITIONS HYDROLOGIC SUMMARY

Conc. Point Location	2-year EV		10-year EV		100-year EV		100-year HC	
	Flow (cfs)	Volume (ac-ft)	Flow (cfs)	Volume (ac-ft)	Flow (cfs)	Volume (ac-ft)	Flow (cfs)	Volume (ac-ft)
Ranch Boundary	304	63	1,455	278	2,439	519	3,364	724
Gabino Canyon	444	169	2,857	844	5,292	1,630	7,364	2,302
Blind Canyon	460	217	2,963	1,070	5,486	2,067	7,770	2,913
Cristianitos Canyon	508	264	3,330	1,311	6,294	2,546	8,935	3,589
Ranch Boundary	508	275	3,330	1,392	6,336	2,695	8,935	3,799
Talega Canyon	624	404	4,096	2,054	8,062	3,984	11,528	5,613

TABLE 4.5-7
SAN JUAN CREEK SINGLE AREA HYDROGRAPH – BASELINE CONDITIONS EXISTING WATERSHED CHARACTERISTICS

Conc. Point Location	Area (acres)	Longest Flowpath (ft)	Expected Value(EV) Lag Times (hours)		
			2-year	10-year	100-year
Ortega Highway Crossing	2,446	33,774	1.57	0.92	0.81
Decker Canyon	4,302	33,995	1.58	0.92	0.82
Long Canyon	7,127	35,596	1.61	0.94	0.83
Bear Canyon	9,516	38,140	1.67	0.98	0.86
Lion Canyon	12,821	48,059	1.89	1.11	0.97
Ortega Highway Crossing	17,423	65,104	2.23	1.32	1.14
Hot Spring Canyon	23,888	70,549	2.35	1.39	1.21
Cold Spring Canyon	25,469	72,734	2.41	1.42	1.23
Ortega Highway Crossing	26,855	80,562	2.60	1.54	1.33
Lucas Canyon	32,181	88,566	2.82	1.67	1.43
Bell Canyon – Ranch Boundary	46,437	96,841	3.06	1.80	1.54
Verdugo Canyon	49,892	99,693	3.12	1.84	1.57
Trampas Canyon	53,123	110,849	3.37	1.99	1.69
Canada Gobernadora	61,427	117,144	3.58	2.11	1.79
Canada Chiquita	66,611	123,345	3.77	2.22	1.87
Ranch Boundary	68,205	129,669	3.94	2.32	1.95

TABLE 4.5-8
SAN JUAN CREEK SINGLE AREA HYDROGRAPH ANALYSIS – BASELINE CONDITIONS HYDROLOGIC SUMMARY

Conc. Point Location	2-year EV		10-year EV		100-year EV		100-year HC	
	Flow (cfs)	Volume (ac-ft)	Flow (cfs)	Volume (ac-ft)	Flow (cfs)	Volume (ac-ft)	Flow (cfs)	Volume (ac-ft)
Ortega Highway Crossing	303	161	1,422	638	2,558	1,191	3,548	1,661
Decker Canyon	480	271	2,259	1,111	4,126	2,086	5,749	2,914
Long Canyon	772	499	3,463	1,919	6,408	3,547	8,754	4,922
Bear Canyon	921	627	4,342	2,484	7,968	4,611	10,721	6,405
Lion Canyon	1,131	830	5,044	3,316	9,556	6,074	13,140	8,445
Ortega Highway Crossing	1,240	1,021	5,713	4,174	10,764	7,710	14,815	10,694
Hot Spring Canyon	1,529	1,332	7,046	5,467	13,168	10,119	18,404	14,052
Cold Spring Canyon	1,529	1,343	7,213	5,659	13,463	10,503	18,926	14,597
Ortega Highway Crossing	1,529	1,343	7,213	5,700	13,519	10,675	18,927	14,863
Lucas Canyon	1,545	1,446	7,500	6,401	14,709	12,057	20,621	16,822
Bell Canyon – Ranch Boundary	1,943	1,872	9,035	8,144	17,977	15,436	26,074	21,691
Verdugo Canyon	1,953	1,901	9,226	8,415	18,572	16,036	26,925	22,580
Trampas Canyon	1,987	1,954	9,255	8,606	18,730	16,477	26,943	23,163
Canada Gobernadora	2,067	2,061	9,443	9,211	19,596	17,779	28,242	25,046
Canada Chiquita	2,141	2,155	9,656	9,632	20,187	18,601	28,984	26,243
Ranch Boundary	2,141	2,172	9,658	9,777	20,247	18,871	28,984	26,626

TABLE 4.5-9
CANADA GOBERNADORA SINGLE AREA HYDROGRAPH – BASELINE CONDITIONS

Conc. Point Location	Area (acres)	High Confidence (HC) Lag Times (hours)	100-year HC	
		100-year	Flow (cfs)	Volume (ac-ft)
San Juan Creek	6,983	0.72	7,389	1,918

TABLE 4.5-10
CANADA CHIQUITA SINGLE AREA HYDROGRAPH – BASELINE CONDITIONS

Conc. Point Location	Area (acres)	High Confidence (HC) Lag Times (hours)	100-year HC	
		100-year	Flow (cfs)	Volume (ac-ft)
San Juan Creek	**4,066**	**0.85**	**3,357**	**1,219**

Groundwater

Information on subsurface hydrodynamics in the San Juan and San Mateo Creek watersheds is sparse. Consequently, groundwater flow directions and the locations of key recharge areas were inferred from: (a) the results of the terrains analysis, the hydrogeologic conditions, the surface hydrology modeling, and the water quality analysis; and (b) existing well data and bore logs, earlier technical reports on groundwater conditions in the watershed, detailed investigations from the 1960s by the California Department of Water Resources and local water districts, and portions of the San Diego Regional Water Quality Control Board Basin Plan (*Water Quality Control Plan and Basin Plan)*.

Groundwater pumping in the early part of the twentieth century (through the 1930s) led to seasonal or multi-year draw-down of groundwater levels, compounding the effects of the 1929 to 1935 dry period (Browning, 1934; KEA, 1998). However, by 1963, Orange County made the decision to base future land uses in the southern part of the county on purchases of imported water from the State Water Project and the Colorado River Aqueduct. This decision limited the long-term effect of alluvial groundwater withdrawals to approximately 3,000 to 3,500 acre feet per year pumped by RMV. The San Juan Basin Authority currently pumps groundwater from the aquifers of the lower San Juan Basin; however, high salinity constrains which portions of the aquifer can be used and limits withdrawals. The San Mateo alluvial aquifer has been operated primarily to meet irrigation needs for the past 60 years. Use of groundwater for water supply in adjoining units of Camp Pendleton has been increasing on a sporadic/intermittent basis. Pumping from this aquifer is thought to be met in part from increased deep percolation of runoff in San Mateo Creek and its tributaries, decreasing the length of channel available to sustain riparian vegetation (Lang et al., 1998).

Sediment Processes

Sediment Yield

Sediment yield is the result of all of the erosive processes that take place in a watershed. Many factors affect sediment yield. Among the most significant are geology, topography, rainfall, vegetation, multi-year wet and dry climatic cycles, fires, floods, landslides, and land use. Of these factors, fires, floods, and landslides are all episodic events that interact with the geology, topography, vegetation, and land use to affect the volume and timing of sediment delivery in the study area.

Sediment yields in the San Juan and San Mateo Creek watersheds generally exceed the transport capacity of the inherent streams, a phenomenon that is characteristic of many other arid systems. Some of the less steep sub-basins are supply limited, but this is not the general trend for the larger watersheds. Consequently, San Juan and San Mateo Creeks are generally depositional during large flow events. Approximately 80 percent of long-term sediment yields are produced during a few episodic events. Calculated potential average annual sediment yields for the San Juan Creek watershed range from 1,500 to 6,000 tons/sq. mi. Base sediment yields may increase by factors of approximately 10, 7, 4, and 2 in the first four years following a major fire. In all cases, calculated sediment yields exceed estimated transport capacities by more than a factor of two. Furthermore, the estimated sediment yields do not account for the estimated one billion tons of landslide debris that could be mobilized during a major flood-fire sequence.

Coarse and Fine Grain Sediment Yield

Medium-grained sand and fine gravel are of particular interest in the San Juan and San Mateo Creek watersheds, as these are the types of sediment that are most important for beach supply,

as well as in-stream habitat value. The primary sources of such sediment yield, identified in a comprehensive analysis of the watersheds, are the alluvial deposits found in streambeds and stored on floodplains and in eroding or erodible terrace. These deposits contain considerable amounts of unconsolidated sand and fine gravel that are available by the stream, and supply coarse sediment on a persistent basis.

The introduction of excess fine sediment (finer than coarse sand) to a stream channel is of particular concern due to its potential impacts both on habitat and water quality. Several factors affect the current (pre-project) supply of fine sediment to the creeks which include displacement of native grasses by Mediterranean grasses, and existing landuses such as nurseries, agricultural operations, and cattle grazing. Additionally, there is a high concentration of fine sediment currently emanating from the exposed former clay pits in the Gabino and Cristianitos watersheds, and a significant sediment influx in upper Gabino, at the base of several major debris slides. Further, there is a large supply of sediment that is being transported within Gobernadora Creek from channel erosion in the urbanized upper portion of the Gobernadora watershed. Although this sediment is primarily fine sand, it has caused significant aggradation within the stream channel and has caused the stream to jump its banks and carve a new channel eroding through deposits of sand, silt, and clay, introducing additional fine material into the stream.

Existing Conditions MUSLE Sediment Yield Analytical Estimates

Existing watershed potential sediment generation or sediment yield was estimated through the application of the MUSLE equation and peak storm flows and volumes from the HEC-1 rainfall/runoff model. The erodibility of a soil is a quantitative measure of its susceptibility to erosion and is determined from long-term measurements at standard soil plots. Soil erodibility values were obtained from SSURGO (Soil Survey Geographic database) soil data prepared by the NRCS. Crop management factors (C) describe the ground cover over the soil. The slope length and steepness factors are represented as a combined topographic factor, the LS factor. The erosion control practice factor, P, represents the ratio of sediment loss for various erosion control practices (for example terracing crops) to sediment loss from straight-row farming down the hillslope. A summary of the MUSLE parameters used for the various sub-basins in Table 4.5-11 and the estimated sediment yield results for the 2- and 100-year events are summarized in Table 4.5-12. The yield values generated by MUSLE represent a potential amount of sediment production, but do not account for the ability of the watershed to deliver sediment to the creek. Sediment Delivery Ratios (SDR) were estimated to apply to the MUSLE values and the resulting scaled yields are shown on Table 4.5-13. The calculated MUSLE values generally indicate the total sediment yield which includes both coarse and fine, but coarse sediment yield is of primary interest with regards to stream stability and beach replenishment. The estimated amount of coarse sediment yield delivered to the streams is summarized in Table 4.5-14.

TABLE 4.5-11
MUSLE PARAMETERS – EXISTING CONDITIONS

Sub-Basin #		Soil Erodibility, K	2-year Runoff Volume, Q (ac-ft)	100-year Runoff Volume, Q (ac-ft)	2-year Peak runoff, q_p (cfs)	100-year Peak runoff, q_p (cfs)	Cover Management Factor, C	Length-Slope Factor, LS
Chiquita Canyon	8	0.32	62	837	81	1087	0.860	3.34
	31	0.31	68	878	320	2447	0.132	1.89
Gobernadora	63	0.34	52	652	165	1487	0.162	2.5
Central SJ	13	0.30	75	1273	111	1918	0.076	3.11
	21	0.28	105	879	156	1304	0.030	2.08
Verdugo Canyon	9	0.33	59	907	79	1242	0.071	5.22
Cristianitos Canyon	45	0.25	47	682	146	1542	0.048	1.85
Talega Canyon	47	0.26	156	1818	238	2540	0.065	4
Gabino w/Blind Canyon	48	0.24	49	623	156	1458	0.038	2.09
Upper Gabino	49	0.30	64	928	229	2085	0.058	2.96

TABLE 4.5-12
SEDIMENT YIELD FROM MUSLE - EXISTING CONDITIONS

Sub-Basin #		2-year Sediment Yield (tons)	100-year Sediment Yield (tons)
Chiquita Canyon	8	1,033	18,975
	31	1,978	25,830
Gobernadora	63	2,099	29,441
Central SJ	13	1,056	25,440
	21	380	4,105
Verdugo Canyon	9	1,317	28,453
Cristianitos Canyon	45	297	4,970
Talega Canyon	47	2,327	34,654
Gabino w/Blind Canyon	48	271	3,931
Upper Gabino	49	1,053	16,221

TABLE 4.5-13
SEDIMENT DELIVERED – EXISTING CONDITIONS
(YIELD SCALED WITH SUB-BASIN SPECIFIC SDR)

Sub-Basin #		Sediment Delivery Ratio (percent)	Scaled Existing Conditions	
			2-year Sediment Yield (tons)	100-year Sediment Yield (tons)
Chiquita Canyon	8	57.4	593	10,886
	31	57.1	1,129	14,744
Gobernadora	63	54.4	1,142	16,018
Central SJ	13	51.0	539	12,971
	21	46.6	177	1,914
Verdugo Canyon	9	71.3	939	20,296
Cristianitos Canyon	45	59.8	178	2,973
Talega Canyon	47	73.7	1,714	25,528
Gabino w/Blind Canyon	48	49.5	134	1,944
Upper Gabino	49	70.7	745	11,470

TABLE 4.5-14
COARSE SEDIMENT DELIVERED – EXISTING CONDITIONS
(GREATER THAN 0.075MM)

Sub-Basin #		Percent Fines in Development Footprint (percent)	Existing Conditions	
			2-year Sediment Yield (tons)	100-year Sediment Yield (tons)
Chiquita Canyon	**8**	**35.7**	**381**	**7,004**
	31	**54.5**	**514**	**6,708**
Gobernadora	**63**	**29.3**	**807**	**11,325**
Central SJ	**13**	**30.3**	**376**	**9,045**
	21	**32.8**	**119**	**1,286**
Verdugo Canyon	**9**	**27.1**	**685**	**14,799**
Cristianitos Canyon	**45**	**32.4**	**120**	**2,008**
Talega Canyon	**47**	**40.6**	**1,019**	**15,175**
Gabino w/Blind Canyon	**48**	**39.4**	**81**	**1,178**
Upper Gabino	**49**	**37.9**	**462**	**7,123**

Episodicity

In Central and Southern California, up to 98 percent of the amount of sediment moved in any single decade is often mobilized during one or two intense flow events (Knudsen et al., 1992), a conclusion that is supported by estimates of sediment discharge in Arroyo Trabuco and in San Juan Creek near San Juan Capistrano over a period extending from 1932 to 1968 (Kroll and Porterfield, 1969). The amount of sediment mobilized during an intense flow event is governed by available sources in the watershed, landform, and time since the last major fire.

In-channel Sediment Transport

Peak sediment transport rates were calculated using the SAMwin model (see 4.5.1 Methodology) for each major sub-basin in the study area for the 2-year, 10-year, and 100-year discharge events. Peak transport rates per unit area were also calculated for each of the sub-basins. The Laursen-Madden transport function was used to generate sediment transport rates for general comparison purposes and for use in the landuse alternatives impacts analysis. This transport function has been shown to be a reliable estimate of sediment transport across basins of various substrate types.

San Juan Creek

Absolute peak sediment transport capacities for each major sub-basin during a 100-year flow event were compared. For the Laursen-Madden transport function, Cañada Gobernadora and Bell Canyon had the highest absolute sediment transport rates in the San Juan Creek watershed. This result is likely explained by the relatively large size of these two canyons (11.08 sq. mi. and 20.57 sq. mi., respectively), although Cañada Gobernadora also has a relatively high transport capacity per unit area. After Bell Canyon and Cañada Gobernadora, the main stem of the Central San Juan Creek sub-basin had the next highest absolute sediment transport rate. Peak transport rates from Lucas Canyon were the lowest of the San Juan Creek watershed sub-basins.

Based on the in-channel sediment transport volume results, sediment mass balances were calculated for the four modeled reaches of the main stem of San Juan Creek to assess if the reaches were erosional or depositional. The sediment transport reaches are depicted on Exhibit 4.5-12. Although the magnitude of results varies somewhat for the two selected sediment transport functions (i.e., Laursen-Madden and Laursen-Copeland, which are equations for sediment discharge as function of hydraulic and sediment properties), both functions indicate a general pattern of deposition in three of the four modeled reaches during large flood events. The most downstream reach was predicted to be slightly erosional during extreme flood events. The delivery of sediment from the canyon sub-basins to the main San Juan Creek channel likely plays a significant role in the depositional pattern observed in the three upstream reaches.

San Mateo Creek

In the San Mateo Creek watershed, Gabino Canyon (upstream of the Cristianitos Creek confluence) was calculated to have the highest sediment transport capacity. This absolute rate is the highest of all modeled sub-basins in the San Juan and San Mateo Creek watersheds and is similar in magnitude to rates calculated for Gobernadora and Bell Canyons in the San Juan Creek watershed. Transport rates calculated for La Paz and Cristianitos Canyons are the lowest in of the modeled San Mateo Creek sub-basins and are similar to values calculated for Lucas and Verdugo canyons. The Upper Cristianitos sub-basin (3.67 sq. mi.) had the highest transport capacity per unit area of the three modeled San Mateo Creek sub-basins. The basin's per unit area transport rate surpasses rates calculated for all other sub-basins except Trampas Canyon. This implies that the hydrology, geology, and geomorphology of Upper Cristianitos Creek are conducive to transporting sediment. The transport capacity per unit area of Gabino Canyon is intermediate between estimated rates for La Paz and Cristianitos Canyons. Of the modeled sub-basins in the San Mateo Creek watershed, La Paz Canyon had the lowest transport rates per unit, only slightly higher than those for Lucas Canyon.

Total storm event sediment transport volumes were calculated at the mouth of the sub-basins for the 2-year, 10-year, and 100-year storm events. Gabino Canyon sub-basin Exhibits the highest sediment transport volume of the three San Mateo Creek sub-basins. This is most likely due to the somewhat larger size of Gabino Canyon, relative to the Upper Cristianitos and La

Paz sub-basins. Although the Upper Cristianitos sub-basin is half the size of the La Paz sub-basin, its relatively high rate of sediment transport per unit area resulted in total sediment yields that were slightly higher than those from the La Paz sub-basin for the 10-year and 100-year events.

Water Quality

Pollutant pathways and cycles within diverse geographic settings, such as the San Juan and San Mateo Creek watersheds, can be complex. In general, pollutants are transported and sometimes transformed into other compounds with stormwater runoff. They are either in dissolved form, particulate form, or are adsorbed to other particles in the water such as colloidal clays. The availability of particulates and pH affect the distribution of pollutants between the dissolved and bound forms. Therefore, land use characteristics that promote infiltration and slow the flow of water allowing sediments to settle or filter out are important factors that control pollutant mobility. Geology can also have a direct impact on specific water quality constituent concentrations. For example, the Monterey shale bedrock, which occurs in several of the San Juan Creek sub-basins, has been reported to be a source of high levels of phosphate and certain metals, such as cadmium (PCR et al, 2002). Terrains can also influence the mobilization, loading, and cycling of pollutants.

Orange County Monitoring Data

Balance Hydrologics (Balance Hydrologics, 2001a) performed a literature review and compilation of available water quality data in the SAMP study area. Most of the available monitoring data identified by Balance Hydrologics concerned the San Juan Creek watershed; less data were available concerning the San Mateo Creek watershed. The majority of water quality data from San Juan Creek were collected in the 1990s by the Orange County Resources and Development Management Department (OCRDMD), although additional current data has been accumulated by the County of Orange, at the following three monitoring stations:

- The La Novia Street Bridge monitoring station, located on the main stem of San Juan Creek in San Juan Capistrano. The watershed at this point includes all terrain types and diverse land-uses, including urban, grazing, nurseries, and mining uses. Monitoring data include a significant number of dry weather samples in addition to storm monitoring data.

- The Caspers Regional Park station, located on the main stem of San Juan Creek approximately 10 miles upstream from the La Novia Street Bridge station. The majority of the watershed at this point is protected open space coastal scrub and chaparral on crystalline terrains. Monitoring data from this station is less extensive than the data from the La Novia Street Bridge station.

- The Mission Viejo station, located in Oso Creek, represents mostly urban land uses on clayey terrains.

More recent monitoring conducted by the County of Orange addresses lower detention limits that are now reported and which include dissolved forms of trace metals. Other County of Orange agencies in addition to RDMD have conducted monitoring studies in this area, including the Orange County Health Care Agency that conducted an in-depth study of bacteria for the San Juan Creek watershed which was reported in December 2002.

Available total suspended solids ("TSS") monitoring data from the OCRDMD indicated that, in general, elevated TSS concentrations are strongly associated with runoff from winter storm events. It is generally expected that TSS concentrations in storm runoff will be greater from

vacant and agricultural land uses than from urban land uses, except during construction phases of urban development. These data suggest that TSS concentrations in runoff from the proposed developments, after post-construction stabilization, should be, on average, less than existing in-stream TSS concentrations during storm runoff conditions.

Nutrient data from San Juan Creek show a general increase in nitrogen concentration with increasing antecedent rainfall. These data suggest that non-stormwater runoff from urbanized areas could result in increased nitrogen concentrations.

Phosphate data from San Juan reveal an opposite trend from nitrate. Phosphate concentrations generally decrease between the upstream station (open space land use) and the downstream station (mixed land use). An explanation is based on the general trend that sediment loads are greater in storm runoff from vacant and agricultural land-uses (upstream monitoring location) in comparison with storm runoff from urban land-uses (mixed land-uses at downstream location).

Dry weather and stormwater data collected by OCRDMD for trace metals were analyzed only for total metal concentrations. A few samples from the Oso Creek station were analyzed for dissolved metals. Data from San Juan Creek reveal consistently greater than average total metal concentrations during storm flow conditions. This is expected due to the affinity of metals to adsorb to soil particles, which are present in larger quantities in storm runoff. For copper, total metal concentrations increase with greater levels of development. This is the expected trend, because heavy metal concentrations in general have been found to increase with urbanization. For lead the data reveal a decreasing trend in total metal concentration with increasing levels of urbanization, which is somewhat counter to the expected trend.

Rancho Mission Viejo Monitoring Data

Surface water quality data were collected at several stations within the San Juan and San Mateo Creek watersheds by Rivertech, Inc. and Wildermuth Environmental, Inc. for the project area. Data were collected between October 2001 and March 2003 during five wet weather events and three dry weather flows at six stations. The monitoring station locations are provided in the *Draft WQMP*. See Appendix C.

4.5.3 REGULATORY SETTING

<u>Water Quality Regulations</u>

The Ranch Plan project is subject to regulation of surface water quality by the following agencies: United States Environmental Projection Agency ("EPA"), California State Water Resources Control Board ("State Board"), San Diego Regional Water Quality Control Board (SDRWQCB), and the County of Orange. The following text describes the relevant laws and programs administered by these agencies and their application to the proposed project.

Clean Water Act

<u>Overview</u>

In 1972, the Federal Water Pollution Control Act (later referred to as the Clean Water Act) was amended to require that the discharge of pollutants to waters of the United States from any point source be effectively prohibited, unless the discharge is in compliance with a National Pollutant Discharge Elimination System ("NPDES") permit. In 1987, the Clean Water Act ("CWA") was again amended to require that the EPA establish regulations for permitting of stormwater discharges (as a point source) by municipal and industrial facilities and construction activities under the NPDES permit program. The EPA published final regulations regarding

stormwater discharges on November 16, 1990. The regulations require that municipal separate storm sewer system (MS4) discharges to surface waters be regulated by a NPDES permit.

In addition, the CWA requires the states to adopt water quality standards for water bodies and have those standards approved by the EPA. Water quality standards consist of designated beneficial uses for a particular water body (e.g., wildlife habitat, agricultural supply, commercial fishing etc.), along with water quality criteria necessary to support those uses. Water quality criteria are set concentrations or levels of constituents – such as lead, suspended sediment, and fecal coliform bacteria – or narrative statements which represent the quality of water that support a particular use. In 2000, the EPA established numeric water quality criteria for toxic constituents found in those waters which have human health or aquatic life designated uses. See discussion of California Toxics Rule, below.

CWA Section 303(d) - TMDLs

When designated beneficial uses of a particular water body are being compromised due to changes in water quality, Section 303(d) of the Clean Water Act requires identifying and listing that water body as "impaired." Once a water body has been deemed impaired, a Total Maximum Daily Load ("TMDL") must be developed for each water quality constituent that compromises a beneficial use. A TMDL is an estimate of the total load of pollutants, from point, non-point, and natural sources, that a water body may receive without exceeding applicable water quality standards (with a "factor of safety" included). Once established, the TMDL is allocated among current dischargers into the water body. Table 4.5-15 lists the water bodies within the San Juan and San Mateo Creek watersheds that have been included on the 2002 303(d) list.

The SDRWQCB has developed a Technical Draft titled "Bacteria-Impaired Waters TMDL Project I for Beaches and Creeks in the San Diego Region." The pollutants addressed by the TMDL consist of the "indicator bacteria" namely total and fecal coliform, and enterococcus bacteria, some species of which are pathogenic. The Technical Draft is subject to public review and further action by the Regional Board prior to adoption; accordingly, the Implementation Plan for this TMDL will be developed by the Regional Board at a future date, although the current anticipated adoption for the TMDL is summer 2005.

TABLE 4.5-15
2002 CWA SECTION 303(D)
LISTINGS FOR THE SAN JUAN AND SAN MATEO CREEK WATERSHEDS

Water Body	Pollutant	Extent	TMDL Priority	TMDL schedule
Pacific Ocean Shoreline, Lower San Juan HAS	Bacteria Indicators	1.2 miles	Medium	7/2004 – 11/2007
Lower San Juan Creek	Bacteria Indicators	1 mile and at mouth (6.3 acres)	Medium	7/2004 – 11/2007

CWA Act Section 404 Dredge and Fill Permits

Section 404 of the Clean Water Act establishes a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. Activities in waters of the United States that are regulated under the permit elements of this program include fills for development, water resource projects (such as dams and levees), infrastructure development

(such as highways and airports), and conversion of wetlands to uplands for farming and forestry.

CWA Act Section 404(b)(1) Water Quality Guidelines

The EPA and the Army Corps of Engineers have issued Section 404(b)(1) Guidelines (40 CFR 230) that regulate dredge and fill activities, including water quality aspects of such activities. Subpart C, at Sections 230.20 thru 230.25, contains water quality regulations applicable to dredge and fill activities. Among other topics, these guidelines address: (a) discharges which alter substrate elevation or contours, suspended particulates, water clarity, nutrients and chemical content, current patterns and water circulation, water fluctuations (including those that alter erosion or sediment rates), and salinity gradients. .

CWA Section 401

Section 401 of the Clean Water Act requires that any person applying for a federal permit or license which may result in a discharge of pollutants into waters of the United States must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. No license or permit may be issued by a federal agency until certification required by Section 401 has been granted. Further, no license or permit may be issued if certification has been denied. CWA Section 404 permits and authorizations are subject to section 401 certification by the Regional Water Quality Control Boards (RWQCBs). The SDRWQCB has Section 401 certification authority over the Ranch Plan project.

California Toxics Rule

The California Toxics Rule ("CTR") is a federal regulation issued by the EPA providing water quality criteria for toxic constituents in waters with human health or aquatic life designated uses in the State of California. CTR criteria are applicable to the receiving water body and, therefore, must be calculated based upon the probable hardness values of the receiving waters for evaluation of acute (and chronic) toxicity criteria. At higher hardness values for the receiving water, copper, lead and zinc are more likely to be complexed (bound with) components in the water column. This in turn reduces the bio-availability and resulting toxicity of these metals.

Due to the intermittent nature of stormwater runoff (especially in Southern California), the CTR does not apply to stormwater discharges. Rather, acute criteria are considered to be more applicable to stormwater conditions and are, therefore, used in assessing project impacts. Chronic criteria, on the other hand, are more applicable to base flow conditions. Acute criteria represent the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time without deleterious effects; chronic criteria equal the highest concentration to which aquatic life can be exposed for an extended period of time (four days) without deleterious effects.

Water quality criteria apply to receiving waters and do not apply directly to discharges of stormwater runoff. Nevertheless, water quality criteria can provide a useful benchmark to assess the potential for project discharges to affect the water quality of receiving waters. In the water resources analysis for the Ranch Plan project, the CTR is used as a benchmark to evaluate the potential ecological impacts of stormwater runoff to relevant receiving waters.

California Porter-Cologne Act

The CWA places primary responsibly for the control of water pollution and for planning the development and use of water resources with the states, although it does establish certain guidelines for the states to follow in developing their programs. Notably, CWA Section 101

requires that the chemical, physical, and biological integrity of the nation's waters be maintained.

California's primary statute governing water quality and water pollution issues is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the State Board and the RWQCBs broad powers to protect water quality and is the primary vehicle for implementation of California's responsibilities under the CWA. The Porter-Cologne Act grants the State Board and the RWQCBs authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites, and to require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, or oil or petroleum product.

Each RWQCB must formulate and adopt a water quality plan for its region. The regional plans are to conform to the policies set forth in the Porter-Cologne Act and as established by the State Board in its state water policy. The Porter-Cologne Act also provides that a RWQCB may include within its regional plan water discharge prohibitions applicable to particular conditions, areas or types of waste. The RWQCBs are also authorized to enforce discharge limitations, take actions to prevent violations of these limitations from occurring, and conduct investigations to determine the status of the quality of any of the waters of the state. Civil and criminal penalties are also applicable to persons who violate the requirements of the Porter-Cologne Act or State Board/ RWQCB orders.

The Water Quality Control Plan for the San Diego Basin (San Diego Basin Plan) (SDRWQCB, 1994) provides quantitative and narrative criteria for a range of water quality constituents. Specific criteria are provided for the larger water bodies within the region and general criteria or guidelines are provided for ocean waters, bays and estuaries, inland surface waters, and ground waters. Generally speaking, the narrative criteria declare that degradation of water quality may not occur due to increases in pollutant loads that will impact the designated beneficial uses of a water body. For example, the San Diego Basin Plan requires that "Inland surface waters shall not contain suspended or settleable solids in amounts which cause a nuisance or adversely affect beneficial uses as a result of controllable water quality factors."

Table 4.5-16 identifies the beneficial uses of the individual water bodies located within the Ranch Plan project area that are listed in the San Diego Basin Plan.

Municipal NPDES Permit and DAMP

The SDRWQCB issued the third term permit (Order No. R9-2002-0001) for stormwater discharges in southern Orange County to the County, the Orange County Flood Control District, and the Orange County cities within the San Diego Region (collectively "the Co-Permittees") in February 2002. This permit regulates stormwater discharges in the Ranch Plan project area. The NPDES permit details requirements for new development and significant redevelopment projects, including specific sizing criteria for treatment control Best Management Practices ("BMPs").

TABLE 4.5-16
TABLE 4.5-16: BENEFICIAL USES OF RECEIVING WATERS

Water Body	Beneficial Uses								
	MUN	AGR	IND	REC1	REC2	WARM	COLD	WILD	RARE
San Juan Creek	E	P	P	P	P	P	P	P	
Verdugo Canyon	E	P	P	P	P	P	P	P	
Trampas Canyon	E	P	P	P	P	P	P	P	
Cañada Gobernadora	E	P	P	P	P	P	P	P	
Cañada Chiquita	E	P	P	P	P	P	P	P	
San Mateo Creek	E			P	P	P		P	P
Cristianitos Creek	E			P	P	P		P	
Gabino Creek	E			P	P	P		P	
La Paz Canyon	E			P	P	P		P	
Blind Canyon	E			P	P	P		P	
Talega Canyon	E			P	P	P		P	

P – Present or potential beneficial use
E – Excepted from MUN designation
MUN = Municipal and Domestic Supply
AGR = Agricultural Supply
IND = Industrial Service Supply
REC1 = Contact Water Recreation
REC2 = Non-Contact Water Recreation
WARM = Warm Freshwater Habitat
COLD = Cold Freshwater Habitat
WILD = Wildlife Habitat
RARE = Rare, Threatened or Endangered Species

To implement the requirements of the NPDES permit, the Co-Permittees have developed a 2003 Drainage Area Management Plan ("DAMP") that includes a New Development and Significant Redevelopment Program (OC Stormwater Program, 2003). This New Development and Significant Redevelopment Program provides a framework and a process for following the NPDES permit requirements and incorporates watershed protection/stormwater quality management principles into the Co-Permittees' General Plan process, environmental review process, and development permit approval process. This EIR has followed the DAMP guidance for environmental documents related to water quality issues as illustrated in Exhibit 7.I, *Guidance for Preparing and Reviewing Initial Studies and Environmental Impact Reports*. The New Development and Significant Redevelopment Program includes a Model Water Quality Management Plan ("Model WQMP") that defines requirements and provides guidance for compliance with the NPDES permit requirements for project specific planning, selection, and design of BMPs in new development or significant redevelopment projects. The Model WQMP was translated into a County of Orange Local WQMP in the County's Local Implementation Program.

Each permittee will approve project-specific WQMPs as part of the development plan and entitlement approval process for discretionary projects, and prior to issuing permits for ministerial projects. WQMPs will be developed at different levels in the planning/development process and these documents will be inter-related by increasing the level of detail, but following the general guidance of the higher level WQMP. In addition, project WQMPs must be approved prior to issuance of building or grading permits.

The requirements of the Model WQMP are located in Section 7.6, Exhibit 7.II, and Appendix A-7 of the Orange County DAMP. One of these requirements is that all priority new development

and significant redevelopment projects are required to develop and implement a "Project WQMP" that addresses:

- Pollutants of Concern
- Hydrologic Conditions of Concern
- Routine structural and non-structural Source Control BMPs
- Site Design BMPs (as applicable);
- Treatment Control BMPs
- The mechanism(s) by which long-term operation and maintenance of all structural BMPS will be provided

Floodplain Regulations

National Flood Insurance Program (NFIP)

The County of Orange is a participant in the National Flood Insurance Program (NFIP), a federal land use control mechanism for floodplains that is administered by the Federal Emergency Management Agency (FEMA). Communities participating in the NFIP must adopt and enforce minimum floodplain management standards, including identification of flood hazards and flood risks. Flood Insurance Studies are prepared for the participating communities to identify the 100-year recurrence floodplain and floodway data which can be used to develop, adopt, and implement floodplain regulations. The floodplain regulations provide the basis for land use controls in riverine areas. Published Flood Insurance Rate Maps (FIRM) are prepared for each community which identify and define the flood hazard areas and indicate the relative risks associated with land use within said areas.

Related Planning Programs

SAMP Watershed Planning Principles

The SAMP/MSAA and NCCP/HCP programs provide a proactive planning effort within the watershed for stakeholders to protect and manage hydrologic and geomorphic conditions affecting existing natural resources while allowing responsible development. A set of geographically-specific planning principles was generated for the SAMP/MSAA planning effort and provided valuable guidance during land use planning for the Proposed Project (see the Project Description for an explanation of how the Proposed Project was modified to respond to the planning principles) and the development of alternatives to the Proposed Project. The draft Watershed and Sub-basin Planning Principles (*Watershed Planning Principles*) provide guidance for protecting and conserving aquatic and riparian resources and the known, key physical and biological processes and resources. The principles refine the planning framework and identify key physical and biological processes and resources at both the watershed and sub-basin level. The *Watershed Planning Principles* focus also on the fundamental hydrologic and geomorphic processes of the overall watersheds and of the sub-basins.

The fundamental *Watershed Planning Principles* were utilized to guide the initial planning of the development program relative to watershed resources and to minimize impacts thereto through integration of the initial baseline technical watershed assessments. The individual *Watershed Planning Principles* used to guide the Ranch Plan evaluative process are noted below. The *Watershed Planning Principles* are supported by sub-basin specific principles that were also used in the evaluative process (*see* Biological Resources, NCCP/HCP Planning Guidelines Consistency Analysis, and Watershed Planning Principles Consistency Analysis).

Principle 1 – Recognize and account for the hydrologic response of different terrains at the sub-basin and watershed scale.

Principle 2 – Emulate, to the extent feasible, the existing runoff and infiltration patterns in consideration of specific terrains, soil types and ground cover.

Principle 3 – Address potential effects of future land use changes on hydrology.

Principle 4 – Minimize alterations of the timing of peak flows of each sub-basin relative to the mainstem creeks.

Principle 5 – Maintain and/or restore the inherent geomorphic structure of major tributaries and their floodplains.

Principle 6 – Maintain coarse sediment yields, storage and transport processes.

Principle 9 – Protect water quality by using a variety of strategies, with particular emphasis on natural treatment systems such as water quality wetlands, swales and infiltration areas and application of Best Management Practices within development areas to assure comprehensive water quality treatment prior to the discharge of urban runoff into the Habitat Reserve.

4.5.4 IMPACTS

Thresholds of Significance

Significant water resources impacts would occur if the proposed project would:

- Substantially increase the rate or amount of surface runoff in a manner that would expose people or structures to onsite or offsite flooding or result in peak runoff rates from the site that would exceed existing or planned capacities of downstream flood control systems.

- Substantially increase or decrease low flow estimates where high groundwater elevations are considered important.

- Substantially alter the existing drainage pattern of the site or area, including alteration of the course of a stream or river, in a manner that would cause substantial erosion or siltation.

- Substantially increase the frequencies and duration of channel adjusting flows.

- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge that would cause a net deficit in aquifer volumes or lowering of the local groundwater table.

- Violate surface and/or ground water quality standards or waste discharge requirements for the receiving drainages, including applicable provisions of;

    - County of Orange SUSMP/DAMP
    - California Toxics Rule for metals
    - RWQCB Standards

- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam, or inundation by seiche, tsunami, or mudflow.

- Require the construction of new storm water drainage facilities or expansion of existing facilities where the construction would cause significant environmental effects.

- Conflict with any applicable plan, policy or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect related to hydrology or water quality.

- Conflict with applicable San Juan Creek Watershed/Western San Mateo Creek Watershed SAMP/MSAA Planning Principles

Project Impacts

In order facilitate ease of review, the foregoing ten (10) thresholds of significance have been grouped and collectively evaluated in one or more of the following categories:

- *Surface Runoff*, addressing runoff rates, volumes and proposed detention facilities within the project area.

- *Sedimentation*, addressing maintenance of sediment yield and transport rates within the project area.

- *Storm Water Quality Analysis*, addressing potential water quality impacts, discharge requirements and related factors applicable to the project area.

- *Hydrologic Conditions of Concern*, addressing maintenance of pre- and post-development water flow rates and water balance.

- *Related Planning Programs*, addressing project consistency with SAMP/MSAA planning principles.

Surface Runoff: Rates, Volumes and Proposed Detention Facilities

Impact 4.5-1: Development of the project will result in increases in the rate and amount of surface flow runoff within certain portions of the developed watershed(s). However, these increases are relatively small and will be fully mitigated through the use of flood control detention basins.

Impact 4.5-2: Development of the project may result in reduced coarse sediment yields within certain sub-basins, especially during construction periods. However, these decreases are relatively minor when comparing existing and post-construction conditions.

Impact 4.5-3: In the absence of mitigation, development of the project would alter certain in-channel sediment transport processes, potentially affecting streambed/stream bank stability.

Storm Runoff Hydrology – Complex Hydrograph Model

The results of the 2-year, 10-year, and 100-year storm events analyzed with the complex hydrograph model are summarized in Tables 4.5-17 and 18, and suggest that the proposed development does not significantly impact hydrographs at the downstream confluence (the Pacific Ocean). Total runoff volumes at the Pacific Ocean outlet of the San Juan and San Mateo Creek watersheds are provided for the Baseline (existing conditions) and Ranch Plan (developed) land use conditions under the three modeled storm events. The influence of development is most apparent during the smaller, more frequent events (i.e. the 2-year event). The modeling results further estimate that peak discharge at the mouth of the San Juan Creek increases by 6% for the 2-year event and 1% for the 100-year event without the use of any mitigation features. Runoff volume increases by 2% for the 2-year event and 0.3% for the 100-year event. However, the proposed development shows less of an influence at the mouth of San Mateo Creek, with almost no percentage change at any of the event frequencies. This minor influence is partially explained by the fact that only 18% of the proposed development is situated within this watershed.

Table 4.5-17 provides the estimated peak discharges at different locations along San Juan Creek for the proposed development plan and existing land use conditions. Table 4.5-18 illustrates peak discharges at key locations for the different sub-basins of each of the creeks, and Table 4.5-19 identifies the projected runoff volumes for specific storm events.

TABLE 4.5-17
PEAK DISCHARGE ON SAN JUAN CREEK

SAN JUAN CREEK	HEC-1 node	Peak Discharge, cfs					
		Existing Conditions			Ranch Plan		
		2-Year	10-Year	100-Year	2-Year	10-Year	100-Year
D/S of Long Canyon	CSJ10	1,106	3,720	7,103	1,106	3,720	7,103
D/S of Lion Canyon	cSJ24	1,380	4,949	10,430	1,380	4,949	10,430
D/S of Lucas Canyon	CSJ3	1,806	7,348	17,622	1,806	7,348	17,622
U/S of Bell Canyon at Verdugo	cSJ9	1,832	7,531	18,420	1,832	7,532	18,447
at confluence w/central SJ catchments	cSJ13	2,441	10,145	25,304	2,453	10,110	25,153
D/S of Canada Gobernadora	CSJ63	2,502	11,131	28,059	2,515	11,344	28,272
U/S of Canada Chiquita	ERSJ8	2,499	11,111	28,011	2,514	11,236	28,080
D/S of Horno Creek	CSJ20	2,786	13,332	33,190	2,629	13,754	33,755
U/S of Trabuco Creek	LRSJ25	2,782	13,339	33,397	2,838	13,853	34,041
San Juan at Pacific Ocean	cSJ18	3,978	17,614	49,085	4,217	18,421	49,741
D/S = downstream; U/S = upstream							

TABLE 4.5-18
PEAK DISCHARGES WITHIN THE SAN JUAN AND SAN MATEO CREEK WATERSHEDS
BASELINE & RANCH PLAN

Watershed Region	Sub-basin Name		Peak Discharge, cfs								
			Baseline Conditions			The Ranch Plan					
	GIS	HEC-1	2-year Event	10-year Event	100-year Event	2-year Event	Percent Increase 2-year	10-year event	Percent Increase 10-year	100-year Event	Percent Increase 100-year
SAN JUAN WATERSHED											
Lucas Canyon	3	SJ3	224	1,025	2,291	224	0	1,025	0	2,291	0
Verdugo Canyon	9	SJ9	79	510	1,242	80	1	522	2	1,263	2
Bell Canyon	1	SJ1	545	1,777	3,303	545	0	1,777	0	3,303	0
	34	SJ34	403	1,641	3,325	403	0	1,641	0	3,325	0
		cSJ60	597	2,575	6,026	597	0	2,575	0	6,026	0
Canada Gobernadora	7	SJ7	391	1,397	2,299	391	0	1,388	-1	2,299	0
	35	SJ35	179	738	1,369	177	-1	727	-1	1,352	-1
(Wagon Wheel Canyon)	36	SJ36	127	528	988	123	-3	527	0	987	0
		cSJ63	767	3,157	5,700	749	-2	3,209	2	5,962	5
Canada Chiquita	31	SJ31	320	1,298	2,447	266	-17	1,242	-4	2,340	-4
	8	SJ8	81	432	1,087	102	25	493	14	1,174	8
		SJ8+SJ31	401	1,730	3,530	364	-9	1,728	0	3,514	0
Central San Juan Catchments	13	SJ13	111	748	1,918	227	105	1,124	50	2,291	19
San Juan Creek at the Pacific Ocean		cSJ18	3,978	17,614	49,085	4,217	6	18,421	5	49,741	1
SAN MATEO WATERSHED											
La Paz Canyon	51	CC51	323	1,386	2,784	323	0	1,386	0	2,784	0
Upper Gabino Canyon	49	CC49	229	1,075	2,085	243	6	1,100	2	2,131	2
Lower Gabino Canyon with Blind Canyon	48	CC48	156	742	1,458	184	18	853	15	1,591	9
Upper Cristianitos Canyon	45	CC45	146	758	1,542	166	13	839	11	1,616	5
Talega Canyon	47	CC47	238	1,160	2,540	256	8	1,188	2	2,577	1
San Mateo Creek at the Pacific Ocean		cSM46	2,980	13,155	33,228	2,984	0	13,149	0	33,190	0

TABLE 4.5-19
RUNOFF VOLUMES WITHIN THE SAN JUAN AND SAN MATEO CREEK WATERSHEDS – BASELINE & RANCH PLAN

Watershed Region	Runoff Volume, acre-feet								
	Baseline Conditions			Developed Condition - The Ranch Plan					
	2-year Event	10-year Event	100-year Event	2-year Event	Percent Increase 2-year	10-year Event	Percent Increase 10-year	100-year Event	Percent Increase 100-year
SAN JUAN WATERSHED									
Lucas Canyon	191	783	1,936	191	0	783	0	1,936	0
Verdugo Canyon	59	309	907	59	0	312	1	913	1
Bell Canyon	548	2,130	5,106	548	0	2,130	0	5,106	0
Wagon Wheel Canyon	23	115	323	22	-3	114	-1	322	0
Canada Gobernadora	195	835	2,105	207	6	856	3	2,122	1
Canada Chiquita	130	630	1,715	136	4	635	1	1,715	0
Central San Juan Catchments	75	415	1,273	138	84	554	33	1368	7
San Juan Creek at the Pacific Ocean	5,298	19,317	44,880	5,386	2	19,492	1	45,002	0
SAN MATEO WATERSHED									
La Paz Canyon	120	565	1,474	120	0	565	0	1,474	0
Upper Gabino Canyon	64	341	928	67	4	343	1	934	1
Lower Gabino Canyon with Blind Canyon	49	235	623	53	7	245	4	632	1
Upper Cristianitos Canyon	47	242	682	51	8	254	5	690	1
Talega Canyon	156	710	1,818	165	6	724	2	1,832	1
San Mateo Creek at the Pacific Ocean	3,808	15,227	36,967	3,827	0	15,265	0	37,003	0

Storm Runoff Hydrology – Single Area Hydrograph Model

A series of single area hydrographs reflecting the proposed Ranch Plan development conditions were completed for the different watershed sub-basins following the procedures outlined in the Orange County Hydrology Manual (OCHM). A rational method analysis was prepared from the headwaters of each of these study watersheds to estimate the time of concentration for calculating the lag time parameters (timing function for the watershed). The analysis was completed for both "expected value" (EV) and "high confidence" (HC) rainfall amounts. OCHM parameters were calibrated so that the calculated half of the peak discharges would be less than the "expected value" (EV) and the other half would be greater than the "expected value," whereas the "high confidence" (HC) value has a 85% confidence or only a 15% probability exists that the calculated discharge will be exceeded for that storm return interval. Tables 4.5-20 through 4.5-23 present representative values for the estimated peak discharges and runoff volumes at various locations along the mainstem of different sub-basins for the developed conditions.

TABLE 4.5-20
SAN MATEO CREEK SINGLE AREA HYDROGRAPH – DEVELOPED CONDITIONS WATERSHED CHARACTERISTICS

Conc. Point Location	Area (acres)	Longest Flowpath (ft)	Expected Value (EV)* Lag Times (hours)		
			2-year	10-year	100-year
Upstream Ranch Boundary	2,114	18,351	0.59	0.42	0.38
Gabino Canyon	7,790	35,944	1.08	0.70	0.63
Blind Canyon	9,632	46,716	1.42	0.89	0.78
Cristianitos Canyon	12,171	48,106	1.46	0.92	0.80
Downstream Ranch Boundary	12,891	53,710	1.64	1.02	0.89
Talega Canyon	18,556	56,077	1.73	1.06	0.93
* EV = expected value or 50% confidence interval per OCHM					

TABLE 4.5-21
SAN MATEO CREEK SINGLE AREA HYDROGRAPH ANALYSIS – DEVELOPED CONDITIONS HYDROLOGIC SUMMARY

Conc. Point Location	2-year EV*		10-year EV*		100-year EV*		100-year HC**	
	Flow (cfs)	Volume (ac-ft)	Flow (cfs)	Volume (ac-ft)	Flow (cfs)	Volume (ac-ft)	Flow (cfs)	Volume (ac-ft)
Upstream Ranch Boundary	304	63	1,455	278	2,439	519	3,364	724
Gabino Canyon	444	169	2,858	843	5,294	1,630	7,366	2,302
Blind Canyon	457	202	2,965	1,041	5,459	2,014	7,633	2,302
Cristianitos Canyon	503	249	3,345	1,306	6,279	2,533	8,913	2,838
Downstream Ranch Boundary	503	260	3,345	1,390	6,340	2,684	8,913	3,564
Talega Canyon	614	384	4,156	2,077	8,152	4,009	11,586	5,633
* EV = expected value or 50% confidence interval per OCHM ** HC = high confidence value or 85% confidence interval per OCHM								

TABLE 4.5-22
SAN JUAN CREEK SINGLE AREA HYDROGRAPH – DEVELOPED CONDITIONS WATERSHED CHARACTERISTICS

Conc. Point Location	Area (acres)	Longest Flowpath (ft)	Expected Value(EV) Lag Times (hours)		
			2-year	10-year	100-year
Upstream Ortega Highway Crossing	2,446	33,774	1.57	0.92	0.81
Decker Canyon	4,302	33,995	1.58	0.92	0.82
Long Canyon	7,127	35,596	1.61	0.94	0.83
Bear Canyon	9,516	38,140	1.67	0.98	0.86
Lion Canyon	12,821	48,059	1.89	1.11	0.97
Central Ortega Highway Crossing	17,423	65,104	2.23	1.32	1.14
Hot Spring Canyon	23,888	70,549	2.35	1.39	1.21
Cold Spring Canyon	25,469	72,734	2.41	1.42	1.23
Downstream Ortega Highway Crossing	26,855	80,562	2.60	1.54	1.33
Lucas Canyon	32,181	88,566	2.82	1.67	1.43
Bell Canyon – Upstream Ranch Boundary	46,437	96,841	3.06	1.80	1.54
Verdugo Canyon	49,888	99,693	3.12	1.84	1.57
Trampas Canyon	53,247	110,849	3.37	1.99	1.69
Canada Gobernadora	61,500	117,144	3.58	2.11	1.79
Canada Chiquita	66,685	123,345	3.75	2.22	1.87
Downstream Ranch Boundary	68,245	129,669	3.95	2.32	1.95

TABLE 4.5-23
SAN JUAN CREEK SINGLE AREA HYDROGRAPH ANALYSIS – DEVELOPED CONDITIONS HYDROLOGIC SUMMARY

Conc. Point Location	2-year EV		10-year EV		100-year EV		100-year HC	
	Flow (cfs)	Volume (ac-ft)	Flow (cfs)	Volume (ac-ft)	Flow (cfs)	Volume (ac-ft)	Flow (cfs)	Volume (ac-ft)
Upstream Ortega Highway Crossing	303	161	1,422	638	2,558	1,191	3,548	1,661
Decker Canyon	480	271	2,259	1,111	4,126	2,086	5,749	2,914
Long Canyon	772	499	3,463	1,919	6,408	3,547	8,754	4,922
Bear Canyon	921	627	4,342	2,484	7,968	4,611	10,721	6,405
Lion Canyon	1,131	830	5,044	3,316	9,556	6,074	13,140	8,445
Central Ortega Highway Crossing	1,240	1,021	5,713	4,174	10,764	7,710	14,815	10,694
Hot Spring Canyon	1,529	1,332	7,046	5,467	13,168	10,119	18,404	14,052
Cold Spring Canyon	1,529	1,343	7,213	5,659	13,463	10,503	18,926	14,597
Downstream Ortega Highway Crossing	1,529	1,343	7,213	5,700	13,519	10,675	18,927	14,863
Lucas Canyon	1,545	1,446	7,500	6,401	14,709	12,057	20,621	16,822
Bell Canyon – Upstream Ranch Boundary	1,943	1,872	9,035	8,144	17,977	15,436	26,074	21,691
Verdugo Canyon	2,025	1,970	9,244	8,431	18,594	16,054	26,953	22,599
Trampas Canyon	2,076	2,037	9,429	8,741	18,961	16,638	27,132	23,342
Canada Gobernadora	2,252	2,237	9,766	9,462	20,030	18,077	28,752	25,365
Canada Chiquita	2,254	2,260	9,963	9,849	20,638	18,872	29,486	26,525
Downstream Ranch Boundary	2,254	2,279	10,006	10,026	20,753	19,179	29,527	26,945

Comparison of Baseline and Project Hydrology – Single Area Hydrographs

The hydrology analyses reflecting the proposed project development assumed a "free draining" condition, or, in other words, without hydrologic mitigation incorporating the use of detention basins. The following tables (Table 4.5-24 through Table 4.5-26) present a comparison of the changes in estimated runoff volumes and peak discharges based on the results of the single area hydrograph models for selected sub-basins. Results in both the complex models and single area hydrograph models do indicate the same general trends in the regional watersheds regarding assessment of the hydrologic conditions from the proposed project which include: (1) without mitigation, the estimated increases to the peak regional discharges and runoff volumes are relatively small (i.e., maximum increases on the order of 2 to 5 percent); and (2) similar proportional changes in volumes/peak discharges along the mainstem of the creek.

TABLE 4.5-24
SAN MATEO CREEK SINGLE AREA HYDROGRAPH ANALYSIS
EXISTING VERSUS DEVELOPED CONDITIONS HYDROLOGIC SUMMARY

Conc. Point Location	2-year EV				10-year EV				100-year EV				100-year HC			
	Flow (cfs)		Volume (ac-ft)		Flow (cfs)		Volume (ac-ft)		Flow (cfs)		Volume (ac-ft)		Flow (cfs)		Volume (ac-ft)	
	Δ	%Δ	Δ	%Δ	Δ	%Δ	Δ	%Δ	Δ	%Δ	Δ	%Δ	Δ	%Δ	Δ	%Δ
Upstream Ranch Boundary	0.0	0%	0.0	0%	0.0	0%	0.0	0%	0.0	0%	0.0	0%	0.0	0%	0.0	0%
Gabino Canyon	0.0	0%	0.0	0%	1.0	0%	-1.0	0%	2.0	0%	0.0	0%	2.0	0%	0.0	0%
Blind Canyon	-3.0	-1%	-15.0	-7%	2.0	0%	-29.0	-3%	-27.0	0%	-53.0	-3%	-137.0	-2%	-611.0	-21%
Cristianitos Canyon	-5.0	-1%	-15.0	-6%	15.0	0%	-5.0	0%	-15.0	0%	-13.0	-1%	-22.0	0%	-751.0	-21%
Downstream Ranch Boundary	-5.0	-1%	-15.0	-5%	15.0	0%	-2.0	0%	4.0	0%	-11.0	0%	-22.0	0%	-235.0	-6%
Talega Canyon	-10.0	-2%	-20.0	-5%	60.0	1%	23.0	1%	90.0	1%	25.0	1%	58.0	1%	20.0	0%

TABLE 4.5-25
SAN JUAN CREEK SINGLE AREA HYDROGRAPH ANALYSIS –
EXISTING VERSUS DEVELOPED CONDITIONS HYDROLOGIC SUMMARY

Conc. Point Location	2-year EV				10-year EV				100-year EV				100-year HC			
	Flow (cfs)		Volume (ac-ft)		Flow (cfs)		Volume (ac-ft)		Flow (cfs)		Volume (ac-ft)		Flow (cfs)		Volume (ac-ft)	
	Δ	%Δ	Δ	%Δ	Δ	%Δ	Δ	%Δ	Δ	%Δ	Δ	%Δ	Δ	%Δ	Δ	%Δ
Bell Canyon – Upstream Ranch Boundary	0.0	0%	0.0	0%	0.0	0%	0.0	0%	0.0	0%	0.0	0%	0.0	0%	0.0	0%
Verdugo Canyon	72.0	4%	69.0	4%	18.0	0%	16.0	0%	22.0	0%	18.0	0%	28.0	0%	19.0	0%
Trampas Canyon	89.0	4%	83.0	4%	174.0	2%	135.0	2%	231.0	1%	161.0	1%	189.0	1%	179.0	1%
Canada Gobernadora	185.0	9%	176.0	9%	323.0	3%	251.0	3%	434.0	2%	298.0	2%	510.0	2%	319.0	1%
Canada Chiquita	113.0	5%	105.0	5%	307.0	3%	217.0	2%	451.0	2%	271.0	1%	502.0	2%	282.0	1%
Downstream Ranch Boundary	113.0	5%	107.0	5%	348.0	4%	249.0	3%	506.0	2%	308.0	2%	543.0	2%	319.0	1%

TABLE 4.5-26
INDIVIDUAL SUB-BASIN WATERSHEDS –
EXISTING VERSUS DEVELOPED CONDITIONS
100-YEAR HYDROLOGIC SUMMARY

Sub-basin	Existing HC			100-year EV			100-year HC			
	Area (ac)	Peak Flow Rate (cfs)	Volume (ac-ft)	Area (ac)	Peak Flow Rate (cfs)	Volume (ac-ft)	Flow (cfs)		Volume (ac-ft)	
							Δ	%Δ	Δ	%Δ
Chiquita	4,066	3,357	1,219	4,063	3,369	1,189	-3	-.07%	-30	-2.5%
Gobernadora	6,983	7,379	1,918	7,291	8,092	2,206	308	4.4%	288	15%

Flood Control Detention Mitigation Basins

In order to mitigate increases in the peak discharge rates associated with project development, several permanent flood control basins are proposed throughout the project area to provide temporary storage of runoff volumes. These facilities have been preliminarily sized using different hydrologic relationships based on changes in the runoff characteristics for the development area. These estimates have been conservatively developed to ensure that adequate area is reserved in the planning process to provide sufficient runoff storage volume for the proposed detention facilities. More detailed regional hydrologic studies and analyses will be required with subsequent planning efforts when actual proposed facilities are designed and located in order to verify that mitigation for flood control and other hydrologic effects are provided at the local and regional level. Additional analyses will also be required to evaluate the effects of timing of the detention basin outflow hydrographs for actual proposed facilities on the overall regional hydrology, including interaction with multiple detention basins in the watershed and potential effects on the peaks of the hydrographs. The estimated required range of volumes is presented in Table 4.5-27 and the approximate locations of the regional detention facilities are illustrated on Exhibit 4.5-13. Additional analysis will be required for the final sizing and configuration of the detention basins to ensure that there are not any regional hydrologic impacts from multiple detention basins within the watershed, particularly impacts related to timing of hydrographs peaks (*see* Baseline Conditions Watershed Planning Principles – Principle 4). Notwithstanding, preliminary analysis has already been performed with respect to addressing the environmental impacts associated with construction of the proposed flood control basins. Specifically, the significant environmental effects of the proposed facilities have been addressed in the context of general construction activities occurring within the individual/affected planning areas. No new significant environmental effects are expected or otherwise anticipated with respect to construction of the facilities.

TABLE 4.5-27
APPROXIMATE FLOOD CONTROL DETENTION BASIN VOLUMES

Watershed / Basin Location	Proposed Detention Basin Volume (acre-feet)
SAN JUAN WATERSHED	
Canada Gobernadora*	50-250
Canada Chiquita	25-150
Central San Juan Catchments	200-500
SAN MATEO WATERSHED	
Gabino Canyon with Blind Canyon**	25-150
Upper Cristianitos Canyon	50-175
Talega Canyon***	50-175

*- Includes Wagon Wheel
**- Includes Upper and Lower Gabino with Blind Canyon
***- Talega only

In order to test the methodology for detention basin configuration design sizing, a more detailed hydrologic analysis was conducted to evaluate the sizing of one of the proposed project stormwater flood control detention basins to verity that (1) the required storage volumes are within the estimated size range based on the preliminary hydrologic planning relationships, (2) the detention basin will fully mitigate the effects of the development for the "local" watershed, and (3) the effects of development are mitigated on the regional mainstem of the creek and there would be no negative regional hydrologic impacts from the detention (e.g., timing effects on the regional mainstem hydrograph).

The detention basin detailed storage volume sizing and routing analysis was completed for a specific proposed development area in order to test mitigation for the increased flows from that development. The specific location of this analysis was an approximately 320-acre tributary development area (portion of Planning Area 2) adjacent to Canada Gobernadora near its confluence with San Juan Creek. This particular location was selected because it was representative of the larger sizes of development areas and would provide useful conclusions applicable to the other planning areas. The drainage area for the proposed development is located west of Canada Gobernadora and encompasses 318 acres in the "existing condition" and 323.1 acres in the "proposed developed" condition. The change in drainage area is associated with the grading which encompasses some additional small drainages.

Based on the assumptions of this analysis, these results (as shown in Table 4.5-28) provide a range of probable basin storage requirements for planning purposes assuming either a notched weir or box outlet from the basin.[1] Final design of the outlet configuration and basin geometry, as well as the hydrologic analysis, may change these results. However, by using conservative standards, the results of the more detailed hydrologic routing analysis indicate that the suggested sizing estimates for detention basin storage requirements at this initial planning level are sufficient to estimate the project storage requirements shown in Table 4.5-27. As noted above, further analysis will be required to evaluate the hydrologic and timing effects of hydrograph peak flowrates from multiple detention basins within the watershed as part of the

[1] A "weir" is a hydraulic control structure similar to a spillway in which the amount of water flow is hydraulically controlled by a wall, with the crest of the wall placed at a desired elevation. The amount of flow is governed by the length of the weir, the depth of flow over the wall, and the geometry of the weir. A "box outlet," on the other hand, is characterized by a submerged opening that controls water flow according to the size of the opening and the driving hydraulic energy behind the opening.

future studies and refined sizing of these facilities. In addition, the refined detention basin studies would address effects from changes in downstream hydraulic capacity of the floodplain.

TABLE 4.5-28
CANADA GOBERNADORA DETAILED FLOOD CONTROL DETENTION BASIN ANALYSIS

Return Conf. Event Level (yr) (EV / HC)		Existing Condition			Proposed Condition - Notched Weir				Proposed Condition – Box Opening	
		Peak Flow Rate (cfs)	Peak Basin Inflow (cfs)	Maximum Basin Depth (ft)	Maximum Basin Storage (ac-ft)	Peak Basin Outflow (cfs)	Peak Basin Inflow (cfs)	Maximum Basin Depth (ft)	Maximum Basin Storage (ac-ft)	Peak Basin Outflow (cfs)
10	EV	230.7	316.4	6.6	11.9	199.7	316.4	5.8	7.6	229.8
100	EV	391.4	531.8	8.7	16.4	370.4	531.8	8.2	11.4	389.7
100	HC	521.8	700.3	10.0	19.5	512.1	700.3	9.9	14.3	508.7

Sedimentation

Sediment Yield

Anticipated changes in coarse and fine sediment yield as a result of project development were estimated for both the 2- and 100-year events using the MUSLE model. These estimates included both the condition during construction and fully developed. The results of the MUSLE modeling suggest that sediment yields within the watersheds are likely to decrease as a result of Ranch Plan development. However, additional factors – such as the contribution of episodic events – must be included in the assessment of watershed sediment yield in order to properly evaluate the project impacts. Upon considering these other factors, the analysis reveals that coarse sediment yields change by relatively minor amounts when comparing existing and post-construction conditions, commonly less than 15 tons per 2-year event, and less than 250 tons per 100-year event. Localized larger changes are expected in San Juan Creek upstream of Gobernadora (to Verdugo) and in Talega Creek, but do not impact the major sources of coarser sediment protected through public ownership and through land use planning for the proposed project (*see* Balance Hydrologics (May 2004)). Anticipated construction-period increases in sediment yields are more substantial; these potential increases are addressed through the Storm Water Pollution Prevent Plan requirements specified in Standard Condition 5-10, below). The following table, Table 4.5-29, identifies the basins where sediment transport is presently limited because of hydraulic capacity, where changes in peak flows or volumes are most likely to result in increased sediment yields. Other basins are limited by supply, and are most likely to exhibit significant change when yields (especially coarse-sediment yields) increase or decrease. Additional details on the sediment yield/generation analyses and technical results associated with PWA (2004) and Balance Hydrologics (May 2004) are provided in Appendix C.

In many hilly or mountainous areas in Southern California, episodic delivery of sediment to the channel is essential for maintaining the supply of the coarsest materials which often anchor or armor the bed, as well as sustaining beach-material supplies and conditions essential to the long-term viability of several species of concern. The finding that the LAD (Los Angeles District) sediment model yields results 137 to 200 percent higher than the MUSLE formula in Orange County implies that episodic events can account for perhaps 30 to 50 percent of the long-term sediment yield, and perhaps a slightly larger proportion of the largest material making up the bed of the streams. Table 4.5-29 shows the likely contribution from episodic events to the sediment yields of each basin, and indicates that nearly all watersheds and sub-basins will retain most or nearly all of their episodic sediment inputs because the key slopes yielding the coarse sediment will be left largely undisturbed (e.g., the major source of coarse sediments in

TABLE 4.5-29
COMPARISON OF EXISTING, CONSTRUCTION PERIOD, AND POST-CONSTRUCTION SEDIMENT YIELDS, RANCHO MISSION VIEJO, SOUTHERN ORANGE COUNTY, CALIFORNIA[2]

		San Juan Watershed							San Mateo Watershed			
							Central San Juan					
	Source of Data	Upper	Chiquita Lower[5]	Total	Gober-nadora[6]	Verdugo	(lower)	(upper)[7]	Upper Christia-nitos	Upper Gabino	Lower Gabino/ Blind	Talega
BASIN PARAMETERS												
Drainage Area (sq mi)	*Baseline Rept*[1]	4.57	4.64	9.21	3.39	4.79	4.59	7.41	3.66	5.02	3.28	8.37
Sub-basin number	*PWA, 2004*	31	8	--	63	9	21	13	45	49	48	47
Transport Limited by	*Baseline Rept*[1]	supply	supply	supply	supply	transport	supply	supply	supply	supply	transport	transport
Estimated Average Annual Sediment Yield (t/sq mi)	*Basline Rept*[1]	3060	3060	3060	2918	3131	2500	3000	3416	2989	2989	2775
Estimated Sediment Delivery Ratio from 1938	*photointerpretation*[2]	0.15	0.20	0.17	0.10	0.45	0.15	0.25	0.25	0.35	0.30	0.45
Estimated Bedload Proportion of Sed Yield	*Baseline Rept*[1]	0.10	0.05	0.08	0.05	0.50	0.25	0.25	0.10	0.15	0.55	0.30
2-YEAR EVENT												
Total sediment production (tons), MUSLE Model	*PWA, 2004*											
Existing Conditions		1978	1033	3011	2099	1317	380	1056	297	1053	271	2327
Construction Period		2757	3320	6077	6268	1666	772	6820	1435	1276	1991	5858
Post-Construction Period		1403	511	1914	1418	1305	383	587	245	1042	192	2031
Estimated coarse sediment yield (tons)[3]												
Existing Conditions		30	10	41	10	296	14	66	7	55	45	314
Construction Period		41	33	83	31	375	29	426	36	67	329	791
Post-Construction Period		21	5	26	7	294	14	37	6	55	32	274
Change in coarse sediment yield (post-constr.)		-9	-5	-15	-3	-3	0	-29	-1	-1	-13	-40
Estimated fine sediment yield (tons)[4]												
Existing Conditions		267	196	471	199	296	43	198	67	313	37	733
Construction Period		372	631	950	595	375	87	1279	323	380	269	1845
Post-Construction Period		189	97	299	135	294	43	110	55	310	26	640
Change in fine sediment yield (post-constr.)		-78	-99	-172	-65	-3	0	-88	-12	-3	-11	-93

[2] Sediment yields have been adjusted to local conditions and processes based on the Baseline Report, aerial photograph analysis, and field observations.

TABLE 4.5-29 (Continued)
COMPARISON OF EXISTING, CONSTRUCTION PERIOD, AND POST-CONSTRUCTION SEDIMENT YIELDS
RANCHO MISSION VIEJO, SOUTHERN ORANGE COUNTY, CALIFORNIA

	Source of Data	San Juan Watershed							San Mateo Watershed			
		Upper	Chiquita Lower[5]	Total	Gober-nadora[6]	Verdugo	Central San Juan (lower)	Central San Juan (upper)[7]	Upper Christia-nitos	Upper Gabino	Lower Gabino/ Blind	Talega
100-YEAR EVENT												
Total sediment production (tons), MUSLE Model	*PWA, 2004*											
Existing Conditions		25830	18975	44805	29441	28453	4105	25440	4970	16221	3931	34654
Construction Period		36000	60997	96997	87922	35999	8327	164239	24033	19648	28905	87263
Post-Construction Period		20901	7849	28750	15587	28368	3948	7744	3766	15375	2575	28501
Estimated coarse sediment yield (tons)[3]												
Existing Conditions		387	190	609	147	6402	154	1590	124	852	649	4678
Construction Period		540	610	1319	440	8100	312	10265	601	1032	4769	11781
Post-Construction Period		314	78	391	78	6383	148	484	94	807	425	3848
Change in coarse sediment yield (post-constr.)		-74	-111	-218	-69	-19	-6	-1106	-30	-44	-224	-831
Estimated fine sediment yield (tons)[4]												
Existing Conditions		3487	3605	7008	2797	6402	462	4770	1118	4826	531	10916
Construction Period		4860	11589	15170	8353	8100	937	30795	5407	5845	3902	27488
Post-Construction Period		2822	1491	4497	1481	6383	444	1452	847	4574	348	8978
Change in fine sediment yield (post-constr.)		-665	-2114	-2511	-1316	-19	-18	-3318	-271	-252	-183	-1938
Proportion of episodic coarse sed yield[8]	*this report*	>40% Most	40% Most	>40% most	>40% most	>40% nearly all	20 most	30 some	40 most	30 nearly all	40 nearly all	30 nearly all
Episodic component retained after construction[9]	*this report*											

Notes
[1] See Baseline Report, Sec. 3.5 ff (PCR, PWA, and Balance Hydrologics, 2001)
[2] Based on photointerpretation of May and June 1938 aerial photographs by Balance Hydrologics staff.
[3] Equals the total sediment yield * sediment delivery ratio * bedload proportion of sediment yield
[4] Equals the total sediment yield * sediment delivery ratio * (1 - bedload proportion of sediment yield)
[5] Includes portions of several small watersheds draining directly to San Juan Creek
[6] Includes 'Chiquidora Canyon'
[7] Includes Trampas Canyon; values for both central San Juan basins are estimated for this report
[8] Percentage of long-term sediment yield delivered by episodic events
[9] Planning areas were designed to maintain episodic yield to the creeks; see section 4.4.1 of text

the San Juan Creek watershed portion of the planning area, Verdugo, will retain 99% of pre-development coarse sediment yield (6,402 tons versus 6,383 tons) while Talega will retain 82% of pre-development coarse sediment yield (4,678 tons versus 3,848 tons) under episodic 100-year flood event conditions).

Sediment Transport

Peak sediment transport rates based on the transport capacity of the channel were calculated as a preliminary assessment of long term stream stability for the 2-, 10-, and 100-year discharge events for each of the sub-basins using the SAMwin model (ACOE program for Hydraulic Design Package of Channels). Peak transport rates per unit area were also calculated for each of the sub-basins. A preliminary sediment balance was performed on a reach-by-reach basis of the different creek systems to assess the relative magnitude and direction for change in the sediment transport capacity that provides an indicator of either erosion or sedimentation. The locations of the various reaches identified and analyzed in the balance assessment are illustrated on Exhibit 4.5-12, and a summary of the results of the sediment transport analysis are presented in Table 4.5-30. Additional details regarding the sediment transport analysis are presented in PWA (2004).

The results indicate that the unmitigated development plans would alter the in-channel sediment transport processes by altering the hydrologic and hydraulic regime of the San Juan and San Mateo Creek channel systems. Altered flow regimes could potentially induce bed and/or bank instability, or contribute to existing instabilities. The potential impacts are considered to be potentially significant at the local scale (i.e., on the streams in the local canyons such as Chiquita, Gobernadora and Cristianitos) and will be mitigated via the implementation of specific hydrologic mitigation measures set forth in Chapters 3 and 4 of the *Draft WQMP* and subject to detailed mitigation/level of significance analyses in Chapter 5 of the *Draft WQMP*. By preventing increases in peak flows, channels will not be subject to significantly altered sediment transport characteristics and the impacts of the proposed development plans will be reduced to a level that is less than significant (*see Draft WQMP*, Chapter 5). The channel stability and adjustment to the proposed plans will be monitored per Mitigation Measure 4.5-8 (see below).

TABLE 4.5-30
PEAK SEDIMENT TRANSPORT CAPACITIES WITHIN THE SAN JUAN AND SAN MATEO CREEK WATERSHEDS – BASELINE & RANCH PLAN

		Peak Transport Capacity (tons/day)								
		Baseline Conditions			The Ranch Plan					
	Reach*	2-year Event	10-year Event	100-year Event	2-year Event	Percent Increase 2-year	10-year Event	Percent Increase 10-year	100-year Event	Percent Increase 100-year
SAN JUAN WATERSHED										
Lucas Canyon	1	21,267	107,134	253,410	21,267	0.0	107,134	0.0	253,410	0.0
	2	52,479	268,855	622,270	52,479	0.0	268,855	0.0	622,270	0.0
	3	1,479	13,683	43,165	1,479	0.0	13,683	0.0	43,165	0.0
Verdugo Canyon	1	14,105	99,881	257,735	14,310	1.5	102,472	2.6	261,760	1.6
	2	22,445	164,386	418,747	22,866	1.9	168,431	2.5	425,886	1.7
	3	5,403	38,315	98,513	5,485	1.5	39,306	2.6	100,253	1.8
	4	1,410	23,439	76,255	1,439	2.0	24,243	3.4	78,163	2.5
Bell Canyon	1	53,348	260,364	654,498	53,348	0.0	260,364	0.0	654,498	0.0
	2	62,109	295,125	733,281	62,109	0.0	294,922	-0.1	733,281	0.0
	3	61,691	295,304	731,353	61,691	0.0	295,304	0.0	731,353	0.0
	4	75,232	319,087	726,507	71,482	-5.0	319,087	0.0	726,507	0.0
	5	126,341	524,524	1,192,630	119,771	-5.2	524,524	0.0	1,192,630	0.0
	6	262,890	1,042,890	2,274,920	249,871	-5.0	1,042,890	0.0	2,274,920	0.0
Cnada Gobernadora	1	122,075	564,986	1,055,190	118,990	-2.5	574,309	1.7	1,104,850	4.7
	2	119,470	557,525	1,050,860	116,379	-2.6	567,335	1.8	1,100,410	4.7
	3	80,325	388,872	736,988	78,418	-2.4	395,236	1.6	773,565	5.0
	4	88,416	402,616	753,238	85,853	-2.9	409,417	1.7	791,359	5.1
	5	100,724	465,868	872,052	98,271	-2.4	474,497	1.9	915,838	5.0
	6	93,227	421,053	792,264	91,069	-2.3	428,727	1.8	830,392	4.8
	7	69,233	272,780	489,922	69,072	-0.2	270,213	-0.9	488,709	-0.2
	8	81,326	327,833	596,446	81,055	-0.3	326,073	-0.5	594,294	-0.4
	9	155,358	587,350	973,558	155,770	0.3	582,396	-0.8	973,558	0.0

TABLE 4.5-30 (Continued)
PEAK SEDIMENT TRANSPORT CAPACITIES WITHIN THE SAN JUAN AND SAN MATEO CREEK WATERSHEDS – BASELINE & RANCH PLAN

		Peak Transport Capacity (tons/day)								
		Baseline Conditions			The Ranch Plan					
	Reach*	2-year Event	10-year Event	100-year Event	2-year Event	Percent Increase 2-year	10-year Event	Percent Increase 10-year	100-year Event	Percent Increase 100-year
Canada Chiquita	1	71,701	336,479	722,063	65,067	-9.3	336,140	-0.1	718,216	-0.5
	2	20,355	103,063	222,885	18,297	-10.1	102,620	-0.4	221,745	-0.5
	3	50,588	237,552	492,271	45,354	-10.3	237,552	0.0	489,799	-0.5
	4	14,424	66,414	132,073	11,792	-18.2	63,156	-4.9	125,657	-4.9
	5	134,655	595,175	1,144,480	110,947	-17.6	569,702	-4.3	1,092,090	-4.6
	6	39,527	178,235	354,047	32,350	-18.2	170,140	-4.5	337,436	-4.7
Central San Juan Catchments										
Central San Juan	1	39,504	248,711	712,636	39,805	0.8	270,048	8.6	716,249	0.5
	2	28,968	161,917	559,635	29,111	0.5	165,643	2.3	578,034	3.3
	3	27,566	219,005	526,488	27,707	0.5	219,468	0.2	535,143	1.6
	4	48,147	227,343	865,426	48,436	0.6	226,872	-0.2	865,482	0.0
Trampas	1	18,368	130,735	338,824	38,462	109.4	196,863	50.6	406,121	19.9
	2	288	3,593	11,350	766	165.9	5,935	65.2	14,095	24.2
	3	14,397	106,225	273,223	30,719	113.4	160,265	50.9	328,510	20.2
Northeast	1	5,840	44,536	120,330	12,888	120.7	69,257	55.5	145,322	20.8
	2	5,429	40,285	112,400	11,310	108.3	63,448	57.5	136,241	21.2
Northwest	1	3,346	24,345	66,130	6,891	105.9	37,374	53.5	79,356	20.0
	2	4,759	35,154	94,085	10,159	113.5	54,112	53.9	112,502	19.6
Southwest	1	483	4,353	11,828	1,177	143.5	6,733	54.7	14,231	20.3
	2	822	7,322	20,236	1,973	140.1	11,528	57.4	24,514	21.1

TABLE 4.5-30 (Continued)
PEAK SEDIMENT TRANSPORT CAPACITIES WITHIN THE SAN JUAN AND SAN MATEO CREEK WATERSHEDS – BASELINE & RANCH PLAN

		Peak Transport Capacity (tons/day)								
		Baseline Conditions			The Ranch Plan					
	Reach*	2-year Event	10-year Event	100-year Event	2-year Event	Percent Increase 2-year	10-year Event	Percent Increase 10-year	100-year Event	Percent Increase 100-year
SAN MATEO WATERSHED										
La Paz Canyon	1	28,568	131,578	275,397	28,568	0.0	131,578	0.0	275,397	0.0
	2	95,910	450,655	934,420	95,910	0.0	450,655	0.0	934,420	0.0
	3	279,504	1,229,760	2,487,010	279,504	0.0	1,229,760	0.0	2,487,010	0.0
Gabino Canyon	1	61,789	342,687	771,693	63,242	2.4	345,885	0.9	775,381	0.5
	2	45,638	240,372	546,740	46,656	2.2	242,691	1.0	549,888	0.6
	3	40,186	217,402	445,256	42,756	6.4	223,543	2.8	454,822	2.1
	4	75,207	398,996	805,317	79,941	6.3	407,959	2.2	824,143	2.3
	5	103,487	499,847	985,049	110,206	6.5	511,959	2.4	1,005,350	2.1
Cristianitos Canyon	1	29,090	173,940	372,593	33,458	15.0	194,126	11.6	391,983	5.2
	2	4,217	24,596	52,719	4,842	14.8	27,360	11.2	55,424	5.1
	3	8,335	49,224	103,952	9,599	15.2	54,958	11.6	109,017	4.9

* See Exhibit 4.5-12 for sediment transport reach locations.

Storm Water Quality Analysis

Impact 4.5-4: In the absence of mitigation, development of the project would have significant adverse impacts on storm water quality vis-à-vis increases in certain pollutants of concern, impacts to groundwater quality and increases in stream temperature.

Impact 4.5-5: Implementation of the project will result in significant and unavoidable impacts in the amount of pathogens entering into stormwater runoff.

Generalized Impacts

Overview

The following subsections summarize the potential water quality impacts associated with development of the Ranch Plan project, as analyzed in the *Draft WQMP*, including impacts to certain pollutants of concern, groundwater impacts, and construction phase impacts. The assessment of impacts to solids, nutrients and trace metals was conducted with the aid of a water quality model. Necessary inputs to the model include statistically reliable and representative measured data that classify runoff water quality for a variety of land use types, and characterize the effectiveness of BMPs. Such data are not available for the entire suite of pollutants of concern; consequently the assessment of impacts to other pollutants of concern (including bacteria, pesticides, hydrocarbons, and trash and debris) was performed qualitatively, as summarized below. Additional detailed discussion on the pollutants of concern is presented in the *Draft WQMP*. All references to the *Draft WQMP* are intended to incorporate, by reference, the cited sections of the *Draft WQMP* into the following analysis/summary.

Petroleum Hydrocarbon Impacts

The sources of oil, grease, and other petroleum hydrocarbons in urban areas include spillage and seepage of fossil fuels, discharge of domestic and industrial wastes, atmospheric deposition, and runoff (USEPA, 2002a). Runoff can be contaminated by leachate from asphalt roads, wearing of tires, deposition from automobile exhaust, and improper disposal of used oil and other auto-related fluids. The proposed combined control system (see Mitigation Measure 4.5-6 below), which is designed to treat pollutants through settling, adsorption, and biologically mediated processes, should effectively treat PAHs (polycyclic aromatic hydrocarbons) and other petroleum hydrocarbons at the expected concentrations in runoff. In addition, source control measures will be adopted and implemented as part of this mitigation measure which include spill control, oil recycling, material storage, and other practices. On this basis, the effect of the proposed project on petroleum hydrocarbon levels is considered less than significant.

Pesticide Impacts

Pesticides can be of concern from past as well as future activities. Where past farming practices involved the application of persistent pesticides such as DDT, a potential exists for mobilization of said substances during construction. Post-development application of pesticides for lawn, garden, and household use; common area landscaping; and golf courses may also introduce pesticides into the aquatic environment. BMPs that will be implemented to address pesticides include non-structural and structural source control, and low flow recycling. The EPA has recently banned the pesticides diazinon and chlorpyrifos (commonly used urban pesticides) for most urban applications (USEPA, 2002). These pesticides, as well as other banned pesticides, will not be used for landscape maintenance. Other source control measures include education programs for owners, occupants, and employees in the proper application, storage,

and disposal of pesticides. Pesticide discharges are of particular concern in golf courses. An Integrated Pest Management Plan (IPM) will be developed and implemented for the proposed golf courses and common landscape areas.

While some increase in pesticide use is likely to occur as the result of development due to maintenance of landscaped areas, particularly in the residential and golf portions of the development, careful selection, storage and application of these chemicals will help prevent water quality impacts from occurring. With appropriate management and storage of pesticides, no adverse impacts are expected to occur with development. Based on this combined source control and treatment strategy, potential impacts of pesticides on water quality are considered to be less than significant.

Trash and Debris Impacts

Urban development tends to generate significant amounts of trash and debris. Trash refers to any human-derived materials including paper, plastics, metals, glass and cloth. Debris is defined as loose soil and vegetation that can be accumulated in surface runoff. Debris production can be reduced through the use of natural vegetation in landscaping. Urbanization could significantly increase trash and debris loads if left unchecked. However, the proposed BMPs, including source control and treatment BMPs, will minimize the adverse impacts of trash and debris. Source controls such as street sweeping, public education, fines for littering, and storm drain stenciling can be effective in reducing the amount of trash and debris that is available for mobilization during wet and dry weather events. Water quality basins are very effective at trapping trash and debris during most average storm events. Trash and debris are not expected to significantly impact receiving waters due to the implementation of PDFs and BMPs.

Chlorine Impacts

Chlorine is a potential pollutant of concern because the free form of chlorine is a strong oxidant and is therefore very toxic to aquatic life. With respect to new development, one dry weather concern is the emptying of swimming pools that have not been de-chlorinated into local streams. Municipal pools and private pools that are located in areas served by a municipal sanitary system are generally required to be discharged into the sanitary system. The Ranch Plan project will be served by a municipal sanitary system operated and maintained by the Santa Margarita Water District. Accordingly, the impact of new development on beneficial uses of local receiving waters from chlorine discharges is considered less than significant.

Pathogen Impacts

Pathogens are viruses, bacteria, and protozoa that cause illness in humans. Identifying pathogens in water is difficult as the number of pathogens is exceedingly small, requiring the sampling and filtration of large volumes of water. Traditionally water managers have relied on measuring “pathogen indicators,” such as total and fecal coliform, as an indirect measure of the presence of pathogens. The presence of fecal coliform bacteria generally indicates the presence of fecal contamination, but it does not indicate the source of the contamination. There are numerous natural and anthropogenic sources of pathogen indicators. Natural sources include birds and other wildlife. Anthropogenic sources include domesticated animals and pets, and human sources that may be introduced via poorly functioning septic systems, cross-connections between sewer and storm drains, illicit connections to storm drains, and the direct utilization of outdoor areas for human waste disposal.

In newly developed urban areas, such as the proposed Ranch Plan project area, sources of fecal coliform contamination stemming from sewage discharges should be minimal. Thus, in

newly developed watersheds, the majority of fecal coliform bacteria in stormwater runoff is considered to be from non-human origins. Documented sources are dogs, cats, rats, raccoons, and birds.

The available data on the effectiveness of treatment BMPs for treating pathogens and pathogen indicators is limited. Available data are summarized in Table 4.5-31. Data on wetlands have also shown good removal efficiencies. Other treatment BMPs, including filters, swales and ditches, have not been found to provide effective treatment of coliform bacteria. While there is no BMP effectiveness data for infiltration BMPs, it is believed that infiltration BMPs will provide a high level of treatment for pathogen indicators.

TABLE 4.5-31
MEAN REMOVAL RATES FOR COLIFORM BACTERIA FOR VARIOUS TREATMENT BMPS

BMP Type	Mean Removal Rate (%)	Source / Comments
Dry Detention Ponds	**75**	**CWP (2000b)**
Wet Ponds	70 - 98	CWP (2000b); Strecker et al. (2003), (Kurz, 1999)
Wetlands	78	CWP (2000b)
Filters	37	CWP (2000b) – excludes sand filters and vegetated filter strips
Water quality swales	25	CWP (2000b)
Ditches	5	CWP (2000b)

The change in concentrations of pathogen indicators associated with the proposed project is difficult to evaluate because of the myriad of sources of pathogen indicators, the limited available data, and the fact that pathogen indicators are not conservative and can multiply under certain environmental conditions. It is expected that the majority of human sources of pathogen indicators in the proposed development will be effectively controlled with a modern sanitary sewer system. Thus, the primary additional source of pathogen indicators introduced by the development will be pet wastes, which will be managed through source and treatment controls. The most effective means of controlling pet wastes as a source of pathogens is through source control, specifically education of pet owners, and providing products and disposal containers that encourage and facilitate cleaning up after pets. Source control BMPs and PDFs will also include the provision of litter control and street sweeping.

The SDRWQCB has developed a Technical Draft titled “Bacteria-Impaired Waters TMDL Project I for Beaches and Creeks in the San Diego Region”. The pollutants addressed by the TMDL consist of the “indicator bacteria” namely total and fecal coliform, and enterococcus bacteria, some species of which are pathogenic. As previously indicated, the Technical Draft is subject to public review and subsequent action by the Regional Board. Accordingly, the Implementation Plan for this TMDL will be developed by the Regional Board at a future date, however, the current adoption date is anticipated for summer 2005.

The proposed PDFs include stormwater detention basins and infiltration basins. Based on available information these PDFs should provide moderate to good levels of treatment for pathogen indicators. In particular, the proposed infiltration PDFs should provide effective treatment of dry weather flows and small storm runoff. The proposed project may increase pathogen levels depending on the adequacy of source control BMPs, but neither existing nor post-development levels are likely to meet REC-1 standards (200 MPN/100ml) for fecal coliform on a consistent basis, other than those flows that are infiltrated. See Appendix C for discussion of REC-1 standards. Based on these considerations, the impact of the proposed project on pathogens is considered significant and unavoidable.

Groundwater Impacts

Pollutants of concern for groundwater are those that tend to appear in dissolved form, have high mobility (low sorption potential), and are prevalent in stormwater runoff or dry weather nuisance flows (Pitt et. al., 1994). Sorption potential is important because data indicate that chemicals with high sorption potential tend to accumulate in the top few centimeters of soil in retention basins. (Nightingale, 1987). With pre-treatment that includes sedimentation, and assuming a worst case of sandy soils, Pitt et. al. identify the following pollutants as having at least a low/moderate to high potential for affecting groundwater quality: nitrates (low/moderate), fluoranthene (moderate), pyrene (moderate), *Shigella and Psuedomonas aeruginosa* (low/moderate), protozoa (low/moderate), chromium (low/moderate), and chloride (high). *Shigella and Psuedomonas aeruginosa* are pathogenic bacteria, and fluoranthene and pyrene are polycylic aromatic hydrocarbons (PAHs).The approach taken by the *Draft WQMP* to protect groundwater quality is multi-tiered: (1) site design and source control BMPs will be implemented to prevent the discharge of pollutants to the maximum extent practicable, (2) the proposed combined control system will incorporate infiltration only where there is at least a ten foot separation to groundwater, and (3) where infiltration is proposed, the water will be pretreated in a water quality treatment facility sized to meet MS4 Permit requirements.

The pre-treatment will occur in the flow control/water quality basins located upstream of the infiltration basins. In the low flow portions of these basins, vegetation would be allowed to grow and decay, which will provide an adsorptive organic layer on the bottom of these basins that will assist in pollutant uptake. The upstream flow control/water quality basins are designed to achieve a residence time of approximately 7-10 days for dry weather flows assuming no vector control issues, and will have a 48 hour drain time for wet weather flows. These residence times have been chosen to provide good pre-treatment prior to discharging into the infiltration basins. As discussed below, pre-treatment also will be provided in the infiltration basins themselves as the soils will provide filtration and sites for adsorption.

The combination of source controls, pre-treatment in upstream water quality treatment basins, and pre-treatment in the upper soils profile of the infiltration basins will substantially limit the release of pollutants to the groundwater. On this basis, the potential for adversely affecting groundwater quality for these pollutants of concern is considered less than significant.

Construction-Related Impacts

The potential impacts of construction on water quality focus primarily on sediments and turbidity and pollutants that might be associated with sediments (e.g., phosphorus) and construction related wastes. Construction-related activities that are primarily responsible for sediment releases are related to exposing soils to potential mobilization by rainfall/runoff and wind. Construction activities such as grading, excavation, and trenching for site improvements would result in disturbance of soils on the project site. Runoff from the project site during construction could transport soils and sediments from these activities. Spills leaks from heavy equipment and machinery, staging areas, or building sites could also enter runoff. Typical pollutants could include petroleum products and heavy meals from equipment and products such as paints, solvents, and cleaning agents that could contain hazardous constituents. Adverse water quality impacts could result if polluted runoff enters downstream receiving waters.

The Federal Clean Water Act establishes a framework for regulating potential water quality impacts from construction activities through the U.S. Environmental Protection Agency's National Pollutant Discharge Elimination System (NPDES) program. Construction activities that involve more than one acre are required to comply with the State General Permit for Construction Activities.Potential erosion, siltation and other water quality impacts during construction of the proposed project would be managed through the preparation of a

Stormwater Pollution Prevention Plan (SWPPP). This plan would be a joint effort of the owner, agencies, and contractor. The plan would describe the measures or practices to control pollutants during both the construction and post-construction phases of the project. A SWPPP typically contains a list of target structural and non-structural best management practices, which would be used to control, prevent, remove or reduce pollution. BMPs that are most often used during construction include sand bags, temporary desilting basins, and the timing of grading to avoid rainy season (November through April). In addition to the requirements of the NPDES program, provisions of the Uniform Building Code, grading permits requirements, and Fire Code provisions include elements that also require reduction of erosion and sedimentation impacts. Full compliance with applicable local, state, and federal water quality standards by the applicant would reduce impacts to a less than significant level.

Temperature Impacts

Stream temperature is affected by a number of natural factors including local meteorological conditions, the effects of springs and groundwater, and shading due to vegetation. Within the project area, where streams tend to be intermittent and where a major portion of the flow in the stream may be in the form of subsurface flows, the effects of the interaction between groundwater and surface flows is particularly important in affecting streamflow temperatures. Urbanization also can affect the temperature of stormwater runoff. In semi-arid areas such as Orange County, where the wet season corresponds to the winter and spring, the effect of imperviousness on runoff temperature is mitigated by the seasonality of runoff.

Stream temperature in the project area is most likely affected by natural processes such as subsurface flow and the effects of groundwater and springs. The effects of the proposed development on runoff temperatures would be mitigated by the seasonal nature of runoff and the types of proposed BMPs which rely heavily on infiltration. On this basis, the effect of the proposed development on stream temperature is considered less than significant.

<u>Compliance with Plans and Policies</u>

The project water quality mitigation features were based on the *Draft WQMP*, which was developed (1) to assess potential water quality, water balance, and hydromodification impacts of development that could occur within the development areas and (2) to recommend control measures to address those potential impacts. The *Draft WQMP* elements were developed based on the requirements of the Model WQMP in the County DAMP, and the sub-basin specific water quality and hydrologic issues as identified in the *Watershed Planning Principles.* The selection and sizing of the facilities in the combined control systems for each sub-basin were guided by site conditions, the type of development land use, and incorporation of the planning considerations and recommendations also identified in the *Watershed Planning Principles.*

Compliance with DAMP and MS4 Permit Requirements

PDFs include site design, source control, and treatment control BMPs in compliance with the requirements of the Orange County DAMP and the Orange County NPDES Permit (Order No. R9-2002-0001). For most catchments, a combined control system consisting of a flow control/water quality basin, a separate infiltration basin, and a lined or unlined bioswale will be implemented. Recycling for irrigation and diversion of runoff to less sensitive areas are other strategies that may be used depending on conditions. The site design, source control, and treatment control BMPs will work in concert to address all of the constituents of concern in runoff from the proposed development area (*see Draft WQMP*, Chapters 4 and 5). The combined control system sizing meets or exceeds the NPDES Permit sizing requirement for treatment control BMPs (*see Draft WQMP*, Chapter 5).

Impacts of Pollutants of Concern – Quantitative Analysis

An evaluation of potential pollutants of concern susceptible to quantitative analysis was performed/modeled using the results of the analysis prepared in Chapter 5 of the *Draft WQMP*. The water analysis compared pre- and post-development loads for the pollutants of concerns over a 53-year simulation period using an empirical method that incorporated measured data of stormwater quality in runoff for specific land use types. In preparing the analysis, the following factors/elements were utilized:

- "Load" – the mass of pollutant associated with an event or series of events.
- "Mean annual load" – the mass of a given pollutant that, on average, is discharged annually.
- "Mean annual concentration" – the mean annual load divided by the mean annual runoff volume.

Results of the pollutants of concern analysis are provided in the *Draft WQMP* for three development scenarios (i.e., pre-development, post-development, and post-development with PDFs) and for three climatic conditions (i.e., all years in the 53 year rainfall record, dry years, and wet years). The mean annual loads reflect the entire portion of the sub-basin that discharges to each creek, including the catchments that drain to the combined control system (i.e., the area within the development bubble) and untreated areas (i.e., the open space outside of the development bubble). Quantitative analysis on the changes in pollutant loadings were prepared for 1) total suspended solids, 2) nutrients, and 3) trace metals for the different sub-basins. The results of these analyses and the anticipated changes due to development, are presented in Table 4.5-32 through Table 4.5-36.

Total Suspended Solids Loads

Deposition of sediment in surface waters is a significant form of pollution resulting in water quality problems. Excessive suspended sediment carried in urban runoff, measured as total suspended solids, impair aquatic life. Total suspended solids (TSS) mean annual loads are highest during the wet years and lowest during dry years. Loads also increase with development due to increased runoff volume, and decrease when controls are taken into account. Concentrations vary depending on the relative contribution of open space areas, which have higher TSS, compared to urbanized areas where runoff tends to have lower TSS concentrations. Within the project area, the contribution of fine sediment will be reduced by ridge development on clay soils. It is important to note, however, that open space areas in the sandy terrain of the canyons are also likely to be important sources of coarse sediment supply that will be preserved.

TABLE 4.5-32
PREDICTED AVERAGE ANNUAL TSS LOADS AND CONCENTRATIONS FOR THE CHIQUITA SUB-BASIN

Modeled Area	Site Condition	TSS Load (tons)			TSS Concentration (mg/L)		
		All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years
Chiquita Creek	Pre-Developed	26	14	51	168	150	181
	Developed	46	31	76	116	106	127
	Dev w/ PDFs	22	13	43	134	122	142
	Percent Change	-15	-12	-16	-20	-18	-21
San Juan Creek	Pre-Developed	0.3	0.1	0.8	224	224	224
	Developed	4	3	6	81	80	82
	Dev w/ PDFs	4	3	6	35	35	36
	Percent Change	1217	3866	615	-84	-84	-84
Total Sub-basin Area	Pre-Developed	26	14	52	168	150	182
	Developed	50	35	82	112	103	122
	Dev w/ PDFs	26	16	48	93	80	106
	Percent Change	0	11	-6	-45	-47	-42

TABLE 4.5-33
PREDICTED AVERAGE ANNUAL TSS LOADS AND CONCENTRATIONS FOR THE GOBERNADORA SUB-BASIN

Modeled Area	Site Condition	TSS Load (tons)			TSS Concentration (mg/L)		
		All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years
Gobernadora Creek	Pre-Developed	71	44	128	224	224	224
	Developed	80	56	131	130	120	139
	Dev w/ PDFs	36	20	71	115	99	128
	Percent Change	-49	-55	-45	-48	-56	-43
San Juan Creek	Pre-Developed	0.7	0.1	1.9	224	224	224
	Developed	18.8	15.6	25.7	114	113	115
	Dev w/ PDFs	7.0	5.4	10.4	43	40	47
	Percent Change	952	6447	446	-81	-82	-79
Total Sub-basin Area	Pre-Developed	72	44	130	224	224	224
	Developed	99	71	157	126	119	134
	Dev w/ PDFs	43	25	81	91	75	105
	Percent Change	-40	-43	-38	-60	-66	-53

TABLE 4.5-34
PREDICTED AVERAGE ANNUAL TSS LOADS AND CONCENTRATIONS FOR THE CENTRAL SAN JUAN AND TRAMPAS SUB-BASINS

Modeled Area	Site Condition	TSS Load (tons)			TSS Concentration (mg/L)		
		All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years
South CSJ/PA5	Pre-Developed	24	14	46	198	189	205
	Developed	55	39	88	140	128	152
	Dev w/ PDFs	24	14	45	171	168	174
	Percent Change	-1	2	-3	-14	-11	-15
Trampas Creek/PA5	Pre-Developed[1]	3	1	7	200	165	211
	Developed	60	49	82	117	116	118
	Dev w/ PDFs	2	1	4	123	130	119
	Percent Change	-29	54	-47	-39	-21	-44
North CSJ/PA3	Pre-Developed	96	69	154	342	376	315
	Developed	106	83	154	118	116	122
	Dev w/ PDFs	36	22	66	126	118	131
	Percent Change	-63	-68	-57	-63	-69	-58
East CSJ/PA4	Pre-Developed	71	47	122	215	212	216
	Developed	66	46	110	179	175	183
	Dev w/ PDFs	63	43	105	187	185	189
	Percent Change	-11	-8	-14	-13	-13	-13
Total Sub-basin Area	Pre-Developed	194	130	330	259	270	251
	Developed	287	217	434	132	127	138
	Dev w/ PDFs	125	80	221	161	157	164
	Percent Change	-35	-38	-33	-38	-42	-35

[1] This condition reflects the sand mining and processing operation (including Trampas Dam) and a large quarry pit which limits runoff to Trampas Creek.

TABLE 4.5-35
PREDICTED AVERAGE ANNUAL TSS LOADS
FOR THE CRISTIANITOS SUB-BASIN

Modeled Area	Site Condition	TSS Load (tons)		
		All Years	Dry Years	Wet Years
Cristianitos Creek	Pre-Developed	14	10	22
	Developed	37	29	55
	Dev w/ PDFs	12	8	21
	Percent Change	-14	-21	-8

TABLE 4.5-36
PREDICTED AVERAGE ANNUAL TSS LOADS
FOR THE GABINO SUB-BASIN

Modeled Area	Site Condition	TSS Load (tons)		
		All Years	Dry Years	Wet Years
*Gabino	Pre-Developed	11	8	16
	Developed	76	61	107
	Dev w/ PDFs	29	22	44
	Percent Change	177	173	183

* Total loads draining into Gabino Creek. These include loads from the Gabino Sub-basin and partially diverted loads from the Cristianitos Sub-basin.

Nutrient Loads

Nutrients are organic and inorganic forms of nitrogen and phosphorus that, when present in excessive amounts, can cause eutrophication or degradation of the oxygen content of natural water bodies. TKN (Total Kjeldahl Nitrogen) is a measure of total organic nitrogen and ammonia-nitrogen (an inorganic form of nitrogen) found in water. Nitrate-nitrogen and ammonia-nitrogen are the most bio-available forms of nitrogen that can cause excessive algal growth in streams. Projections of phosphorous loads for vacant land use are affected signicantly by local geology. The combined project water quality control system, which incorporates wetlands, infiltration basins, and vegetated swales is specifically designed to treat nutrients. Constructed wetlands and infiltration basins would be utilized as part of the combined treatment control system to treat low flows and small storm flows thereby reducing nutrient discharges to receiving streams. Based on the model projections and the choice of nutrient treating elements in the combined control system, the potential for discharges from the proposed project to stimulate algal growth is limited. The predicted changes in annual nutrient loading are presented in Table 4.5-37 through 4.5-41 based on the analysis performed in the *Draft WQMP*. Additional details of the analysis, including estimated changes in nutrient concentrations as a result of anticipated development, are presented in the *Draft WQMP*. Findings of significance under post-development conditions for each sub-basin are set forth in *Draft WQMP* Chapter 5. All potential impacts are considered to be reduced to below a level of significance.

TABLE 4.5-37
PREDICTED AVERAGE ANNUAL NUTRIENT LOADS FOR THE CHIQUITA SUB-BASIN (LBS)

Modeled Area	Site Condition	Nitrate-N Load			TKN Load			Total Phosphorus Load		
		All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years
Chiquita Creek	Pre-Developed	298	164	582	447	299	759	71	50	116
	Developed	688	493	1102	1647	1283	2417	255	200	370
	Dev w/ PDFs	296	170	562	614	394	1080	96	63	166
	Percent Change	-1	4	-3	37	32	42	35	27	43
San Juan Creek	Pre-Developed	4	0.98	9.13	3	0.82	7.67	0	0.10	0.97
	Developed	67	54	93	242	199	332	41	34	56
	Dev w/ PDFs	78	65	107	412	343	558	69	57	94
	Percent Change	2076	6492	1073	13535	41543	7173	17917	54917	9513
Total Sub-basin Area	Pre-Developed	302	165	591	450	300	767	72	50	117
	Developed	755	547	1195	1889	1482	2749	296	234	426
	Dev w/ PDFs	374	235	669	1025	736	1637	165	121	260
	Percent Change	24	43	13	128	145	113	131	142	121

TABLE 4.5-38
PREDICTED AVERAGE ANNUAL NUTRIENT LOADS FOR THE GOBERNADORA SUB-BASIN (LBS)

Modeled Area	Site Condition	Nitrate-N Load			TKN Load			Total Phosphorus Load		
		All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years
Gobernadora Creek	Pre-Developed	815	508	1465	684	427	1230	87	54	156
	Developed	1096	785	1753	3093	2439	4479	441	350	635
	Dev w/ PDFs	486	276	930	1285	824	2260	191	125	331
	Percent Change	-40	-46	-36	88	93	84	120	130	112
San Juan Creek	Pre-Developed	8	1.0	22	6	0.8	18	1	0.1	2
	Developed	276	229	377	1031	859	1396	145	121	196
	Dev w/ PDFs	125	99	181	619	501	870	101	82	140
	Percent Change	1536	10303	729	9557	62830	4652	12258	81181	5913
Total Sub-basin Area	Pre-Developed	823	509	1486	691	428	1248	88	54	158
	Developed	1372	1014	2130	4124	3298	5875	586	470	830
	Dev w/ PDFs	611	375	1111	1904	1325	3130	291	207	471
	Percent Change	-26	-26	-25	176	210	151	232	281	197

TABLE 4.5-39
PREDICTED AVERAGE ANNUAL NUTRIENT LOADS
FOR THE CENTRAL SAN JUAN AND TRAMPAS SUB-BASINS (LBS)

Modeled Area	Site Condition	Nitrate-N Loads			TKN Loads			Total P Loads		
		All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years
South CSJ/PA5	Pre-Developed	286	167	538	269	164	491	40	26	70
	Developed	738	547	1141	2013	1701	2675	283	240	375
	Dev w/ PDFs	300	180	555	541	333	983	76	47	136
	Percent Change	5	8	3	101	103	100	88	81	94
Trampas Creek	Pre-Developed[1]	33	9	84	31	10	75	5	2	10
	Developed	871	717	1197	3228	2686	4377	448	373	607
	Dev w/ PDFs	25	17	44	48	53	37	6	7	5
	Percent Change	-24	78	-48	55	414	-50	42	298	-55
North CSJ/PA3	Pre-Developed	1495	1114	2300	1374	1033	2094	304	239	440
	Developed	1536	1219	2207	5579	4553	7753	775	633	1075
	Dev w/ PDFs	508	317	914	1715	1159	2892	237	161	399
	Percent Change	-66	-72	-60	25	12	38	-22	-33	-9
East CSJ/PA4	Pre-Developed	870	581	1481	791	539	1326	124	88	201
	Developed	805	560	1323	1190	851	1908	171	124	270
	Dev w/ PDFs	752	513	1257	992	676	1661	142	98	234
	Percent Change	-14	-12	-15	25	25	25	14	11	17
Total Sub-basin Area	Pre-Developed	2683	1871	4403	2465	1746	3986	473	355	722
	Developed	3950	3044	5868	12011	9790	16713	1676	1369	2327
	Dev w/ PDFs	1594	1026	2796	3327	2220	5671	465	313	788
	Percent Change	-41	-45	-36	35	27	42	-2	-12	9

[1] This condition reflects sand mining and processing operation including Trampas Dam and a large quarry pit which limits runoff to Trampas Creek.

TABLE 4.5-40
PREDICTED AVERAGE ANNUAL NUTRIENT LOADS FOR THE CRISTIANITOS SUB-BASIN (LBS)

Modeled Area	Site Condition	Nitrate-N Loads			TKN Loads			Total P Loads		
		All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years
Cristianitos Creek	Pre-Developed	178	129	283	329	254	487	53	41	79
	Developed	525	414	761	1529	1240	2140	222	181	310
	Dev w/ PDFs	164	106	286	217	118	427	40	22	78
	Percent Change	-8	-18	1	-34	-54	-12	-24	-46	0

TABLE 4.5-41
PREDICTED AVERAGE ANNUAL NUTRIENT LOADS FOR THE GABINO SUB-BASIN (LBS)

Modeled Area	Site Condition	Nitrate-N Loads			TKN Loads			Total P Loads		
		All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years
Gabino	Pre-Developed	118	91	177	143	112	209	21	17	31
	Developed	1093	883	1535	3672	2998	5100	510	416	707
	Dev w/ PDFs	481	372	712	2115	1689	3016	337	272	475
	Percent Change	306	309	303	1377	1403	1346	1470	1504	1430

Trace Metal Loads

Sources for trace metals in stormwater are typically commercially available metals used in transportation, buildings, and infrastructure. Metals of concern include cadmium, chromium, copper, lead, mercury, and zinc in a biodegradable form (i.e. dissolved). Metals are of concern because of toxic effects on certain aquatic life and the potential for groundwater contamination. Copper, lead, and zinc are the most prevalent metals found in urban runoff. The anticipated, project related changes in annual trace metal loading for aluminum, cadmium, copper, lead, and zinc are presented in Tables 4.5-42 through 4.5-46 (as based upon the analysis set forth in the *Draft WQMP*). Findings of significance under post-development conditions with mitigation for each sub-basin are set forth in Chapter 5 of the *Draft WQMP*. All potential impacts are considered to be reduced to below a level of significance.

TABLE 4.5-42
PREDICTED AVERAGE ANNUAL TRACE METAL LOADS THE CHIQUITA SUB-BASIN (LBS)

Modeled Area	Site Condition	Total Aluminum			Dissolved Cadmium			Dissolved Copper			Dissolved Lead			Dissolved Zinc		
		All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years
Chiquita Creek	Pre-Developed	228	140	415	0.16	0.12	0.24	3.3	2.4	5.3	0.6	0.4	1.1	28	21	44
	Developed	470	343	739	0.47	0.38	0.66	9.8	7.7	14.2	2.2	1.7	3.2	60	47	88
	Dev w/ PDFs	219	135	397	0.20	0.14	0.32	4.1	2.8	6.8	0.9	0.6	1.5	31	22	50
	Percent Change	-4	-4	-4	24	14	35	24	18	30	35	31	39	10	7	13
San Juan Creek	Pre-Developed	2.1	0.57	5.3	0.00	0.00	0.00	0.02	0.00	0.04	0.00	0.00	0.01	0.11	0.03	0.29
	Developed	58	48	80	0.11	0.09	0.15	1.9	1.6	2.7	0.3	0.3	0.5	10	8.0	13
	Dev w/ PDFs	141	118	191	0.10	0.08	0.14	3.2	2.6	4.3	0.7	0.6	0.9	11	9.4	16
	Percent Change	6638	20543	34800	27264	82461	14726	20354	62481	10785	17174	52769	9088	9884	30145	5282
Total Sub-basin Area	Pre-Developed	230	141	420	0.16	0.12	0.24	3	2	5	0.7	0.4	1.1	28	21	44
	Developed	528	390	819	0.58	0.47	0.81	12	9	17	2.5	2.0	3.7	70	55	101
	Dev w/ PDFs	361	253	588	0.30	0.22	0.46	7	5	11	1.5	1.1	2.4	42	31	65
	Percent Change	57	80	40	86	81	93	119	129	110	137	155	121	50	52	47

TABLE 4.5-43
PREDICTED AVERAGE ANNUAL TRACE METAL LOADS FOR THE GOBERNADORA SUB-BASIN (LBS)

Modeled Area	Site Condition	Total Aluminum			Dissolved Cadmium			Dissolved Copper			Dissolved Lead			Dissolved Zinc		
		All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years
Gobernadora Creek	Pre-Developed	476	297	856	0.1	0.1	0.2	3.5	2.2	6.3	0.9	0.6	1.6	26	16	46
	Developed	731	533	1150	0.5	0.4	0.7	13.9	11.0	20.1	4.8	3.8	6.9	66	50	97
	Dev w/ PDFs	400	252	712	0.2	0.1	0.4	6.4	4.2	11.1	2.0	1.3	3.6	28	18	50
	Percent Change	-16	-15	-17	164	176	155	83	93	76	133	141	126	8	9	7
San Juan Creek	Pre-Developed	4.5	0.6	12.7	0.01	0	0	0	0.1	0.03	0.01	0	0.02	0.2	0.03	0.7
	Developed	199	165	271	0.13	0.1	0.2	3.2	5.3	3.9	1.7	1.4	2.3	14	12	19
	Dev w/ PDFs	196	163	267	0.13	0.1	0.2	3.2	5.2	3.8	1.0	0.8	1	14	11	19
	Percent Change	4294	29247	1997	16140	108886	7600	77878	5422	11531	12276	80429	6002	5597	38013	2612
Total Sub-basin Area	Pre-Developed	481	298	868	0.08	0.05	0.2	3.5	2.2	6.40	0.9	0.6	2	26	16	47
	Developed	930	698	1421	0.7	0.5	0.9	17.8	14.2	25.40	6.5	5.2	9	79	62	116
	Dev w/ PDFs	596	415	979	0.4	0.3	0.6	10.3	7.4	16.3	3.1	2.1	5	42	29	68
	Percent Change	24	39	13	312	378	264	189	238	154	245	291	212	60	80	45

TABLE 4.5-44
PREDICTED AVERAGE ANNUAL TRACE METAL LOADS WITHIN THE CENTRAL SAN JUAN AND TRAMPAS SUB-BASINS (LBS)

Modeled Area	Site Condition	Total Aluminum			Dissolved Cadmium			Dissolved Copper			Dissolved Lead			Dissolved Zinc		
		All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years
South CSJ/PA5	Pre-Developed	169	99	317	0.2	0.1	0.3	2.1	1.4	3.5	0.3	0.2	0.6	13	9	23
	Developed	497	378	748	0.5	0.4	0.8	8.3	6.9	11.4	3.3	2.8	4.3	35	27	51
	Dev w/ PDFs	189	114	349	0.2	0.1	0.3	2.5	1.6	4.5	0.8	0.5	1.5	13	8	23
	Percent Change	12	15	10	-1	-8	5	21	11	30	164	175	156	-5	-11	0
Trampas Creek	Pre-Developed[1]	20	6	50	0.02	0.01	0.05	0.2	0.1	0.5	0.04	0.01	0.09	2	1	3
	Developed	626	517	858	0.64	0.53	0.88	11.5	9.5	15.6	5.46	4.55	7.40	40	33	55
	Dev w/ PDFs	16	12	26	0.01	0.01	0.02	0.2	0.2	0.2	0.08	0.09	0.05	1	1	1
	Percent Change	-18	105	-48	-36	13	-59	-19	66	-61	107	745	-48	-39	4	-58
North CSJ/PA3	Pre-Developed	394	251	698	0.41	0.29	0.68	5.4	3.9	8.5	2.5	2.0	3.7	22	14	39
	Developed	1098	878	1566	1.13	0.91	1.59	20.0	16.3	27.8	9.4	7.7	13.1	71	57	100
	Dev w/ PDFs	357	227	634	0.36	0.23	0.62	6.1	4.1	10.5	2.9	2.0	4.8	22	14	39
	Percent Change	-9	-10	-9	-14	-20	-9	13	4	23	15	0	31	1	1	2
East CSJ/PA4	Pre-Developed	460	299	800	0.48	0.33	0.77	5.2	3.7	8.4	1.0	0.7	1.7	33	23	55
	Developed	496	347	813	0.54	0.40	0.84	6.7	5.0	10.3	1.7	1.2	2.7	37	27	58
	Dev w/ PDFs	457	312	765	0.48	0.34	0.77	5.8	4.1	9.2	1.4	0.9	2.3	33	24	54
	Percent Change	0	4	-4	1	3	-1	10	11	10	36	34	37	0	3	-2
Total Sub-basin Area	Pre-Developed	1043	655	1864	1.1	0.8	1.8	13.0	9.2	20.9	3.9	2.8	6.1	70	47	120
	Developed	2717	2119	3984	2.9	2.3	4.1	46.4	37.6	65.1	19.8	16.3	27.5	183	144	264
	Dev w/ PDFs	1026	665	1792	1.0	0.7	1.8	14.7	10.0	24.7	5.2	3.5	8.9	70	47	119
	Percent Change	-2	1	-4	-5	-7	-3	14	8	19	35	23	46	-1	0	-1

1 This condition reflects the sand mining and processing operation (including Trampas Dam) and a large quarry pit which limits runoff to Trampas Creek.

TABLE 4.5-45
PREDICTED AVERAGE ANNUAL TRACE METAL LOADS FOR THE CRISTIANITOS SUB-BASIN (LBS)

Modeled Area	Site Condition	Total Aluminum			Dissolved Cadmium			Dissolved Copper			Dissolved Lead			Dissolved Zinc		
		All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years
Cristianitos Creek	Pre-Developed	114	83	179	0.20	0.15	0.30	2.53	1.95	3.76	0.44	0.35	0.65	13	10	20
	Developed	365	290	526	0.48	0.39	0.68	7.08	5.74	9.91	2.29	1.86	3.19	31	25	44
	Dev w/ PDFs	119	71	220	0.08	0.05	0.16	1.21	0.61	2.50	0.43	0.24	0.82	7	4	14
	Percent Change	4	-15	23	-58	-69	-46	-52	-69	-33	-3	-29	26	-48	-63	-31

TABLE 4.5-46
PREDICTED AVERAGE ANNUAL TRACE METAL LOADS FOR THE GABINO SUB-BASIN (LBS)

Modeled Area	Site Condition	Total Aluminum			Dissolved Cadmium			Dissolved Copper			Dissolved Lead			Dissolved Zinc		
		All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years	All Years	Dry Years	Wet Years
Gabino	Pre-Developed	77	60	115	0.09	0.07	0.12	1.16	0.93	1.66	0.25	0.20	0.36	10	8	14
	Developed	774	627	1085	0.79	0.64	1.10	13.29	10.87	18.43	5.96	4.87	8.26	51	41	71
	Dev w/ PDFs	674	550	937	0.63	0.52	0.88	12.11	9.96	16.67	3.46	2.76	4.95	45	37	62
	Percent Change	770	816	718	638	665	607	940	973	902	1287	1290	1283	357	367	344

Hydrologic Conditions of Concern

Impact 4.5-6: In the absence of mitigation, implementation of the project would adversely impact water balance (i.e., inflows –versus- outflows) within the affected watershed(s) and sub-basins.

Impacts on hydrologic conditions of concern were evaluated based on the comparison of the pre- and post-development water balance results at the sub-basin scale and comparisons of pre- and post-development flow duration at the planning area scale (*see Draft WQMP*, Chapters 3 and 5). The post-development condition reflects the effects of the combined control system for the catchments affected by development and, in the case of the water balance assessments, reflects the additional effects of irrigating urban landscaping (*see Draft WQMP*, Chapters 4 and 5).

In assessing the hydrologic conditions of concern, the effects of the proposed development on runoff flow rate, peak discharge and flow duration were evaluated with two types of analyses, namely: (1) flow duration analysis, and (2) water balance analysis. The flow duration analysis was conducted first, the results of which were then used to select and size the combined control system facilities. Finally, the water balance was conducted taking into account the hydrologic control achieved with these facilities.

The results of the assessment are shown in Table 4.5-47 through 4.5-54 for two development scenarios, namely: (i) existing conditions and (ii) post-development conditions with the PDFs. For each scenario, the table shows the “inflows” or “deposits” to the balance, which consist of precipitation for the pre-development condition and precipitation plus irrigation for the post-developed condition. “Outflows” or “withdrawals” consist of surface runoff to the main stem channel or diversion outside the sub-basin, infiltration that results in groundwater outflow to streams, and evapotranspiration. The unit of measure in the water balance is inches (and in parentheses, acre-ft), where the inches are the volume in acre-ft divided by the sub-basin area. In semi-arid areas the water balance also varies by season and the tables show the variability in the monthly water balance.

The rainfall analysis conducted for each sub-basin takes into account the effect of elevation on rainfall and, because of grading, this can introduce small changes in the precipitation between the pre- and post-development condition. Also, the modeling itself can introduce small water balance errors; e.g., there can be a small change between the assumed initial groundwater storage at the start of the simulation and the final storage at the end of the simulation. These effects can result in very small, but perceptible changes between the inflow and outflow totals (e.g., for precipitation), but are not meaningful in terms of the overall water balance.

TABLE 4.5-47
CHIQUITA SUB-BASIN WATER BALANCE, ALL YEARS (RANCH PLAN) (INCHES [ACRE-FT])

	Pre-Development[1]						Post-Development with PDFs[2]							
	INFLOW	OUTFLOW					INFLOW			OUTFLOW				
	Precipitation	Runoff to Chiquita	Runoff to San Juan Creek	GW[3] Outflow	ET[4]	Total	Precipitation	Irrigation	Total	Runoff to Chiquita	Runoff to San Juan Creek	GW[3] Outflow	ET[4]	Total
OCT	0.3 (116)	0.0 (1)	0.0 (0)	0.1 (40)	0.3 (122)	0.5 (163)	0.3 (114)	0.1 (37)	0.4 (151)	0.0 (1)	0.0 (2)	0.1 (47)	0.4 (155)	0.6 (205)
NOV	1.7 (602)	0.0 (7)	0.0 (0)	0.1 (33)	0.7 (235)	0.8 (275)	1.7 (592)	0.0 (16)	1.7 (608)	0.0 (9)	0.0 (10)	0.1 (52)	0.7 (239)	0.9 (310)
DEC	2.3 (794)	0.0 (10)	0.0 (0)	0.1 (41)	0.8 (274)	0.9 (325)	2.2 (781)	0.0 (11)	2.3 (793)	0.0 (13)	0.0 (13)	0.2 (72)	0.8 (266)	1.0 (364)
JAN	3.8 (1336)	0.1 (25)	0.0 (0)	0.4 (131)	0.9 (325)	1.4 (481)	3.8 (1314)	0.0 (10)	3.8 (1324)	0.1 (32)	0.1 (22)	0.5 (180)	0.9 (310)	1.6 (544)
FEB	3.5 (1234)	0.1 (46)	0.0 (1)	0.8 (277)	1.2 (422)	2.1 (747)	3.5 (1214)	0.0 (8)	3.5 (1222)	0.1 (52)	0.1 (20)	0.9 (314)	1.1 (399)	2.2 (784)
MAR	2.9 (1025)	0.0 (14)	0.0 (0)	1.1 (396)	1.8 (625)	3.0 (1035)	2.9 (1008)	0.1 (31)	3.0 (1039)	0.1 (19)	0.0 (17)	1.2 (423)	1.7 (590)	3.0 (1049)
APR	1.2 (417)	0.0 (5)	0.0 (0)	0.7 (242)	2.2 (784)	2.9 (1030)	1.2 (410)	0.2 (59)	1.3 (469)	0.0 (5)	0.0 (6)	0.7 (257)	2.1 (744)	2.9 (1013)
MAY	0.4 (138)	0.0 (1)	0.0 (0)	0.4 (145)	2.2 (771)	2.6 (917)	0.4 (136)	0.2 (75)	0.6 (212)	0.0 (1)	0.0 (2)	0.4 (154)	2.2 (754)	2.6 (912)
JUN	0.1 (49)	0.0 (0)	0.0 (0)	0.3 (96)	1.2 (416)	1.5 (512)	0.1 (48)	0.3 (89)	0.4 (138)	0.0 (0)	0.0 (1)	0.3 (103)	1.3 (464)	1.6 (568)
JUL	0.0 (11)	0.0 (0)	0.0 (0)	0.2 (75)	0.2 (55)	0.4 (130)	0.0 (11)	0.3 (91)	0.3 (102)	0.0 (0)	0.0 (0)	0.2 (82)	0.4 (140)	0.6 (222)
AUG	0.1 (40)	0.0 (0)	0.0 (0)	0.2 (59)	0.1 (40)	0.3 (99)	0.1 (39)	0.2 (84)	0.4 (123)	0.0 (0)	0.0 (1)	0.2 (66)	0.3 (118)	0.5 (186)
SEP	0.4 (123)	0.0 (1)	0.0 (0)	0.1 (46)	0.3 (92)	0.4 (140)	0.3 (121)	0.2 (60)	0.5 (181)	0.0 (2)	0.0 (2)	0.2 (55)	0.4 (147)	0.6 (205)
Total	**16.8 (5886)**	**0.3 (112)**	**0.0 (1)**	**4.5 (1581)**	**11.9 (4160)**	**16.7 (5854)**	**16.5 (5790)**	**1.6 (571)**	**18.2 (6360)**	**0.4 (135)**	**0.3 (95)**	**5.2 (1806)**	**12.3 (4326)**	**18.2 (6362)**

1 Pre-development sub-basin area = 4200 acres. Volumes given are inches over the sub-basin area.
2 Post-development sub-basin area = 4204 acres. Volumes given are inches over the sub-basin area.
3 GW = Groundwater
4 ET = Evapotranspiration

TABLE 4.5-48
GOBERNADORA SUB-BASIN WATER BALANCE*, ALL YEARS (INCHES [ACRE-FT])

	Pre-Development[1]						Post-Development with PDFs[2]							
	INFLOW	OUTFLOW					INFLOW				OUTFLOW			
	Precipitation	Runoff to Gobernadora Creek	Runoff to San Juan Creek	GW[3] Outflow	ET[4]	Total	Precipitation	Irrigation	Total	Runoff to Gobernadora Creek	Runoff to San Juan Creek	GW[3] Outflow	ET[4]	Total
OCT	0.3 (172)	0.0 (16)	0.0 (0)	0.2 (116)	0.3 (185)	0.5 (317)	0.3 (171)	0.1 (64)	0.4 (235)	0.0 (16)	0.0 (2)	0.2 (125)	0.4 (245)	0.7 (388)
NOV	1.5 (891)	0.2 (131)	0.0 (0)	0.2 (103)	0.5 (267)	0.9 (501)	1.5 (888)	0.0 (27)	1.6 (915)	0.2 (135)	0.0 (13)	0.2 (135)	0.5 (282)	1.0 (565)
DEC	2.0 (1175)	0.3 (193)	0.0 (0)	0.2 (111)	0.5 (289)	1.0 (593)	2.0 (1172)	0.0 (20)	2.0 (1192)	0.3 (196)	0.0 (18)	0.3 (164)	0.5 (284)	1.1 (662)
JAN	3.4 (1974)	0.6 (376)	0.0 (0)	0.3 (169)	0.6 (337)	1.5 (881)	3.4 (1969)	0.0 (16)	3.4 (1985)	0.6 (375)	0.1 (30)	0.4 (246)	0.5 (322)	1.7 (973)
FEB	3.1 (1826)	0.8 (483)	0.0 (2)	0.4 (252)	0.7 (430)	2.0 (1167)	3.1 (1821)	0.0 (12)	3.1 (1834)	0.8 (480)	0.0 (28)	0.5 (310)	0.7 (406)	2.1 (1225)
MAR	2.6 (1517)	0.5 (301)	0.0 (0)	0.6 (354)	1.0 (602)	2.1 (1258)	2.6 (1513)	0.1 (49)	2.7 (1562)	0.5 (296)	0.0 (24)	0.7 (400)	1.0 (571)	2.2 (1292)
APR	1.0 (616)	0.1 (84)	0.0 (0)	0.5 (296)	1.2 (695)	1.8 (1074)	1.0 (614)	0.2 (94)	1.2 (708)	0.1 (83)	0.0 (9)	0.5 (321)	1.1 (656)	1.8 (1069)
MAY	0.4 (206)	0.0 (19)	0.0 (0)	0.4 (237)	1.2 (676)	1.6 (932)	0.3 (205)	0.2 (122)	0.6 (327)	0.0 (19)	0.0 (3)	0.4 (250)	1.2 (678)	1.6 (950)
JUN	0.1 (73)	0.0 (5)	0.0 (0)	0.3 (188)	0.9 (539)	1.2 (732)	0.1 (73)	0.2 (146)	0.4 (218)	0.0 (5)	0.0 (1)	0.3 (194)	1.1 (644)	1.4 (844)
JUL	0.0 (17)	0.0 (1)	0.0 (0)	0.3 (166)	0.7 (384)	0.9 (551)	0.0 (17)	0.3 (150)	0.3 (166)	0.0 (1)	0.0 (0)	0.3 (169)	0.9 (528)	1.2 (698)
AUG	0.1 (60)	0.0 (6)	0.0 (0)	0.2 (145)	0.5 (274)	0.7 (426)	0.1 (59)	0.2 (140)	0.3 (199)	0.0 (7)	0.0 (1)	0.3 (150)	0.7 (407)	1.0 (564)
SEP	0.3 (183)	0.0 (22)	0.0 (0)	0.2 (125)	0.3 (201)	0.6 (348)	0.3 (182)	0.2 (101)	0.5 (283)	0.0 (22)	0.0 (2)	0.2 (133)	0.5 (294)	0.8 (452)
Total	**14.8 (8708)**	**2.8 (1636)**	**0.0 (2)**	**3.9 (2262)**	**8.3 (4879)**	**14.9 (8780)**	**14.8 (8685)**	**1.6 (940)**	**16.4 (9625)**	**2.8 (1635)**	**0.2 (132)**	**4.4 (2598)**	**9.1 (5317)**	**16.5 (9682)**

* Includes effects of Coto de Caza
1 Pre-development sub-basin area = 7049 acres. Volumes given are inches over the sub-basin area.
2 Post-development sub-basin area = 7033 acres. Volumes given are inches over the sub-basin area.
3 GW = Groundwater
4 ET = Evapotranspiration

TABLE 4.5-49
CENTRAL SAN JUAN & TRAMPAS SUB-BASINS, WITH SAND MINE, AVERAGE ANNUAL WATER BALANCE, ALL YEARS (INCHES [ACRE-FT])

				Pre-Development					Post-Development with PDFs						
	INFLOW			OUTFLOW					INFLOW			OUTFLOW			
Tributary Area	Precipitation	Irrigation	Total	Quarry Runoff Recirculation	Surface Runoff to Creek	GW[7] Outflow	ET[8]	Total	Precipitation	Irrigation	Total	Surface Runoff to Creek	GW[7] Outflow	ET[8]	Total
Lake Area[1]	16.7 (585)	0.0 (0)	16.7 (585)	2.3 (81)	0.0 (0)	7.8 (274)	6.5 (229)	16.6 (583)	-	-	-	-	-	-	-
Trampas Creek/PA5[2]	16.3 (883)	0.0 (0)	16.3 (883)	0.0 (0)	0.2 (12)	7.2 (391)	8.9 (480)	16.3 (883)	16.2 (1366)	7.7 (649)	23.9 (2015)	0.2 (14)	12.8 (1085)	10.8 (912)	23.8 (2010)
South CSJ/PA5[3]	16.1 (798)	0.0 (0)	16.1 (798)	0.0 (0)	2.0 (100)	7.4 (368)	7.0 (350)	16.5 (818)	16.3 (1005)	6.4 (392)	22.6 (1397)	1.8 (109)	11.2 (694)	9.8 (602)	22.8 (1406)
North CSJ/PA3[4]	15.0 (2005)	2.1 (284)	17.1 (2289)	0.0 (0)	1.7 (228)	7.0 (937)	8.7 (1164)	17.4 (2330)	15.4 (2177)	8.2 (1151)	23.6 (3328)	1.6 (232)	11.4 (1614)	10.6 (1492)	23.7 (3338)
East CSJ/PA4[5]	15.8 (2028)	0.2 (28)	16.0 (2056)	0.0 (0)	2.1 (268)	7.6 (972)	6.7 (859)	16.4 (2099)	15.9 (1941)	1.2 (146)	17.0 (2087)	2.2 (273)	7.4 (911)	7.6 (934)	17.3 (2118)
Total Sub-basin[6]	15.7 (6299)	0.8 (312)	16.5 (6612)	2.3 (81)	1.7 (608)	7.3 (2941)	7.7 (3082)	16.7 (6713)	15.8 (6489)	5.7 (2338)	21.5 (8827)	1.5 (628)	10.5 (4304)	9.6 (3940)	21.7 (8872)

1 Pre-development sand mine area = 421 acres; post-development area = 0 acres.
2 Pre-development tributary area (Trampas Creek) = 638 acres (excluding mine area); post-development tributary area = 1013 acres.
3 Pre-development tributary area (South Central San Juan in Planning Area 5) = 597 acres (excluding quarry area); post-development tributary area = 735 acres.
4 Pre-development tributary area (North Central San Juan in Planning Area 3) = 1605 acres; post-development tributary area = 1693 acres.
5 Pre-development tributary area (East Central San Juan in Planning Area 4) = 1539 acres; post-development tributary area = 1470 acres.
6 Pre-development tributary area (total Central San Juan and Trampas Sub-basin) = 4800 acres; post-development tributary area = 4911 acres.
7 GW = Groundwater
8 ET = Evapotranspiration

TABLE 4.5-50
PLANNING AREA 5 IN CENTRAL SAN JUAN & TRAMPAS SUB-BASINS, WITHOUT SAND MINE[1], AVERAGE ANNUAL WATER BALANCE, ALL YEARS (INCHES [ACRE-FT])

	Pre-Development					Post-Development with PDFs						
	INFLOW	OUTFLOW				INFLOW			OUTFLOW			
Tributary Area	Precipitation	Surface Runoff to Creek	GW[4] Outflow	ET[5]	Total	Precipitation	Irrigation	Total	Surface Runoff to Creek	GW[4] Outflow	ET[5]	Total
Trampas Creek/PA5[2]	16.4 (1452)	0.2 (19)	7.4 (656)	8.8 (775)	16.4 (1450)	16.2 (1366)	7.7 (649)	23.9 (2015)	0.2 (14)	12.8 (1085)	10.8 (912)	23.8 (2010)
South CSJ/PA5[3]	16.1 (798)	2.0 (100)	7.4 (368)	7.0 (350)	16.5 (818)	16.3 (996)	6.1 (371)	22.3 (1367)	1.9 (115)	11.1 (681)	9.5 (580)	22.5 (1376)

1 Results are shown for Planning Area 5 with the pre-development condition, before the mine, represented as open space.
2 Pre-development, pre-mine tributary area (Trampas Creek) = 1059 acres; post-development tributary area = 1,013 acres.
3 Pre-development, pre-mine tributary area (South Central San Juan in Planning Area 5) = 596 acres; post-development tributary area = 735 acres.
4 GW = Groundwater
5 ET = Evapotranspiration

TABLE 4.5-51
SOUTH CENTRAL SAN JUAN (PA5) & TRAMPAS TRIBUTARY AREAS, WITH MINE, AVERAGE ANNUAL WATER BALANCE, WET YEARS (INCHES [ACRE-FT])

Tributary Area				Pre-Development					Post-Development with PDFs						
	INFLOW			OUTFLOW					INFLOW			OUTFLOW			
	Precipitation	Irrigation	Total	Quarry Runoff Recirculation	Surface Runoff to Creek	GW[7] Outflow	ET[8]	Total	Precipitation	Irrigation	Total	Surface Runoff to Creek	GW[7] Outflow	ET[8]	Total
Quarry Area[1]	22.4 (786)	0.0 (0)	22.4 (786)	3.3 (116)	0.0 (0)	12.7 (444)	6.3 (220)	22.2 (781)	-	-	-	-	-	-	-
Trampas Creek/PA5[2]	21.9 (1187)	0.0 (0)	21.9 (1187)	0.0 (0)	0.5 (29)	12.7 (687)	8.5 (459)	21.7 (1174)	21.7 (1835)	7.7 (650)	29.4 (2486)	0.3 (26)	18.3 (1546)	10.8 (911)	29.4 (2483)
South CSJ/PA5[3]	21.6 (1073)	0.0 (0)	21.6 (1073)	0.0 (0)	3.7 (184)	11.4 (568)	6.7 (335)	21.9 (1087)	21.8 (1347)	6.4 (393)	28.2 (1740)	3.3 (201)	15.5 (955)	9.7 (597)	28.4 (1753)
North CSJ/PA3[4]	20.1 (2695)	2.1 (285)	22.3 (2979)	0.0 (0)	3.0 (397)	11.2 (1494)	8.4 (1126)	22.6 (3018)	20.7 (2925)	8.2 (1154)	28.9 (4079)	2.9 (407)	15.7 (2210)	10.6 (1496)	29.2 (4113)
East CSJ/PA4[5]	21.3 (2725)	0.2 (28)	21.5 (2753)	0.0 (0)	3.6 (459)	11.8 (1509)	6.5 (829)	21.8 (2798)	21.3 (2609)	1.2 (146)	22.5 (2755)	3.7 (452)	11.7 (1429)	7.4 (904)	22.7 (2785)
Total Sub-basin[6]	21.1 (8465)	0.8 (313)	21.9 (8778)	3.3 (116)	2.9 (1068)	11.7 (4703)	7.4 (2969)	22.1 (8858)	21.3 (8716)	5.7 (2344)	27.0 (11059)	2.7 (1086)	15.0 (6140)	9.5 (3908)	27.2 (11134)

1 Pre-development mine area = 421 acres; post-development mine area = 0 acres.
2 Pre-development tributary area (Trampas Creek) = 638 acres (excluding mine area); post-development tributary area = 1013 acres.
3 Pre-development tributary area (South Central San Juan in Planning Area 5) = 597 acres (excluding quarry area); post-development tributary area = 735 acres.
4 Pre-development tributary area (North Central San Juan in Planning Area 3) = 1605 acres; post-development tributary area = 1693 acres.
5 Pre-development tributary area (East Central San Juan in Planning Area 4) = 1539 acres; post-development tributary area = 1470 acres.
6 Pre-development tributary area (total Central San Juan and Trampas Sub-basin) = 4800 acres; post-development tributary area = 4911 acres.
7 GW = Groundwater
8 ET = Evapotranspiration

TABLE 4.5-52
PLANNING AREA 5 IN CENTRAL SAN JUAN & TRAMPAS SUB-BASINS, PRE-MINE[1], AVERAGE ANNUAL WATER BALANCE, WET YEARS (INCHES [ACRE-FT])

Tributary Area	Pre-Development					Post-Development with PDFs						
	INFLOW	OUTFLOW				INFLOW			OUTFLOW			
	Precipitation	Surface Runoff to Creek	GW[4] Outflow	ET[5]	Total	Precipitation	Irrigation	Total	Surface Runoff to Creek	GW[4] Outflow	ET[5]	Total
Trampas Creek/PA5[2]	22.1 (1950)	0.5 (45)	13.0 (1146)	8.4 (739)	21.9 (1930)	21.7 (1835)	7.7 (650)	29.4 (2486)	0.3 (26)	18.3 (1546)	10.8 (911)	29.4 (2483)
South CSJ/PA5[3]	21.6 (1073)	3.7 (184)	11.4 (568)	6.7 (335)	21.9 (1087)	21.8 (1335)	6.1 (371)	27.9 (1707)	3.4 (210)	15.3 (936)	9.4 (575)	28.1 (1720)

1 Results are shown for Planning Area 5 with the pre-development condition, before the mine, represented as open space.
2 Pre-development, pre-mine tributary area (Trampas Creek) = 1059 acres; post-development tributary area = 1,013 acres.
3 Pre-development, pre-mine tributary area (South Central San Juan in Planning Area 5) = 596 acres; post-development tributary area = 735 acres.
4 GW = Groundwater
5 ET = Evapotranspiration

TABLE 4.5-53
CRISTIANITOS SUB-BASIN AVERAGE ANNUAL WATER BALANCE, ALL YEARS (INCHES [ACRE-FT])

	Pre-Development					Post-Development with PDFs								
	INFLOW	OUTFLOW				INFLOW			OUTFLOW					
Tributary Area	Precipitation	Runoff to Cristianitos Creek	GW[4] Outflow	ET[5]	Total	Precipitation	Irrigation	Total	Runoff to Cristianitos Creek	Stored Runoff for GC Irrig	Runoff Diverted to Gabino Creek	GW[4] Outflow	ET[5]	Total
Planning Area 6[1]	15.1 (620)	0.6 (26)	4.2 (171)	10.3 (425)	15.1 (622)	15.0 (643)	10.0 (427)	25.0 (1070)	0.5 (20)	0.9 (39)	0.0 (0)	5.4 (232)	18.2 (780)	25.0 (1070)
Planning Area 7[2]	15.0 (1099)	0.7 (52)	4.2 (310)	10.1 (739)	15.0 (1101)	14.8 (837)	4.4 (252)	19.2 (1089)	1.0 (57)	0.0 (0)	2.1 (121)	4.1 (234)	11.9 (676)	19.2 (1088)
Total Sub-basin[3]	14.8 (2923)	0.4 (79)	3.8 (758)	10.6 (2094)	14.8 (2930)	14.7 (2685)	3.7 (680)	18.4 (3364)	0.4 (79)	0.2 (39)	0.7 (121)	4.1 (742)	13.1 (2385)	18.4 (3366)

[1] The shape of the PA6 catchment changes from pre-development to post-development; the results presented include some open space outside of PA6. Thus, the total area is greater than the dev area of PA6. Pre-development tributary area (Planning Area 6) = 493 acres; post-development tributary area = 515 acres.
[2] The shape of the PA7 catchment changes from pre-development to post-development; the results presented include some open space outside of PA7. Thus, the total area is greater than the dev area of PA7. Pre-development tributary area (Planning Area 7) = 881 acres; post-development tributary area = 680 acres.
[3] Pre-development tributary area (Total Sub-basin Area) = 2370 acres; post-development tributary area = 2191 acres.
[4] GW = Groundwater
[5] ET = Evapotranspiration

TABLE 4.5-54
GABINO SUB-BASIN AVERAGE ANNUAL WATER BALANCE[1] (INCHES [ACRE-FT])

Climatic Period	Pre-Development[2]					Post-Development with PDFs[3]									
	INFLOW	OUTFLOW				INFLOW				OUTFLOW					
	Precipitation	Runoff to Gabino Creek	GW[7] Outflow	ET[8]	Total	Precipitation	Irrigation	Runoff Diverted from Cristianitos Sub-basin[4]	Total	Runoff to Gabino Creek[4]	Runoff Diverted from Cristianitos Sub-basin[5]	Runoff Stored for GC Irrigation[6]	GW[7] Outflow	ET[8]	Total
All Years	17.3 (2148)	0.4 (45)	5.2 (649)	11.8 (1461)	17.3 (2155)	16.5 (2392)	3.9 (560)	0.8 (121)	21.2 (3073)	2.4 (353)	0.8 (121)	0.1 (19)	4.8 (695)	13.2 (1912)	21.4 (3100)
Dry Years	14.5 (1802)	0.3 (35)	2.9 (356)	11.6 (1437)	14.7 (1828)	13.8 (2008)	3.9 (559)	0.7 (102)	18.4 (2669)	1.9 (282)	0.7 (102)	0.1 (16)	2.9 (419)	13.0 (1886)	18.6 (2704)
Wet Years	23.2 (2880)	0.5 (67)	10.2 (1271)	12.2 (1513)	22.9 (2850)	22.1 (3205)	3.9 (561)	1.1 (162)	27.1 (3928)	3.5 (504)	1.1 (162)	0.2 (25)	8.8 (1279)	13.6 (1968)	27.2 (3938)

1 Water balance results for the lower Gabino Sub-basin; i.e. catchments that are directly tributary to Gabino Creek in PA7 and PA8, and excludes development areas in PA9.
2 The pre-development catchments are 68-80. Pre-development area = 1491 acres.
3 The post-development catchments are: 68-80, PA7-7, PA7-12, PA7-13, PA7-15, PA8-12, and PA8-14. Post-development area = 1740 acres.
4 This is runoff from catchments that are tributary to Gabino Creek.
5 This is treated runoff diverted from Cristianitos Sub-basin (inches are with respect to area of Lower Gabino).
6 Assumed golf course storage volume of 10 acre feet.
7 GW = Groundwater
8 ET = Evapotranspiration

Sizing and Design of Flow Duration and Water Quality (FD/WQ) Basins

The FD/WQ basins are sized to maintain, to the extent possible, the pre-development runoff volume and flow duration over the total range of flows predicted by the hydrologic model for a 53-year rainfall record at the Trabuco Canyon rain gauge. Maintaining the pre-development duration of flows serves to control increases in downstream channel erosion that may otherwise occur due to development. The simplest way to visualize this control strategy is a histogram of pre- and post-development flows which shows the duration of flows within various "flow bins," where a flow bin is defined as a specific range of flows. For example, a sequence of flow bins could contain all flows between 10 to 20 cfs, 20 to 30 cfs, 30 to 40 cfs, 40 to 50 cfs, etc. To maintain flow duration requires that the combined control system modify the post-development flow frequency (counts) in the histogram such that the post-development-with-controls flow frequency matches the pre-development flow frequency. The details and results of the sizing of the FD/WQ basins are included in the analysis presented in the *Draft WQMP*. As reviewed in Chapter 5 of the *Draft WQMP*, all potentially significant impacts to hydrologic conditions of concern are reduced to less than significant.

Water Quality Elements by Sub-basin

The choice and size of the water quality facilities to be utilized in a combined control system (see discussion under Mitigation Measure 4.5-6) will vary depending on the catchment. For most catchments, the combined control system consists of a FD/WQ basin, a separate infiltration basin, and a vegetated swale. This proposed system is conceptually illustrated in Exhibits 4.5-14 through 4.5-16, and both the water quality elements and sub-basin flow duration control strategies are reviewed in Chapter 4 of the *Draft WQMP* and subjected to detailed impact/mitigation analysis in Chapter 5 of the *Draft WQMP*. When flow duration control is not necessary, an extended detention basin can be used for water quality. The preliminary combined control system requirements identified for the project (as described in the *Draft WQMP*) are presented in Tables 5.4-55 through 5.4-60. In general, more volume control is necessary in those areas where development will be located on sandy, infiltrative soils, and in those areas where development is more urbanized. Less volume control is required for those areas where development is less intensive.

TABLE 4.5-55
COMBINED CONTROL SYSTEM REQUIREMENTS FOR CAÑADA CHIQUITA

Facility ID	Tributary Catchments	FD/WQ Basin	Extended Detention Basin	Infiltration Basin	Vegetated Swale		Direct Discharge to San Juan Creek	Non-domestic Water Supply Storage and Recycling	Comments
					Unlined	Lined			
Chiquita-2	2				✓			✓	Unlined swale provides adequate volume control and water quality treatment given limited runoff anticipated from golf course
Chiquita-3	3				✓			✓	Same as Chiquita-2
Chiquita-4	4				✓			✓	Same as Chiquita-2
Chiquita-5	5				✓			✓	Same as Chiquita-2
Chiquita-9	9		✓	✓	✓			✓	Combined control system designed to control and treat approximately 80-90% of excess runoff. Complete control infeasible given sandy soils and low pre-development runoff.
Chiquita-10	10	✓		✓	✓			✓	Standard combined control system. Water is conveyed from the flow duration basin to the infiltration basin through vegetated swales, providing further water quality treatment.
Chiquita-11	11	✓		✓	✓			✓	Same as Chiquita-10
Chiquita-12	12	✓		✓	✓			✓	Same as Chiquita-10
Chiquita-13	13	✓		✓	✓			✓	Same as Chiquita-10
Chiquita-14	14	✓		✓	✓			✓	Same as Chiquita-10
Chiquita-16/17[1]	16/17	✓				✓	✓		Flow duration control required for discharge into Chiquita Creek. Excess flows are treated and discharged directly to San Juan Creek.
Chiquita-18	18		✓				✓		Discharge directed to San Juan Creek; no flow duration control required.

[1] Includes a small portion of Catchment 15.

TABLE 4.5-56
COMBINED CONTROL SYSTEM REQUIREMENTS FOR CAÑADA GOBERNADORA

Facility ID	Tributary Catchments	FD/WQ Basin	ED Basin	Infiltration Basin	Vegetated Swale		Direct Discharge to San Juan Creek	Storage and Recycling	Storage and Recycling
					Unlined	Lined			
Gob-1	1		✓			✓	✓		Water quality treatment only. No flow control assumed to be required as discharge directed to San Juan Creek.
Gob-3	3	✓		✓	✓				Standard combined control system. Water is conveyed from the flow duration basin to the infiltration basin through vegetated swales, allowing further water quality treatment.
Gob-4	4		✓			✓			Water quality treatment only because catchment has 85 acres of outcrops and change in runoff with development small.
Gob-5	5	✓		✓	✓				Same as Gob-3
Gob-7	7	✓		✓	✓				Same as Gob-3
Gob-8	8	✓		✓	✓				Same as Gob-3
Gob-9	9	✓		✓	✓				Same as Gob-3
Gob-10	10		✓						Water quality treatment only. No flow control required as only about 5 acres of estate housing.

TABLE 4.5-57
COMBINED CONTROL SYSTEM REQUIREMENTS
FOR THE CENTRAL SAN JUAN AND TRAMPAS SUB-BASINS

Facility ID	Tributary Catchments	FD/ WQ Basin	ED Basin	Infiltration Basin	Vegetated Swale		Inter Sub-basin Transfer	Storage and Recycling	Comments
					Unlined	Lined			
CSJ-1	13, 14, 17, 18a, 19, PA5-2	✓		✓		✓			Standard combined control system. Water is conveyed from flow duration basin to the infiltration basin through vegetated swales, allowing further water quality treatment. Bypassed flows are directed to xx Creek.
CSJ-2	18b, 23, PA5-1	✓		✓		✓			Same as CSJ-1
CSJ-3	22, PA5-3	✓		✓		✓			Standard combined control system. Water is conveyed from flow duration basin to the infiltration basin through vegetated swales, allowing further water quality treatment. Bypassed flows are directed to Trampas Creek.
CSJ-4	25a, 25b, PA5-4	✓		✓		✓			Same as CSJ-3
CSJ-5	33, 36[1], 37, PA3-4, PA3-5	✓		✓		✓			Standard combined control system. Water is conveyed from flow duration basin to the infiltration basin through vegetated swales, allowing further water quality treatment. Bypassed flows are directed to San Juan Creek.
CSJ-6	26, 28, 29, PA3-3, PA3-6	✓		✓		✓			Same as CSJ-5
CSJ-7	16, 20, 21, 27, PA3-1, PA3-2, PA3-7, PA3-8	✓		✓		✓			Same as CSJ-5
CSJ-8	32, 34, 36[1], 38	✓		✓		✓			Same as CSJ-5

[1] A small portion of Catchment 36 (designated as 'general developed') is included with PA 3. The remaining areas of the catchment are included in PA 4.

TABLE 4.5-58
COMBINED CONTROL SYSTEM REQUIREMENTS FOR THE CRISTIANITOS SUB-BASIN

Facility ID	Tributary Catchments	FD/WQ Basin	ED Basin	Infiltration Basin	Vegetated Swale		Direct Discharge to Gabino Creek	Non-domestic Water Supply Storage and Recycling	Comments
					Unlined	Lined			
Cristianitos-1	PA7-9	✓				✓	✓		Flow duration control required for discharge into Cristianitos Creek. Excess flows are treated and discharged directly to Gabino Creek.
Cristianitos-2	PA7-10	✓				✓	✓		Flow duration control required for discharge into Cristianitos Creek. Excess flows are treated and discharged directly to Gabino Creek.
Cristianitos-3	54, PA7-11	✓				✓	✓		Flow duration control required for discharge into Cristianitos Creek. Excess flows are treated and discharged directly to Gabino Creek.
Cristianitos-4	55, 58, PA7-14, PA7-16	✓				✓	✓		Flow duration control required for discharge into Cristianitos Creek. Excess flows are treated and discharged directly to Gabino Creek.
Cristianitos-5	PA6-1, PA6-2, PA6-3, PA6-4		✓					✓	Excess surface flows will be collected and stored on the golf course to be reused as irrigation. The on-site storage facility provides water quality treatment.

TABLE 4.5-59
COMBINED CONTROL SYSTEM REQUIREMENTS FOR GABINO

Facility ID	Catchment Numbers	F.D. Basin	W.Q. Basin	Infiltration Basin	Vegetated Swale		Inter Sub-basin Transfer	Storage and Recycling	Comments
					Unlined	Lined			
Gabino-1	68, 72, 73, 74, 76, 77, PA7-1, PA7-2, PA7-3, PA7-4, PA7-5, PA7-6, PA7-7, PA7-12, PA7-13, PA7-15		✓			✓			Water quality treatment only. No flow control is required because flows are directly discharged to Gabino Creek. Water quality treatment will be achieved using an existing quarry pond that will be modified to provide additional storage.
Gabino-2	PA8-12, PA8-14		✓					✓	Golf course area: Runoff will be collected and stored on-site to be used as irrigation. The on-site storage facility will provide water quality treatment.

TABLE 4.5-60
COMBINED CONTROL SYSTEM REQUIREMENTS FOR BLIND CANYON

Facility ID	Tributary Catchments	FD/WQ Basin	ED Basin	Infiltration Basin	Vegetated Swale		Graded to Divert Runoff from Talega to Blind	Non-domestic Water Supply Storage and Recycling	Comments
					Unlined	Lined			
Blind-1	PA8-3, PA8-4, PA8-5		✓	✓		✓	✓		Water quality treatment only. Flows are treated in detention basins in Blind Canyon before being discharged to infiltration basins located near the confluence of Gabino and Blind Creek.
Blind-2	PA8-6	✓		✓		✓	✓		Due to the proposed grading plan, areas once tributary to Talega Creek now discharge to Blind Creek. Flow duration control is used to preserve the existing flows in Talega Creek. Excess flows are treated and diverted to infiltration basins located in Blind Canyon.
Blind-3	PA8-7, PA8-8, PA8-9		✓	✓		✓	✓		Water quality treatment only. Flows are treated in detention basins in Blind Canyon before being discharged to infiltration basins located near the confluence of Gabino and Blind Creek.
Blind-4	PA8-10, PA8-11, PA8-13		✓					✓	Golf course area: Runoff will be collected and stored on-site to be used as irrigation. The on-site storage facility provides water quality treatment.

Related Planning Programs

As indicated previously, the *Watershed Planning Principles* were developed to provide key guidance for protecting and conserving aquatic and riparian resources at the watershed and sub-basin levels. In conceiving/designing the Ranch Plan project, the applicant adhered closely to these fundamental principles and developed a comprehensive program that acknowledges these resources and concurrently minimizes impacts thereto. In accordance with the *Watershed Planning Principles*, the Ranch Plan project preserves the hydrologic regime for the impacted watersheds. And, as discussed in prior subsections of this Water Resources chapter, the Ranch Plan (i) mimics existing runoff and infiltration patterns within the project area, (ii) does not exacerbate peak flow rates or water volumes within or downstream of the project area, (iii) maintains the geomorphic structure of the major tributaries within the project area, (iv) maintains coarse sediment yields, storage and transport processes and (v) uses a variety of strategies and programs (as more fully described in the *Draft WQMP*) to protect water quality.

Accordingly, the Ranch Plan project is consistent with the *Watershed Planning Principles*, and implementation of the strategies and programs developed pursuant to the Principles will assist in mitigating project-related water resource impacts to below a level of significance.

4.5.5 MITIGATION PROGRAM

Project Design Features

PDF 4.5-1 *Site Design Watershed Planning Principles* – Land use planning guidance criteria were developed as part of the NCCP/HCP and SAMP/MSAA processes to assist in preserving the existing hydrologic functions within the watershed. These principles (the *Watershed Planning Principles) were* utilized as a framework to assist in planning the project to minimize project hydrologic impacts and to preserve the natural water resources.

PDF 4.5-2 *Flood Control Detention Facilities* – Dedicated areas are to be provided throughout the project area to provide sufficient storage for runoff volumes to mitigate increases in peak discharges and to offset impacts of existing development.

PDF 4.5- 3 *Water Quality Management Plan* – A conceptual Water Quality Management Plan (the *Draft WQMP*) has been developed for the proposed project in compliance with the Model Water Quality Management Plan requirements of the County of Orange DAMP. The *Draft WQMP* addresses the following elements:

- **Site-design BMPs**: Site design BMPs have been selected to address the creation of a hydrologically functional project design that seeks to mimic the natural hydrologic regime.

- **Source Control BMPs**: Source controls BMPs (routine non-structural BMPs, routine structural BMPs, and BMPs for individual categories/project features) have been selected, including a combined flow and water quality control system to address hydrologic water balance and water quality treatment.

- **Urban Runoff and Stormwater Control Elements**: Water balance and flow duration analyses and conceptual combined flow and water quality control systems have been prepared for each sub-basin.

- **Stormwater BMP Operation and Maintenance Program**: An operation and maintenance program has been developed to address the following elements: Maintenance Responsibility, General Operation and Maintenance Activities, Routine Operation and Maintenance Activities and Major Operation and Maintenance Activities

- **Stormwater Monitoring Program**: A stormwater monitoring program has been developed for the Water Quality BMPs.

PDF 4.5-4 *Water Conservation* – Water captured in the combined flow and water quality control system and in flood control detention facilities, where possible, will be percolated, infiltrated and/or re-captured for re-use as a supplemental source of irrigation water.

Standard Conditions and Requirements

Many of the standard conditions and regulations are enacted at subsequent levels of approval. The following are the County of Orange Standard Conditions associated with water resources. These are listed because they would be applicable at subsequent levels of approval (i.e., grading permits and tract maps).

Drainage/Flood

SC 4.5-1 **Drainage Study.** Prior to the recordation of a subdivision map (except maps for financing and conveyance purposes only) or prior to the issuance of any grading permits, whichever comes first, the following drainage studies shall be submitted to and approved by the Manager, Subdivision and Grading:

A. A drainage study of the project including diversions, off-site areas that drain onto and/or through the project, and justification of any diversions; and
B. When applicable, a drainage study evidencing that proposed drainage patterns will not overload existing storm drains; and
C. Detailed drainage studies indicating how the project grading, in conjunction with the drainage conveyance systems including applicable swales, channels, street flows, catch basins, storm drains, and flood water retarding, will allow building pads to be safe from inundation from rainfall runoff which may be expected from all storms up to and including the theoretical 100-year flood.

SC 4.5-2 **Drainage Improvements.**

A. Prior to the recordation of a subdivision map (except maps for financing and conveyance purposes only) or prior to the issuance of any grading permits, whichever comes first, the applicant shall in a manner meeting the approval of the Manager, Subdivision and Grading:

1) Design provisions for surface drainage; and
2) Design all necessary storm drain facilities extending to a satisfactory point of disposal for the proper control and disposal of storm runoff; and
3) Dedicate the associated easements to the County of Orange, if determined necessary.

B. Prior to the recordation of a subdivision map (except maps for financing and conveyance purposes only) or prior to the issuance of any certificates of use and occupancy, whichever occurs first, said improvements shall be constructed in a manner meeting the approval of the Manager, Construction.

SC 4.5-3 **Drainage Improvements**

A. Prior to the issuance of any grading permits, the applicant shall in a manner meeting the approval of the Manager, Subdivision and Grading:

1) Design provisions for surface drainage; and
2) Design all necessary storm drain facilities extending to a satisfactory point of disposal for the proper control and disposal of storm runoff; and
3) Dedicate the associated easements to the County of Orange, if determined necessary.

B. Prior to the issuance of any certificates of use and occupancy, said improvements shall be constructed in a manner meeting the approval of the Manager, Construction.

SC 4.5-4 **Master Plan of Drainage.** Prior to the recordation of a subdivision map (except maps for financing and conveyance purposes only), the subdivider shall participate in the applicable Master Plan of Drainage in a manner meeting the approval of the Manager, Subdivision and Grading, including payment of fees and the construction of the necessary facilities.

SC 4.5-5 **Subordination of Easements.** Prior to the recordation of a subdivision map (except maps for financing and conveyance purposes only), the subdivider shall not grant any easements over any property subject to a requirement of dedication or irrevocable offer to the County of Orange or the Orange County Flood Control District, unless such easements are expressly made subordinate to the easements to be offered for dedication to the County. Prior to granting any of said easements, the subdivider shall furnish a copy of the proposed easement to the Manager, Subdivision and Grading, for review and approval.

SC 4.5-6 **Regional Facility Improvements.** Prior to the recordation of a subdivision map, the applicant shall improve Regional Facility_____ by the construction of _____ and dedicate right-of-way to the Orange County Flood Control District in a manner meeting the approval of the Manager, Subdivision and Grading.

SC 4.5-7 **Runoff Management Plan**. Prior to the issuance of any grading permits, applicant shall submit a Runoff Management Plan (RMP) to the Manager, Subdivision and Grading for review and approval.

Water Quality

SC 4.5-8 **Water Quality Management Plan.** Prior to the recordation of any final subdivision map (except those maps for financing or conveyance purposes only) or the issuance of any grading or building permit (whichever comes first), the applicant shall submit for review and approval by the Manager, Inspection Services Division, a Water Quality Management Plan (WQMP) specifically

identifying Best Management Practices (BMPs) that will be used onsite to control predictable pollutant runoff. This WQMP shall identify, at a minimum, the routine structural and non-structural measures specified in the current Drainage Area Management Plan (DAMP). The WQMP may include one or more of the following:

- Discuss regional water quality and/or watershed programs (if available for the project);
- Address Site Design BMPs (as applicable) such as minimizing impervious areas, maximizing permeability, minimizing directly connected impervious areas, creating reduced or "zero discharge" areas, and conserving natural areas;
- Include the applicable Routine Source Control BMPs as defined in the DAMP;
- Demonstrate how surface runoff and subsurface drainage shall be managed and directed to the nearest acceptable drainage facility (as applicable), via sump pumps if necessary.

SC 4.5-9 **Compliance with the WQMP.** Prior to the issuance of a certificate of use and occupancy, the applicant shall demonstrate compliance with the WQMP in a manner meeting the satisfaction of the Manager, Inspection Services Division, including:

- Demonstrate that all structural Best Management Practices (BMPs) described in the project's WQMP have been implemented, constructed and installed in conformance with approved plans and specifications;
- Demonstrate that the applicant has complied with all non-structural BMPs described in the project's WQMP;
- Submit for review and approval an Operations and Maintenance (O&M) Plan for all structural BMPs for attachment to the WQMP;
- Demonstrate that copies of the project's approved WQMP (with attached O&M Plan) are available for each of the incoming occupants;
- Agree to pay for a Special Investigation from the County of Orange for a date (12) twelve months after the issuance of a Certificate of Use and Occupancy for the project to verify compliance with the approved WQMP and O&M Plan; and
- Demonstrate that the applicant has agreed to and recorded one of the following: 1) the CC&R's (that must include the approved WQMP and O&M Plan) for the project Home Owner's Association; 2) a water quality implementation agreement that has the approved WQMP and O&M Plan attached; or 3) the final approved Water Quality Management Plan (WQMP) and Operations and Maintenance (O&M) Plan.

SC 4.5-10 **Stormwater Pollution Prevention Plan**. Prior to the issuance of any grading or building permits, the applicant shall demonstrate compliance under California's General Permit for Stormwater Discharges Associated with Construction Activity

by providing a copy of the Notice of Intent (NOI) submitted to the State Water Resources Control Board and a copy of the subsequent notification of the issuance of a Waste Discharge Identification (WDID) Number or other proof of filing in a manner meeting the satisfaction of the Manager, Building Permit Services. Projects subject to this requirement shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP). A copy of the current SWPPP shall be kept at the project site and be available for County review on request.

SC 4.5-11 **Erosion and Sediment Control Plan.** Prior to the issuance of any grading or building permit, the applicant shall submit a Erosion and Sediment Control Plan (ESCP) in a manner meeting approval of the Manager, Building Permit Services, to demonstrate compliance with local and state water quality regulations for grading and construction activities. The ESCP shall identify how all construction materials, wastes, grading or demolition debris, and stockpiles of soil, aggregates, soil amendments, etc. shall be properly covered, stored, and secured to prevent transport into local drainages or coastal waters by wind, rain, tracking, tidal erosion or dispersion. The ESCP shall also describe how the applicant will ensure that all BMPs will be maintained during construction of any future public right-of-ways. A copy of the current ESCP shall be kept at the project site and be available for County review on request.

Mitigation Measures

MM 4.5-1 **Runoff Management Plan.** Prior to the approval of the first Area Plan, or other planning level approval, for any part of the Ranch, the applicant shall prepare a detailed Runoff Management Plan ("ROMP") that shall be approved by the Manager, Flood Control Division, and the Manager, Watershed and Coastal Resources Division, and that meets the following standards and specifications:

a. The ROMP shall cover the entire Ranch within the regional watersheds (San Juan Creek and San Mateo Creek) and sub-watersheds affected by the Area Plan or other planning level approval, and shall be consistent with Orange County criteria including the Orange County Hydrology Manual and its addendum ("OCHM), the Orange County Flood Control Design Manual ("FCDM), and any other County criteria and/or standards that are applicable.

b. The ROMP shall separately cover the San Juan Creek watershed or the San Mateo Creek watershed, depending on the Ranch Plan development proposed and the regional and sub-watershed(s) affected. For the San Juan Creek watershed, the ROMP shall extend to the downstream boundary of the Ranch. For the San Mateo Creek watershed, the ROMP shall extend to the County border for those portions of the Ranch Plan area that are located within the watershed.

c. The ROMP shall be separate from the preliminary analyses submitted as part of the GPA/ZC submittals using the U.S. Army Corps of Engineers HEC-1 hydrology application.

d. The ROMP shall be accomplished to a greater level of detail using criteria established by the OCHM and the FCDM.

e. The ROMP shall re-evaluate and verify baseline conditions, project conditions for all phases of development, post-project conditions, impacts of the development through all phases and scenarios of development, and mitigation measures needed to ameliorate development impacts through all the phases and scenarios of development (including the full Ranch Plan development) within the affected watershed(s), all accomplished to criteria established by the OCHM and FCDM.

f. The ROMP shall analyze existing conditions, potential impacts, and proposed mitigation measures for sediment mass balance, watershed sediment yield, sediment transport and the stability of the creek and watersheds and/or increased erosion potential and other hydraulic characteristics of the creeks and watersheds (San Juan Creek and San Mateo Creek) within the project site and off-site to the La Novia Bridge for development within the San Juan Creek watershed and to the County boundary for development within the San Mateo Creek watershed for all phases of the development.

g. The ROMP shall analyze and demonstrate that development of the Ranch Plan will not produce adverse impacts during 2-, 5-, 10-, 25-, 50- and 100-year events, including but not limited to increases in runoff peak discharge, increases in runoff volume, channel aggradation/degradation, erosion and channel stability within the project site and off-site from the headwaters of the watershed to the La Novia Bridge for development within the San Juan Creek watershed, and to the County boundary for development within the San Mateo watershed for portions of the streamcourse potentially impacted by the project development. The analyses set forth in the ROMP shall be for existing conditions and for all phases of development, including with and without required mitigation measures.

h. The ROMP shall analyze in sufficient detail to enable the size and alignment of flood control and storm drain facilities, and site selection choices for the retarding basins, water quality detention basins and other mitigation measures to be more precisely evaluated and established. The ROMP should include the preparation of a water quality site design BMP concept plan. The applicant shall work with the County to provide the level of design detail in these facilities that is appropriate to the level of planning and approval at each project phase.

i. The ROMP shall include details as to the proposed future ownerships and maintenance responsibilities, and long term funding (including funding plans for maintenance) for the proposed ROMP flood control and storm drain facilities, retarding basins, and water quality detention basins.

j. The ROMP shall include proposed Orange County Flood Control District (OCFCD) and/or County ownership facilities identified in sufficient detail with proposed configuration, sizes, alignment, rights-of-way widths, etc. for review and approval during the ROMP review process as to whether the ownership of proposed flood control/drainage facilities are to become OCFCD or County facilities.

k. The ROMP shall provide that any proposed diversions between watersheds shall be subject to the approval of the Manager, Flood Control Division.

l. The ROMP shall provide that any future revisions to the ROMP in order to accommodate land use changes or other issues that have the potential of modifying or invalidating previous conclusions regarding peak discharges and runoff volumes shall require the approval of the Manager, Flood Control Division.

m. Consistent with the ROMP, and in order to mitigate project impacts on channel stability and erosion, the applicant shall implement a monitoring and accompanying mitigation program that provides, among other things, assurance for provisions of dedication of any lands needed within the Ranch to accomplish necessary mitigations, if any. Said monitoring and mitigation program shall be subject to the approval of the Manager, Flood Control Division. Monitoring for project impacts shall be conducted for San Juan Creek and its major tributaries within and downstream of the Ranch to the La Novia Bridge; if the San Mateo Creek watershed is affected, the monitoring shall cover those portions of San Mateo Creek and its major tributaries that are within the County and that are likely to be impacted by the project. The monitoring activities shall continue during the project development phases and shall extend for a period of 10 years following the completion of the final grading of the last planning area of the Ranch Plan that includes at least two (2) storm events that generate discharges of at least 20 percent of computed 100-year high confidence discharges, all in a manner meeting the approval of the Manager, Flood Control Division. The accompanying mitigation program shall be based on a detailed study of the watershed and data collected from the monitoring program funded by the applicant. Said mitigation program shall be in addition to the mitigation measures (e.g., construction of flood control structures, setting up funds through bonds, etc.) formulated in the ROMP for items that are found to be not adequately mitigating development-related impacts. The applicant and the County/OCFCD will meet in good faith to formulate a plan for remediating and/or improving any under-performing mitigation measures, all at no cost to the County/OCFCD.

n. If a Locally Preferred Plan (LPP) is developed that contemplates or otherwise assumes Ranch Plan development within the San Juan Creek watershed, the County and the applicant may pursue an alternative mitigation measure strategy based on the LPP that includes (i) mitigation measures within the Ranch and (ii) participation in offsite mitigation measures to the extent that said alternative mitigation measures are determined to be consistent with (a) the objectives of the County's Drainage Area Master Plan for water quality purposes, the (b) the ROMP and (c) the MPD.

MM 4.5-2 **Master Plan of Drainage.** Prior to the approval of the first Master Area Plan (or other planning level approval) covering any portion of the Ranch, the applicant shall prepare a Master Plan of Drainage ("MPD") that (i) is in a manner receiving the approval of the Manager, Flood Control Division and the Manager,

Watershed and Coastal Resources Division and (ii) shows all flood control, storm drain, and water quality features within the affected watershed(s).

MM 4.5-3 **Master Area Plan-Level Water Quality Management Plan**. Prior to the approval of a Master Area Plan for each Planning Area, the applicant shall prepare a Master Area Plan WQMP that (i) is consistent with the terms and content of the Draft WQMP (see PDF 4.5-3) and (ii) provides more particularized information and detail concerning how the provisions of the Draft WQMP will be implemented within the area covered by the individual Master Area Plan. At a minimum, each Master Area Plan WQMP will provide supplemental and refined information concerning (i) how site-design, source-control and treatment control BMPs will be implemented at the Master Area Plan level for the area in question, (ii) potential facility sizing and location within the subject Master Area Plan area, and (iii) monitoring, operation and maintenance of stormwater BMPs within the relevant Master Area Plan area.

MM 4.5-4 **Sub-Area Plan-Level Water Quality Management Plan.** Prior to the approval of a Sub-Area Plan for any portion of the project area that is the subject of an approved Master Area Plan, the applicant shall prepare a Sub-Area Plan WQMP that (i) is consistent with the terms and content of the Draft WQMP (see PDF 4.5-3), (ii) is consistent with the terms and content of the relevant Master Area Plan WQMP (see MM 4.5-3) and (iii) provides more particularized information and detail concerning how the provisions of the Draft WQMP and the relevant Master Area Plan WQMP will be implemented within the area covered by the individual Sub-Area Plan. At a minimum, each Sub-Area Plan WQMP will provide supplemental and refined information concerning (i) how site-design, source-control and treatment control BMPs will be implemented at the Sub-Area Plan level for the area in question, (ii) the size, location and design features of the individual water resource facilities to be developed within the subject Sub-Area Plan area, and (iii) monitoring, operation and maintenance of the stormwater BMPs within the relevant Sub-Area Plan area.

MM 4.5-5 **Flood Control Detention Facilities.** As appropriate during Ranch Plan development process, the applicant will be required to construct and implement flood control detention facilities to provide hydrologic mitigation for increases in peak discharges. Detention facilities will be located at the lower end of each of the major developed planning areas as necessary within the Ranch Plan project. While the specific design and characteristics of each basin will be refined during the project design process, planning level information is provided in this section to characterize the facilities and their functions. Initial basin locations are shown on Exhibit 4.5-13 for the Ranch Plan. The specific number, size and locations of the basins will be determined during the ROMP process. Further refinement may be achieved during the design process. Table 4.5-27 provides an initial estimate of the range of storage volumes that may be required in each of the major planning areas. Refined design and analysis of the basins needs to ensure that these facilities mitigate regional flood control facility impacts and address uncertainties such as timing of hydrograph peaks and the interaction with other elements within the watershed drainage network.

The detention basins will be designed as “off-line” from most of the major stream channels. It is initially planned that the Gobernadora detention basin would be located within the channel and designed as a “flow through” basin. Generally speaking, flow from the development areas will be routed through the basins prior

to discharge to the mainstem stream channels. By contrast, flows from undeveloped areas will not be routed through the basins, but will generally follow existing drainages directly to the main channels.

The basins will be designed to include an initial forebay area for trapping of sediment, floating debris etc). The sediment forebay will be designed for easy maintenance, with an elongated shape maximize the opportunity for sediment (and pollutants adsorbed to the sediment particles) to settle out, and to allow easy sediment removal by an excavator on the access road. Maintenance standards will be established for maximum depth of accumulated sediment in the forebay basins prior to removal. An overflow weir will connect the forebay to the main detention facility. This larger facility will include the entrance zone, the main storage area and the outlet structure. The basin will have sloped, vegetated sides, a perimeter access road, and a ramp access to the basin floor. The entire detention facility will be fenced to preclude public access. The floor of the basin will likely be colonized by emergent vegetation. This can provide additional water quality improvement of urban runoff, and evaporation potential during the dry season. In addition, this vegetation will provide incidental avian and wildlife habitat. However, the primary intent of the structures is to provide sediment trapping in the forebay, and flood detention in the main basin. As such, maintenance protocols and regulatory permits should be established prior to the design process to facilitate the required periodic sediment removal and facility maintenance.

The outlet structure will be configured to control a wide range of flows, providing flow management from the 2- to 100-year flow event. It will also include an overflow spillway, designed to safely convey floods in excess of the outlet structure capacity directly to the stream. A subdrain will be provided to insure complete drainage within several days following a flow event.

A key element in the long-term effectiveness of the detention facilities is the establishment of an on-going maintenance and monitoring program. The applicant will establish both a management entity and a funding source to insure the implementation of a program to accomplish the following goals:

- Monitoring: The monitoring program will track the performance of the detention facilities as well as the stability of the various stream channels within and downstream of the Ranch Plan project (to La Novia Bridge for San Juan Creek and to County border for San Mateo Creek). The monitoring will serve to identify the regular maintenance needs of the facilities as well as track any emerging problems with erosion or sedimentation in the stream channels. The monitoring shall be in a manner receiving the approval of the County/OCFCD.

- Detention basin maintenance will include:

    - Identifying the rate of sediment buildup in the forebay or in the main facility and provision for sediment removal when the accumulated sediment reaches a specified depth. The initial sizing criteria for basin volume will include provision for this loss of storage during the period of sediment accumulation.

- Emergent Vegetation Management: A vegetation management plan will be specified for all of the structural elements of the flood detention system. The applicant will work with the County to identify elements of the detention basin that can accommodate some vegetation (for example if water quality ponds are included in the facility, vegetation criteria will be developed for these). Based on County recommendations, vegetation will be precluded from the active flood detention basins to facilitate sediment removal activities.

- Vector/Nuisance Management: The design and maintenance of the basins will include prevention of vector problems such as mosquitoes, rodents, algal blooms etc.

- Structural Components: The basin inlet and outlet structures will require periodic maintenance to remove accumulated debris and replacement of damaged or aging elements. If the basins include a water recovery program (i.e., use of detained or infiltrated water for irrigation), the pumps and associated facilities (screens, pipes, valves) will require ongoing monitoring/maintenance.

- Facility Appearance/Landscaping: The detention basins will be large elements situated at visible locations within the development areas. As such their design and maintenance are important from an aesthetic perspective. The perimeter fencing, access roads and landscaping, on the basin side slopes will require ongoing irrigation and upkeep to insure that the basins represent visually appealing facilities. The basins will be designed to meet the County of Orange design requirements.

MM 4.5-6 **Combined Flow and Water Quality Control System.** All developments will be designed in order to achieve flow duration matching, address the water balance, and provide for water quality treatment through a combined flow and water quality control system (termed combined control system).

<u>Combined Control System Components</u>
The proposed combined control system will include one or more of the following components (see Exhibits 4.5-14, 15 and 16), each of which provides an important function to the system:

- Flow Duration Control and Water Quality Treatment (FD/WQ) Basin
- Infiltration Basin
- Bioinfiltration Swale
- Storage Facility for Recycling Water for Non-Domestic Supply
- Diversion Conduit to Export Excess Flows out of the Sub-basin.

The flow duration control and water quality treatment basin provides the initial flow and water quality treatment control functions to the system. The remaining components address the excess flows, alone or in combination with each other, generated during wet weather. Additional water quality treatment control is also provided in the infiltration basin and bioinfiltration swale. The following sub-sections describe each combined control system component in more detail.

1. Flow Duration Control and Water Quality Treatment (FD/WQ) Basin

The flow duration control and water quality treatment (FD/WQ) basin will provide both flow control and water quality treatment in the same basin. Detention basins are the most common means of meeting flow control requirements. The concept of detention is to collect runoff from a developed area and release it at a slower rate than it enters the collection system. The reduced release rate requires temporary storage of the excess amounts in a basin with release occurring over a few hours or days. The volume of storage needed is dependent on 1) the size of the drainage area; 2) the extent of disturbance of the natural vegetation, topography and soils, and creation of impervious surfaces that drain to the stormwater collection system; 3) the desired detention capacity/time for water quality treatment purposes; and 4) how rapidly the water is allowed to leave the FD/WQ basin, i.e., the target release rates.

The FD/WQ basin shall incorporate extended detention to provide water quality treatment for storm flows. The FD/WQ basin shall also incorporate wetland vegetation in a low flow channel along the bottom of the basin for the treatment of dry weather flows and small storm events.

To the extent feasible depending on the topography and grade, the FD/WQ basin will be located in areas where there is a larger depth to groundwater and more infiltrative soils. The FD/WQ basin shall be designed to have two active volumes, a low flow volume and a high flow volume. The low flow volume is designed to capture small to moderate size storms, the initial portions of larger storms, and dry weather flows. The high flow volume is designed to store and release higher flows to maintain, to the extent possible, the pre-development runoff conditions.

2. Infiltration Basin

The second element in the combined control system shall consist of a separate downstream, shallow basin designed to infiltrate stormwater where soils have a high infiltration capacity. The infiltration basin is sized to infiltrate all the flows released from the lower volume in the FD/WQ basin; nonetheless, an overflow system would convey excess flows that may occur during very wet years to the bioinfiltration swale discussed below. Features of the proposed combined control system that shall guard against groundwater contamination include: (1) pretreatment of all runoff in a FD/WQ basin before it enters the infiltration basin, and (2) locating infiltration basins where there is at least 10 feet of separation to the groundwater.

3. Bio-infiltration Swale

The third element of the combined control system shall be a bio-infiltration swale that leads from the FD/WQ basin to the stream channel. A bio-infiltration swale is a relatively flat, shallow vegetated conveyance channel that removes pollutants through infiltration, soil adsorption, and uptake by the vegetation. In areas characterized by terrains with good infiltration capabilities, flows released from the FD/WQ basin and carried in the bio-infiltration swale will mimic pre-development conditions, in which low flows infiltrate in the soils and only high flows reach the main stem of the stream

channel. In catchments where development is located on less pervious soils and therefore pre-development runoff is higher, the swale may be lined to better mimic pre-development hydrology or flows may be piped to the stream.

4. Storage Facility for Recycling Water for Non-Domestic Supply

   The fourth possible element of the combined control system shall be storage of surface water flows for recycling where there is opportunity for reuse of water for irrigation, such as a golf course, residential common area, or local park. Diversion of outflows from the FD/WQ basin to non-domestic water supply reservoirs will be conducted if feasible and cost effective.

5. Diversion Conduit to Export Flows out of the Sub-basin

   The fifth possible element of the combined control system shall be the provision to export flows out of the sub-basin. This element provides an additional option that may be employed to better preserve the pre-development water balance within the sub-basin. Such diversions may be desirable where excess runoff could result in increased stormwater flows or increased base flows in sensitive streams. However, all diversions of drainage area are subject to approval by the County of Orange. The diversions would be for excess runoff only and would only be feasible for development bubbles that adjoin other sub-basins having less sensitive stream channels, or are close to San Juan Creek or Lower Cristianitos Creek, which have characteristics that allow them to handle additional flows without causing damage to the stream channel. In some locations, such as Cañada Chiquita, it may also be feasible to divert flows to the wastewater treatment plant for reclamation.

MM 4.5-7 **Stream Stabilization Program.** Prior to the recordation of a subdivision map, unless otherwise specified by the provisions of the applicable master area or planning area-specific ROMPs (as appropriate), the development applicant shall prepare a stream stabilization program, including funding, that will be implemented by the HOA or other responsible entity to mitigate anticipated limited local effects of erosion associated with drainage system outlets from the development or downstream of detention basins. These effects from erosion are to be addressed with non-structural biotechnical and geomorphic approaches aggressively at the first phase and if not effective then limited structural measures would be implemented. These approaches vary by terrain and the character of the channels:

1. Sandy and Silty-sandy terrain: Water quality and infiltration basins and ponds will be constructed along unnamed tributary channels and channel-less valleys. Appropriate energy dissipation will be installed downstream of each structure or control point. 'Hungry water' or potential downcutting will be controlled by a progressive sequence of:

   a. establishment of hydrophytic vegetation, either turf-forming (such as salt grass or sedges) or with interpenetrating roots (such as willows); then

   b. placement of turf-reinforced mats (TRM) or other flexible and biodegradable membrane to abet vegetative growth to stabilizes the small drainages downstream of controls; then,

c. conventional erosion control fabrics and structures using techniques developed over the years to control gully- or small-channel incision.

In through-flowing named stream corridors, the potential scale of incision is larger, and is most reasonably addressed by a progressive sequence to include:

a. attempting to reduce runoff volumes and peaks from the watershed, by a combination of additional retarding of flow and use of (reconnecting, where needed) floodplains for flows of moderate to high recurrence.

b. Reducing sediment yields from disturbed watershed upstream, such that avulsion (sudden channel changes, such as recently seen in Gobernadora Creek) can be minimized.

c. Where the bed remains within the root zone of riparian vegetation, widening the riparian corridor, and managing its vegetation to promote dense interpenetrating roots, such as naturally occurs along many reaches of these streams, perhaps in combination with reconfiguring the channel pattern to increase sinuosity to a stable thalweg length-to-channel slope value.

d. Emplacing well-keyed structural grade control, with a wide variety of potential designs.

2. Clayey terrain: Differences between existing and future conditions will be the least in this terrain. Clayey terrains are also most resistant to incision, in most cases. Hence, biotechnical stabilization is most favored in this setting, especially for the smaller unnamed channels downstream from the small retarding and infiltration basins proposed at many locations. A progressive sequence of:

a. establishing hydrophytic or woody riparian vegetation, especially along the bases and crests of banks;

b. installing turf-reinforcing mats and other shear-resistant soft structures;

c. slight widening of channels where feasible without diminishing bank strength imparted by riparian vegetation, if significant; and

d. engineering slopes using fabrics, or placing thoroughly-keyed structural controls, usually in combination with a., b., and c., above.

MM 4.5-8 **Stream Monitoring Program.** Consistent with the provisions of the applicable master area or planning area-specific ROMPs (as appropriate), a stream monitoring program shall be developed, with assured funding source, by the applicant, and at no cost to County/OCFCD, prior to the construction within the watershed which will include reporting requirements in order to observe changes in the natural alluvial stream system. The minimum program will include and address the following items:

1. Stream Walks - A geomorphologist or engineer familiar with both (a) flood conveyance estimation and (b) the bed conditions required to meet habitat

needs and conditions for species of concern will walk critical reaches of named channels within the project each year in late April. The stream-walker will note bed conditions, measure high-water marks, note new sources of sediment or bank distress along the channels, estimate Manning's 'n' (roughness) at key locations, and assess whether bed and bank vegetation is suitable to meet conveyance and habitat objectives. Stream walks will occur during years 1,2,3,4,5 and 10 following substantial grading in a named-stream basin, and during any year within the first 10 seasons when 6-hour rainfall intensities exceed the 5-year recurrence at a nearby pre-selected recording rainfall gauge. The stream-walker will also similarly canvass the lower 2 miles of Bell Canyon and the upper Chiquita watershed north of Oso Parkway, two stream segments with largely-intact and formally-preserved watersheds, which can serve as control. Photographs showing key sites or problems will be taken. The individual conducting the walks shall be sufficiently senior and knowledgeable as to be registered as a geologist or engineer with the state. This individual will prepare an annual report by June 20 of the relevant year(s) specifying maintenance or repair measures needed to maintain suitable sediment transport and bed conditions

2. Major Stream Cross Sections Monitoring - Monumented cross sections will be established and surveyed on:

   a) lower Narrow Creek

   b) Chiquita Creek (4 locations)

   c) Gobernadora Creek (4 locations)

   d) Bell Creek (2 locations)

   e) Upper Cristianitos Canyon (3 locations)

   f) Lower Gabino Creek (3 locations)

   g) Gabino Creek within 0.5 miles of La Paz Creek

   h) La Paz Creek within 0.6 miles of Gabino Creek

   Additional monitoring sections will also be provided on San Juan Creek and all monitoring locations will first be approved by the County of Orange before implementation. The cross sections will be spaced approximately 0.6 to 1.2 miles apart and approved by the County. They will be surveyed to the nearest 0.05 feet vertical, and include notations of bed material encountered and qualitative descriptions of vegetation, and other observations conforming to geomorphic conventions, such as the International Hydrologic Vigil Network standards. The initial surveys will be conducted prior to grading, with resurveys during years 1, 3, 5 and 10 following initial grading or at frequencies determined by the County of Orange. Re-surveys will also be conducted during years when 6-hour rainfall intensities exceed the 5-year recurrence at a nearby pre-selected recording rainfall gauge or selected occurrences by the County of Orange. Results will be analyzed by the stream-walker, and included in the related report, recommending maintenance and restorative measures. The report will be submitted by May

20 of each year, to allow design and implementation (where needed) prior to the next winter

3. Periodic aerial photography - Aerial photographs of the entire project area will be taken during May or June following project approval, and during each subsequent May or June of years ending in a '5' or '0', until the project has been completed as defined by the County of Orange. Resolution of the photographs will be sufficient to prepare 200-foot scale maps with 2-foot (or 0.5-meter) contours. Contour maps will be prepared for the San Juan Creek channel corridor from the Verdugo Canyon confluence to 0.5 miles downstream of Antonio Parkway showing the topography of the bed and of the banks to elevations 15 feet above the adjoining bed. LIDAR (Light Detection and Ranging) or other technologies can be substituted for now-conventional photogrammetric methods. A qualified geomorphologist shall review the aerial photographs of the entire project area, identifying new upland sources of sediment, event-related or land-use disturbance, or evidence of channel change and instability. The geomorphologist will also assess discontinuities in sand transport throughout the project area, and will present an assessment of changes, if any, in the San Juan Creek corridor. Results will be presented in a report to be prepared by July 15 of each year, including recommendations for maintenance, repair, or other actions.

4. Evaluation of changes downstream of ponds and basins -Longitudinal profiles and channel or drainage-way cross sections will be established downstream of basins or ponds with capacities exceeding 1 acre foot, or which create a 4-foot elevation change in the energy grade line. Resurveys will occur whenever the stream-walker and/or the geomorphologist reviewing the aerial photos identify actual or incipient incision or erosion. Resurveys will be completed prior to July 1 when and where the need is identified in the May 20 report discussed above.

5. Supplemental assessments - Adaptive management of channels means changing with the flow of time. Nothing in the program above precludes problem- or condition-related investigations. Additional assessments may be conducted as deemed needed by the applicant to achieve the bed and bank conditions sought.

4.5.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The watershed mitigation program will continue to be refined during future planning and design processes. The proposed preliminary watershed management program combines the use of mitigation facilities, project design features and watershed planning principles to maintain the flow regime and prevent significant changes during a full range of flow events that seek to mitigate impacts to a level of less than significant.

Hydrology Runoff Peak Discharges

The proposed detention facilities, in conjunction with the infiltration approach, will reduce post-project flow peaks to the pre-project level. There is adequate area within the development areas to refine the size of the detention facilities to comply with County criteria. As such, the project with mitigation will have a less than significant impact on both on- and off-site flood hazards.

Stream Stability and Sediment Transport

The project is being designed to avoid direct alteration of the major stream channels. During the project design phases, any required alteration to smaller drainages will be done in a way to maintain channel stability. This will include drainage system design attributes, as well as routing flows within the development areas through the infiltration/sedimentation and detention basin facilities. The project will have a less than significant effect on channel erosion/siltation due to alteration of the channel system.

Hydrology Runoff Volume and Duration

The combined infiltration/detention system is designed to provide flow management for a full range of future hydrologic events, ranging from the frequent winter rainstorms, to the moderate (1.5- to 5-yr) events, and including the major flood events (10-year to 100-year). The goal is to maintain the existing flow regime, especially for the more frequent and channel forming (approximately 2-yr events). For larger events, flow peaks will not increase. Based on this, the impact is considered to be less than significant. By maintaining similar hydrologic balance and volumes within the project area, the proposed flow duration control basins will reproduce or otherwise preserve recharge and infiltration runoff volumes for groundwater.

Flooding Risks

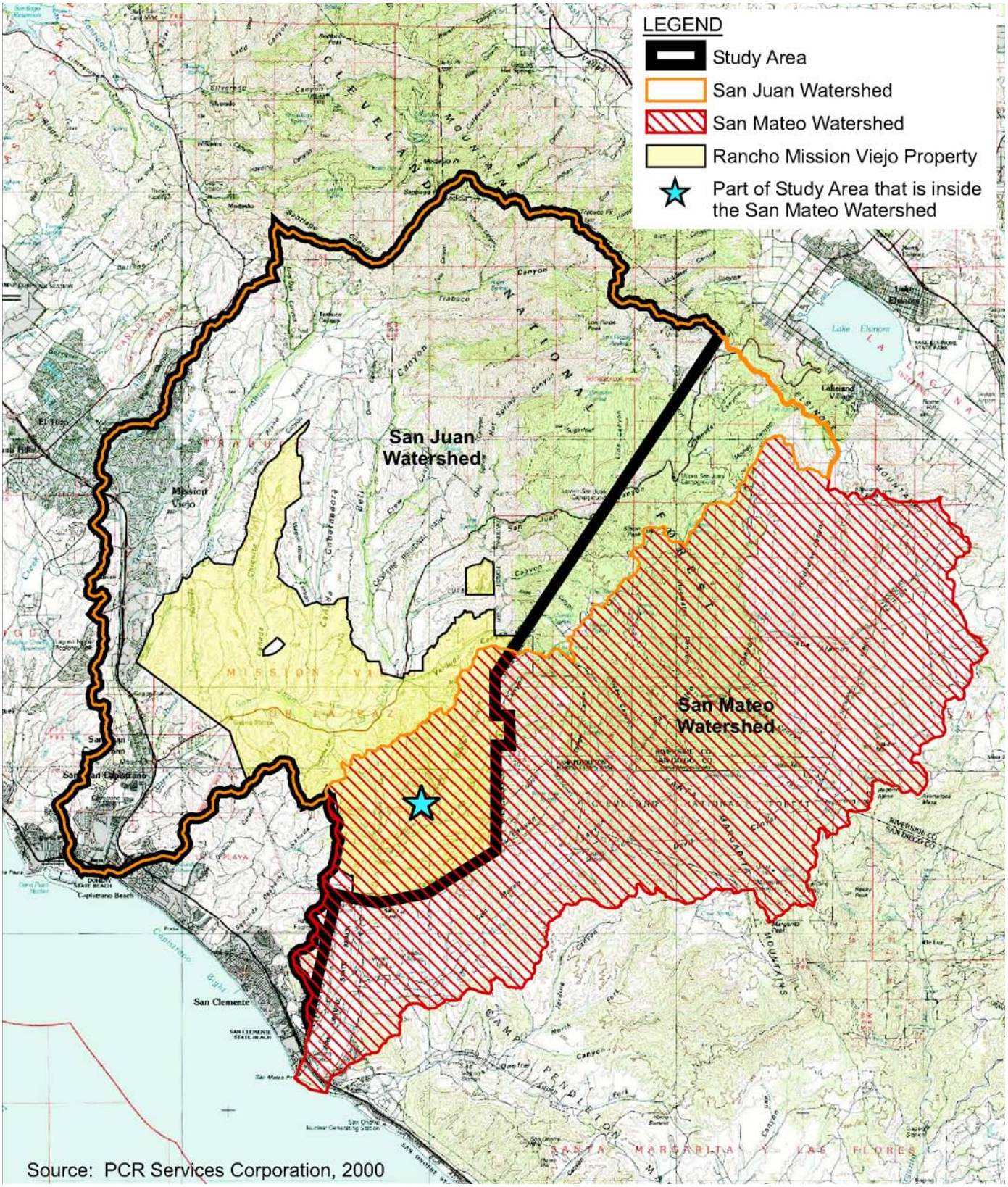
The project detention facilities will be designed to comply with all applicable County and other agency design/safety criteria. In general, the basins are typically located at the lower end of the development areas, relatively near the major watercourses. The facilities will be designed with adequate spillway systems to safely convey water in excess of the pond capacity, or in the event of outlet structure blockage. Implementation of these features/improvements will reduce potential safety impacts to a less than significant level.

Runoff Water Quality

The proposed project WQMP (*Draft WQMP*, GeoSyntec, 2004) outlines the site design, source control and treatment systems that would provide an effective treatment for most pollutants associated with urbanization. In addition, the proposed features address both dry-weather and wet-weather water quality concerns. With the exception of certain pathogen indicators, potential runoff water quality impacts are considered less than significant with the proposed mitigation features outlined in the *Draft WQMP*.

Compliance With Regional Watershed Planning Principles

Development and compliance with the Planning Principles has been an integral part of the planning of the Ranch Plan project. The overall project layout, including location of the individual planning areas, has included maintenance of the hydrologic regime as an integral component. This will allow coarse (sandy) sediment supply to the stream systems. In addition, the infiltration facilities will insure that the changes to the hydrologic regime are minimized. Finally, provision of the detention/sediment facilities will insure that flood flows are not increased, and prevent the excessive discharge of fine (silt/clay) particles from the development areas. Implementation of these measures/facilities represents compliance with the SAMP/MSAA planning principles and will reduce impacts to a less than significant level.



Water Resources Study Area Boundary

Exhibit 4.5-1

The Ranch Plan

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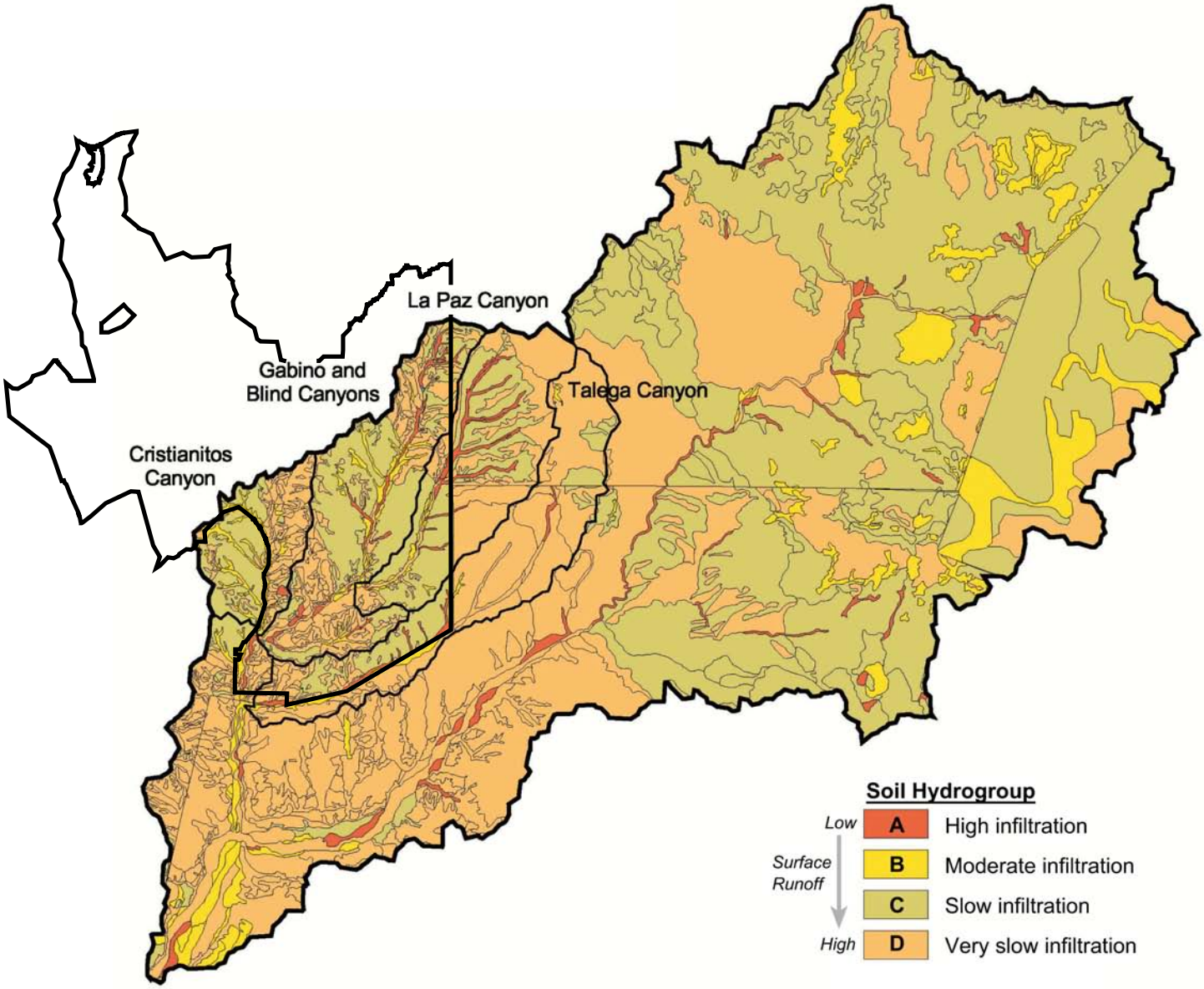

Distribution of Hydrologic Soil Groups for the San Mateo Watershed

Exhibit 4.5-10

The Ranch Plan

1" = 14,000'

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Source: PWA, 2000

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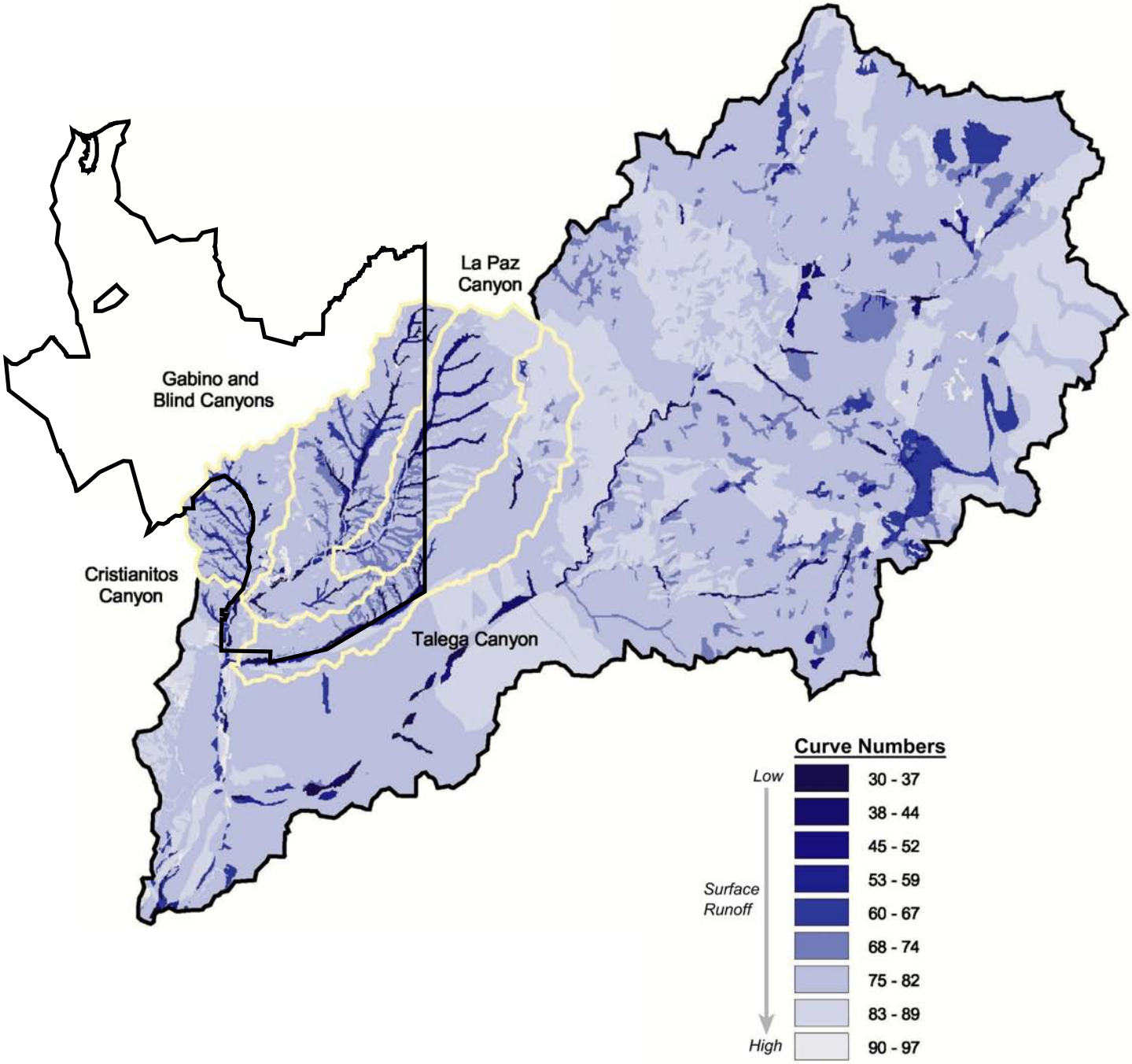


Distribution of SCS Curve Numbers for the San Mateo Watershed

Exhibit 4.5-11

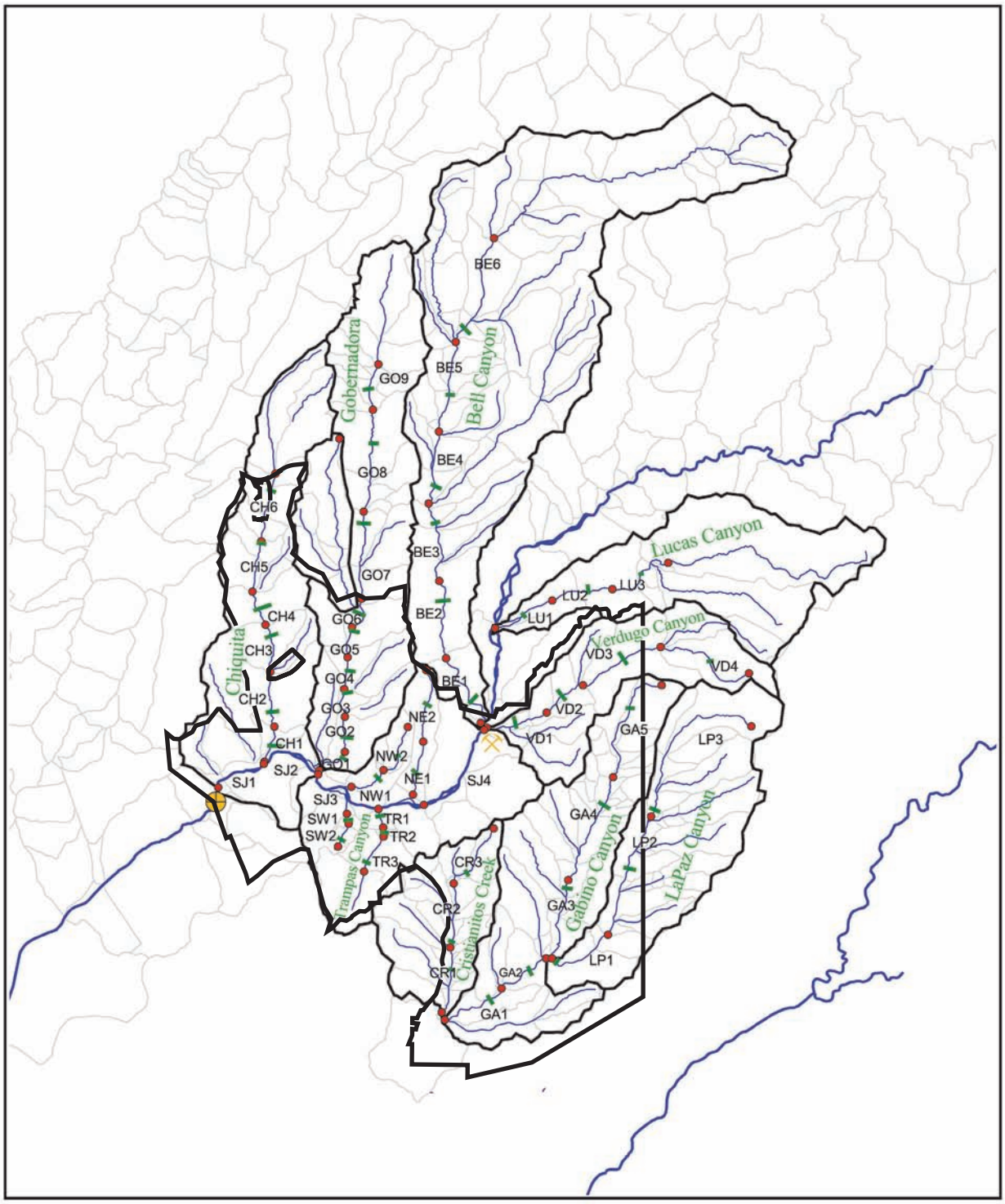
The Ranch Plan

1" = 14,000'

N
W E
S

Source: PWA, 2000

R:\Projects\RMVJ008\Ex4.5-11_SCSSanMateo_060704.pdf



Legend

- Boundaries of PWA Reaches
- Representative PWA Cross Sections
- Conrock Gravel Mine
- USGS Gauge San Juan Creek at Ortega Hwy

Sediment Transport Reaches in Hydrologic Sub-Basins

Exhibit 4.5-12

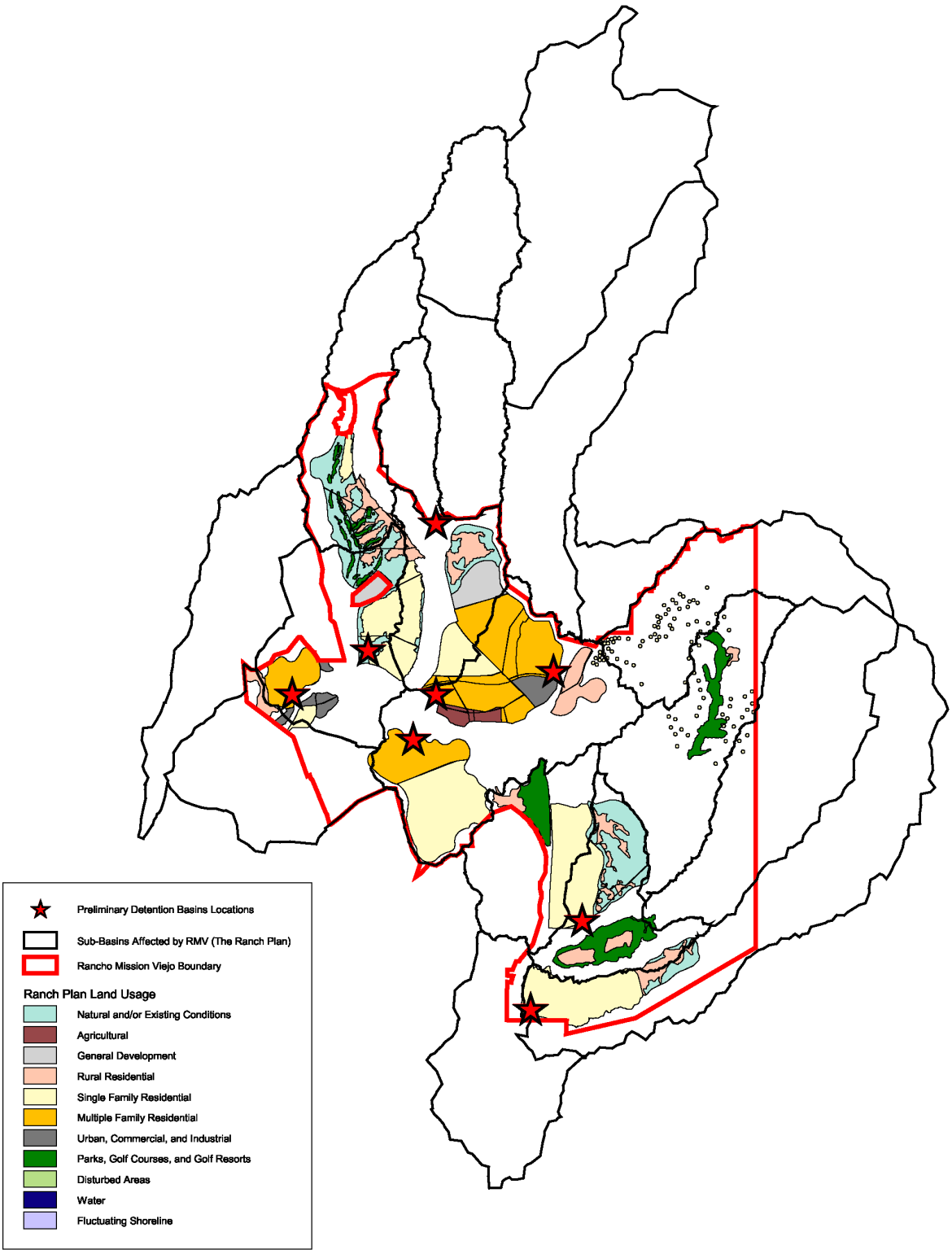
The Ranch Plan

1" = 13,000'

N W E S

Source: PWA, 2000

R:\Projects\RMVJ008\Ex4.5-12_Sediment_060704.pdf



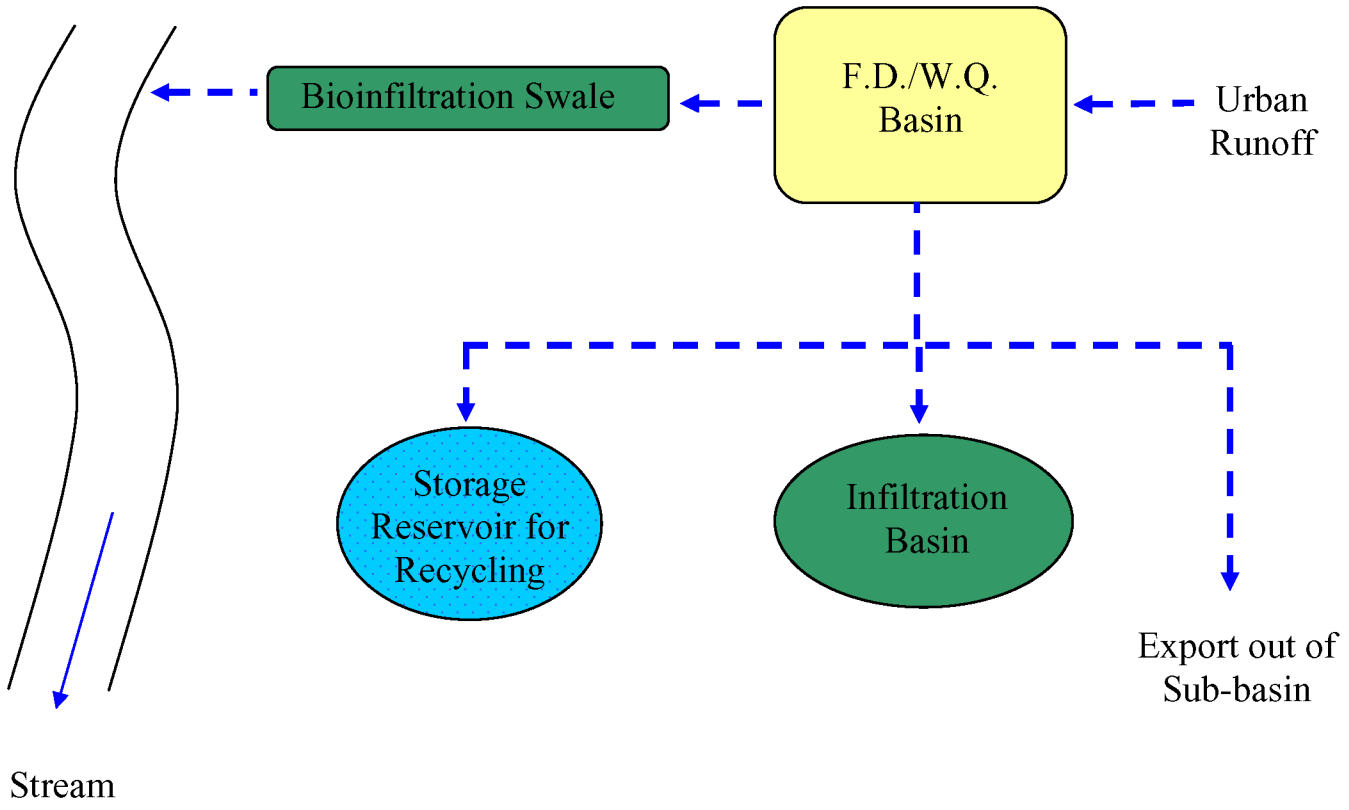
Preliminary Detention Basin Locations (Ranch Plan) Exhibit 4.5-13

The Ranch Plan

N
W E
S

Source: PWA, 2000

R:\Projects\RMVJ008\Ex4.5-13_Detention_060204.pdf

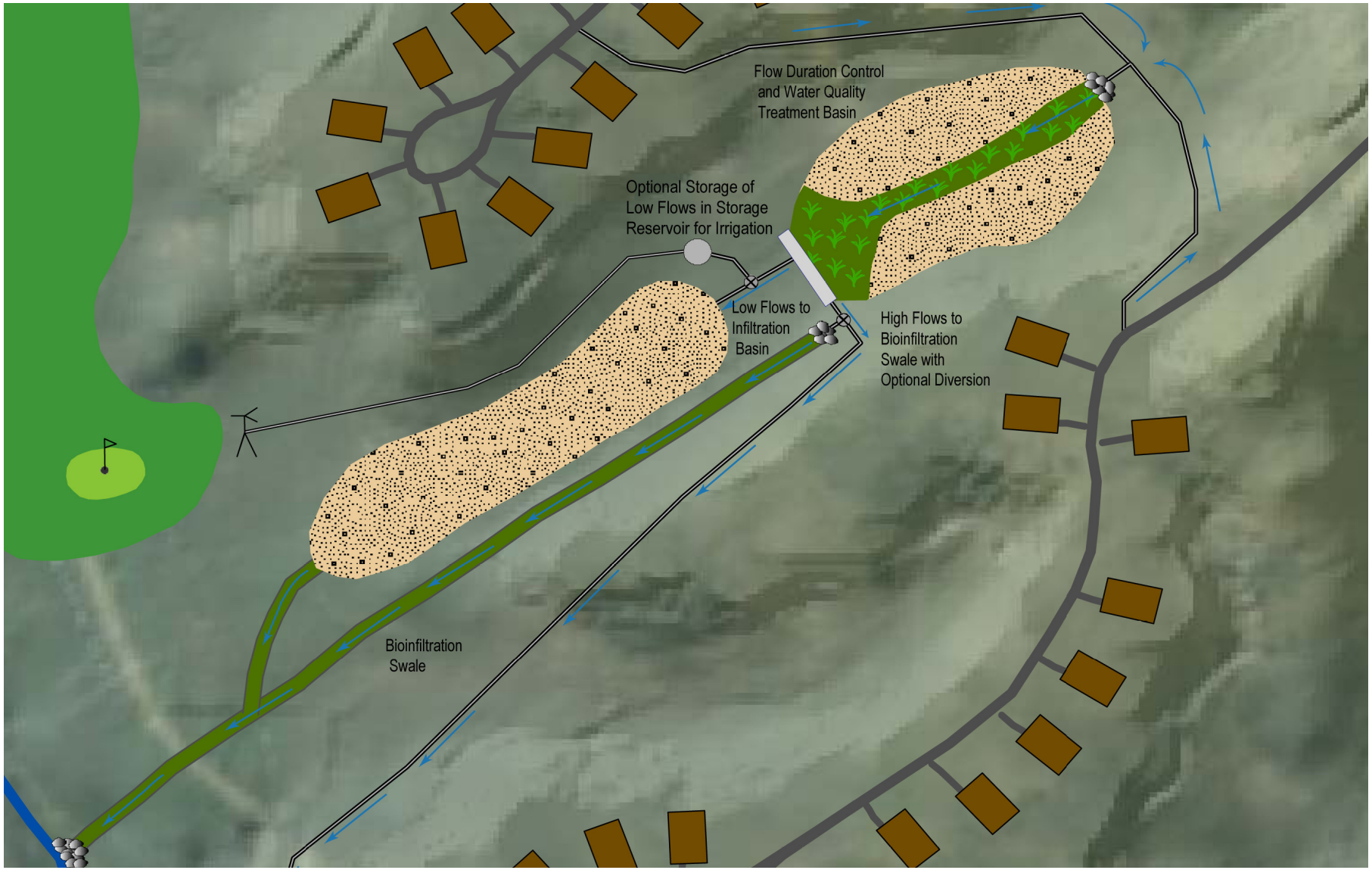


Schematic of Facilities in the Combined Control System — Exhibit 4.5-14

The Ranch Plan

Source: GeoSyntec Consultants, 2004

R:\Projects\RMVJ008\Ex4.5-14_Facilities_060904.pdf



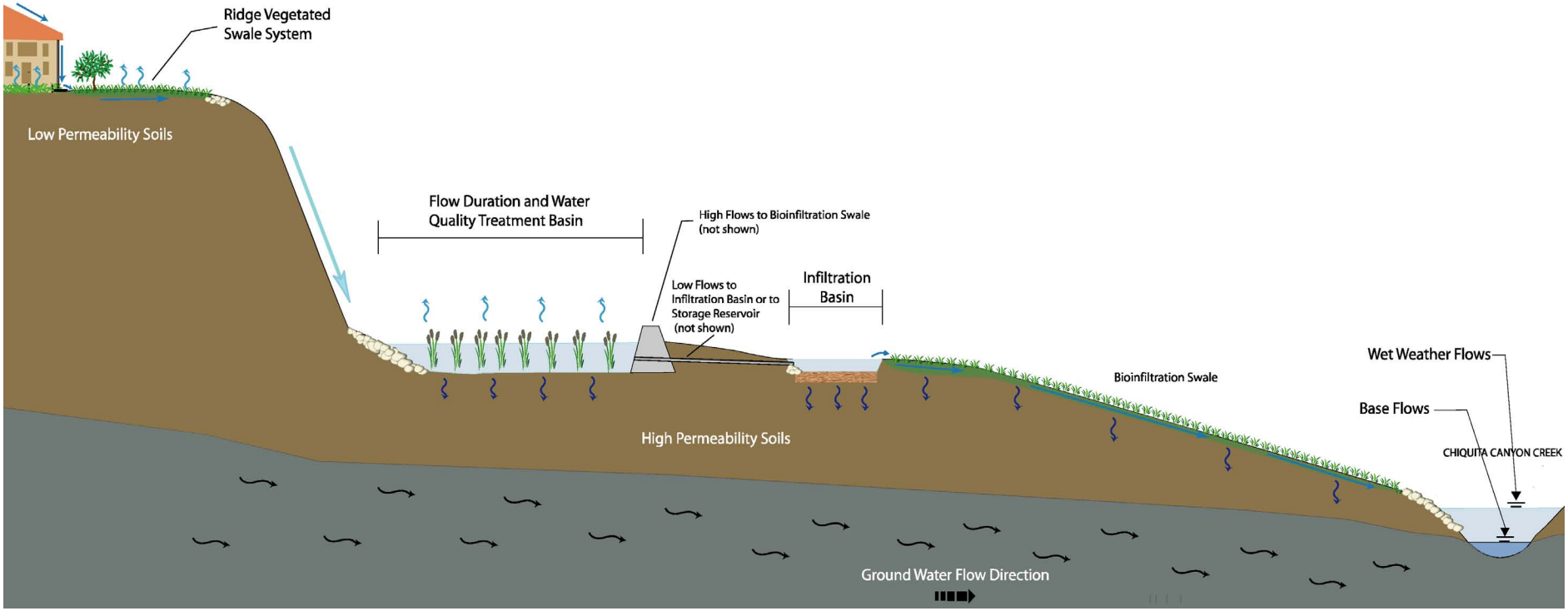
Combined Flow and Water Quality Control System Plan

Exhibit 4.5-15

The Ranch Plan

Source: GeoSyntec Consultants, 2004

R:\Projects\RMVJ008\Ex4.5-15_WQPlan_060204.pdf



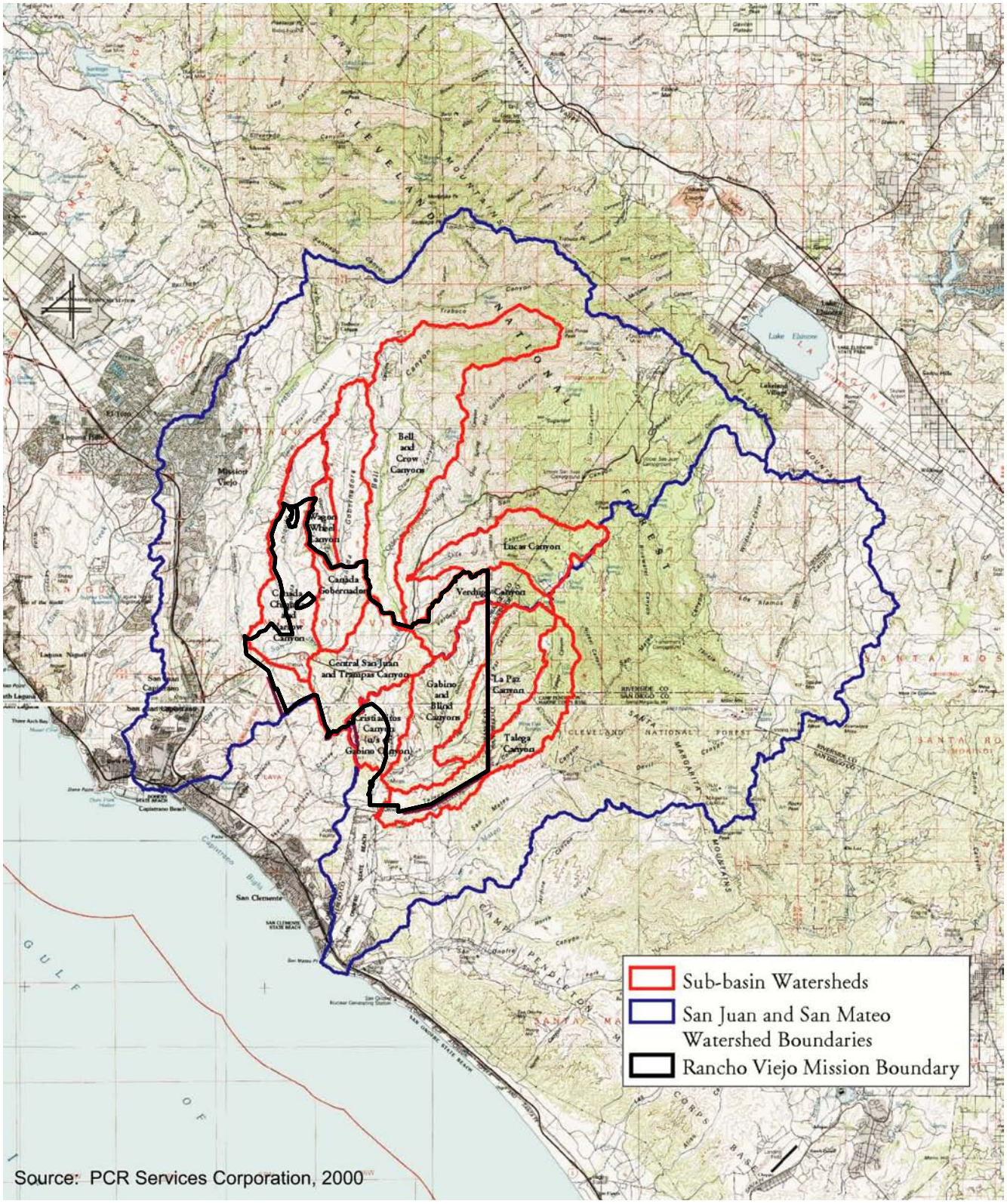
Combined Flow and Water Quality Control System Profile

Exhibit 4.5-16

The Ranch Plan

Source: GeoSyntec Consultants, 2004

R:\Projects\RMVJ008\Ex4.5-16_WQProfile_060204.pdf

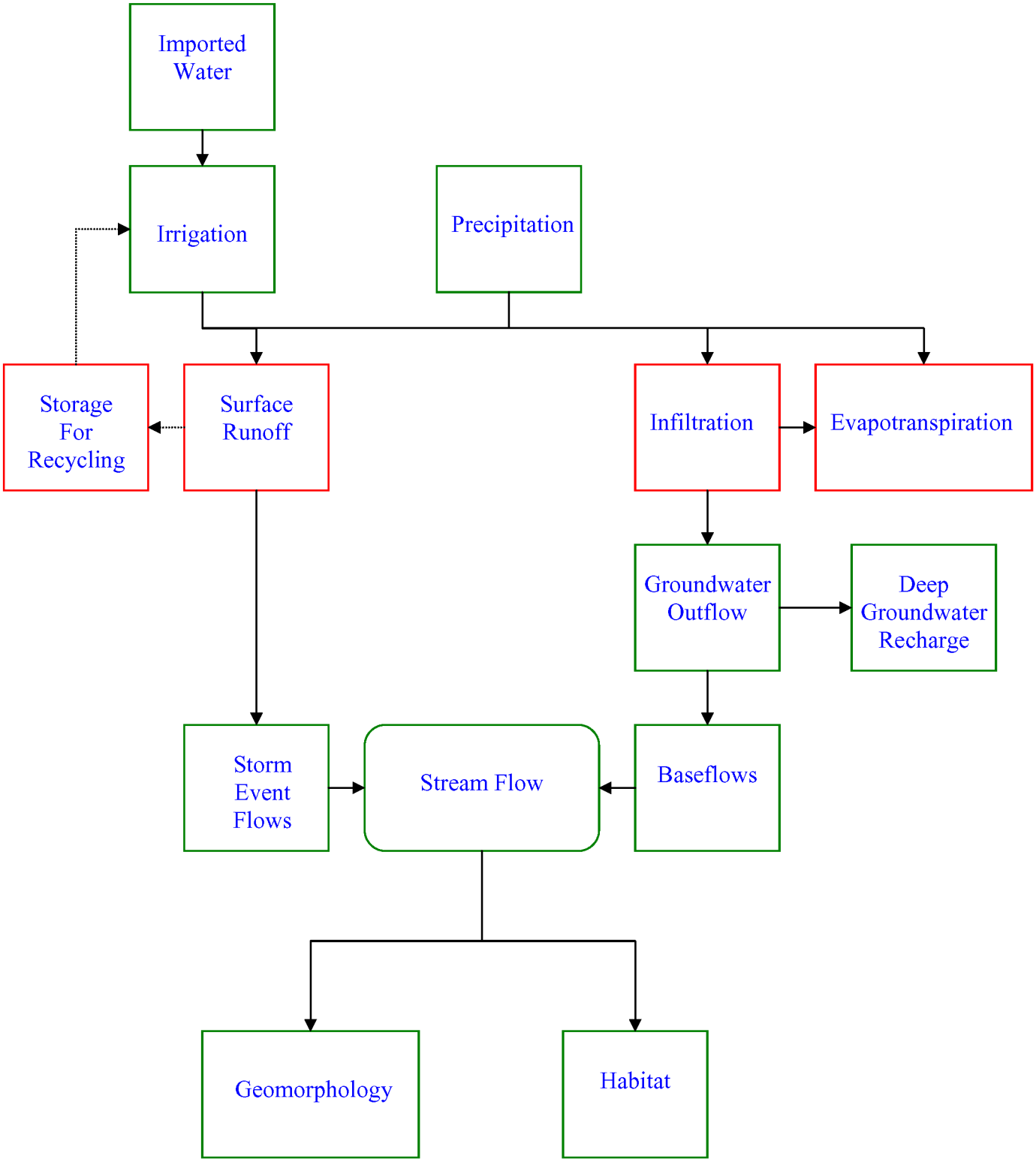


Sub-Basin Watersheds for San Juan and San Mateo Watersheds Exhibit 4.5-2

The Ranch Plan *1" = 23,500'*

N W E S

R:\Projects\RMVJ008\Ex4.5-2_SubBasins_060904.pdf



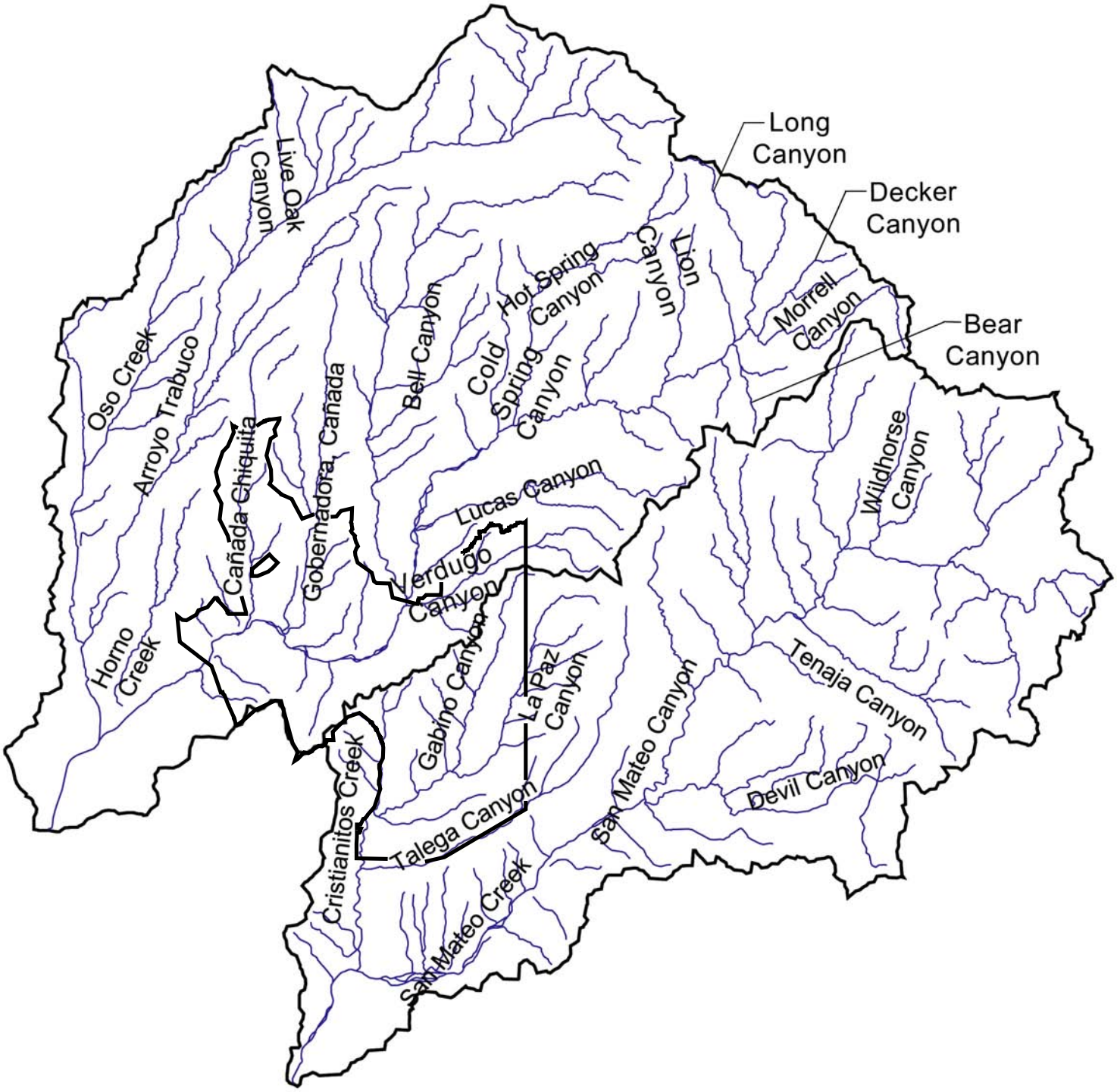
Water Balance Conceptual Model — Exhibit 4.5-3

The Ranch Plan

N W E S

Source: GeoSyntec Consultants, 2004

R:\Projects\RMVJ008\Ex4.5-3_WaterBalance_060204.pdf



Principle Streams - San Juan and San Mateo Watersheds

Exhibit 4.5-4

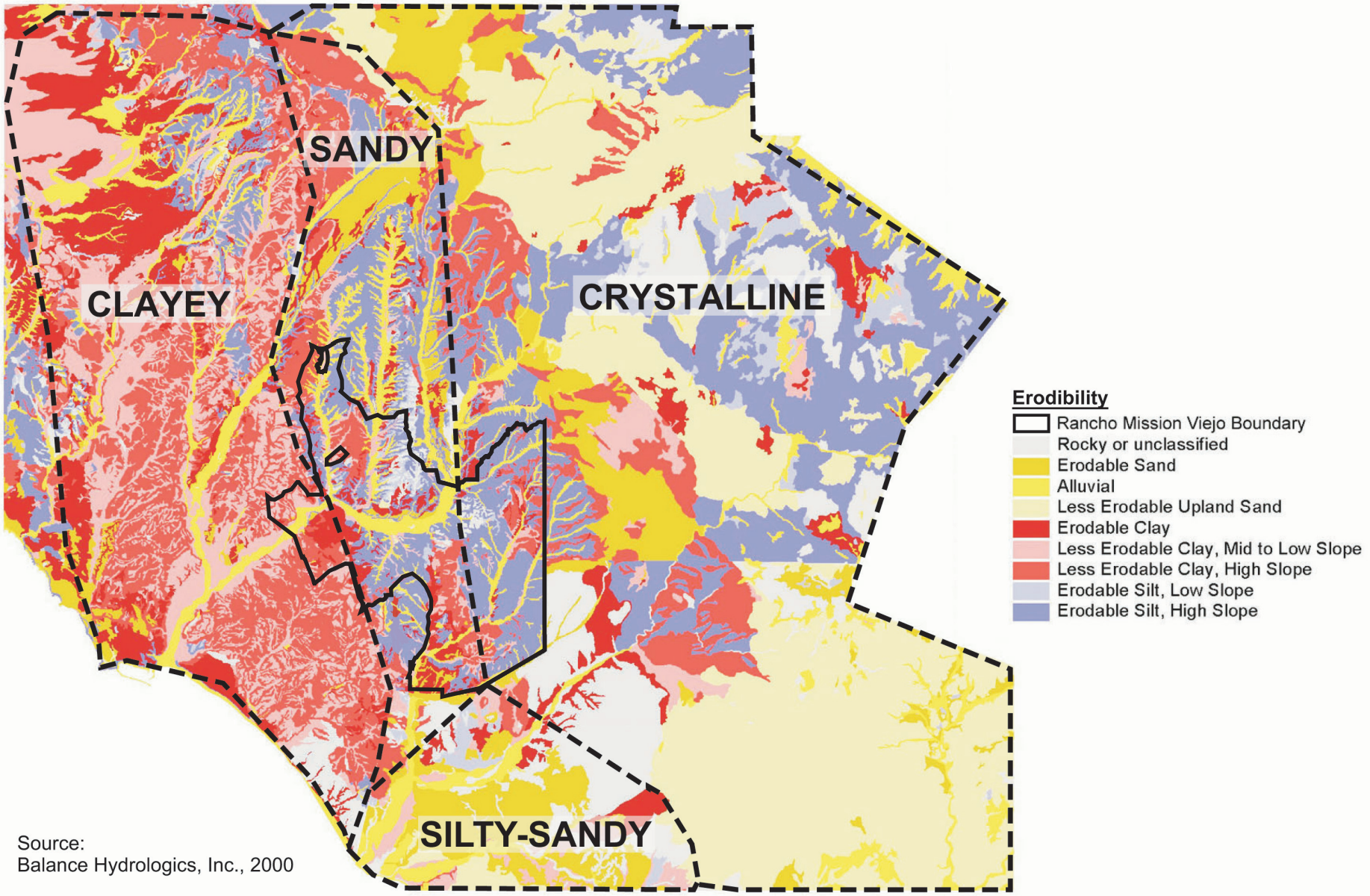
The Ranch Plan

1" = 16,100'

N
W E
S

Source: National Hydrology District

R:\Projects\RMVJ008\Ex4.5-4_Streams_060904.pdf



Landscape Scale Terrains and Shallow Substrate Erodibility

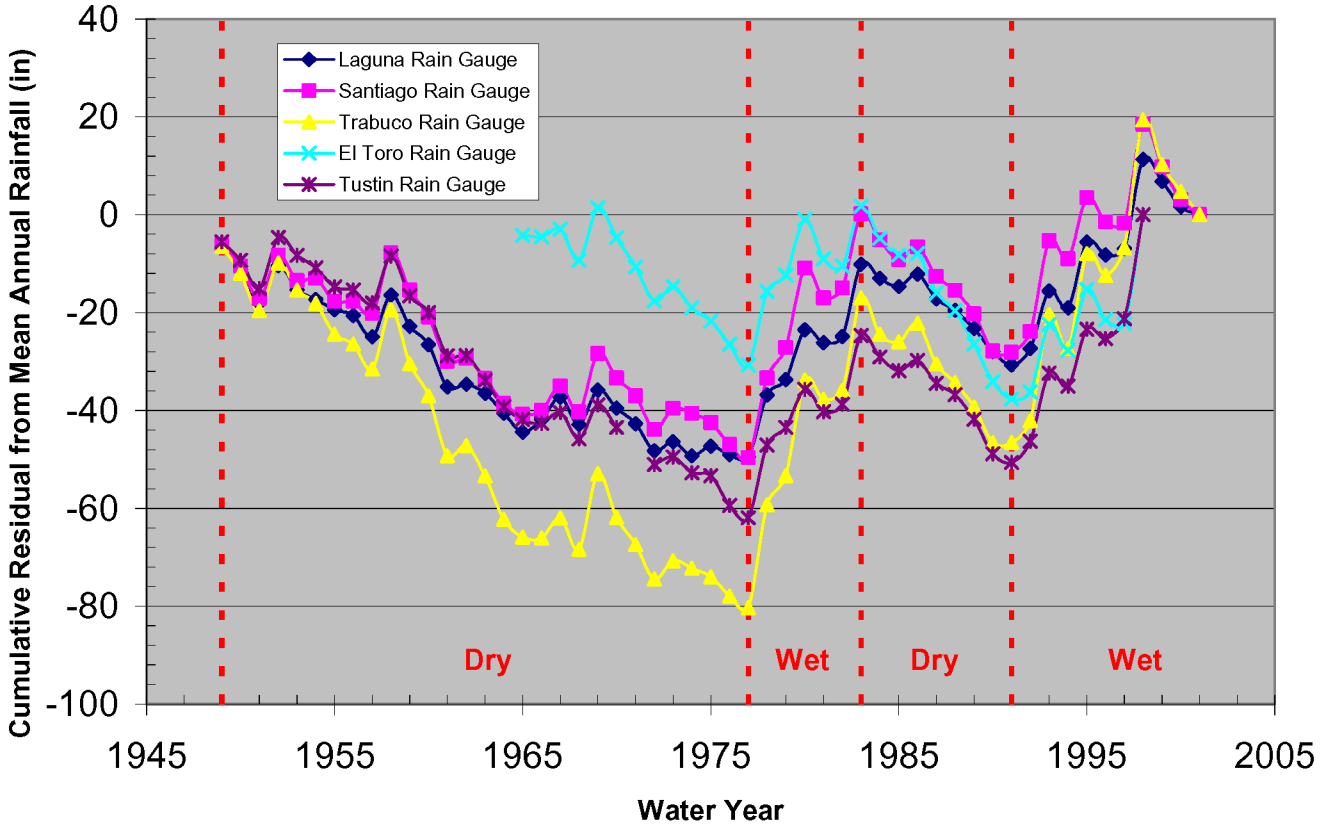
Exhibit 4.5-5

The Ranch Plan

1" = 20,100'

N W E S

R:\Projects\RMVJ008\Ex4.5-5_Terrains_060704.pdf



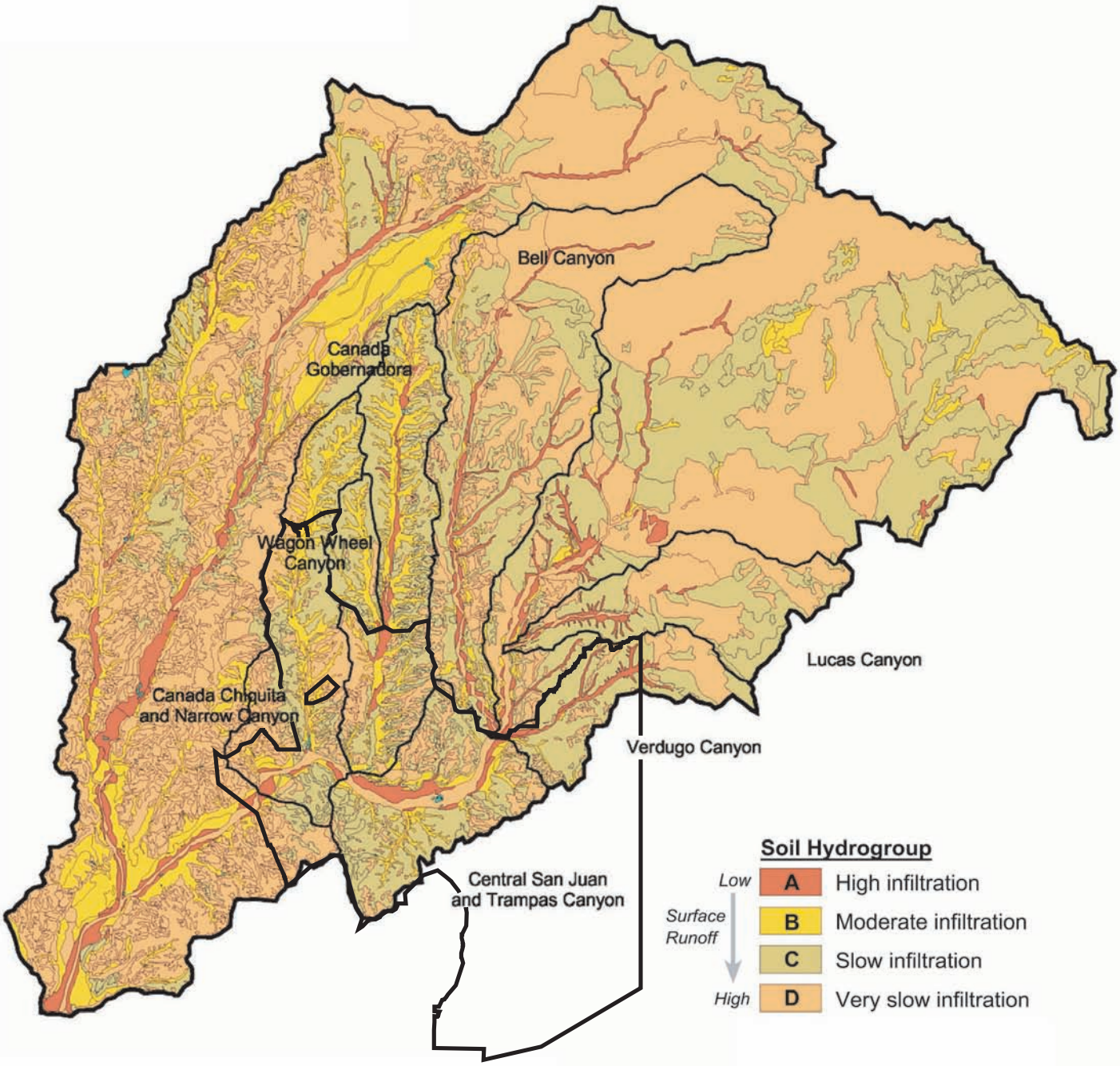
Rainfall Wet and Dry Cycles

Exhibit 4.5-6

The Ranch Plan

Source: GeoSyntec Consultants, 2004

R:\Projects\RMVJ008\Ex4.5-6_RainfallCycles_060204.pdf



Distribution of Hydrologic Soil Groups for the San Juan Watershed

Exhibit 4.5-7

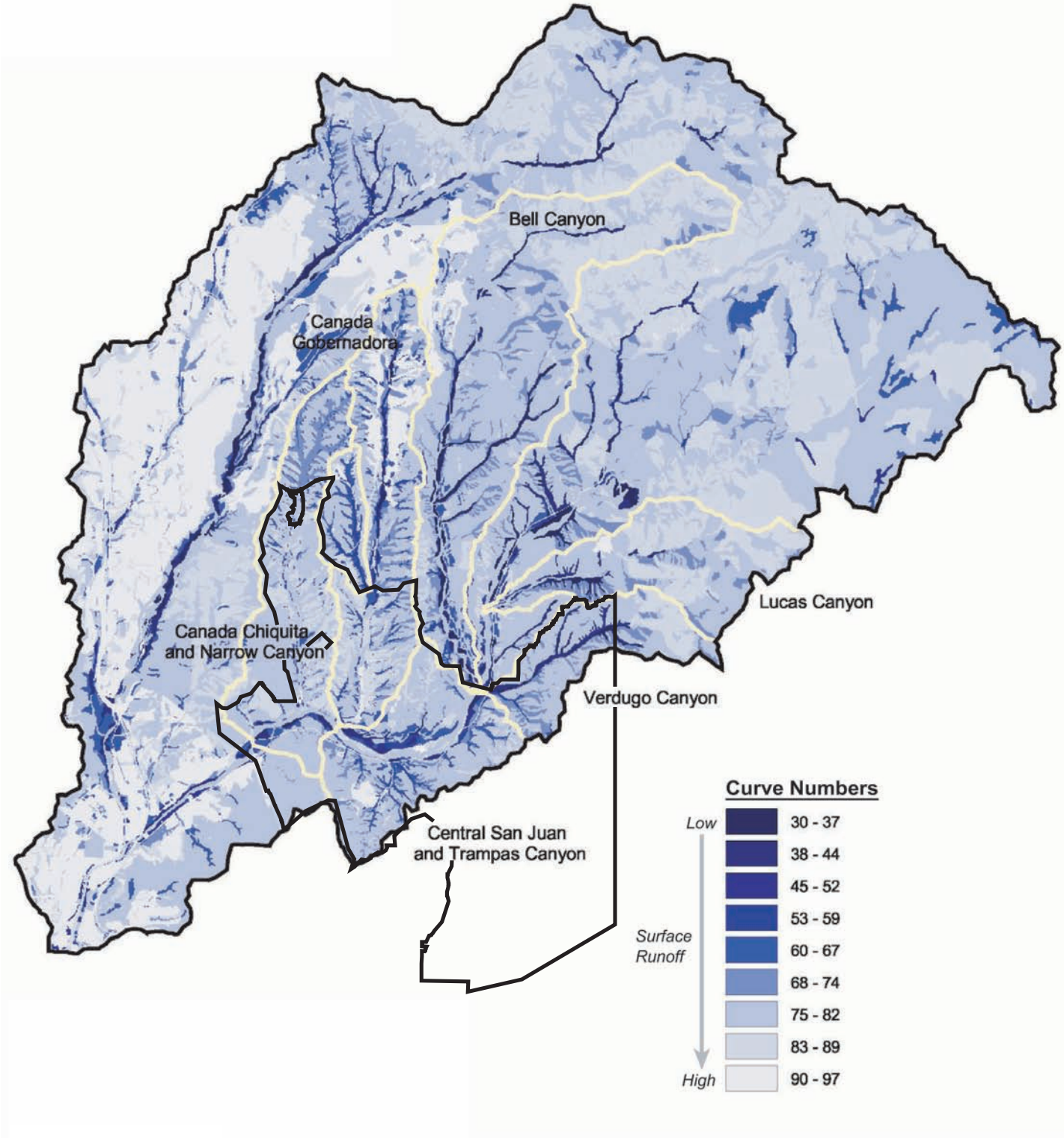
The Ranch Plan

1" = 14,000'

N
W E
S

Source: PWA, 2000

R:\Projects\RMVJ008\Ex4.5-7_SoilGroups_060704.pdf



Distribution of SCS Curve Numbers for the San Juan Watershed

Exhibit 4.5-8

The Ranch Plan

1" = 14,000'

N
W E
S

Source: PWA, 2000

R:\Projects\RMVJ008\Ex4.5-8_Curves_060704.pdf

Light border - San Juan Basin
Dark border - San Mateo Basin
Black border - Rancho Mission Viejo Boundary

Hydrologic Sub-Basins for Runoff Analysis

Exhibit 4.5-9

The Ranch Plan

1" = 16,500'

N
W E
S

Source: PWA, 2000

R:\Projects\RMVJ008\Ex4.5-9_Runoff_060704.pdf

4.6 TRANSPORTATION AND CIRCULATION

A comprehensive traffic study was prepared in May 2004 for the proposed Ranch Plan project. The traffic study is summarized in this section and is included in its entirety in Appendix D of this Program EIR.

4.6.1 METHODOLOGY AND ASSUMPTIONS

This transportation and circulation section addresses the traffic impacts of the proposed project. The traffic impact analysis follows the CEQA requirements for such analyses and the overall approach can be summarized as follows:

- Existing Plus Project Analysis: In this part of the traffic analysis, the project is analyzed in relation to existing conditions (i.e., existing versus existing plus project).

- Long-Range/Cumulative Impact Analysis: This part of the analysis addresses the proposed project plus cumulative projects using a long-range (year 2025) time frame.

- Short-Range Analysis: This examines circulation under a short-range (2010) setting based on a level of project development anticipated by 2010.

- Mitigation Program: A long-range transportation improvement program is presented to mitigate the "project plus cumulative" impacts.

The existing plus project analysis recognizes that existing conditions form the "environmental baseline" for impact identification, and the project is thereby analyzed in relation to this baseline. The cumulative analysis adds future development to the project trips and examines the impacts of the combined trips using an appropriate long-range time frame. The transportation improvement program is designed to mitigate this long-range project buildout plus cumulative setting. The short-range analysis examines an initial level of project development and addresses requirements of the County's Growth Management Plan (GMP) and Congestion Management Program (CMP).

The following sections discuss the study area, the traffic forecasting methodology, the performance criteria used in identifying impacts and evaluating alternatives, and the basic assumptions applied in the analysis.

Traffic Analysis Study Area

Exhibit 4.6-1 depicts the traffic study area for the Ranch Plan project. The traffic study area includes all or portions of the cities of Mission Viejo, San Juan Capistrano, and San Clemente, and portions of the cities of Rancho Santa Margarita, Laguna Hills, and Laguna Niguel. It also includes portions of unincorporated Orange County extending from Rancho Santa Margarita to San Clemente, including the communities of Las Flores, Ladera Ranch, Coto de Caza, and Talega, as well as the project area. The following specific criteria were used in defining this traffic study area.

- For arterial roads, the traffic study area includes all facilities where peak hour intersection volume/capacity ratios would increase by one percent or more as a result of the project. This is the impact threshold designated in the *Orange County General Plan Growth Management Element*.

- For freeways, the traffic study area includes all facilities where peak hour volumes would increase by more than three percent as a result of the project. This is the impact threshold designated in the *Orange County Congestion Management Program (CMP)*.

Traffic Forecasting Methodology

Traffic forecast data for the analysis was prepared using the South (Orange) County Sub-Area Model (SCSAM). This traffic forecasting model is a focused sub-area model derived from the Orange County Transportation Analysis Model (OCTAM) and was specifically designed to provide detailed forecasting capability in the traffic study area. The SCSAM is based on OCTAM Version 3.1 (OCTAM 3.1) which was adopted by the Orange County Transportation Authority (OCTA) in June 2001, together with a set of sub-area model consistency guidelines that are outlined in the *Orange County Subarea Modeling Guidelines Manual* (Orange County Transportation Authority, June 2001). The SCSAM has been certified by the OCTA as complying with these guidelines. For a complete description of the SCSAM, refer to the *SCSAM Traffic Model Description and Validation Report*.

The traffic forecast data produced by the SCSAM includes average daily traffic (ADT) volumes for arterial roadway and freeway mainline segments; and a.m. and p.m. peak hour volumes for intersection locations on the arterial and freeway circulation network, freeway ramps, and freeway mainline segments.

Performance Criteria

Traffic impact study criteria are based on two primary measures. The first is “capacity” which establishes the vehicle carrying ability of a road segment and the second is “volume.” The volume measure may be a traffic count (in the case of existing volumes) or traffic forecast for a future point in time. The ratio between the volume and the capacity gives a volume/capacity (V/C) ratio. Based on the V/C ratio, a corresponding “level of service” (LOS) is defined. Level of Service is a qualitative measure of a facility’s operating performance. Level of Service is described with a letter designation from A to F, with LOS A representing the best operating conditions and LOS F the worst.

Table 4.6-1 identifies the V/C ranges that correspond to LOS A through F for arterial roads and freeway segments. The V/C ranges for arterial roads are designated in the CMP and are used by the County of Orange and by the local jurisdictions in the study area. The V/C ranges for freeway segments are based on the V/C and LOS relationships specified in the *Highway Capacity Manual 2000* (HCM, 2000) for basic freeway sections with free-flow speeds of 65 miles per hour.

TABLE 4.6-1
LEVEL OF SERVICE RANGES AND VOLUME/CAPACITY RATIO

Level of Service (LOS)	Volume/Capacity (V/C) Ratio Range	
	Arterial Roads and Intersections	Freeway Segments
A	0.00 – 0.60	0.00 – 0.30
B	0.61 – 0.70	0.31 – 0.50
C	0.71 – 0.80	0.51 – 0.71
D	0.81 – 0.90	0.72 – 0.89
E	0.91 – 1.00	0.90 – 1.00
F	Above 1.00	Above 1.00

Sources:

Arterial road and intersection V/C ranges: *2003 Orange County Congestion Management Program*, Orange County Transportation Authority.

Freeway segment V/C ranges: *Highway Capacity Manual 2000 (HCM 2000)*, Transportation Research Board, National Research Council.

Arterial Roads Impact Criteria

For the arterial roadway system, the peak hour is the time period used for impact evaluation. Various techniques are available to establish V/C ratios and to define the corresponding LOS. These definitions and procedures are established by local jurisdictions or by regional programs such as the CMP and the countywide GMP. For the Ranch Plan traffic impact study, the analysis of the arterial road system is based on intersection capacity because this is the defining capacity limitation on an arterial highway system. Levels of service for arterial road intersections are determined based on operating conditions during the a.m. and p.m. peak hours. The intersection capacity utilization (ICU) methodology is applied based on peak hour volumes and an intersection's geometric configuration. This methodology adds the V/C ratios for the critical movements of an intersection and is generally compatible with the intersection capacity analysis methodology in the *HCM 2000*. The ICU ranges that correspond to LOS A through LOS F are the same as the V/C ranges (Table 4.6-1) for arterial roads and intersections.

Jurisdictions located in the traffic study area have established arterial intersection LOS standards that serve as a guideline for evaluating observed traffic conditions and as a target or goal when evaluating future development plans and circulation system modifications. These jurisdictions have also adopted various parameters for calculating ICU values and thresholds for identifying adverse impacts of a project. Details of the ICU calculation methodology and performance criteria for each jurisdiction associated impact criteria applied for the study area arterial system is summarized in Table 4.6-2. Most local jurisdictions in the study area use LOS D (ICU not to exceed 0.90) as the accepted standard, and exceptions are noted in the summary table for local jurisdictions that accept a different level of service standard for a certain section of road or for CMP locations that have a different level of service standard. The table also summarizes the impact criteria used for identifying project impacts. They are based on the intersection performance criteria and establish the "threshold of significance" required by CEQA for impact identification.

TABLE 4.6-2
ARTERIAL INTERSECTION PERFORMANCE CRITERIA

V/C Calculation Methodology
Level of service (LOS) to be based on peak hour intersection capacity utilization (ICU) values calculated using the following assumptions: Saturation Flow Rate: 1,600 vehicles/hour/lane for City of San Clemente intersections, 1,700 vehicles/hour/lane for all other jurisdictions in the study area. Clearance Interval: 0.00 for City of San Clemente intersections, 0.05 for all other jurisdictions in the study area.
Performance Standard
LOS D (peak hour ICU less than or equal to 0.90) for locations other than Congestion Management Program (CMP) intersections and Crown Valley Parkway intersections between I-5 and Marguerite Parkway.
LOS E (peak hour ICU less than or equal to 1.00) for CMP intersections (i.e., the I-5 ramp intersections at Crown Valley Parkway and at Ortega Highway, and the intersection of Moulton Parkway and Crown Valley Parkway) and Crown Valley Parkway intersections between I-5 and Marguerite Parkway.
Impact Thresholds
A freeway ramp is considered to be adversely impacted if: 1. The intersection is forecast to operate deficiently with the project (i.e., worse than the performance standard). 2. Compared to the ICU in the "without project" alternative, the ICU in a "with project" alternative increases as follows: • 0.01 or greater at County of Orange, City of Mission Viejo, City of Rancho Santa Margarita and City of San Juan Capistrano intersections (the impact threshold specified in the Growth Management Plan (GMP) and adopted by the Cities of Mission Viejo, Rancho Santa Margarita and San Juan Capistrano). • Greater than 0.01 at City of Laguna Hills, City of Laguna Niguel and City of San Clemente intersections (the impact threshold adopted by those Cities). • Greater than 0.03 at CMP intersections (the impact threshold specified in the CMP).
Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004

Freeway Ramps Impact Criteria

The peak hour is the time period typically used by Caltrans for freeway interchange ramp impact analyses. For the Ranch Plan traffic study, levels of service for freeway ramps are based on a.m. and p.m. peak hour V/C ratios. Carrying capacities for the various ramp configurations that either exist or are anticipated on the freeway system in the traffic study area are based on information in the *Highway Design Manual* (Caltrans, July 1995) and the *Ramp Meter Design Manual* (Caltrans, January 2000) and have been used for other studies in Orange County. The capacities for calculating ramp V/C ratios are summarized in Table 4.6-3 together with the impact criteria for freeway ramps in the study area.

Freeway Mainline Impact Criteria

The freeway mainline segments impact analysis is based on peak hour volumes by direction. When a peak hour V/C ratio for a freeway segment exceeds the theoretical (and practical) maximum V/C of 1.0, the actual value is reported, although it is recognized that this demand typically cannot be accommodated during the peak hour. In such cases, the excess peak hour demand will result in a peak period that exceeds one hour because vehicles will queue back from the bottleneck area. When this traffic condition occurs on a regular basis, many motorists will try to avoid the peak hours by traveling before or after the peak hours or may choose alternative arterial routes. The degree to which spreading into the peak period occurs is

considered in the traffic forecasting process but is not used in the actual performance calculation.

TABLE 4.6-3
FREEWAY RAMP PERFORMANCE CRITERIA

V/C Calculation Methodology
Level of service (LOS) to be based on peak hour volume/capacity (V/C) ratios calculated using the following ramp capacities: Metered On-Ramps A maximum capacity of 900 vehicles per hour (vph) for a one-lane metered on-ramp with only one mixed-flow lane at the meter. A maximum capacity of 1,080 (20 percent greater than 900) vph for a one-lane metered on-ramp with one mixed-flow lane at the meter plus one high occupancy vehicle (HOV) preferential lane at the meter. A maximum capacity of 1,500 vph for a one-lane metered on-ramp with two mixed-flow lanes at the meter. A maximum capacity of 1,800 vph for a two-lane metered on-ramp with two mixed-flow lanes at the meter. Non-Metered On-Ramps and Off-Ramps A maximum capacity of 1,500 vph for a one-lane ramp. A maximum capacity of 2,250 (50 percent greater than 1,500) vph for a two-lane on-ramp that tapers to one merge lane at or beyond the freeway mainline gore point and for a two-lane off-ramp with one auxiliary lane. A maximum capacity of 3,000 vph for a two-lane on-ramp that does not taper to one merge lane and for a two-lane off-ramp with two auxiliary lanes.
Performance Standard
LOS E (peak hour V/C less than or equal to 1.00).
Impact Thresholds
A freeway ramp is considered to be adversely impacted if: 1. The ramp is forecast to operate deficiently with the project (i.e., worse than the performance standard). 2. Compared to the V/C in the "without project" alternative, the V/C in a "with project" alternative increases as follows: • 0.01 or greater for ramps at County of Orange, City of Mission Viejo, City of Rancho Santa Margarita and City of San Juan Capistrano intersections (the impact threshold specified in the GMP and adopted by the Cities of Mission Viejo, Rancho Santa Margarita and San Juan Capistrano). • Greater than 0.01 for ramps at City of Laguna Hills, City of Laguna Niguel and City of San Clemente intersections (the impact threshold adopted by those cities).
Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

Capacities for calculating peak hour V/C ratios for freeway mainline segments are based on information contained in the *Highway Design Manual* (Caltrans, July 1995) and have been verified by Caltrans staff in previous Orange County studies. A capacity of 2,000 vehicles per hour per lane (vphpl) is used for mixed-flow (general purpose) mainline freeway lanes, a capacity that corresponds to LOS E. Consistent with Caltrans' guidelines for high occupancy vehicle (HOV) facilities, a desirable operating capacity of 1,600 vphpl is applied for a one-lane buffer-separated HOV facility and a desirable operating capacity of 1,750 vphpl is applied for a two-lane buffer-separated HOV facility in which passing is allowed. These HOV capacities, which are lower than the capacity for a mixed-flow freeway lane, reflect Caltrans' objective for HOV facilities to operate better than LOS E.

The capacity of a freeway auxiliary lane is generally different from that of a mainline lane because auxiliary lanes are typically implemented to preserve standard freeway capacities at locations where the geometric design is below standard (for example, between interchanges

that are spaced less than one mile apart or where heavy on-/off-ramp volumes occur between interchanges. While an auxiliary lane can increase the overall capacity of a mainline freeway segment, the practical increase depends factors such as the length of the auxiliary lane and the on/off ramp volumes at the beginning and end of the auxiliary lane.

The capacity assumptions for freeway mixed-flow, HOV, and auxiliary lanes are identified in Table 4.6-4 with the impact criteria for analyzing freeway mainline segments within the study area.

TABLE 4.6-4
FREEWAY MAINLINE PERFORMANCE CRITERIA

V/C Calculation Methodology
Level of service (LOS) to be based on peak hour volume/capacity (V/C) ratios calculated using the following capacities: 2,000 vehicles per hour per lane (vphpl) for mixed-flow (general purpose) lanes. 1,600 vphpl for a one-lane buffer-separated high occupancy vehicle (HOV) facility. 1,750 vphpl for a two-lane buffer-separated HOV facility. 0 vehicles per hour (vph) added capacity for an auxiliary lane that is 0.5 mile or less in length, an auxiliary lane that is between 0.5 mile and 1.0 mile in length carrying less than 1,000 vph of total on/off ramp volume at the beginning and end of the lane, or an auxiliary lane that acts as a climbing lane. 500 vph added capacity for an auxiliary lane that is between 0.5 mile and 1.0 mile in length carrying between 1,000 and 2,000 vph of total on/off ramp volume at the beginning and end of the lane. 1,000 vph added capacity for an auxiliary lane that is between 0.5 mile and 1.0 mile in length carrying more than 2,000 vph of total on/off ramp volume at the beginning and end of the lane. 2,000 vph added capacity for an auxiliary lane that is more than 1.0 mile in length.
Performance Standard
LOS E (peak hour V/C less than or equal to 1.00).
Impact Threshold
A freeway mainline segment is considered to be adversely impacted if: 1. The segment is forecast to operate deficiently (i.e., worse than the performance standard). 2. The V/C in a project alternative increases by greater than 0.03 (the impact threshold specified in the CMP) compared to the V/C in the "without project" alternative.
Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

When evaluating existing freeway conditions (i.e., based on traffic count data), the V/C and LOS criteria are applicable only in situations where the observed traffic volume occurs in stable flow. Freeway capacities can be substantially reduced under unstable congested conditions in which less traffic is accommodated than under ideal freeway operating conditions (see additional discussion on this in Section 4.6.2, Existing Conditions). LOS E has been established by Caltrans as the operating standard for freeway mainline segments and is consistent with the level of service standard specified in the Orange County CMP for CMP facilities.

Traffic Analysis Scenarios

The overall approach to the impact analysis was noted earlier, and some elaboration of the various settings in the overall analysis follows.

Existing Conditions. This is the environmental baseline for CEQA purposes and is based on observed traffic conditions on the study area circulation system (May 2003). Average daily traffic (ADT) data was collected for the traffic study area (Exhibit 4.6-1). In addition, peak hour

intersection counts were taken at 75 intersections in the traffic study area. Existing freeway traffic ramp data was also collected.

Existing Conditions + Project Buildout. This is a hypothetical scenario in which the Ranch Plan project would be fully implemented at the present time. This analysis, required by CEQA, includes full development of the project and theoretical full absorption of project traffic on the existing highway system. The *Existing Conditions + Project Buildout* scenario does not account for future population growth that is projected in the County of Orange and adjacent jurisdictions within the traffic study area, with or without the Ranch Plan project. Further, it does not account for other future land use projects that would also be conditioned to provide for, or contribute to needed traffic improvements to the study area circulation system, as well as other anticipated circulation improvements. Lastly, the study area circulation system is projected to change over time, with or without the proposed project. These circulation system changes include new traffic infrastructure, traffic improvements, road improvements, reconfigurations and realignments. For these reasons and the fact that full development of the proposed Ranch Plan project is proposed in 2025, the *Year 2025 + Project Buildout* scenario provides a more realistic scenario for the traffic impact analysis and, therefore, the mitigation program addresses the *Year 2025 + Project Buildout* scenario rather than *Existing Conditions + Project Buildout* scenario. Further discussion on this is provided in the Mitigation Program.

Long-Range (Year 2025) assumes cumulative growth in the traffic study area through year 2025, including buildout of the proposed Ranch Plan project. The primary sources of information for areas outside of the Ranch Plan site were OCP-2000 Modified demographic data, which was adopted by the Orange County Board of Supervisors in 2000, and the General Plans for jurisdictions within the study area. The traffic study area circulation system assumes transportation improvements that have committed funding by 2010. As previously noted, the mitigation program for the Ranch Plan project is based on this scenario.

Three circulation system scenarios are used for the *Year 2025* analysis as follows:

- Committed circulation system.[1]
- Committed circulation system plus La Pata Avenue extension.
- Committed circulation system plus La Pata Avenue extension and the southerly extension of SR-241.

Information on each of these can be found in the discussion on future transportation improvements in Section 4.6.2.

Short-Range (Year 2010) assumes local and regional growth through year 2010 with and without that portion of the proposed Ranch Plan assumed through 2010. It is based on the existing circulation system (May 2003) plus transportation improvements that have committed funding by 2010. Year 2010 demographic data for the surrounding area was derived from OCP-2000 Modified demographic data. The analysis compares with and without project conditions for a stage of project development that is estimated to occur by 2010.

[1] Committed improvements include those in a capital improvement program of a local jurisdiction within the study area, or projects that are currently funded by Caltrans through year 2010. Also included are improvements that have a specific funding source, such as the City of San Juan Capistrano's Reimbursement Agreement and Nexus Fee Program and the City of San Clemente's Regional Circulation Financing and Phasing Program (RCFPP). In addition, improvements that are part of conditions of approval for development that is included in the demographic data forecasts (i.e., OCP-2000 Modified projections) are also assumed to be committed.

Three project scenarios are provided for the *Year 2010* analysis, each with different on-site and off-site transportation system assumptions. They are:

- Committed circulation system
- Committed circulation system plus La Pata Avenue extension
- Committed circulation system plus La Pata Avenue extension and arterial south of Oso Parkway from SR-241 to north of San Juan Creek, connecting to New Ortega Highway at this point

Each scenario assumes the same initial portion of the proposed Ranch Plan project and year 2010 cumulative land use assumptions for the remainder of the study area. Additionally, the *Ranch Plan EIR Traffic Report* (see Appendix D of this Program EIR) contains a number of informational items that are addressed under the overall heading of "special issues." They are summarized in Section 4.6.7 of this EIR section.

4.6.2 EXISTING CONDITIONS

This section discusses the existing circulation system and traffic conditions in the study area and future circulation system improvements that are currently planned.

Existing Traffic Conditions

The following sub-sections describe the existing circulation system in the study area and the existing levels of service on the various transportation system components.

Existing Highway Network

The existing highway network in the traffic study area is depicted in Exhibit 4.6-2. For arterial roads in the study area, the exhibit identifies the number of existing mid-block travel lanes and the classification of each road (e.g., major arterial, primary arterial, secondary arterial, etc.) as currently designated in the MPAH. For the freeway and tollway facilities in the traffic study area, the number of existing general purpose, HOV, and auxiliary lanes for each freeway/tollway segment are identified.

Existing ADT Volumes

Exhibit 4.6-3 depicts existing ADT volumes on the traffic study area circulation system. Volumes on arterial roadways in the study area are based on weekday 24-hour traffic count data collected in 2003. Freeway counts on I-5 are from 2002 Caltrans annual ADT counts that have been converted to weekday ADT based on conversion factors provided by Caltrans. Existing ADT volumes shown on the SR-73 and SR-241 tollways are taken from 2002 count data supplied by the Transportation Corridor Agencies (TCA). As previously noted, ADT volumes are not used in the traffic impact analysis, but are presented to provide a reference point for the traffic forecasts and for use in air quality and noise analyses.

Existing Intersection Levels of Service

Table 4.6-5 identifies the existing ICU values and levels of service for traffic study area intersections. The peak hour intersection volumes are from traffic count data collected in 2003.

TABLE 4.6-5
EXISTING CONDITIONS: INTERSECTION LEVELS OF SERVICE

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	ICU	LOS	ICU	LOS
City of Laguna Hills				
15. Cabot Road at Oso Parkway	0.61	B	0.75	C
City of Laguna Niguel				
16. Moulton Parkway at Crown Valley Parkway[a.]	0.68	B	0.68	B
17. Greenfield Drive at Crown Valley Parkway	0.68	B	0.63	B
18. Cabot Road at Crown Valley Parkway	0.66	B	0.80	C
19. Forbes at Crown Valley Parkway	0.49	A	0.74	C
20. Street of the Golden Lantern at Paseo de Colinas[b.]	**0.97**	**E**	**0.93**	**E**
21. Cabot Road at Paseo de Colinas	0.46	A	0.56	A
22. Camino Capistrano at Paseo de Colinas	0.47	A	0.52	A
23. Camino Capistrano at Avery Parkway	0.43	A	0.69	B
70. Greenfield Drive at SR-73 SB Ramps	0.49	A	0.45	A
71. Greenfield Drive at SR-73 NB Ramps	0.63	B	0.44	A
City of Mission Viejo				
1. Marguerite Parkway at La Paz Road	0.58	A	0.81	D
2. Olympiad Road at La Paz Road	0.54	A	0.47	A
3. Marguerite Parkway at Oso Parkway[b.]	**1.02**	**F**	**0.91**	**E**
4. Felipe Road at Oso Parkway	0.79	C	0.70	B
6. Marguerite Parkway at Felipe Road	0.62	B	0.62	B
7. Puerta Real at Crown Valley Parkway[a.]	0.66	B	0.75	C
8. Guevara/Medical Center at Crown Valley Parkway[a.]	0.56	A	0.64	B
9. Los Altos at Crown Valley Parkway[a.]	0.53	A	0.56	A
10. Bellogente at Crown Valley Parkway[a.]	0.58	A	0.48	A
11. Marguerite Parkway at Crown Valley Parkway[a.,b.]	0.84	D	**1.04**	**F**
24. Marguerite Parkway at Avery Parkway	0.73	C	0.75	C
44. I-5 SB Ramps at Oso Parkway	0.72	C	0.76	C
45. I-5 NB Ramps at Oso Parkway	0.75	C	0.89	D
46. I-5 SB Ramps at Crown Valley Parkway[a.]	0.61	B	0.85	D
47. I-5 NB Ramps at Crown Valley Parkway[a.]	0.62	B	0.70	B
48. I-5 SB Ramps at Avery Parkway	0.67	B	0.89	D
49. I-5 NB Ramps at Avery Parkway	0.68	B	0.77	C
City of Rancho Santa Margarita				
13. Banderas at Antonio Parkway	0.62	B	0.77	C
14. Avenida Empresa at Antonio Parkway	0.52	A	0.42	A
58. SR-241 SB Ramps at Antonio Parkway	0.36	A	0.48	A
59. SR-241 NB Ramps at Antonio Parkway	0.64	B	0.37	A
60. SR-241 SB Ramps at Oso Parkway	0.49	A	0.42	A
61. SR-241 NB Ramps at Oso Parkway	0.71	C	0.36	A

TABLE 4.6-5 (Continued)
EXISTING CONDITIONS: INTERSECTION LEVELS OF SERVICE

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	ICU	LOS	ICU	LOS
City of San Clemente				
39. Camino Vera Cruz at Avenida Vista Hermosa	0.66	B	0.52	A
40. Avenida La Pata at Avenida Pico	0.28	A	0.32	A
41. Avenida Vista Hermosa at Avenida Pico	0.26	A	0.15	A
54. I-5 SB Ramps at Avenida Vista Hermosa	0.23	A	0.19	A
55. I-5 NB Ramps at Avenida Vista Hermosa	0.33	A	0.34	A
56. I-5 SB Ramps at Avenida Pico	0.72	C	0.75	C
57. I-5 NB Ramps at Avenida Pico	0.73	C	0.59	A
City of San Juan Capistrano				
25. Camino Capistrano at Ortega Highway	0.45	A	0.46	A
26. Del Obispo Street at Ortega Highway	0.56	A	0.58	A
27. Rancho Viejo Road at Ortega Highway	0.66	B	0.73	C
28. La Novia Avenue at Ortega Highway	0.67	B	0.61	B
30. Camino Capistrano at Del Obispo Street	0.65	B	0.75	C
31. Camino Capistrano at San Juan Creek	0.34	A	0.43	A
32. Valle Road at San Juan Creek	0.68	B	0.66	B
33. La Novia Avenue at San Juan Creek	0.58	A	0.39	A
50. I-5 SB Ramps at Ortega Highway[a.]	0.71	C	0.83	D
51. I-5 NB Ramps at Ortega Highway[a.]	0.98	E	0.81	D
52. Camino Capistrano at I-5 SB Ramps	0.72	C	0.84	D
53. Valle Road. at La Novia Avenue/I-5 NB Ramps	0.45	A	0.60	A
72. Camino Capistrano at Junipero Serra Road	0.40	A	0.47	A
73. I-5 SB Ramps at Junipero Serra Road	0.48	A	0.57	A
74. I-5 NB Ramps at Junipero Serra Road	0.53	A	0.56	A
75. Rancho Viejo Road at Junipero Serra Road[.]	0.44	A	0.52	A
Unincorporated Orange County				
5. Antonio Parkway at Oso Parkway	0.74	C	0.81	D
12. Antonio Parkway at Crown Valley Parkway	0.39	A	0.45	A
29. Antonio Parkway./La Pata Ave. at Ortega Hwy.[b.]	**1.02**	**F**	0.73	C

ICU: intersection capacity utilization
LOS: level of service
NB: northbound
SB: southbound

a. LOS E is acceptable at this location (Congestion Management Program (CMP) intersections and Crown Valley Parkway intersections between I-5 and Marguerite Parkway). LOS D is the adopted performance standard for all other intersection locations that are analyzed.
b. This location operates deficiently in the a.m. and/or p.m. peak hour (i.e., the LOS is worse than the adopted LOS performance standard).

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

As indicated on Table 4.6-5, the following four intersections currently operate at deficient levels of service under existing conditions.

City of Laguna Niguel

20. Street of the Golden Lantern at Paseo de Colinas–0.97 (LOS E), a.m. peak; 0.93 (LOS E), p.m. peak

City of Mission Viejo

3. Marguerite Parkway at Oso Parkway–1.02 (LOS F), a.m. peak; 0.91 (LOS E), p.m. peak

11. Marguerite Parkway at Crown Valley Parkway–1.04 (LOS F), p.m. peak

Unincorporated Orange County

29. Antonio Parkway/La Pata Avenue at Ortega Highway–1.02 (LOS F), a.m. peak

Existing Freeway Ramp Levels of Service

Table 4.6-6 identifies existing peak hour freeway ramp volumes and V/C ratios. The peak hour ramp volumes are from traffic count data collected in 2003 at freeway ramp intersections. Under existing conditions, the following three freeway ramps operate at deficient levels of service.

- I-5 at Oso Parkway southbound off-ramp–1.12 (LOS F), p.m. peak
- I-5 at Crown Valley Parkway southbound off-ramp–1.19 (LOS F), p.m. peak
- I-5 at Ortega Highway northbound on-ramp–1.38 (LOS F), a.m. peak

TABLE 4.6-6
EXISTING CONDITIONS: FREEWAY RAMP LEVELS OF SERVICE

Interchange	Ramp	Lanes	Peak Hour Capacity	A.M. Peak Hour			P.M. Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS
I-5 at Oso Parkway	SB Direct On	1	1,080	520	0.48	A	520	0.48	A
	SB Loop On	1	1,080	500	0.46	A	430	0.40	A
	NB Direct On	1	1,500	1,300	0.87	D	620	0.41	A
	NB Loop On	1	1,500	520	0.35	A	460	0.31	A
	SB Off[a.]	1	1,500	1,090	0.73	C	1,680	**1.12**	**F**
	NB Off	1	1,500	1,090	0.73	C	1,100	0.73	C
I-5 at Crown Valley Parkway	SB On	1	1,800	630	0.35	A	850	0.47	A
	NB Direct On	1	1,500	1,080	0.72	C	1,120	0.75	C
	NB Loop On	1	1,080	840	0.78	C	850	0.79	C
	SB Off[a.]	2	2,250	1,440	0.64	B	2,680	**1.19**	**F**
	NB Off	1	1,500	1,020	0.68	B	740	0.49	A
I-5 at Avery Parkway	SB On	1	1,080	410	0.38	A	630	0.58	A
	NB On	1	1,500	680	0.45	A	800	0.53	A
	SB Off	1	1,500	910	0.61	B	1,080	0.72	C
	NB Off	1	1,500	780	0.52	A	730	0.49	A
I-5 at Junipero Serra Road	SB On	1	1,080	320	0.30	A	320	0.30	A
	NB On	1	1,080	1,050	0.97	E	590	0.55	A
	SB Off	1	1,500	490	0.33	A	790	0.53	A
	NB Off	1	1,500	290	0.19	A	240	0.16	A
I-5 at Ortega Highway	SB On	1	1,500	640	0.43	A	790	0.53	A
	NB On[a.]	1	1,500	2,070	**1.38**	**F**	1,340	0.89	D
	SB Off	2	2,250	1,420	0.63	B	2,040	0.91	E
	NB Off	1	1,500	1,030	0.69	B	800	0.53	A
I-5 at Camino. Capistrano	SB On	1	1,500	370	0.25	A	510	0.34	A
	NB On	1	1,500	390	0.26	A	350	0.23	A
	SB Off	1	1,500	830	0.55	A	1,000	0.67	B
	NB Off	1	1,500	390	0.26	A	570	0.38	A
I-5 at Avenida Vista Hermosa	SB On	1	1,080	280	0.26	A	175	0.16	A
	NB Direct On	1	1,500	760	0.51	A	670	0.45	A
	NB Loop On	1	1,080	20	0.02	A	10	0.01	A
	SB Off	1	1,500	650	0.43	A	630	0.42	A
	NB Off	1	1,500	240	0.16	A	390	0.26	A
I-5 at Avenida Pico	SB On	1	1,500	450	0.30	A	840	0.56	A
	NB On	1	1,500	1,410	0.94	E	1,450	0.97	E
	SB Off	2	2,250	1,540	0.68	B	1,280	0.57	A
	NB Off	1	1,500	920	0.61	B	670	0.45	A

a. This ramp operates deficiently in the a.m. and/or p.m. peak hour (i.e., the LOS is worse than the LOS E performance standard adopted by Caltrans for I-5 freeway ramps).

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

Existing Freeway Mainline Levels of Service

Table 4.6-7 identifies existing levels of service for freeway mainline segments in the traffic study area. The summary table shows the peak hour LOS derived from the V/C ratio as given in the performance criteria, but also shows the operating LOS as determined from Caltrans field measurements.

TABLE 4.6-7
EXISTING CONDITIONS: FREEWAY MAINLINE LEVELS OF SERVICE

Location	Direction	Lanes	A.M. Peak Hour				P.M. Peak Hour			
			Capacity	Volume	V/C	LOS	Capacity	Volume	V/C	LOS
I-5 n/o Oso Parkway	NB	4+1H	9,600	10,070	**1.05**	**F (F^3)**	9,600	8,950	0.93	E (E)
	SB	4+1H	9,600	7,210	0.75	D (E)	9,600	10,170	**1.06**	**F (F^3)**
I-5 n/o Crown Valley Parkway	NB	4+1H+1A	10,600	8,840	0.83	D **(F^2)**	9,600	8,740	0.91	E (E)
	SB	4+1H	9,600	7,390	0.77	D (E)	9,600	9,570	1.00	E **(F^2)**
I-5 n/o Avery Parkway	NB	4+1H+1A	9,600	8,130	0.85	D **(F^0)**	9,600	7,460	0.78	D (E)
	SB	4+1H+1A	9,600	6,230	0.65	C (E)	9,600	8,310	0.87	D **(F^U)**
I-5 n/o Junipero Serra Road	NB	6+1H	13,600	10,520	0.77	D (E)	13,600	8,950	0.66	C (D)
	SB	6+1H	13,600	7,360	0.54	C (D)	13,600	10,270	0.76	D (E)
I-5 n/o Ortega Highway	NB	5+1H	11,600	10,040	0.87	D (E)	11,600	8,550	0.74	D (D)
	SB	5+1H	11,600	7,070	0.61	C (D)	11,600	9,870	0.85	D (E)
I-5 n/o Camino Capistrano	NB	4+1H	9,600	9,620	1.00	E **(F^0)**	9,600	7,850	0.82	D (D)
	SB	4+1H	9,600	6,010	0.63	C (D)	9,600	8,540	0.89	D (E)
I-5 s/o Camino Capistrano	NB	4+1H	9,600	9,640	1.00	E (E)	9,600	8,080	0.84	D (D)
	SB	4+1H	9,600	5,810	0.61	C (D)	9,600	7,960	0.83	D (E)
I-5 n/o Avenida Vista Hermosa	NB	4	8,000	6,710	0.84	D (E)	8,000	6,130	0.77	D (D)
	SB	4	8,000	5,480	0.69	C (D)	8,000	6,830	0.85	D (E)
I-5 n/o Avenida Pico	NB	4+1A	9,000	6,170	0.69	C (E)	9,000	5,840	0.65	C (E)
	SB	4+1A	9,000	5,110	0.57	C (E)	9,000	6,380	0.71	C (E)
I-5 s/o Avenida Pico	NB	4	8,000	5,680	0.71	C (D)	8,000	5,060	0.63	C (D)
	SB	4	8,000	4,020	0.50	B (D)	8,000	5,940	0.74	D (D)

H: HOV Lane
A: Auxiliary Lane

Note: Parenthesized LOS values are from speed and travel time surveys carried out by Caltrans. The measured speeds in each section reflect queue build-up from a downstream deficient section and/or other prevailing conditions at the time the surveys were conducted. The prefix values for LOS $F^{(0,1,2,3)}$ represent different lengths of time during which congested conditions occur in the peak period.

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

When the peak hour V/C ratio on a freeway mainline segment nears 1.0, unstable conditions can occur which may result in a breakdown in flow. This breakdown in flow causes a reduction in capacity (vehicle speeds drop below the speed at which maximum capacity is available), and the V/C increases, causing a further reduction in speed. The result is stop-and-go conditions. At the same time, the reduction in capacity and increase in V/C causes queue build-up and the stop-and-go conditions can extend for a considerable distance upstream of the problem section.

This occurrence and its severity (i.e., length of queue) can vary on a daily basis from day to day, even when day-to-day fluctuations in traffic volumes are relatively small.

Speed and travel time measurements taken by Caltrans for the freeway system give an indication of when and where such conditions occur (i.e., for the day or days on which such measurements are taken). Specific level of service values are assigned based on the measured speeds; the level of service is determined by comparing the measured speed with a minimum desirable operating speed (typically 35 miles per hour [mph]). Travel time studies also reveal deficient freeway sections that are not in themselves a capacity problem, but which are adversely affected by queue build-up from a deficient section downstream. Therefore, LOS values as determined from speed measurements may not equate to the V/C because a queue can extend back from a deficient section to a section with a relatively low V/C.

For these reasons, the V/C based LOS is not always a true indication of the actual operating level of service on a freeway segment, particularly when a high V/C ratio on a given section adversely affects upstream sections because of queue build-up. The upstream section may have a relatively low V/C and suggest satisfactory operating conditions. However, stop-and-go conditions extending back to this section would cause it to be operating under congested conditions.

The Caltrans field measurements indicate that I-5 currently operates at a deficient LOS in the a.m. peak in the northbound direction from Camino Capistrano to Ortega Highway and from Avery Parkway to north of Oso Parkway, and in the p.m. peak in the southbound direction from north of Oso Parkway to Avery Parkway. It should be noted that the future freeway mainline traffic volumes summarized in Section 4.6.3 (Project and Cumulative Impacts) represent "demand" and not estimated operating conditions (i.e., only the V/C based LOS is identified).

Future Transportation System Improvements

Several transportation planning programs exist to provide direction for planning, developing, operating, and maintaining the highway circulation system in southern California. The Southern California Association of Governments (SCAG) is designated as the agency responsible for regional transportation planning in the SCAG region by both the state and federal governments. Orange County is included in the SCAG region together with Los Angeles, San Bernardino, Riverside, Ventura, and Imperial counties. The Regional Transportation Plan (RTP) is prepared by SCAG pursuant to the federal Transportation Equity Act for the 21st Century (TEA-21) and the state and federal Clean Air Acts. The RTP outlines the region's 25-year policy plan for meeting mobility goals, and identifies the master funding list for all transportation improvements needed to meet those goals. The RTP provides a long-range circulation plan for the regional circulation system. The RTP focuses on regional transportation improvements such as freeway widenings, HOV system enhancements, and freeway interchange improvements. By law, regionally significant projects must be included in the RTP to be eligible for federal or state funding and/or approvals. The Regional Transportation Improvement Program (RTIP) is the SCAG region's four-year capital improvement program for state and local highways. The RTIP represents the near-term implementation phase of the long-range RTP required under transportation legislation. The State Transportation Improvement Program (STIP) is a similar program overseen by the California Transportation Commission (CTC) to fund state highway projects. Both the STIP and the RTIP are used to program specific dollar amounts for transportation projects in each county.

The long-range circulation plan for the arterial system in Orange County is defined by the Orange County Master Plan of Arterial Highways (MPAH). The MPAH represents the arterial highway system in the Circulation Element of the County General Plan and the arterial street

components included in the General Plan Circulation Elements of the local jurisdictions in Orange County. The MPAH also identifies the existing and proposed freeway and toll road components of the circulation system. The long-range (year 2025) analysis of cumulative project impacts assumes the existing study area circulation system plus implementation of only those MPAH and RTP improvements that are currently funded and/or committed.

Any freeway improvement project in Orange County that is included in the STIP and RTIP must also be included in the Capital Improvement Program (CIP) of the Orange County CMP. Each county in California is required to prepare a CMP to continue receiving gas tax funds made available through Proposition 111, which passed in June 1990. The OCTA is the lead agency for the Orange County CMP, and is responsible for preparing and biennially updating the CMP and for monitoring the implementation of the CMP. With respect to freeway improvements included in the CMP CIP, this involves monitoring the funding of such improvements through the STIP and RTIP and other available local and regional funding programs.

Committed Circulation System

Committed improvements include those in a capital improvement program of a local jurisdiction within the study area, or projects that are currently funded by Caltrans. Also included are improvements that have a specific funding source, such as the City of San Juan Capistrano's Reimbursement Agreement and Nexus Fee Program and the City of San Clemente's Regional Circulation Financing and Phasing Program (RCFPP). In addition, improvements that are part of conditions of approval for development that is included in the demographic data forecasts (i.e., OCP-2000 Modified projections) are also assumed to be committed.

Exhibit 4.6-4 depicts the committed circulation system in the traffic study area (funded improvements through year 2010). A list of the improvements contained in the committed circulation system and the source of funding or source of commitment is provided in Table 4.6-8. The major study area roadway improvements that are committed include widening of Crown Valley Parkway to eight lanes and selected intersection improvements.

MPAH Buildout Circulation System

Exhibit 4.6-5 depicts the future circulation system in the study area based on full buildout of the General Plan Circulation Elements for the cities in the project traffic study area, as well as the Orange County MPAH. Table 4.6-9 lists the non-committed improvements associated with buildout of the study area circulation system. Because the listed improvements do not currently have committed funding sources, they are not assumed in the long-range (year 2025) analysis of cumulative project impacts.

On-Site Circulation System

The proposed project has an on-site circulation system to provide accessibility for the development areas. Exhibit 4.6-6 depicts the on-site roadway system. With buildout of the Ranch Plan project, the proposed New Ortega Highway would provide a new east-west roadway north of San Juan Creek extending east from Antonio Parkway and connect to an intersection with existing Ortega Highway in the easternmost part of the project site. "A" Street would extend north from New Ortega Highway into Planning Area 2, and connect to an intersection with existing Oso Parkway (this roadway would not serve through traffic). "C" Street, a north-south roadway, would extend north from New Ortega Highway into Planning Area 3, and southerly to connect to the easterly termination point of Avenida Pico. If the SR-241 extension is not built, then the on-site roadway system would include an arterial along the SR-241 alignment, terminating at New Ortega Highway.

TABLE 4.6-8
COMMITTED CIRCULATION SYSTEM IMPROVEMENTS (YEAR 2010) IN THE TRAFFIC STUDY AREA

Facility	Jurisdiction	Improvement	Source[a.]
Antonio Parkway (Oso Parkway to Crown Valley Parkway)	County of Orange	Widen to six lanes.	1
Avenida La Pata (Avenida Pico to Avenida Vista Hermosa)	San Clemente	Construct as a six-lane major arterial.	2
Avenida Talega (east of Avenida Vista Hermosa)	San Clemente	Extend as secondary arterial.	3
Avenida Vista Hermosa (Camino Vera Cruz to north of Avenida La Pata)	San Clemente	Construct as a four-lane primary arterial.	2
Camino Capistrano (south of Oso Road to Junipero Serra Road)	San Juan Capistrano	Widen to four lanes.	4
Camino Capistrano (south of San Juan Creek Road)	San Juan Capistrano	Widen to three lanes (two southbound and one northbound).	4
Crown Valley Parkway (I-5 to east of Trabuco Creek bridge)	County/Mission Viejo	Widen to eight lanes.	1
Rancho Viejo Road (south of Junipero Serra Road)	San Juan Capistrano	Widen to four lanes.	4
Ortega Highway (north of I-5)	TCA/Caltrans	Widen to provide four general-purpose lanes in each direction.	5
SR-241 (Oso Parkway to Santa Margarita Parkway)	TCA/Caltrans	Widen to provide three general-purpose lanes in each direction.	5

a. 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 – Implemented through the City of San Juan Capistrano Reimbursement Agreement and Nexus Fee Program.
5 – Implemented through the Foothill/Eastern Transportation Corridor Agency (TCA) Capital Improvement Plan (CIP).

TABLE 4.6-9
NON-COMMITTED CIRCULATION SYSTEM IMPROVEMENTS IN THE PROJECT TRAFFIC STUDY AREA

Facility	Jurisdiction	Improvement	Source[a.]
Alipaz Street (north of Del Obispo Street to Oso Road)	San Juan Capistrano	Construct as four-lane secondary arterial.	MPAH
Antonio Parkway (south of Ladera Ranch to Ortega Highway/SR-74)	County	Widen to six lanes.	MPAH
La Pata Avenue (south of Ortega Highway/SR-74)	County	Widen to four lanes.	MPAH
La Pata Avenue (south of Ortega Highway/SR-74 to San Clemente city limits)	County	Construct as a four-lane primary arterial.	MPAH
Avenida La Pata (San Clemente city limits to Avenida Vista Hermosa)	San Clemente	Construct as a six-lane major arterial.	MPAH
Camino Capistrano (south of San Juan Creek Road)	San Juan Capistrano	Widen to four lanes.	MPAH
Camino Capistrano (Junipero Serra Road to San Juan Capistrano city limits)	San Juan Capistrano	Widen to four lanes.	MPAH
Camino De Los Mares (east of Camino Del Rio to Camino Las Ramblas)	San Clemente	Construct as four-lane secondary arterial.	MPAH
Camino Del Rancho (I-5 to Avenida Pico)	San Clemente	Construct as a four-lane primary arterial.	MPAH
Camino Del Rio (current termination east to Avenida La Pata)	San Clemente	Construct as four-lane secondary arterial.	MPAH
Camino Las Ramblas (current termination east to Avenida La Pata)	San Juan Capistrano/ San Clemente	Construct as four-lane secondary arterial.	MPAH
Camino Los Padres (east of Street of the Golden Lantern to Camino Capistrano)	San Juan Capistrano	Construct as four-lane primary arterial.	MPAH
Crown Valley Parkway (Antonio Parkway to SR-241)	County	Construct as six-lane major arterial.	MPAH
Crown Valley Parkway (SR-241 to Oso Parkway)	County	Construct as four-lane primary arterial.	MPAH
I-5 (Oso Parkway to Crown Valley Parkway)	Caltrans	Add southbound auxiliary lane.	CT-RCR
I-5 (Pacific Coast Highway/SR-1 to Avenida Pico)	Caltrans	Add northbound and southbound high occupancy vehicle (HOV) lanes.	SCAG RTP
Junipero Serra Road (Camino Capistrano to Rancho Viejo Road)	San Juan Capistrano	Widen to four lanes.	MPAH
La Novia Avenue (north of San Juan Creek Road)	San Juan Capistrano	Widen to four lanes.	MPAH
Olympiad Road (Alicia Parkway to La Paz Road)	Mission Viejo	Widen to four lanes.	MPAH
Ortega Highway (Via Cordova to San Juan Capistrano city limits)	San Juan Capistrano	Widen to four lanes.	MPAH

TABLE 4.6-9 (Continued)
NON-COMMITTED CIRCULATION SYSTEM IMPROVEMENTS IN THE PROJECT TRAFFIC STUDY AREA

Facility	Jurisdiction	Improvement	Source[a.]
Ortega Highway (San Juan Capistrano city limits to Orange County/Riverside County border)	County	Widen to four lanes.	MPAH
Oso Road (Alipaz Street to Camino Capistrano)	San Juan Capistrano	Widen to four lanes.	MPAH
San Juan Creek Road (Camino Capistrano to San Juan Capistrano city limits)	San Juan Capistrano	Widen to four lanes.	MPAH
San Juan Creek Road (San Juan Capistrano city limits to Avenida La Pata)	San Juan Capistrano	Construct as four-lane secondary arterial.	MPAH
SR-73 (north of I-5)	TCA/Caltrans	Add one northbound and southbound lane.	OCTA
SR-241 (Oso Parkway to Santa Margarita Parkway)	TCA/Caltrans	Add one northbound and southbound lane.	OCTA
SR-241 (Oso Parkway to I-5)	TCA/Caltrans	Construct and provide four lanes in each direction.	MPAH
Trabuco Canyon Road (extension to Avery Parkway)	Mission Viejo	Construct as two-lane collector road.	MPAH

a. Sources:
CT-RCR: *Caltrans I-5 Route Concept Report* (May 2000)
MPAH: Orange County Master Plan of Arterial Highways
OCTA: Orange County Transportation Authority (consistent with the number of lanes on the SR-73 and SR-241 toll roads in the 2025 buildout version of OCTA's Orange County Transportation Analysis Model – OCTAM 3.1)
RTP: Regional Transportation Plan
SANDAG: San Diego Association of Governments
SCAG: Southern California Association of Governments

4.6.3 PROJECT AND CUMULATIVE IMPACTS

Thresholds of Significance

The project would have a significant circulation impact if any of the following thresholds are exceeded (please also refer to the performance standards previously identified in Tables 4.6-2 through 4.6-4):

- A freeway mainline segment is considered to be adversely impacted if:

  1. The segment is forecast to operate deficiently with the project (i.e., worse than the performance standard); and,

  2. The volume to capacity ratio (V/C) for the project increases by greater than 0.03 (the impact threshold specified in the Congestion Management Plan [CMP]) compared to the V/C without the project.

- A freeway ramp is considered to be adversely impacted if:

  1. The ramp is forecast to operate deficiently with the project (i.e., worse than the performance standard); and,

  2. Compared to the V/C without the project, the V/C with the project alternative increases as follows:

     – 0.01 or greater for ramps at County of Orange, City of Mission Viejo, City of Rancho Santa Margarita, and City of San Juan Capistrano intersections (the impact threshold specified in the GMP and adopted by the cities of Mission Viejo, Rancho Santa Margarita, and San Juan Capistrano).

     – Greater than 0.01 for ramps at City of Laguna Hills, City of Laguna Niguel, and City of San Clemente intersections (the impact threshold adopted by those cities).

- For arterial highways, an intersection is considered to be adversely impacted if:

  1. The intersection is forecast to operate deficiently with the project (i.e., worse than the performance standard adopted by the local jurisdiction); and,

  2. Compared to the ICU without the project, the ICU with the project increases as follows:

     – 0.01 or greater at County of Orange, City of Mission Viejo, City of Rancho Santa Margarita, and City of San Juan Capistrano intersections (the impact threshold specified in the GMP and adopted by the cities of Mission Viejo, Rancho Santa Margarita, and San Juan Capistrano).

     – Greater than 0.01 at City of Laguna Hills, City of Laguna Niguel, and City of San Clemente intersections (the impact threshold adopted by those cities).

     – Greater than 0.03 at CMP intersections (the impact threshold specified in the CMP).

Existing Conditions + Project Buildout Impact Analysis

Impact 4.6-1 *Buildout of the Ranch Plan project under the Existing Conditions + Project Buildout traffic scenario would result in significant project-related impacts to study area intersections and freeway ramps.*

In this part of the impact analysis, the impacts of project traffic volumes were evaluated based on existing peak hour operating conditions at the study area intersections, freeway ramps, and freeway mainline segments. Project trips were added to the existing traffic volumes, and project impacts identified by comparing conditions with and without the project traffic volumes. For this analysis, the existing (on the ground) circulation system (May 2003) is the baseline used in identifying project impacts.

The *Existing Conditions + Project Buildout* traffic volumes were derived from the SCSAM by incorporating the project's proposed land uses into the existing land use database and determining the trip distribution. Trips were then assigned to the traffic study area circulation system. The results reflect the addition of project trips to existing land uses in the traffic study area and the redistribution effects that occur when additional land uses are introduced into the traffic modeling process.

Project Trip Generation

Traffic generation is expressed in terms of vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation factors used in the traffic analysis are from SCSAM, and are consistent with generation factors used in OCTAM (see trip generation section in Appendix D and also the SCSAM model documentation). Table 4.6-10 identifies the trip generation for buildout of the proposed project's land uses, including peak hour and daily vehicle trip generation by land use type. The total project trip generation is 183,338 trips per day, of which 14,289 are in the a.m. peak hour and 18,033 are in the p.m. peak hour.

Table 4.6-11 identifies the internal/external relationships by land use category, showing the peak hour and ADT internal capture for each land use. While a large proportion of work-related trips are external to the project site, trips for other purposes such as schools and shopping are largely internal. Overall, approximately 44 percent of the ADT trip ends (approximately 28 percent of the trips) are internal to the project site. The internal proportions are lower for the peak hour trips due to the high proportion of work trips in those time periods (35 percent and 41 percent, respectively). An example of the internal capture can be seen from the 1,628 internal inbound trips for commercial/school land uses in the a.m. peak hour, accounting for a large proportion of the 2,235 internal outbound trips for residential land uses.

Project Trip Distribution

The external trip distribution pattern for buildout of the Ranch Plan project is depicted in Exhibit 4.6-7. The distribution is derived from the SCSAM and reflects the site's proximity to surrounding land use patterns and the mix of uses within the project site. The distribution is depicted here for both the committed circulation network and a circulation network that includes the La Pata Avenue extension and the SR-241 extension. The trip distribution patterns based on the committed circulation network are applied in the analysis of existing conditions plus project buildout.

TABLE 4.6-10
PROJECT BUILDOUT TRIP GENERATION SUMMARY

Land Use	Units	A.M. Peak Hour			P.M. Peak Hour			ADT
		In	Out	Total	In	Out	Total	
Trip Generation								
1. Single-Family–Detached	4,212 DU	528	2,634	3,162	2,495	1,193	3,687	38,544
2. Single-Family–Attached	2,808 DU	293	1,548	1,841	1,423	641	2,064	21,560
3. Senior Housing	5,360 DU	330	991	1,321	1,092	688	1,780	18,739
4. Senior Apartments	640 DU	39	118	158	130	82	213	2,237
5. Apartments	980 DU	89	444	534	416	192	608	6,335
7. General Commercial	750 TSF	1,412	664	2,076	1,521	1,880	3,401	34,118
8. Specialty Retail	230 TSF	377	172	549	394	499	893	8,936
9. R&D/Business Park	3,660 TSF	2,495	573	3,069	1,074	2,692	3,766	35,502
10. Office	560 TSF	466	114	581	223	515	739	7,013
11. Golf Course	1,057 AC	153	47	200	104	189	293	2,854
12. Elementary/Middle School	4,200 STU	540	52	592	144	249	393	5,284
13. High School	900 STU	116	11	127	31	53	84	1,132
16. Resort Hotel	250 Rooms	61	18	79	38	74	112	1,085
Total		6,901	7,389	**14,289**	9,086	8,947	**18,033**	**183,338**

AC: acre ADT: average daily trips DU: dwelling unit STU: student TSF: thousand square fee
Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

TABLE 4.6-11
PROJECT BUILDOUT: INTERNAL/EXTERNAL TRIPS BY LAND USE CATEGORY

Land Use		A.M. Peak Hour			P.M. Peak Hour			ADT
		In	Out	Total	In	Out	Total	
Residential	Internal	258	2,235	2,493	1,694	550	2,244	26,225
	External	1,021	3,500	4,523	3,862	2,246	6,108	61,191
	Total	1,279	5,735	7,016	5,556	2,796	8,352	87,415
	Internal %	20%	39%	36%	30%	20%	27%	30%
Commercial, School	Internal	1,628	175	1,803	1,699	2,111	3,810	42,050
	External	817	724	1,541	391	570	961	7,421
	Total	2,445	899	3,344	2,090	2,681	4,771	49,470
	Internal %	67%	19%	54%	81%	79%	80%	85%
Business	Internal	598	73	671	292	1,025	1,317	13,100
	External	2,577	679	3,258	1,147	2,445	3,593	33,354
	Total	3,175	752	3,929	1,439	3,470	4,910	46,454
	Internal %	19%	10%	17%	20%	30%	27%	28%
Total	Internal	2,484	2,484	4,968	3,686	3,686	7,372	81,374
	External	4,415	4,902	9,321	5,399	5,261	10,661	101,965
	Total	6,899	7,386	14,289	9,085	8,947	18,033	183,338
	Internal %	36%	34%	35%	41%	41%	41%	44%

ADT: average daily trips
Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

Existing Conditions + Project Buildout: Roadway Segment Volumes

Exhibit 4.6-8 depicts *Existing Conditions* + *Project Buildout* ADT volumes. The analysis includes peak hour volumes for intersections, freeway ramps and freeway mainline segments and the following sections describe the level of service results for each of those circulation system components.

Existing Conditions + Project Buildout: Intersection Levels of Service

Traffic study area intersections for this traffic analysis scenario are identified in Exhibit 4.6-9, and Table 4.6-12 identifies the peak hour ICU results for the traffic study area intersections. As identified in the table, under the *Existing Conditions* + *Project Buildout* scenario, the following intersections are forecast to operate at a deficient level of service and are significantly impacted by the proposed project:

City of Mission Viejo

3. Marguerite Parkway at Oso Parkway–1.05 (LOS F), a.m. peak; 0.97 (LOS E), p.m. peak

11. Marguerite Parkway at Crown Valley Parkway–1.25 (LOS F), p.m. peak

45. I-5 northbound ramps at Oso Parkway–0.91 (LOS E), p.m. peak

City of Rancho Santa Margarita

60. SR-241 southbound ramps at Oso Parkway–1.39 (LOS F), p.m. peak

City of San Juan Capistrano

51. I-5 northbound ramps at Ortega Highway–1.03 (LOS F), a.m. peak

Unincorporated Orange County

29. Antonio Parkway/La Pata Avenue at Ortega Highway–1.23 (LOS F), a.m. peak; 1.05 (LOS F), p.m. peak. Note: This intersection currently operates at a deficient level of service in the a.m. peak hour and is forecast to operate at a deficient level of service in 2010 with and without the proposed Ranch Plan project.

78. C Street at New Ortega Highway–0.91 (LOS E), p.m. peak

TABLE 4.6-12
EXISTING CONDITIONS + PROJECT BUILDOUT: INTERSECTION LEVELS OF SERVICE

	Existing				Existing + Project Buildout			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
Intersection	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**
City of Laguna Hills								
15. Cabot Road at Oso Parkway	0.61	B	0.75	C	0.61	B	0.77	C
City of Laguna Niguel								
16. Moulton Pkwy. at Crown Valley Parkway[a.]	0.68	B	0.68	B	0.68	B	0.68	B
17. Greenfield Drive at Crown Valley Parkway	0.68	B	0.63	B	0.70	B	0.64	B
18. Cabot Road at Crown Valley Parkway	0.66	B	0.80	C	0.66	B	0.80	C
19. Forbes at Crown Valley Parkway	0.49	A	0.74	C	0.50	A	0.75	C
20. Street of the Golden Lantern at Paseo de Colinas[b.]	**0.97**	**E**	**0.93**	**E**	**0.97**	**E**	**0.93**	**E**
21. Cabot Road at Paseo de Colinas	0.46	A	0.56	A	0.48	A	0.56	A
22. Camino Capistrano at Paseo de Colinas	0.47	A	0.52	A	0.47	A	0.53	A
23. Camino Capistrano at Avery Parkway	0.43	A	0.69	B	0.45	A	0.69	B
70. Greenfield Drive at SR-73 SB Ramps	0.49	A	0.45	A	0.51	A	0.47	A
71. Greenfield Drive at SR-73 NB Ramps	0.63	B	0.44	A	0.65	B	0.44	A
City of Mission Viejo								
1. Marguerite Parkway at La Paz Road	0.58	A	0.81	D	0.59	A	0.84	D
2. Olympiad Road at La Paz Road	0.54	A	0.47	A	0.59	A	0.51	A
3. Marguerite Parkway at Oso Parkway[b.]	**1.02**	**F**	**0.91**	**E**	**1.05**	**F****	**0.97**	**E****
4. Felipe Road at Oso Parkway	0.79	C	0.70	B	0.88	D	0.81	D
6. Marguerite Parkway at Felipe Road	0.62	B	0.62	B	0.70	B	0.73	C
7. Puerta Real at Crown Valley Parkway[a.]	0.66	B	0.75	C	0.68	B	0.79	C
8. Guevara/Medical Center at Crown Valley Parkway[a.]	0.56	A	0.64	B	0.58	A	0.68	B
9. Los Altos at Crown Valley Parkway[a.]	0.53	A	0.56	A	0.55	A	0.60	A
10. Bellogente at Crown Valley Parkway[a.]	0.58	A	0.48	A	0.61	B	0.52	A
11. Marguerite Pkwy. at Crown Valley Pkwy.[a.,b.]	0.84	D	**1.04**	**F**	0.94	E	**1.25**	**F****
24. Marguerite Parkway at Avery Parkway	0.73	C	0.75	C	0.74	C	0.76	C
44. I-5 SB Ramps at Oso Parkway	0.72	C	0.76	C	0.72	C	0.80	C
45. I-5 NB Ramps at Oso Parkway[b.]	0.75	C	0.89	D	0.77	C	**0.91**	**E****
46. I-5 SB Ramps at Crown Valley Parkway[a.]	0.61	B	0.85	D	0.63	B	0.87	D

TABLE 4.6-12 (Continued)
EXISTING CONDITIONS + PROJECT BUILDOUT: INTERSECTION LEVELS OF SERVICE

Intersection	Existing				Existing + Project Buildout			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
47. I-5 NB Ramps at Crown Valley Parkway[a.]	0.62	B	0.70	B	0.64	B	0.71	C
48. I-5 SB Ramps at Avery Parkway	0.67	B	0.89	D	0.67	B	0.89	D
49. I-5 NB Ramps at Avery Parkway	0.68	B	0.77	C	0.68	B	0.78	C
City of Rancho Santa Margarita								
13. Banderas at Antonio Parkway	0.62	B	0.77	C	0.62	B	0.79	C
14. Avenida Empresa at Antonio Parkway	0.52	A	0.42	A	0.53	A	0.44	A
58. SR-241 SB Ramps at Antonio Parkway	0.36	A	0.48	A	0.37	A	0.50	A
59. SR-241 NB Ramps at Antonio Parkway	0.64	B	0.37	A	0.64	B	0.38	A
60. SR-241 SB Ramps at Oso Parkway[b.]	0.49	A	0.42	A	0.80	C	**1.39**	**F****
61. SR-241 NB Ramps at Oso Parkway	0.71	C	0.36	A	0.85	D	0.56	A
City of San Clemente								
39. Camino Vera Cruz at Avenida Vista Hermosa	0.66	B	0.52	A	0.71	C	0.60	A
40. Avenida La Pata at Avenida Pico	0.28	A	0.32	A	0.35	A	0.39	A
41. Avenida Vista Hermosa at Avenida Pico	0.26	A	0.15	A	0.49	A	0.36	A
54. I-5 SB Ramps at Avenida Vista Hermosa	0.23	A	0.19	A	0.20	A	0.21	A
55. I-5 NB Ramps at Avenida Vista Hermosa	0.33	A	0.34	A	0.35	A	0.35	A
56. I-5 SB Ramps at Avenida Pico	0.72	C	0.75	C	0.77	C	0.85	D
57. I-5 NB Ramps at Avenida Pico	0.73	C	0.59	A	0.74	C	0.64	B
City of San Juan Capistrano								
25. Camino Capistrano at Ortega Highway	0.45	A	0.46	A	0.45	A	0.49	A
26. Del Obispo Street at Ortega Highway	0.55	A	0.56	A	0.57	A	0.59	A
27. Rancho Viejo Road at Ortega Highway	0.66	B	0.73	C	0.74	C	0.79	C
28. La Novia Avenue at Ortega Highway	0.67	B	0.61	B	0.77	C	0.71	C
30. Camino Capistrano at Del Obispo Street	0.65	B	0.75	C	0.65	B	0.79	C
31. Camino Capistrano at San Juan Creek	0.34	A	0.43	A	0.34	A	0.43	A
32. Valle Road at San Juan Creek	0.68	B	0.66	B	0.70	B	0.66	B
33. La Novia Avenue at San Juan Creek	0.58	A	0.39	A	0.62	B	0.38	A
50. I-5 SB Ramps at Ortega Highway[a.]	0.71	C	0.83	D	0.76	C	0.86	D
51. I-5 NB Ramps at Ortega Highway[a. b.]	0.98	E	0.81	D	**1.03**	**F****	0.86	D

TABLE 4.6-12 (Continued)
EXISTING CONDITIONS + PROJECT BUILDOUT: INTERSECTION LEVELS OF SERVICE

Intersection	Existing				Existing + Project Buildout			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
52. Camino Capistrano at I-5 SB Ramps	0.72	C	0.84	D	0.73	C	0.84	D
53. Valle Road at La Novia Avenue/I-5 NB Ramps	0.45	A	0.60	A	0.44	A	0.60	A
72. Camino Capistrano at Junipero Serra Road	0.40	A	0.47	A	0.41	A	0.48	A
73. I-5 SB Ramps at Junipero Serra Road	0.48	A	0.57	A	0.52	A	0.57	A
74. I-5 NB Ramps at Junipero Serra Road	0.53	A	0.56	A	0.54A	B	0.60	A
75. Rancho Viejo Road at Junipero Serra Road	0.44	A	0.52	A	0.47	A	0.56	A
Unincorporated Orange County								
5. Antonio Parkway at Oso Parkway[b.]	0.74	C	0.81	D	0.79	C	0.96	E
12. Antonio Pwy. at Crown Valley Parkway[b.]	0.39	A	0.45	A	0.62	B	0.70	B
29. Antonio Pkwy./La Pata at Ortega Highway[b.]	**1.02**	**F**	0.73	C	**1.23**	**F****	**1.05**	**F****
43. Antonio Parkway at New Ortega Highway	—	—	—	—	0.64	B	0.65	B
76. A Street at Oso Parkway	—	—	—	—	0.52	A	0.48	A
78. A Street at New Ortega Highway	—	—	—	—	0.48	A	0.51	A
79. C Street at New Ortega Highway[b.]	—	—	—	—	0.81	D	**0.91**	**E****
80. Ortega Highway at New Ortega Highway	—	—	—	—	0.51	A	0.56	A
81. C Street at Avenida Talega	—	—	—	—	0.78	C	0.80	C
87. F Street at C Street	—	—	—	—	0.68	B	0.62	B
89. F Street at New Ortega Highway	—	—	—	—	0.69	B	0.68	B

ICU: intersection capacity utilization
LOS: level of service
NB: northbound
SB: southbound

a. LOS E is acceptable at this location (Congestion Management Program (CMP) intersections and Crown Valley Parkway intersections between I-5 and Marguerite Parkway). LOS D is the adopted performance standard for all other intersection locations that are analyzed.
b. This location is forecast to operate deficiently in the a.m. and/or p.m. peak hour (i.e., the LOS is worse than the adopted LOS performance standard).

** Project impact

An intersection location is considered to be impacted when it is forecast to operate at an unacceptable LOS and, compared to "without project" conditions, the ICU increases as follows: 0.01 or greater for intersections in the cities of Mission Viejo, Rancho Santa Margarita, and San Juan Capistrano and in unincorporated County of Orange. Greater than 0.01 for intersections in the cities of Laguna Hills, Laguna Niguel, and San Clemente.
Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

Existing Conditions + Project Buildout: Freeway Ramp Levels of Service

Table 4.6-13 identifies the peak hour V/C results for freeway ramps in the traffic study area under this traffic scenario. With buildout of the proposed project, the project would result in significant impacts to the following ramps:

- I-5 southbound off-ramp at Oso Parkway–1.25 (LOS F), p.m. peak. Note: This freeway ramp currently operates at a deficient level of service in the p.m. peak hour and is forecast to operate at a deficient level of service with and without the Ranch Plan project.

- I-5 southbound off-ramp at Crown Valley Parkway–1.20 (LOS F), p.m. peak. Note: This freeway ramp currently operates at a deficient level of service in the p.m. peak hour and is forecast to operate at a deficient level of service with and without the proposed project.

- I-5 northbound on-ramp at Ortega Highway–1.46 (LOS F), a.m. peak. Note: This freeway ramp currently operates at a deficient level of service in the a.m. peak hour and is forecast to operate at a deficient level of service with and without the proposed project.

Existing Conditions + Project Buildout: Freeway Mainline Level of Service

The freeway mainline segment V/C ratios for existing conditions with and without project buildout are identified in Table 4.6-14. No freeway mainline segment impacts would occur with buildout of the Ranch Plan project under the *Existing Conditions + Project Buildout* scenario.

Year 2025 + Project Buildout Traffic Analysis

Impact 4.6-2 *Buildout of the Ranch Plan project under the Year 2025 + Project Buildout traffic scenario would result in significant cumulative impacts to study area intersections, freeway ramps, and freeway mainline segments.*

The cumulative analysis results presented herein represents existing conditions plus project buildout plus cumulative conditions. As previously noted, the traffic forecasts for the surrounding areas use year 2025 demographic data as the basis for the cumulative setting. The primary information source is the OCP-2000 Modified demographic data forecasts for Orange County. These projections are the basis for long-range transportation planning in Orange County, and provide an appropriate cumulative database for long-range analysis purposes.

TABLE 4.6-13
EXISTING CONDITIONS + PROJECT BUILDOUT: FREEWAY RAMPS LEVELS OF SERVICE

Interchange	Ramp	Lanes	Peak Hour Capacity	Existing						Existing + Project Buildout					
				A.M. Peak Hour			P.M. Peak Hour			A.M. Peak Hour			P.M. Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
I-5 at Oso Parkway	SB Direct On	1	1,080	520	0.48	A	520	0.48	A	540	0.50	A	610	0.56	A
	SB Loop On	1	1,080	500	0.46	A	430	0.40	A	500	0.46	A	430	0.40	A
	NB Direct On	1	1,500	1,300	0.87	D	620	0.41	A	1,480	0.99	E	750	0.50	A
	NB Loop On	1	1,500	520	0.35	A	460	0.31	A	520	0.35	A	460	0.31	A
	SB Off[a.]	1	1,500	1,090	0.73	C	1,680	**1.12**	**F**	1,220	0.81	D	1,870	**1.25**	**F****
	NB Off	1	1,500	1,090	0.73	C	1,100	0.73	C	1,190	0.79	C	1,140	0.76	C
I-5 at Crown Valley Parkway	SB On	1	1,800	630	0.35	A	850	0.47	A	630	0.35	A	880	0.49	A
	NB Direct On	1	1,500	1,080	0.72	C	1,120	0.75	C	1,100	0.73	C	1,190	0.79	C
	NB Loop On	1	1,080	840	0.78	C	850	0.79	C	850	0.79	C	850	0.79	C
	SB Off[a.]	2	2,250	1,440	0.64	B	2,680	**1.19**	**F**	1,460	0.65	B	2,710	**1.20**	**F****
	NB Off	1	1,500	1,020	0.68	B	740	0.49	A	1,030	0.69	B	680	0.45	A
I-5 at Avery Parkway	SB On	1	1,080	410	0.38	A	630	0.58	A	420	0.39	A	630	0.58	A
	NB On	1	1,500	680	0.45	A	800	0.53	A	700	0.47	A	810	0.54	A
	SB Off	1	1,500	910	0.61	B	1,080	0.72	C	930	0.62	B	1,090	0.73	C
	NB Off	1	1,500	780	0.52	A	730	0.49	A	780	0.52	A	760	0.51	A
I-5 at Junipero Serra Road	SB On	1	1,080	320	0.30	A	320	0.30	A	320	0.30	A	320	0.30	A
	NB On	1	1,080	1,050	0.97	E	590	0.55	A	1,080	1.00	E	600	0.56	A
	SB Off	1	1,500	490	0.33	A	790	0.53	A	510	0.34	A	820	0.55	A
	NB Off	1	1,500	290	0.19	A	240	0.16	A	290	0.19	A	260	0.17	A
I-5 at Ortega Highway	SB On	1	1,500	640	0.43	A	790	0.53	A	660	0.44	A	780	0.52	A
	NB On[a.]	1	1,500	2,070	**1.38**	**F**	1,340	0.89	D	2,190	**1.46**	**F****	1,480	0.99	E
	SB Off	2	2,250	1,420	0.63	B	2,040	0.91	E	1,540	0.68	B	2,180	0.97	E
	NB Off	1	1,500	1,030	0.69	B	800	0.53	A	1,070	0.71	C	830	0.55	A

TABLE 4.6-13 (Continued)
EXISTING CONDITIONS + PROJECT BUILDOUT: FREEWAY RAMPS LEVELS OF SERVICE

Interchange	Ramp	Lanes	Peak Hour Capacity	Existing						Existing + Project Buildout					
				A.M. Peak Hour			P.M. Peak Hour			A.M. Peak Hour			P.M. Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
I-5 at Camino Capistrano	SB On	1	1,500	370	0.25	A	510	0.34	A	370	0.25	A	470	0.31	A
	NB On	1	1,500	390	0.26	A	350	0.23	A	400	0.27	A	340	0.23	A
	SB Off	1	1,500	830	0.55	A	1,000	0.67	B	830	0.55	A	1,010	0.67	B
	NB Off	1	1,500	390	0.26	A	570	0.38	A	370	0.25	A	570	0.38	A
I-5 at Avenida Vista Hermosa	SB On	1	1,080	280	0.26	A	175	0.16	A	390	0.36	A	365	0.34	A
	NB Direct On	1	1,500	760	0.51	A	670	0.45	A	700	0.47	A	520	0.35	A
	NB Loop On	1	1,080	20	0.02	A	10	0.01	A	20	0.02	A	10	0.01	A
	SB Off	1	1,500	650	0.43	A	630	0.42	A	530	0.35	A	630	0.42	A
	NB Off	1	1,500	240	0.16	A	390	0.26	A	440	0.29	A	440	0.29	A
I-5 at Avenida Pico	SB On	1	1,500	450	0.30	A	840	0.56	A	560	0.37	A	960	0.64	B
	NB On	1	1,500	1,410	0.94	E	1,450	0.97	E	1,390	0.93	E	1,320	0.88	D
	SB Off	2	2,250	1,540	0.68	B	1,280	0.57	A	1,450	0.64	B	1,230	0.55	A
	NB Off	1	1,500	920	0.61	B	670	0.45	A	1,000	0.67	B	720	0.48	A

a. This ramp is forecast to operate deficiently in the a.m. and/or p.m. peak hour (i.e., the LOS is worse than the LOS E performance standard adopted by Caltrans for I-5 Freeway ramps).

A ramp location is considered to be impacted when it is forecast to operate at LOS F and, compared to "without project conditions," the V/C ratio increases as follows: 0.01 or greater for ramps at intersections in the cities of Mission Viejo and San Juan Capistrano, and greater than 0.01 for ramps at intersections in the cities of Laguna Niguel and San Clemente.

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

TABLE 4.6-14
EXISTING CONDITIONS + PROJECT BUILDOUT: FREEWAY MAINLINE LEVELS OF SERVICE

Location	Direction	Lanes	Existing								Existing + Project Buildout							
			A.M. Peak Hour				P.M. Peak Hour				A.M. Peak Hour				P.M. Peak Hour			
			Capacity	Volume	V/C	LOS	Capacity	Volume	V/C	LOS	Capacity	Volume	V/C	LOS	Capacity	Volume	V/C	LOS
I-5 n/o Oso Parkway[a.]	NB	4+1H	9,600	10,070	**1.05**	**F (F^3)**	9,600	8,950	0.93	E (E)	9,600	10,220	**1.06**	**F**	9,600	9,070	0.94	E
	SB	4+1H	9,600	7,210	0.75	D (E)	9,600	10,170	**1.06**	**F (F^3)**	9,600	7,210	0.75	D	9,600	10,170	**1.06**	**F**
I-5 n/o Crown Valley Parkway	NB	4+1H+1A	10,600	8,840	0.83	D (F^2)	9,600	8,740	0.91	E (E)	10,600	8,840	0.83	D	9,600	8,740	0.91	E
	SB	4+1H	9,600	7,390	0.77	D (E)	9,600	9,570	1.00	E (F^2)	9,600	7,290	0.76	D	9,600	9,470	0.99	E
I-5 n/o Avery Parkway	NB	4+1H+1A	9,600	8,130	0.85	D (F^0)	9,600	7,460	0.78	D (E)	9,600	8,130	0.85	D	9,600	7,310	0.76	D
	SB	4+1H+1A	9,600	6,230	0.65	C (E)	9,600	8,310	0.87	D (F^0)	9,600	6,060	0.63	C	9,600	8,210	0.86	D
I-5 n/o Junipero Serra Road	NB	6+1H	13,600	10,520	0.77	D (E)	13,600	8,950	0.66	C (D)	13,600	10,630	0.78	D	13,600	8,950	0.66	C
	SB	6+1H	13,600	7,360	0.54	C (D)	13,600	10,270	0.76	D (E)	13,600	7,430	0.55	C	13,600	10,420	0.77	D
I-5 n/o Ortega Highway	NB	5+1H	11,600	10,040	0.87	D (E)	11,600	8,550	0.74	D (D)	11,600	10,100	0.87	D	11,600	8,580	0.74	D
	SB	5+1H	11,600	7,070	0.61	C (D)	11,600	9,870	0.85	D (E)	11,600	7,130	0.61	C	11,600	10,050	0.87	D
I-5 n/o Camino Capistrano	NB	4+1H	9,600	9,620	1.00	E (F^0)	9,600	7,850	0.82	D (D)	9,600	9,560	1.00	E	9,600	7,630	0.79	D
	SB	4+1H	9,600	6,010	0.63	C (D)	9,600	8,540	0.89	D (E)	9,600	5,750	0.60	C	9,600	8,450	0.88	D
I-5 s/o Camino Capistrano	NB	4+1H	9,600	9,640	1.00	E(E)	9,600	8,080	0.84	D (D)	9,600	9,550	0.99	E	9,600	7,810	0.81	D
	SB	4+1H	9,600	5,810	0.61	C (D)	9,600	7,960	0.83	D (E)	9,600	5,460	0.57	C	9,600	7,830	0.82	D
I-5 n/o Hermosa	NB	4	8,000	6,710	0.84	D (E)	8,000	6,130	0.77	D (D)	8,000	6,520	0.82	D	8,000	5,860	0.73	D
	SB	4	8,000	5,480	0.69	C (D)	8,000	6,830	0.85	D (E)	8,000	5,230	0.65	C	8,000	6,610	0.83	D
I-5 n/o Avenida Pico	NB	4+1A	9,000	6,170	0.69	C (E)	9,000	5,840	0.65	C (E)	9,000	6,240	0.69	C	9,000	5,780	0.64	C
	SB	4+1A	9,000	5,110	0.57	C (E)	9,000	6,380	0.71	C (E)	9,000	5,110	0.57	C	9,000	6,360	0.71	C
I-5 s/o Avenida Pico	NB	4	8,000	5,680	0.71	C (D)	8,000	5,060	0.63	C (D)	8,000	5,700	0.71	C	8,000	5,080	0.64	C
	SB	4	8,000	4,020	0.50	B (D)	8,000	5,940	0.74	D (D)	8,000	4,040	0.51	C	8,000	5,910	0.74	D

a. This segment of I-5 is forecast to operate deficiently in the a.m. and/or p.m. peak hour in one or both directions (i.e., the LOS is worse than the LOS E performance standard adopted by Caltrans for the I-5 mainline).

** Project impact

An I-5 mainline location is considered to be impacted when it is forecast to operate at LOS F and, compared to "without project" conditions, the V/C ratio increases by more than 0.03 (the impact threshold specified in the Orange County Congestion Management Program).

Note: Parenthesized LOS values are from speed and travel time surveys carried out by Caltrans. The measured speeds in each section reflect queue build-up from a downstream deficient section and/or other prevailing conditions at the time the surveys were conducted. The prefix values for LOS $F^{(0,1,2,3)}$ represent different lengths of time during which congested conditions occur in the peak period.

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

The cumulative analysis addresses three scenarios, each with different transportation system assumptions for the portion of the project traffic study area outside the Ranch Plan project site:

- Committed circulation system (see discussion and description earlier in Section 4.6.2).
- Committed circulation system plus La Pata Avenue extension.
- Committed circulation system plus La Pata Avenue extension and the SR-241 extension.

Each scenario assumes buildout of the proposed project (including the proposed MPAH amendments) and year 2025 cumulative land use assumptions for the remainder of the study area.

Trip Generation

Traffic generation for the proposed project is the same as identified for the *Existing Conditions + Project Buildout* scenario (see Table 4.6-10).

Project Trip Distribution

The external trip distribution patterns for buildout of the Ranch Plan project assuming the committed circulation system, and the committed circulation system with the addition of a La Pata Avenue extension and the SR-241 extension were previously provided in this section (see Exhibit 4.6-7).

Year 2025 + Project Buildout: Roadway Segment Volumes

The following summarizes *Year 2025 + Project Buildout*, inclusive of cumulative, ADT traffic forecast data for the three circulation system scenarios.

<u>Committed Circulation System</u>

The ADT volumes for the *Year 2025 + Project Buildout* scenario assuming the committed circulation system are depicted in Exhibit 4.6-10.

<u>Committed Circulation System Plus La Pata Avenue Extension</u>

The ADT volumes for the *Year 2025 + Project Buildout* scenario assuming the committed circulation system and the extension of La Pata Avenue are depicted in Exhibit 4.6-11.

<u>Committed Circulation System Plus La Pata Avenue Extension and the SR-241 Extension</u>

The ADT volumes for the *Year 2025 + Project Buildout* scenario assuming the committed circulation system, the extension of La Pata Avenue, and the SR-241 extension are depicted in Exhibit 4.6-12.

Year 2025 + Project Buildout: Intersection Levels of Service

Table 4.6-15 identifies the 2025 peak hour ICU values for the study area intersections for the three circulation system scenarios. Exhibits 4.6-13 and 4.6-14 identify the location of intersections for year 2025 without and with the SR-241 extension, respectively. Locations that do not meet the performance criteria are noted in the table and are considered cumulative

TABLE 4.6-15
YEAR 2025 + PROJECT BUILDOUT: INTERSECTION LEVELS OF SERVICE

Intersection	2025 + Project Buildout (Committed Circulation System)				2025 + Project Buildout (Committed Circulation System + La Pata Avenue Extension)				2025 + Project Buildout (Committed Circulation System + La Pata Avenue Extension) + SR-241 Extension			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
City of Laguna Hills												
15. Cabot Road at Oso Parkway	0.66	B	0.85	D	0.67	B	0.84	D	0.67	B	0.85	D
City of Laguna Niguel												
16. Moulton Pkwy. at Crown Valley Parkway[a.]	0.80	C	0.87	D	0.79	C	0.86	D	0.77	C	0.86	D
17. Greenfield Dr. at Crown Valley Parkway	0.82	D	0.77	C	0.80	C	0.75	C	0.80	C	0.75	C
18. Cabot Road at Crown Valley Parkway	0.76	C	0.79	C	0.75	C	0.79	C	0.75	C	0.77	C
19. Forbes at Crown Valley Parkway	0.67	B	0.75	C	0.66	B	0.75	C	0.64	B	0.74	C
20. Street of the Golden Lantern at Paseo de Colinas[b.]	**1.03**	**F**	0.89	D	**1.03**	**F**	0.87	D	**1.03**	**F**	0.86	D
21. Cabot Road at Paseo de Colinas	0.52	A	0.64	B	0.50	A	0.64	B	0.50	A	0.64	B
22. Camino Capistrano at Paseo de Colinas	0.54	A	0.56	A	0.52	A	0.57	A	0.52	A	0.57	A
23. Camino Capistrano at Avery Parkway	0.52	A	0.56	A	0.50	A	0.56	A	0.50	A	0.55	A
70. Greenfield Drive at SR-73 SB Ramps	0.57	A	0.56	A	0.57	A	0.56	A	0.57	A	0.55	A
71. Greenfield Drive at SR-73 NB Ramps	0.70	B	0.45	A	0.68	B	0.47	A	0.70	B	0.49	A
City of Mission Viejo												
1. Marguerite Parkway at La Paz Road	0.64	B	0.86	D	0.64	B	0.84	D	0.60	A	0.82	D
2. Olympiad Road at La Paz Road	0.59	A	0.63	B	0.59	A	0.63	B	0.55	A	0.58	A
3. Marguerite Parkway at Oso Parkway	0.80	C	0.81	D	0.79	C	0.79	C	0.78	C	0.79	C
4. Felipe Road at Oso Parkway[b.]	0.81	D	**1.07**	**F****	0.82	D	**1.05**	**F****	0.81	D	**1.00**	**E****
6. Marguerite Parkway at Felipe Road	0.63	B	0.87	D	0.64	B	0.86	D	0.63	B	0.82	D
7. Puerta Real at Crown Valley Parkway[a.]	0.77	C	0.82	D	0.76	C	0.82	D	0.75	C	0.81	D
8. Guevara/Medical Center at Crown Valley Parkway[a.]	0.64	B	0.80	C	0.64	B	0.80	C	0.64	B	0.80	C
9. Los Altos at Crown Valley Parkway[a.,]	0.72	C	0.97	E	0.72	C	0.98	E	0.72	C	0.97	E
10. Bellogente at Crown Valley Parkway[a.]	0.71	C	0.67	B	0.71	C	0.68	B	0.70	B	0.67	B
11. Marguerite at Crown Valley Pkwy.[a., b.]	**1.22**	**F****	**1.05**	**F****	**1.24**	**F****	**1.06**	**F****	**1.22**	**F****	**1.04**	**F**
24. Marguerite Parkway at Avery Parkway[b.]	**0.92**	**E****	0.89	D	0.88	D	0.84	D	0.84	D	0.80	C
44. I-5 SB Ramps at Oso Parkway	0.64	B	0.75	C	0.63	B	0.76	C	0.65	B	0.75	C
45. I-5 NB Ramps at Oso Parkway	0.74	C	0.89	D	0.75	C	0.86	D	0.76	C	0.84	D
46. I-5 SB Ramps at Crown Valley Parkway[a.]	0.74	C	0.95	E	0.71	C	0.95	E	0.71	C	0.94	E

TABLE 4.6-15 (Continued)
YEAR 2025 + PROJECT BUILDOUT: INTERSECTION LEVELS OF SERVICE

Intersection	2025 + Project Buildout (Committed Circulation System)				2025 + Project Buildout (Committed Circulation System + La Pata Avenue Extension)				2025 + Project Buildout (Committed Circulation System + La Pata Avenue Extension) + SR-241 Extension			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
47. I-5 NB Ramps at Crown Valley Parkway[a.]	0.71	C	0.87	D	0.70	B	0.87	D	0.72	C	0.87	D
48. I-5 SB Ramps at Avery Parkway	0.70	B	0.81	D	0.70	B	0.80	C	0.71	C	0.79	C
49. I-5 NB Ramps at Avery Parkway	0.61	B	0.82	D	0.61	B	0.75	C	0.63	B	0.71	C
City of Rancho Santa Margarita												
13. Banderas at Antonio Parkway	0.68	B	0.75	C	0.68	B	0.77	C	0.66	B	0.69	B
14. Avenida Empresa at Antonio Parkway	0.61	B	0.50	A	0.61	B	0.49	A	0.61	B	0.47	A
58. SR-241 SB Ramps at Antonio Parkway	0.45	A	0.67	B	0.46	A	0.68	B	0.46	A	0.69	B
59. SR-241 NB Ramps at Antonio Parkway[b.]	**1.38**	**F****	0.53	A	**1.41**	**F****	0.53	A	**1.30**	**F****	0.52	A
60. SR-241 SB Ramps at Oso Parkway	0.57	A	0.63	B	0.56	A	0.70	B	0.54	A	0.45	A
61. SR-241 NB Ramps at Oso Parkway	0.81	D	0.60	A	0.87	D	0.59	A	0.84	D	0.53	A
City of San Clemente												
37. La Pata at Avenida Vista Hermosa[b.]	**1.11**	**F****	**1.00**	**E****	**1.48**	**F****	**1.19**	**F****	0.85	D	0.71	C
38. Ave. Talega at Avenida Vista Hermosa[b.]	**1.06**	**F****	**1.02**	**F****	0.89	D	0.79	C	0.73	C	0.63	B
39. Camino Vera Cruz at Vista Hermosa[b.]	**1.16**	**F****	**1.31**	**F****	**1.16**	**F****	**1.25**	**F****	**1.13**	**F****	**1.14**	**F****
40. Avenida La Pata at Avenida Pico	0.46	A	0.74	C	0.54	A	0.86	D	0.49	A	0.72	C
41. Avenida Vista Hermosa at Avenida Pico	0.32	A	0.34	A	0.32	A	0.37	A	0.41	A	0.37	A
54. I-5 SB Ramps at Avenida Vista Hermosa	0.60	A	0.45	A	0.53	A	0.42	A	0.49	A	0.38	A
55. I-5 NB Ramps at Avenida Vista Hermosa	0.71	C	0.59	A	0.72	C	0.55	A	0.57	A	0.45	A
56. I-5 SB Ramps at Avenida Pico[b.]	**1.00**	**E****	**1.05**	**F****	**1.14**	**F****	**1.01**	**F****	0.90	D	0.83	D
57. I-5 NB Ramps at Avenida Pico[b.]	**0.99**	**E****	0.73	C	**0.97**	**E****	0.69	B	0.90	D	0.64	B
City of San Juan Capistrano												
25. Camino Capistrano at Ortega Highway	0.68	B	0.70	B	0.66	B	0.68	B	0.58	A	0.58	A
26. Del Obispo Street at Ortega Highway	0.66	B	0.73	C	0.62	B	0.71	C	0.64	B	0.72	C
27. Rancho Viejo Road at Ortega Highway	0.72	C	0.87	D	0.70	B	0.89	D	0.71	C	0.89	D
28. La Novia Avenue at Ortega Highway[b.]	0.89	D	**0.99**	**E****	0.85	D	**0.91**	**E****	0.84	D	0.90	D
30. Camino Capistrano at Del Obispo Street[b.]	**1.08**	**F****	**1.21**	**F****	**1.03**	**F****	**1.11**	**F****	**0.98**	**E****	**1.08**	**F****
31. Camino Capistrano at San Juan Creek	0.66	B	0.79	C	0.64	B	0.74	C	0.60	A	0.69	B
32. Valle Road at San Juan Creek[b.]	**0.92**	**E****	0.85	D	**0.91**	**E****	0.82	D	**0.91**	**E****	0.83	D
33. La Novia Avenue at San Juan Creek[b.]	**1.01**	**F****	0.83	D	0.87	D	0.77	C	0.87	D	0.77	C
50. I-5 SB Ramps at Ortega Highway[a.]	0.95	E	0.89	D	0.85	D	0.86	D	0.88	D	0.91	E

TABLE 4.6-15 (Continued)
YEAR 2025 + PROJECT BUILDOUT: INTERSECTION LEVELS OF SERVICE

Intersection	2025 + Project Buildout (Committed Circulation System)				2025 + Project Buildout (Committed Circulation System + La Pata Avenue Extension)				2025 + Project Buildout (Committed Circulation System + La Pata Avenue Extension) + SR-241 Extension			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
51. I-5 NB Ramps at Ortega Highway[a.]	0.83	D	0.78	C	0.80	C	0.77	C	0.81	D	0.81	D
52. Camino Capistrano at I-5 SB Ramps	0.85	D	0.85	D	0.82	D	0.80	C	0.79	C	0.81	D
53. Valle at La Novia Ave./I-5 NB Ramps[b.]	**0.94**	**E****	**0.99**	**E****	0.82	D	0.85	D	0.77	C	0.76	C
72. Camino Capistrano at Junipero Serra Rd.	0.90	D	0.90	D	0.89	D	0.89	D	0.84	D	0.80	C
73. I-5 SB Ramps at Junipero Serra Road	0.70	B	0.85	D	0.70	B	0.79	C	0.66	B	0.76	C
74. I-5 NB Ramps at Junipero Serra Road[b.]	0.77	C	**1.10**	**F****	0.78	C	**1.05**	**F****	0.78	C	**0.96**	**E****
75. Rancho Viejo Rd. at Junipero Serra Road	0.78	C	0.82	D	0.75	C	0.75	C	0.68	B	0.72	C
Unincorporated Orange County												
5. Antonio Parkway at Oso Parkway[b.]	**1.03**	**F****	**1.05**	**F****	**1.11**	**F****	**1.09**	**F****	**1.21**	**F****	**1.09**	**F****
12. Antonio Pkwy. at Crown Valley Parkway[b.]	0.82	D	**1.18**	**F****	0.90	D	**1.24**	**F****	**0.99**	**E****	**1.31**	**F****
29. Antonio/La Pata Ave. at Ortega Hwy.[b.]	**1.79**	**F****	**1.51**	**F****	**1.60**	**F****	**1.37**	**F****	**1.61**	**F****	**1.39**	**F****
43. Antonio Pkwy. at New Ortega Highway[b.]	0.76	C	0.82	D	0.89	D	**1.07**	**F****	0.87	D	**0.94**	**E****
64. SR-241 SB Ramps at C Street	—	—	—	—	—	—	—	—	0.28	A	0.38	A
65. SR-241 NB Ramps at C Street	—	—	—	—	—	—	—	—	0.39	A	0.28	A
66. SR-241 SB Ramps at New Ortega Hwy.	—	—	—	—	—	—	—	—	0.44	A	0.54	A
67. SR-241 NB Ramps at New Ortega Hwy.	—	—	—	—	—	—	—	—	0.87	D	0.85	D
68. SR-241 SB Ramps at Avenida Pico	—	—	—	—	—	—	—	—	0.50	A	0.62	B
69. SR-241 NB Ramps at Avenida Pico	—	—	—	—	—	—	—	—	0.57	A	0.64	B
76. A Street at Oso Parkway	0.52	A	0.48	A	0.53	A	0.49	A	0.41	A	0.40	A
78. A Street at New Ortega Highway	0.50	A	0.51	A	0.51	A	0.54	A	0.54	A	0.56	A
79. C Street at New Ortega Highway	0.74	C	0.85	D	0.74	C	0.84	D	0.84	D	0.82	D
80. Ortega Highway at New Ortega Highway	0.57	A	0.63	B	0.53	A	0.58	A	0.59	A	0.64	B
81. C Street at Avenida Talega	0.78	C	0.80	C	0.40	A	0.50	A	0.23	A	0.29	A
87. F Street at C Street	0.68	B	0.62	B	0.72	C	0.74	C	—	—	—	—
89. F Street at New Ortega Highway	0.69	B	0.69	B	0.70	B	0.70	B	—	—	—	—

a. LOS E is acceptable at this location (Congestion Management Program (CMP) intersections and Crown Valley Parkway intersections between I-5 and Marguerite Parkway). LOS D is the adopted performance standard for all other intersection locations that are analyzed.
b. This location is forecast to operate deficiently in the a.m. and/or p.m. peak hour (i.e., the LOS is worse than the adopted LOS performance standard).

** Cumulative project impacts
Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

impacts of the proposed Ranch Plan project. The impacted locations are summarized below for each of the year 2025 scenarios.

Committed Circulation System

For the scenario based on the committed circulation system, the following intersections are forecast to operate at a deficient level of service and are considered cumulative impacts of the project:

City of Laguna Niguel

20. Street of the Golden Lantern at Paseo de Colinas–1.03 (LOS F), a.m. peak. Note: this intersection currently operates at a deficient level of service in the a.m. and p.m. peak hours and buildout of the proposed Ranch Plan project would contribute less than one percent of the traffic at this intersection (see comparative ICUs in the *Existing Conditions + Project Buildout* analysis section). Therefore, the project's contribution is considered less than significant.

City of Mission Viejo

4. Felipe Road at Oso Parkway–1.07 (LOS F), p.m. peak

11. Marguerite Parkway at Crown Valley Parkway–1.22 (LOS F) a.m. peak; 1.05 (LOS F), p.m. peak

24. Marguerite Parkway at Avery Parkway–0.92 (LOS E), a.m. peak

City of Rancho Santa Margarita

59. SR-241 northbound ramps at Antonio Parkway–1.38 (LOS F), a.m. peak

City of San Clemente

37. Avenida La Pata at Avenida Vista Hermosa–1.11 (LOS F), a.m. peak; 1.00 (LOS E), p.m. peak

38. Avenida Talega at Avenida Vista Hermosa–1.06 (LOS F), a.m. peak; 1.02 (LOS F), p.m. peak

39. Camino Vera Cruz at Avenida Vista Hermosa–1.16 (LOS F), a.m. peak; 1.31 (LOS F), p.m. peak

56. I-5 southbound ramps at Avenida Pico–1.00 (LOS E), a.m. peak; 1.05 (LOS F), p.m. peak

57. I-5 northbound ramps at Avenida Pico–0.99 (LOS E), a.m. peak

City of San Juan Capistrano

28. La Novia Avenue at Ortega Highway–0.99 (LOS E), p.m. peak

30. Camino Capistrano at Del Obispo Street–1.08 (LOS F), a.m. peak; 1.21 (LOS F), p.m. peak

32. Valle Road at San Juan Creek–0.92 (LOS E), a.m. peak

33. La Novia Avenue at San Juan Creek–1.01 (LOS F), a.m. peak

53. Valle Road at La Novia Avenue/I-5 northbound ramps–0.94 (LOS E), a.m. peak; 0.99 (LOS E), p.m. peak

74. I-5 northbound ramps at Junipero Serra Road–1.10 (LOS F), p.m. peak

Unincorporated Orange County

5. Antonio Parkway at Oso Parkway–1.03 (LOS F), a.m. peak; 1.05 (LOS F), p.m. peak

12. Antonio Parkway at Crown Valley Parkway–1.18 (LOS F), p.m. peak

29. Antonio Parkway/La Pata Avenue at Ortega Highway–1.79 (LOS F), a.m. peak; 1.51 (LOS F), p.m.

Committed Circulation System Plus La Pata Avenue Extension

For the scenario based on the committed circulation system with a La Pata Avenue extension, the following intersections are forecast to operate at a deficient level of service and are considered cumulative impacts of the project.

City of Laguna Niguel

20. Street of the Golden Lantern at Paseo de Colinas–1.03 (LOS F), a.m. peak. Note: As previously addressed, the proposed project's contribution to cumulative impacts at this intersection is considered less than significant.

City of Mission Viejo

4. Felipe Road at Oso Parkway–1.05 (LOS F), p.m. peak

11. Marguerite Parkway at Crown Valley Parkway–1.24 (LOS F) a.m. peak; 1.06 (LOS F), p.m. peak

24. Marguerite Parkway at Avery Parkway: Under this scenario (committed improvements and the extension of La Pata Avenue), this intersection would operate at an acceptable level of service.

City of Rancho Santa Margarita

59. SR-241 northbound ramps at Antonio Parkway–1.41 (LOS F), a.m. peak

City of San Clemente

37. Avenida La Pata at Avenida Vista Hermosa–1.48 (LOS F), a.m. peak; 1.19 (LOS E), p.m. peak

38. Avenida Talega at Avenida Vista Hermosa: Under this scenario, this intersection would operate at an acceptable level of service in the a.m. and p.m. peak hours.

39. Camino Vera Cruz at Avenida Vista Hermosa–1.16 (LOS F), a.m. peak; 1.25 (LOS F), p.m. peak

56. I-5 southbound ramps at Avenida Pico–1.14 (LOS F), a.m. peak; 1.01 (LOS F), p.m. peak

57. I-5 northbound ramps at Avenida Pico–0.97 (LOS E), a.m. peak

City of San Juan Capistrano

28. La Novia Avenue at Ortega Highway–0.91 (LOS E), p.m. peak

30. Camino Capistrano at Del Obispo Street–1.03 (LOS F), a.m. peak; 1.11 (LOS F), p.m. peak

32. Valle Road at San Juan Creek–0.91 (LOS E), a.m. peak

33. La Novia Avenue at San Juan Creek: Under this scenario, this intersection is forecast to operate at acceptable levels of service with buildout of the Ranch Plan project.

53. Valle Road at La Novia Avenue/I-5 northbound ramps: Under this scenario, this intersection is forecast to operate at acceptable levels of service with buildout of the Ranch Plan project.

74. I-5 northbound ramps at Junipero Serra Road–1.05 (LOS F), p.m. peak

Unincorporated Orange County

5. Antonio Parkway at Oso Parkway–1.11 (LOS F), a.m. peak; 1.09 (LOS F), p.m. peak

12. Antonio Parkway at Crown Valley Parkway–1.24 (LOS F), p.m. peak

29. Antonio Parkway/La Pata Avenue at Ortega Highway–1.60 (LOS F), a.m. peak; 1.37 (LOS F), p.m. peak

43. Antonio Parkway at New Ortega Highway–1.07 (LOS F), p.m. peak

<u>Committed Circulation System Plus La Pata Avenue Extension Plus SR-241 Extension</u>

For the scenario based on the committed circulation system with a La Pata Avenue extension and a SR-241 extension, the following intersections are forecast to operate at a deficient level of service and are considered cumulative impacts of the project.

City of Laguna Niguel

20. Street of the Golden Lantern at Paseo de Colinas–1.03 (LOS F), a.m. peak. Note: As previously addressed, the proposed project's contribution to cumulative impacts at this intersection is considered less than significant.

City of Mission Viejo

4. Felipe Road at Oso Parkway–1.00 (LOS E), p.m. peak

11. Marguerite Parkway at Crown Valley Parkway–1.22 (LOS F), a.m. peak; 1.04 (LOS E), p.m. peak

24. Marguerite Parkway at Avery Parkway: Under this scenario (committed improvements, the extension of La Pata Avenue, and the SR-241 extension), this intersection would operate at acceptable levels of service with buildout of the proposed Ranch Plan project.

City of Rancho Santa Margarita

59. SR-241 northbound ramps at Antonio Parkway–1.30 (LOS F), a.m. peak

City of San Clemente

37. Avenida La Pata at Avenida Vista Hermosa: Under this scenario, this intersection is forecast to operate at acceptable levels of service with buildout of the Ranch Plan project.

38. Avenida Talega at Avenida Vista Hermosa: Under this scenario, this intersection is forecast to operate at acceptable levels of service with buildout of the Ranch Plan project.

39. Camino Vera Cruz at Avenida Vista Hermosa–1.13 (LOS F), a.m. peak; 1.14 (LOS F), p.m. peak

56. I-5 southbound ramps at Avenida Pico: Under this scenario, this intersection is forecast to operate at acceptable levels of service in the a.m. and p.m. peak hours.

57. I-5 northbound ramps at Avenida Pico: Under this scenario, this intersection is forecast to operate at acceptable levels of service.

City of San Juan Capistrano

28. La Novia Avenue at Ortega Highway: Under this scenario, this intersection is forecast to operate at acceptable levels of service with buildout of the Ranch Plan project.

30. Camino Capistrano at Del Obispo Street–0.98 (LOS E), a.m. peak; 1.08 (LOS F), p.m. peak

32. Valle Road at San Juan Creek–0.91 (LOS E), a.m. peak

33. La Novia Avenue at San Juan Creek: Under this scenario, this intersection is forecast to operate at acceptable levels of service with buildout of the Ranch Plan project.

53. Valle Road at La Novia Avenue/I-5 northbound ramps: Under this scenario, this intersection is forecast to operate at acceptable levels of service with buildout of the Ranch Plan project.

74. I-5 northbound ramps at Junipero Serra Road–0.96 (LOS E), p.m. peak

Unincorporated Orange County

5. Antonio Parkway at Oso Parkway–1.21 (LOS F), a.m. peak; 1.09 (LOS F); p.m. peak

12. Antonio Parkway at Crown Valley Parkway–0.99 (LOS E), a.m. peak; 1.31 (LOS F), p.m. peak

29. Antonio Parkway/La Pata Avenue at Ortega Highway–1.61 (LOS F), a.m. peak; 1.39 (LOS F), p.m. peak

43. Antonio Parkway at New Ortega Highway–0.94 (LOS E), p.m. peak

Year 2025 + Project Buildout: Freeway Ramp Levels of Service

Table 4.6-16 identifies the 2025 peak hour V/C ratios for the study area freeway ramps for the committed circulation system, the committed circulation system with the La Pata Avenue extension, and the committed circulation system with the La Pata Avenue extension and the SR-241 extension.

Committed Circulation System

For the scenario based on the committed circulation system, the following ramps are forecast to operate at a deficient level of service and are considered cumulative impacts of the project:

- I-5 southbound off-ramp at Oso Parkway–1.14 (LOS F), p.m. peak
- I-5 northbound direct on-ramp at Crown Valley Parkway–1.03 (LOS F), p.m. peak
- I-5 southbound off-ramp at Crown Valley Parkway–1.30 (LOS F), p.m. peak
- I-5 northbound on-ramp at Junipero Serra Road–1.04 (LOS F), a.m. peak
- I-5 northbound on-ramp at Ortega Highway–1.21 (LOS F), a.m. peak; 1.16 (LOS F), p.m. peak
- I-5 southbound off-ramp at Avenida Vista Hermosa–1.15 (LOS F), a.m. peak
- I-5 northbound on-ramp at Avenida Pico–1.07 (LOS F), p.m. peak

Committed Circulation System Plus La Pata Avenue Extension

For the scenario based on the committed circulation system with a La Pata Avenue extension, the following ramps are forecast to operate at a deficient level of service and are considered cumulative impacts of the project.

- I-5 southbound off-ramp at Oso Parkway–1.15 (LOS F), p.m. peak
- I-5 northbound direct on-ramp at Crown Valley Parkway–1.07 (LOS F), p.m. peak
- I-5 southbound off-ramp at Crown Valley Parkway–1.33 (LOS F), p.m. peak
- I-5 northbound on-ramp at Junipero Serra Road–1.04 (LOS F), a.m. peak
- I-5 northbound on-ramp at Ortega Highway–1.31 (LOS F), a.m. peak; 1.25 (LOS F), p.m. peak

TABLE 4.6-16
YEAR 2025 + PROJECT BUILDOUT: FREEWAY RAMP LEVELS OF SERVICE

Interchange	Ramp	Lanes	Peak Hour Capacity	Year 2025 + Project Buildout (Committed Circulation System)						Year 2025 + Project Buildout + Committed Circulation System + La Pata Avenue Extension						Year 2025 + Project Buildout + Committed Circulation System + La Pata Avenue Extension + SR-241 Extension					
				A.M. Peak Hour			P.M. Peak Hour			A.M. Peak Hour			P.M. Peak Hour			A.M. Peak Hour			P.M. Peak Hour		
				Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS
I-5 at Oso Parkway	SB Direct On	1	1,080	460	0.43	A	690	0.64	B	480	0.44	A	710	0.66	B	490	0.45	A	690	0.64	B
	SB Loop On	1	1,080	770	0.71	C	400	0.37	A	710	0.66	B	390	0.36	A	670	0.62	B	370	0.34	A
	NB Direct On	1	1,500	1,220	0.81	D	730	0.49	A	1,230	0.82	D	710	0.47	A	1,220	0.81	D	720	0.48	A
	NB Loop On	1	1,500	260	0.17	A	560	0.37	A	240	0.16	A	540	0.36	A	280	0.19	A	500	0.33	A
	SB Off[a.]	1	1,500	1,110	0.74	C	1,710	**1.14**	**F****	1,080	0.72	C	1,720	**1.15**	**F****	1,100	0.73	C	1,680	**1.12**	**F****
	NB Off	1	1,500	770	0.51	A	1,050	0.70	B	770	0.51	A	990	0.66	B	780	0.52	A	960	0.64	B
I-5 at Crown Valley Parkway	SB On	1	1,800	770	0.43	A	870	0.48	A	710	0.39	A	830	0.46	A	670	0.37	A	840	0.47	A
	NB Direct On[a.]	1	1,500	1,360	0.91	E	1,540	**1.03**	**F****	1,450	0.97	E	1,600	**1.07**	**F****	1,470	0.98	E	1,590	**1.06**	**F****
	NB Loop On	1	1,080	950	0.88	D	940	0.87	D	950	0.88	D	940	0.87	D	950	0.88	D	950	0.88	D
	SB Off[a.]	2	2,250	1,910	0.85	D	2,920	**1.30**	**F****	1,970	0.88	D	2,990	**1.33**	**F****	2,020	0.90	D	3,000	**1.33**	**F****
	NB Off	1	1,500	1,280	0.85	D	730	0.49	A	1,240	0.83	D	700	0.47	A	1,250	0.83	D	710	0.47	A
I-5 at Avery Parkway	SB On	1	1,080	550	0.51	A	620	0.57	A	520	0.48	A	620	0.57	A	520	0.48	A	680	0.63	B
	NB On	1	1,500	570	0.38	A	820	0.55	A	560	0.37	A	800	0.53	A	500	0.33	A	750	0.50	A
	SB Off	1	1,500	720	0.48	A	930	0.62	B	740	0.49	A	910	0.61	B	760	0.51	A	880	0.59	A
	NB Off	1	1,500	620	0.41	A	910	0.61	B	620	0.41	A	850	0.57	A	680	0.45	A	840	0.56	A
I-5 at Junipero Serra Road	SB On	1	1,080	380	0.35	A	500	0.46	A	380	0.35	A	440	0.41	A	380	0.35	A	460	0.43	A
	NB On[a.]	1	1,080	1,120	**1.04**	**F****	1,070	0.99	E	1,120	**1.04**	**F****	1,030	0.95	E	1,040	0.96	E	940	0.87	D
	SB Off	1	1,500	820	0.55	A	1,040	0.69	B	810	0.54	A	990	0.66	B	810	0.54	A	940	0.63	B
	NB Off	1	1,500	340	0.23	A	360	0.24	A	320	0.21	A	340	0.23	A	360	0.24	A	350	0.23	A
I-5 at Ortega Highway	SB On	1	1,500	600	0.40	A	570	0.38	A	410	0.27	A	450	0.30	A	430	0.29	A	480	0.32	A
	NB On[a.]	1	1,500	1,810	**1.21**	**F****	1,740	**1.16**	**F****	1,970	**1.31**	**F****	1,880	**1.25**	**F****	2,050	**1.37**	**F****	1,970	**1.31**	**F****
	SB Off	2	2,250	2,110	0.94	E	1,920	0.85	D	2,160	0.96	E	2,080	0.92	E	2,200	0.98	E	2,250	1.00	E
	NB Off	1	1,500	920	0.61	B	790	0.53	A	880	0.59	A	720	0.48	A	830	0.55	A	740	0.49	A
I-5 at Camino Capistrano	SB On	1	1,500	700	0.47	A	580	0.39	A	640	0.43	A	530	0.35	A	640	0.43	A	570	0.38	A
	NB On	1	1,500	900	0.60	A	460	0.31	A	890	0.59	A	470	0.31	A	870	0.58	A	470	0.31	A
	SB Off	1	1,500	990	0.66	B	1,380	0.92	E	1,000	0.67	B	1,400	0.93	E	1,020	0.68	B	1,490	0.99	E
	NB Off	1	1,500	660	0.44	A	780	0.52	A	510	0.34	A	750	0.50	A	510	0.34	A	760	0.51	A

TABLE 4.6-16 (Continued)
YEAR 2025 + PROJECT BUILDOUT: FREEWAY RAMP LEVELS OF SERVICE

Interchange	Ramp	Lanes	Peak Hour Capacity	Year 2025 + Project Buildout (Committed Circulation System)						Year 2025 + Project Buildout + Committed Circulation System + La Pata Avenue Extension						Year 2025 + Project Buildout + Committed Circulation System + La Pata Avenue Extension + SR-241 Extension					
				A.M. Peak Hour			P.M. Peak Hour			A.M. Peak Hour			P.M. Peak Hour			A.M. Peak Hour			P.M. Peak Hour		
				Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS
I-5 at Avenida Vista Hermosa	SB On	1	1,080	290	0.27	A	250	0.23	A	540	0.50	A	400	0.37	A	280	0.26	A	200	0.19	A
	NB Direct On	1	1,500	1,140	0.76	C	1,490	0.99	E	950	0.63	B	1,170	0.78	C	870	0.58	A	1,090	0.73	C
	NB Loop On	1	1,080	200	0.19	A	210	0.19	A	220	0.20	A	220	0.20	A	200	0.19	A	210	0.19	A
	SB Off[a.]	1	1,500	1,730	**1.15**	**F****	1,430	0.95	E	1,500	1.00	E	1,280	0.85	D	1,410	0.94	E	1,200	0.80	C
	NB Off	1	1,500	430	0.29	A	430	0.29	A	670	0.45	A	590	0.39	A	350	0.23	A	380	0.25	A
I-5 at Avenida Pico	SB On	1	1,500	570	0.38	A	1,180	0.79	C	830	0.55	A	1,220	0.81	D	470	0.31	A	990	0.66	B
	NB On[a.]	1	1,500	1,480	0.99	E	1,600	**1.07**	**F****	1,340	0.89	D	1,500	1.00	E	1,240	0.83	D	1,510	**1.01**	**F****
	SB Off	2	2,250	2,010	0.89	D	1,490	0.66	B	1,900	0.84	D	1,290	0.57	A	1,940	0.86	D	1,180	0.52	A
	NB Off	1	1,500	1,170	0.78	C	930	0.62	B	1,190	0.79	C	1,190	0.79	C	1,010	0.67	B	750	0.50	A

a. This ramp is forecast to operate deficiently in the a.m. and/or p.m. peak hour (i.e., the LOS is worse than the LOS E performance standard adopted by Caltrans for I-5 Freeway ramps).

** Cumulative project impacts.

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

Committed Circulation System Plus La Pata Avenue Extension Plus SR-241 Extension

For the scenario based on the committed circulation system with a La Pata Avenue extension and a SR-241 extension, the following ramps are forecast to operate at a deficient level of service and are considered cumulative impacts of the project.

- I-5 southbound off-ramp at Oso Parkway–1.12 (LOS F), p.m. peak
- I-5 northbound direct on-ramp at Crown Valley Parkway–1.06 (LOS F), p.m. peak
- I-5 southbound off-ramp at Crown Valley Parkway–1.33 (LOS F), p.m. peak
- I-5 northbound on-ramp at Ortega Highway–1.37 (LOS F), a.m. peak; 1.31 (LOS F), p.m. peak
- I-5 northbound on-ramp at Avenida Pico–1.01 (LOS F), p.m. peak

Year 2025 + Project Buildout: Freeway Mainline Levels of Service

Table 4.6-17 identifies the year 2025 peak hour V/C ratios for the study area freeway mainline segments assuming the committed circulation system scenario, the committed circulation system scenario with the extension of La Pata Avenue, and the committed circulation system scenario with the extension of La Pata Avenue and the SR-241 extension.

Committed Circulation System

For the scenario based on the committed circulation system, the following freeway mainline segments are forecast to operate at a deficient level of service and are considered cumulative impacts of the proposed project:

- Northbound I-5 north of Oso Parkway–1.07 (LOS F), a.m. peak; 1.01 (LOS F), p.m. peak
- Southbound I-5 north of Oso Parkway–1.04 (LOS F), p.m. peak
- Northbound I-5 north of Ortega Highway–1.03 (LOS F), a.m. peak
- Southbound I-5 north of Ortega Highway–1.06 (LOS F), p.m. peak
- Northbound I-5 north of Camino Capistrano–1.19 (LOS F), a.m. peak; 1.10 (LOS F), p.m. peak
- Southbound I-5 north of Camino Capistrano–1.19 (LOS F), p.m. peak
- Northbound I-5 south of Camino Capistrano–1.18 (LOS F), a.m. peak; 1.12 (LOS F), p.m. peak
- Southbound I-5 south of Camino Capistrano–1.18 (LOS F), p.m. peak
- Northbound I-5 north of Avenida Vista Hermosa–1.22 (LOS F), a.m. peak; 1.26 (LOS F), p.m. peak
- Southbound I-5 north of Avenida Vista Hermosa–1.09 (LOS F), a.m. peak; 1.33 (LOS F), p.m. peak

TABLE 4.6-17
YEAR 2025 + PROJECT BUILDOUT: FREEWAY MAINLINE LEVELS OF SERVICE

Location	Direction	Lanes	2025 + Project Buildout (Committed Circulation System)								2025 + Project Buildout (Committed Circulation System) + La Pata Avenue Extension						2025 + Project Buildout (Committed Circulation System) + La Pata Avenue Extension + SR-241					
			A.M. Peak Hour				P.M. Peak Hour				A.M. Peak Hour			P.M. Peak Hour			A.M. Peak Hour			P.M. Peak Hour		
			Capacity	Volume	V/C	LOS	Capacity	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
I-5 n/o Oso Parkway[a.]	NB	4+1H	9,600	10,290	**1.07**	**F****	9,600	9,700	**1.01**	**F****	10,140	**1.06**	**F****	9,610	1.00	E	9,570	1.00	E	8,900	0.93	E
	SB	4+1H	9,600	8,610	0.90	E	9,600	9,960	**1.04**	**F****	8,540	0.89	D	9,850	**1.03**	**F****	8,200	0.85	D	9,010	0.94	E
I-5 n/o Crown Valley Parkway	NB	4+1H+1A	10,600	9,200	0.87	D	9,600	9,310	0.97	E	9,060	0.85	D	9,200	0.96	E	8,440	0.80	D	8,480	0.88	D
	SB	4+1H	9,600	8,750	0.91	E	9,600	9,350	0.97	E	8,670	0.90	E	9,220	0.96	E	8,290	0.86	D	8,400	0.88	D
I-5 n/o Avery Parkway	NB	4+1H+1A	9,600	7,380	0.77	D	9,600	7,620	0.79	D	7,120	0.74	D	7,400	0.77	D	6,500	0.68	C	6,700	0.70	C
	SB	4+1H+1A	9,600	7,280	0.76	D	9,600	7,540	0.79	D	7,080	0.74	D	7,280	0.76	D	6,620	0.69	C	6,450	0.67	C
I-5 n/o SR-73	NB	4+1H	9,600	7,260	0.76	D	9,600	7,160	0.75	D	7,030	0.73	D	6,910	0.72	D	6,530	0.68	C	6,260	0.65	C
	SB	4+1H	9,600	6,780	0.71	C	9,600	7,080	0.74	D	6,540	0.68	C	6,840	0.71	C	6,060	0.63	C	6,100	0.64	C
I-5 n/o Junipero Serra Road	NB	6+1H	13,600	12,840	0.94	E	13,600	11,880	0.87	D	12,520	0.92	E	11,520	0.85	D	11,530	0.85	D	10,230	0.75	D
	SB	6+1H	13,600	10,240	0.75	D	13,600	13,010	0.96	E	9,950	0.73	D	12,640	0.93	E	9,230	0.68	C	11,380	0.84	D
I-5 n/o Ortega Highway[a.]	NB	5+1H	11,600	11,950	**1.03**	**F****	11,600	11,050	0.95	E	11,600	1.00	E	10,720	0.92	E	10,730	0.93	E	9,540	0.82	D
	SB	5+1H	11,600	9,700	0.84	D	11,600	12,240	**1.06**	**F****	9,420	0.81	D	11,860	**1.02**	**F****	8,700	0.75	D	10,670	0.92	E
I-5 n/o Camino Capistrano[a.]	NB	4+1H	9,600	11,410	**1.19**	**F****	9,600	10,530	**1.10**	**F****	10,860	**1.13**	**F****	9,980	**1.04**	**F****	9,860	**1.03**	**F****	8,730	0.91	E
	SB	4+1H	9,600	9,020	0.94	E	9,600	11,400	**1.19**	**F****	8,480	0.88	D	10,750	**1.12**	**F****	7,750	0.81	D	9,420	0.98	E
I-5 s/o Camino Capistrano[a.]	NB	4+1H	9,600	11,330	**1.18**	**F****	9,600	10,760	**1.12**	**F****	10,640	**1.11**	**F****	10,180	**1.06**	**F****	9,680	**1.01**	**F****	8,920	0.93	E
	SB	4+1H	9,600	8,790	0.92	E	9,600	11,300	**1.18**	**F****	8,190	0.85	D	10,580	**1.10**	**F****	7,430	0.77	D	9,200	0.96	E
I-5 n/o Hermosa[a.]	NB	4	8,000	9,770	**1.22**	**F****	8,000	10,080	**1.26**	**F****	9,030	**1.13**	**F****	9,390	**1.17**	**F****	7,950	0.99	E	8,220	**1.03**	**F****
	SB	4	8,000	8,690	**1.09**	**F****	8,000	10,660	**1.33**	**F****	8,240	**1.03**	**F****	9,810	**1.23**	**F****	7,670	0.96	E	8,410	**1.05**	**F****
I-5 n/o Avenida Pico[a.]	NB	4+1A	9,000	9,290	**1.03**	**F****	9,000	9,430	**1.05**	**F****	8,890	0.99	E	9,120	**1.01**	**F****	7,560	0.84	D	7,760	0.86	D
	SB	4+1A	9,000	8,070	0.90	E	9,000	9,940	**1.10**	**F****	7,960	0.88	D	9,660	**1.07**	**F****	7,190	0.80	D	7,840	0.87	D
I-5 s/o Avenida Pico[a.]	NB	4	8,000	9,570	**1.20**	**F****	8,000	10,040	**1.26**	**F****	9,570	**1.20**	**F****	10,050	**1.26**	**F****	7,530	0.94	E	8,070	**1.01**	**F****
	SB	4	8,000	8,090	**1.01**	**F****	8,000	10,770	**1.35**	**F****	8,070	**1.01**	**F****	10,760	**1.35**	**F****	7,050	0.88	D	8,180	**1.02**	**F****

a. This segment of I-5 is forecast to operate deficiently in the a.m. and/or p.m. peak hour in one or both directions (i.e., the LOS is worse than the LOS E performance standard adopted by Caltrans for the I-5 mainline).
Dir – Direction NB – northbound SB – southbound n/o – north of s/o – south of
** Cumulative project impacts
Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

Committed Circulation System (continued)

- Northbound I-5 north of Avenida Pico–1.03 (LOS F), a.m. peak; 1.05 (LOS F), p.m. peak
- Southbound I-5 north of Avenida Pico–1.10 (LOS F), p.m. peak
- Northbound I-5 south of Avenida Pico–1.20 (LOS F), a.m. peak; 1.26 (LOS F), p.m. peak
- Northbound I-5 south of Avenida Pico–1.01 (LOS F), a.m. peak; 1.35 (LOS F), p.m. peak

Committed Circulation System Plus La Pata Avenue Extension

For the scenario based on the committed circulation system with a La Pata Avenue extension, the following freeway mainline segments are forecast to operate at a deficient level of service and are considered cumulative impacts of the project.

- Northbound I-5 north of Oso Parkway–1.06 (LOS F), a.m. peak
- Southbound I-5 north of Oso Parkway–1.03 (LOS F), p.m. peak
- Southbound I-5 north of Ortega Highway–1.02 (LOS F), p.m. peak
- Northbound I-5 north of Camino Capistrano–1.13 (LOS F), a.m. peak; 1.04 (LOS F), p.m. peak
- Southbound I-5 north of Camino Capistrano–1.12 (LOS F), p.m. peak
- Northbound I-5 south of Camino Capistrano–1.11 (LOS F), a.m. peak; 1.06 (LOS F), p.m. peak
- Southbound I-5 south of Camino Capistrano–1.10 (LOS F), a.m. peak
- Northbound I-5 north of Avenida Vista Hermosa–1.13 (LOS F), a.m. peak; 1.17 (LOS F), p.m. peak
- Southbound I-5 north of Avenida Vista Hermosa–1.03 (LOS F), a.m. peak; 1.23 (LOS F), p.m. peak
- Northbound I-5 north of Avenida Pico–1.01 (LOS F), p.m. peak
- Southbound I-5 north of Avenida Pico–1.07 (LOS F), p.m. peak
- Northbound I-5 south of Avenida Pico–1.20 (LOS F), a.m. peak; 1.26 (LOS F), p.m. peak
- Southbound I-5 south of Avenida Pico–1.01 (LOS F), a.m. peak; 1.35 (LOS F), p.m. peak

Committed Circulation System Plus La Pata Avenue Extension Plus SR-241 Extension

For the scenario based on the committed circulation system with a La Pata Avenue extension and a SR-241 extension, the following freeway mainline segments are forecast to operate at a deficient level of service and are considered cumulative impacts of the project.

- Northbound I-5 north of Camino Capistrano–1.03 (LOS F), a.m. peak
- Northbound I-5 south of Camino Capistrano–1.01 (LOS F), a.m. peak
- Northbound I-5 north of Avenida Vista Hermosa–1.03 (LOS F), p.m. peak
- Southbound I-5 north of Avenida Vista Hermosa–1.05 (LOS F), p.m. peak
- Northbound I-5 south of Avenida Pico–1.01 (LOS F), p.m. peak
- Southbound I-5 south of Avenida Pico–1.02 (LOS F), p.m. peak

Summary of 2025 Cumulative Deficiencies

The deficiencies identified for the *Year 2025 + Project Buildout* circulation scenarios are depicted in Exhibits 4.6-15 through 4.6-17. Shown are those locations that do not meet the performance criteria under committed, committed plus La Pata Avenue extension, and committed plus La Pata Avenue extension plus SR-241 extension, respectively.

Short-Range (Year 2010) Impact Analysis

As noted in the approach and methodology discussion, the short-range analysis identifies potential impacts for the level of project development that is anticipated by 2010. The primary purpose of the analysis is to satisfy County CMP and GMP requirements and to identify the type of mitigation measures that would be required for this short-range level of development. As set forth in the Mitigation Program, the transportation improvement program is formulated to mitigate the year 2025 traffic under full project buildout plus 2025 cumulative development. This short-range analysis contains only a portion of the project and only a portion of the cumulative growth, and is therefore presented here after the full project analysis as a means of satisfying the short-range analysis requirements noted above.

Impact 4.6-3 The *Short-Range (Year 2010) + Project traffic scenario would result in significant project-related impacts to study area intersections and freeway ramps.*

Circulation System

As discussed earlier, the proposed project has an on-site circulation system to provide accessibility for the development areas. For the short-range level of development, the parts of the project circulation system depicted in Exhibit 4.6-18 are assumed to be constructed.

Trip Generation

Table 4.6-18 summarizes the trip generation for the proposed Ranch Plan development through 2010. The initial level of project development would generate 50,864 trips per day, of which 3,965 trips are in the a.m. peak hour and 4,920 trips are in the p.m. peak hour.

TABLE 4.6-18
YEAR 2010 PROJECT TRIP GENERATION

Land Use	Units	A.M. Peak Hour			P.M. Peak Hour			ADT
		In	Out	Total	In	Out	Total	
Trip Generation								
1. Single-Family–Detached	2,074 DU	260	1,297	1,557	1,228	587	1,816	18,979
2. Single-Family–Attached	1,276 DU	133	704	837	647	291	938	9,797
3. Senior Housing	1,000 DU	61	185	246	204	128	332	3,496
4. Senior Apartments	170 DU	10	31	42	35	22	56	594
5. Apartments	480 DU	44	218	261	204	94	298	3,103
7. General Commercial	200 TSF	377	177	554	406	501	907	9,098
8. Specialty Retail	50 TSF	82	37	119	86	108	194	1,942
9. R&D/Business Park	100 TSF	68	16	84	29	74	103	970
10. Office	160 TSF	133	33	166	64	147	211	2,004
12. Elementary/Middle School	700 ST	90	9	99	24	42	66	881
Total		1,259	2,706	**3,965**	2,926	1,995	**4,920**	**50,864**

TSF: 1,000 square feet
DU: Dwelling unit
ST: Student

Source: South County Sub-Area Model.

Analysis Scenarios

The Year 2010 traffic analysis addresses three scenarios, each with different on-site and off-site circulation system assumptions. These scenarios are:

- Committed circulation system (see discussion and description earlier in Section 4.6.2).
- Committed circulation system plus La Pata Avenue extension. The intent of this analysis is to show the effect of the La Pata Avenue extension and the extent to which it would mitigate any of the *Short-Range (Year 2010) + Project* impacts.
- Committed circulation system plus La Pata Avenue extension and an arterial south of Oso Parkway. Under this scenario, La Pata Avenue would be extended together with a new arterial south of Oso Parkway that would follow the SR-241 extension alignment and extend south to New Ortega Highway.

Short-Range (Year 2010) Roadway Segment Volumes

Exhibit 4.6-19 depicts ADT volumes for year 2010 without the project, and the following sections give the corresponding data for the three with project scenarios.

Committed Circulation System

Exhibit 4.6-20 depicts year 2010 ADT volumes with the short-range project for conditions based on the committed circulation system. The addition of project traffic would increase volumes

primarily along Ortega Highway and Crown Valley Parkway and on Antonio Parkway south of Crown Valley Parkway. Smaller increases would occur on Oso Parkway and Antonio Parkway (north of Oso Parkway).

Committed Circulation System Plus La Pata Avenue Extension

Exhibit 4.6-21 depicts year 2010 ADT volumes with the short-range project for conditions based on the committed circulation system plus a La Pata Avenue extension. The extension of La Pata Avenue would reduce traffic volumes on Ortega Highway and Crown Valley Parkway and increase traffic volumes on Antonio Parkway. Table 4.6-19 summarizes the ADT differences.

TABLE 4.6-19
SHORT-RANGE (YEAR 2010) + PROJECT ADT VOLUMES
WITH AND WITHOUT THE LA PATA AVENUE EXTENSION

Roadway	ADT Volumes (000s)		
	Committed Circulation System	Committed Circulation System + La Pata Avenue	Difference
Oso Parkway (east of I-5)	62	61	-1
Crown Valley Parkway (east of I-5)	86	84	-2
Ortega Highway (east of I-5)	56	52	-4
Ortega Highway (west of Antonio Parkway/La Pata Avenue)	36	32	-4
Antonio Parkway (north of Oso Parkway)	44	45	+1
Antonio Parkway (north of Ortega Highway)	27	32	+5
Avenida Pico (north of I-5)	48	41	-7
Avenida Vista Hermosa (north of I-5)	34	32	-2
Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.			

Committed Circulation System Plus La Pata Avenue Extension and Arterial South of Oso Parkway

Exhibit 4.6-22 depicts year 2010 ADT volumes with the short-range project for conditions based on the committed circulation system plus a La Pata Avenue extension and an arterial south of Oso Parkway. The effect of this circulation system alternative would be to reduce traffic along Ortega Highway and Crown Valley Parkway, and cause a slight increase in traffic along Oso Parkway. Traffic on Avenida Pico north of I-5 would be reduced with the addition of the La Pata Avenue extension. Table 4.6-20 summarizes the ADT differences.

TABLE 4.6-20
SHORT-RANGE (YEAR 2010) + PROJECT ADT VOLUMES
WITH AND WITHOUT THE LA PATA AVENUE EXTENSION AND ARTERIAL
SOUTH OF OSO PARKWAY

Roadway	ADT Volumes (000s)		
	Committed Circulation System	Committed Circulation System + La Pata (Difference from Committed)	Committed Circulation System + La Pata + Arterial (Difference from Committed)
Oso Parkway (east of I-5)	62	61 (-1)	63 (+1)
Crown Valley Parkway (east of I-5)	86	84 (-2)	83 (-3)
Ortega Highway (east of I-5)	56	52 (-4)	50 (-6)
Ortega Highway (west of Antonio Parkway/La Pata Avenue)	36	32 (-4)	30 (-6)
Antonio Pkwy. (north of Oso Parkway)	44	45 (+1)	44 (0)
Antonio Pkwy. (north of Ortega Hwy.)	27	32 (+5)	30 (+3)
Avenida Pico (north of I-5)	48	41 (-7)	41 (-7)
Avenida Vista Hermosa (north of I-5)	34	32 (-2)	32 (-2)
Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.			

Short-Range Intersection Levels of Service

Exhibit 4.6-23 identifies the traffic study area intersections associated with implementation of the proposed Ranch Plan project through 2010. Table 4.6-21 compares peak hour ICU results for the study area intersections for 2010 conditions with and without the short-range project. With and without project comparisons of ICU values follow for the three circulation system scenarios that were analyzed.

Committed Circulation System

Seven intersections are forecast to operate deficiently without the project. Based on the thresholds of significance, the following intersections are significantly impacted by development proposed for the Ranch Plan project through year 2010.

City of Mission Viejo

4. Felipe Road at Oso Parkway–0.96 (LOS E), p.m. peak

11. Marguerite Parkway at Crown Valley Parkway–1.16 (LOS F), a.m. peak; 1.02 (LOS F), p.m. peak. Note: This intersection is forecast to operate at a deficient level of service in *Short-Range (Year 2010) Without Project* in the a.m. peak hour.

TABLE 4.6-21
SHORT-RANGE (YEAR 2010) + PROJECT: INTERSECTION LEVELS OF SERVICE

Intersection	Year 2010 Without Project				Year 2010 + Project (Committed Circulation System)				Year 2010 + Project (Committed Circulation System) Plus La Pata Avenue Extension				Year 2010 + Project (Committed Circulation System) + La Pata Avenue Extension + Arterial South of Oso Parkway			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
City of Laguna Hills																
15. Cabot Road at Oso Parkway	0.60	A	0.77	C	0.66	B	0.82	D	0.66	B	0.81	D	0.65	B	0.81	D
City of Laguna Niguel																
16. Moulton Pkwy. at Crown Valley Pkwy.[a.]	0.74	C	0.82	D	0.75	C	0.83	D	0.76	C	0.81	D	0.76	C	0.81	D
17. Greenfield Dr. at Crown Valley Parkway	0.72	C	0.71	C	0.73	C	0.72	C	0.69	B	0.71	C	0.69	B	0.72	C
18. Cabot Road at Crown Valley Parkway	0.71	C	0.73	C	0.73	C	0.75	C	0.72	C	0.75	C	0.72	C	0.75	C
19. Forbes at Crown Valley Parkway	0.61	B	0.69	B	0.63	B	0.70	B	0.62	B	0.70	B	0.63	B	0.70	B
20. Street of the Golden Lantern at Paseo de Colinas[b.]	**1.00**	**E**	0.86	D	**1.01**	**F**	0.85	D	**1.00**	**E**	0.85	D	**1.00**	**E**	0.85	D
21. Cabot Road at Paseo de Colinas	0.43	A	0.61	B	0.49	A	0.62	B	0.48	A	0.62	B	0.47	A	0.61	B
22. Camino Capistrano at Paseo de Colinas	0.51	A	0.54	A	0.51	A	0.54	A	0.49	A	0.54	A	0.50	A	0.54	A
23. Camino Capistrano at Avery Parkway	0.49	A	0.51	A	0.49	A	0.53	A	0.48	A	0.54	A	0.48	A	0.54	A
70. Greenfield Drive at SR-73 SB Ramps	0.51	A	0.49	A	0.53	A	0.50	A	0.52	A	0.50	A	0.52	A	0.51	A
71. Greenfield Drive at SR-73 NB Ramps	0.67	B	0.46	A	0.67	B	0.45	A	0.67	B	0.45	A	0.67	B	0.45	A
City of Mission Viejo																
1. Marguerite Parkway at La Paz Road	0.58	A	0.73	C	0.58	A	0.77	C	0.58	A	0.77	C	0.58	A	0.78	C
2. Olympiad Road at La Paz Road	0.48	A	0.49	A	0.50	A	0.49	A	0.50	A	0.49	A	0.51	A	0.49	A
3. Marguerite Parkway at Oso Parkway	0.76	C	0.68	B	0.77	C	0.73	C	0.76	C	0.72	C	0.78	C	0.73	C
4. Felipe Road at Oso Parkway[b.]	0.71	C	0.82	D	0.76	C	**0.96**	**E****	0.76	C	**0.95**	**E****	0.75	C	**0.96**	**E****
6. Marguerite Parkway at Felipe Road	0.59	A	0.73	C	0.66	B	0.80	C	0.64	B	0.75	C	0.63	B	0.74	C
7. Puerta Real at Crown Valley Parkway[a.]	0.71	C	0.77	C	0.73	C	0.79	C	0.72	C	0.77	C	0.72	C	0.77	C
8. Guevara/Medical Ctr. at Crown Valley[a.]	0.62	B	0.75	C	0.64	B	0.77	C	0.62	B	0.77	C	0.62	B	0.77	C
9. Los Altos at Crown Valley Parkway[a.]	0.65	B	0.76	C	0.68	B	0.78	C	0.66	B	0.85	D	0.67	B	0.85	D
10. Bellogente at Crown Valley Parkway[a.]	0.69	B	0.62	B	0.71	C	0.65	B	0.69	B	0.63	B	0.70	B	0.64	B
11. Marguerite at Crown Valley Pkwy[a., b.]	**1.09**	**F**	0.92	E	**1.16**	**F****	**1.02**	**F****	**1.14**	**F****	**0.99**	**E**	**1.14**	**F****	**0.95**	**E**
24. Marguerite Parkway at Avery Parkway	0.81	D	0.79	C	0.84	D	0.84	D	0.82	D	0.79	C	0.82	D	0.79	C
44. I-5 SB Ramps at Oso Parkway	0.62	B	0.75	C	0.62	B	0.77	C	0.62	B	0.76	C	0.62	B	0.79	C
45. I-5 NB Ramps at Oso Parkway	0.67	B	0.82	D	0.71	C	0.85	D	0.70	B	0.81	D	0.71	C	0.82	D
46. I-5 SB Ramps at Crown Valley Pkwy.[a.]	0.70	B	0.94	E	0.70	B	0.97	E	0.67	B	0.93	E	0.65	B	0.95	E
47. I-5 NB Ramps at Crown Valley Pkwy.[a.]	0.68	B	0.86	D	0.70	B	0.91	E	0.69	B	0.87	D	0.68	B	0.87	D

TABLE 4.6-21 (Continued)
SHORT-RANGE (YEAR 2010) + PROJECT: INTERSECTION LEVELS OF SERVICE

	Year 2010 Without Project				Year 2010 + Project (Committed Circulation System)				Year 2010 + Project (Committed Circulation System) Plus La Pata Avenue Extension				Year 2010 + Project (Committed Circulation System) + La Pata Avenue Extension + Arterial South of Oso Parkway			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
Intersection	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**
48. I-5 SB Ramps at Avery Parkway	0.65	B	0.82	D	0.70	B	0.83	D	0.68	B	0.81	D	0.67	B	0.82	D
49. I-5 NB Ramps at Avery Parkway	0.66	B	0.72	C	0.66	B	0.79	C	0.66	B	0.72	C	0.65	B	0.72	C
City of Rancho Santa Margarita																
13. Banderas at Antonio Parkway	0.65	B	0.70	B	0.68	B	0.74	C	0.67	B	0.76	C	0.68	B	0.76	C
14. Avenida Empresa at Antonio Parkway	0.61	B	0.45	A	0.62	B	0.45	A	0.63	B	0.46	A	0.61	B	0.49	A
58. SR-241 SB Ramps at Antonio Parkway	0.37	A	0.62	B	0.38	A	0.62	B	0.38	A	0.62	B	0.39	A	0.62	B
59. SR-241 NB Ramps at Antonio Parkway[b.]	**1.27**	**F**	0.49	A	**1.32**	**F****	0.49	A	**1.33**	**F****	0.49	A	**1.34**	**F****	0.49	A
60. SR-241 SB Ramps at Oso Parkway	0.44	A	0.42	A	0.44	A	0.43	A	0.45	A	0.44	A	0.44	A	0.35	A
61. SR-241 NB Ramps at Oso Parkway	0.70	B	0.40	A	0.75	C	0.40	A	0.78	C	0.39	A	0.59	A	0.67	B
City of San Clemente																
37. Avenida La Pata at Avenida Vista Hermosa[b.]	**0.98**	**E**	0.74	C	**0.98**	**E**	0.74	C	**1.17**	**F****	**0.92**	**E****	**1.22**	**F****	**0.93**	**E****
38. Avenida Talega at Avenida Vista Hermosa	0.73	C	0.68	B	0.73	C	0.68	B	0.77	C	0.66	B	0.77	C	0.66	B
39. Camino Vera Cruz at Avenida Vista Hermosa	0.88	D	0.90	D	0.88	D	0.90	D	0.90	D	0.83	D	0.90	D	0.83	D
40. Avenida La Pata at Avenida Pico	0.42	A	0.63	B	0.42	A	0.63	B	0.59	A	0.72	C	0.59	A	0.72	C
41. Vista Hermosa at Avenida Pico	0.19	A	0.07	A	0.19	A	0.07	A	0.18	A	0.08	A	0.18	A	0.08	A
54. I-5 SB Ramps at Avenida Vista Hermosa	0.55	A	0.40	A	0.55	A	0.40	A	0.49	A	0.42	A	0.48	A	0.41	A
55. I-5 NB Ramps at Avenida Vista Hermosa	0.61	B	0.57	A	0.61	B	0.56	A	0.59	A	0.50	A	0.59	A	0.50	A
56. I-5 SB Ramps at Avenida Pico	0.89	D	0.76	C	0.90	D	0.76	C	**1.00**	**E****	0.78	C	**1.00**	**E****	0.78	C
57. I-5 NB Ramps at Avenida Pico	0.89	D	0.63	B	0.90	D	0.63	B	0.78	C	0.60	A	0.72	C	0.59	A
City of San Juan Capistrano																
25. Camino Capistrano at Ortega Highway	0.55	A	0.49	A	0.56	A	0.49	A	0.55	A	0.47	A	0.53	A	0.48	A
26. Del Obispo Street at Ortega Highway	0.60	A	0.68	B	0.63	B	0.67	B	0.62	B	0.67	B	0.64	B	0.68	B
27. Rancho Viejo Road at Ortega Highway[b.]	0.69	B	0.84	D	0.69	B	**0.92**	**E****	0.66	B	0.89	D	0.64	B	0.84	D
28. La Novia Avenue at Ortega Highway[b.]	0.69	B	0.81	D	0.79	C	**0.92**	**E****	0.69	B	0.85	D	0.65	B	0.81	D
30. Camino Capistrano at Del Obispo St.[b.]	**0.92**	**E**	**0.97**	**E**	**0.94**	**E****	**1.00****	**E****	0.90	D	**0.96**	**E**	**0.91**	**E**	**0.94**	**E**
31. Camino Capistrano at San Juan Creek	0.63	B	0.68	B	0.66	B	0.68	B	0.59	A	0.63	B	0.58	A	0.62	B

TABLE 4.6-21 (Continued)
SHORT-RANGE (YEAR 2010) + PROJECT: INTERSECTION LEVELS OF SERVICE

	Year 2010 Without Project				Year 2010 + Project (Committed Circulation System)				Year 2010 + Project (Committed Circulation System) Plus La Pata Avenue Extension				Year 2010 + Project (Committed Circulation System) + La Pata Avenue Extension + Arterial South of Oso Parkway			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
Intersection	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**
32. Valle Road at San Juan Creek[b.]	0.90	D	0.84	D	**0.92**	**E****	0.81	D	0.90	D	0.77	C	0.90	D	0.77	C
33. La Novia Avenue at San Juan Creek[b.]	**0.92**	**E**	0.81	D	**0.94**	**E****	0.82	D	0.84	D	0.74	C	0.84	D	0.74	C
50. I-5 SB Ramps at Ortega Highway[a.]	0.95	E	0.93	E	0.95	E	0.96	E	0.79	C	0.90	D	0.80	C	0.88	D
51. I-5 NB Ramps at Ortega Highway[a.]	0.82	D	0.78	C	0.84	D	0.83	D	0.77	C	0.82	D	0.76	C	0.78	C
52. Camino Capistrano at I-5 SB Ramps	0.80	C	0.80	C	0.82	D	0.79	C	0.74	C	0.75	C	0.73	C	0.74	C
53. Valle at La Novia Ave.e/I-5 NB Ramps	0.83	D	0.77	C	0.85	D	0.80	C	0.72	C	0.68	B	0.71	C	0.67	B
72. Camino Capistrano at Junipero Serra	0.71	C	0.69	B	0.73	C	0.73	C	0.74	C	0.71	C	0.73	C	0.71	C
73. I-5 SB Ramps at Junipero Serra Road	0.61	B	0.66	B	0.63	B	0.71	C	0.64	B	0.69	B	0.64	B	0.68	B
74. I-5 NB Ramps at Junipero Serra Road	0.66	B	0.85	D	0.68	B	0.90	D	0.71	C	0.85	D	0.71	C	0.80	C
75. Rancho Viejo Rd. at Junipero Serra Rd.	0.66	B	0.70	B	0.67	B	0.73	C	0.69	B	0.68	B	0.66	B	0.66	B
Unincorporated Orange County																
5. Antonio Parkway at Oso Parkway[b.]	0.87	D	0.86	D	**0.99**	**E****	**1.19**	**F****	**1.03**	**F****	**1.13**	**F****	**0.95**	**E****	**0.94**	**E****
12. Antonio Pkwy. at Crown Valley Pkwy.[b.]	0.51	A	0.79	C	0.74C	C	**1.16**	**F****	0.79	C	**1.15**	**F****	0.69	B	**1.02**	**F****
29. Antonio Pkwy./La Pata at Ortega Hwy.[b.]	**1.40**	**F**	**1.19**	**F**	**1.60**	**F****	**1.19**	**F**	**1.42**	**F****	**1.06**	**F****	**1.32**	**F****	**1.06**	**F****
43. Antonio Pkwy. at New Ortega Highway	—	—	—	—	0.49	A	0.71	C	0.62	B	0.74	C	0.49	A	0.53	A
78. A Street at New Ortega Highway	—	—	—	—	0.63	B	0.55	A	0.63	B	0.55	A	0.39	A	0.41	A
79. C Street at New Ortega Highway	—	—	—	—	0.78	C	0.44	A	0.78	C	0.44	A	0.36	A	0.32	A
87. F Street at C Street	—	—	—	—	—	—	—	—	—	—	—	—	0.37	A	0.35	A
89. F Street at New Ortega Highway	—	—	—	—	—	—	—	—	—	—	—	—	0.25	A	0.21	A

ICU: intersection capacity utilization LOS: level of service NB: northbound SB: southbound

a. LOS E is acceptable at this location (Congestion Management Program (CMP) intersections and Crown Valley Parkway intersections between I-5 and Marguerite Parkway). LOS D is the adopted performance standard for all other intersection locations that are analyzed.
b. This location is forecast to operate deficiently in the a.m. and/or p.m. peak hour (i.e., the LOS is worse than the adopted LOS performance standard).

** Project-specific impact.

An intersection location is considered to be impacted when it is forecast to operate at an unacceptable LOS and, compared to without project conditions, the ICU increases as follows: 0.01 or greater for intersections in the cities of Mission Viejo, Rancho Santa Margarita, and San Juan Capistrano and in unincorporated County of Orange. Greater than 0.01 for intersections in the cities of Laguna Hills, Laguna Niguel, and San Clemente.

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

City of Rancho Santa Margarita

59. SR-241 northbound ramps at Antonio Parkway–1.32 (LOS F), a.m. peak. Note: This intersection is forecast to operate at a deficient level of service in *Short-Range (Year 2010) Without Project* in the a.m. peak hour.

City of San Juan Capistrano

27. Rancho Viejo Road at Ortega Highway–0.92 (LOS E), p.m. peak

28. La Novia Avenue at Ortega Highway–0.92 (LOS E), p.m. peak

30. Camino Capistrano at Del Obispo Street–0.94 (LOS E), a.m. peak; 1.00 (LOS E), p.m. peak. Note: This intersection is forecast to operate at a deficient level of service in *Short-Range (Year 2010) Without Project* in the a.m. and p.m. peak hours.

32. Valle Road at San Juan Creek Road–0.92 (LOS E), a.m. peak

33. La Novia Avenue at San Juan Creek Road–0.94 (LOS E), a.m. peak. Note: This intersection is forecast to operate at a deficient level of service in *Short-Range (Year 2010) Without Project* in the a.m. peak hour.

Unincorporated Orange County

5. Antonio Parkway at Oso Parkway–0.99 (LOS E), a.m. peak; 1.19 (LOS F), p.m. peak

12. Antonio Parkway at Crown Valley Parkway–1.16 (LOS F), p.m. peak

29. Antonio Parkway/La Pata Avenue at Ortega Highway–1.60 (LOS F), a.m. peak; 1.19 (LOS F), p.m. peak. Note: This intersection is forecast to operate at a deficient level of service in *Short-Range (Year 2010) Without Project* in the a.m. and p.m. peak hours.

<u>Committed Circulation System Plus La Pata Avenue Extension</u>

With the addition of the La Pata Avenue extension, the following previously identified deficient intersections are forecast to operate at an acceptable level of service in the a.m. and p.m. peak hours.

City of San Juan Capistrano

27. Rancho Viejo Road at Ortega Highway–0.66 (LOS B), a.m. peak; 0.89 (LOS D), p.m. peak

28. La Novia Avenue at Ortega Highway–0.69 (LOS B), a.m. peak; 0.85 (LOS D), p.m. peak

30. Camino Capistrano to Del Obispo–0.96 (LOS E), p.m. peak

32. Valle Road at San Juan Creek Road–0.90 (LOS D), a.m. peak; 0.77 (LOS C), p.m. peak

33. La Novia Avenue at San Juan Creek Road–0.84 (LOS D), a.m. peak; 0.74 (LOS C), p.m. peak

Because the extension of La Pata Avenue would allow traffic to travel south to the City of San Clemente and I-5 via the arterial extension and because of other redistributions of traffic that would occur with the La Pata Avenue extension, the following additional intersection locations are forecast to operate at a deficient level of service under this scenario and are significantly impacted by development proposed for the Ranch Plan project through year 2010:

City of San Clemente

37. Avenida La Pata at Avenida Vista Hermosa–1.17 (LOS F), a.m. peak; 0.92 (LOS E); p.m. peak

56. I-5 southbound ramps at Avenida Pico–1.00 (LOS E), a.m. peak

Committed Circulation System Plus La Pata Avenue Extension and Arterial South of Oso Parkway

When compared to the prior scenario (committed circulation improvements plus the La Pata Avenue extension), with the additional improvement of the arterial south of Oso Parkway, no additional intersections would operate at acceptable levels of service in the a.m. and/or p.m. peak hours compared to conditions based on the committed circulation system.

Short-Range Freeway Ramp Levels of Service

Table 4.6-22 summarizes 2010 without project freeway ramp volumes, V/C ratios, and levels of service, and the corresponding with project information can be found in Table 4.6-23. The results are summarized as follows.

Committed Circulation System

Of the five ramp locations that are forecast to operate deficiently in 2010 without the project, the following three ramps are significantly impacted by the short-range project:

- I-5 southbound off-ramp at Oso Parkway–1.17 (LOS F), p.m. peak. Note: This ramp operates at a deficient level of service under *Existing Conditions* and *Short-Range (Year 2010) Without Project*.

- I-5 at southbound off-ramp at Crown Valley Parkway–1.32 (LOS F), p.m. peak. Note: This ramp operates at a deficient level of service under *Existing Conditions* and *Short-Range (Year 2010) Without Project*.

- I-5 at northbound on-ramp at Ortega Highway–1.27 (LOS F), a.m. peak; 1.15 (LOS F), p.m. peak. Note: This ramp operates at a deficient level of service under the *Existing Conditions* and *Short-Range (Year 2010) Without Project* scenarios.

Committed Circulation System Plus La Pata Avenue Extension

With the La Pata Avenue extension, the short-range project impacts the same ramps noted above for the committed circulation system scenario with the exception of the I-5 southbound off-ramp at Oso Parkway, which would not be significantly impacted. The following additional ramp is significantly impacted by the short-range project under this scenario:

- I-5 southbound off-ramp at Ortega Highway–1.07 (LOS F), p.m. peak

TABLE 4.6-22
SHORT-RANGE (YEAR 2010) WITHOUT PROJECT: FREEWAY RAMP LEVELS OF SERVICE

Interchange	Ramp	Lanes	Peak Hour Capacity	Year 2010 Without Project					
				A.M. Peak Hour			P.M. Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS
I-5 at Oso Parkway	SB Direct On	1	1,080	460	0.43	A	620	0.57	A
	SB Loop On	1	1,080	720	0.67	B	400	0.37	A
	NB Direct On	1	1,500	1,080	0.72	C	750	0.50	A
	NB Loop On	1	1,500	240	0.16	A	540	0.36	A
	SB Off[a.]	1	1,500	1,010	0.67	B	1,740	**1.16**	**F**
	NB Off	1	1,500	690	0.46	A	1,010	0.67	B
I-5 at Crown Valley Parkway	SB On	1	1,800	770	0.43	A	900	0.50	A
	NB Direct On	1	1,500	1,380	0.92	E	1,400	0.93	E
	NB Loop On	1	1,080	950	0.88	D	960	0.89	D
	SB Off[a.]	2	2,250	1,890	0.84	D	2,940	**1.31**	**F**
	NB Off	1	1,500	1,340	0.89	D	780	0.52	A
I-5 at Avery Parkway	SB On	1	1,080	540	0.50	A	710	0.66	B
	NB On	1	1,500	520	0.35	A	750	0.50	A
	SB Off	1	1,500	710	0.47	A	910	0.61	B
	NB Off	1	1,500	690	0.46	A	870	0.58	A
I-5 at Junipero Serra Road	SB On	1	1,080	360	0.33	A	460	0.43	A
	NB On	1	1,080	880	0.81	D	790	0.73	C
	SB Off	1	1,500	750	0.50	A	780	0.52	A
	NB Off	1	1,500	320	0.21	A	330	0.22	A
I-5 at Ortega Highway	SB On	1	1,500	770	0.51	A	760	0.51	A
	NB On[a.]	1	1,500	1,710	**1.14**	**F**	1,640	**1.09**	**F**
	SB Off	2	2,250	1,830	0.81	D	1,920	0.85	D
	NB Off	1	1,500	1,060	0.71	C	980	0.65	B
I-5 at Camino Capistrano	SB On	1	1,500	670	0.45	A	640	0.43	A
	NB On	1	1,500	830	0.55	A	440	0.29	A
	SB Off	1	1,500	920	0.61	B	1,450	0.97	E
	NB Off	1	1,500	700	0.47	A	850	0.57	A
I-5 at Avenida Vista Hermosa	SB On	1	1,080	140	0.13	A	80	0.07	A
	NB Direct On	1	1,500	1,190	0.79	C	1,490	0.99	E
	NB Loop On	1	1,080	170	0.16	A	150	0.14	A
	SB Off[a.]	1	1,500	1,580	**1.05**	**F**	1,200	0.80	C
	NB Off	1	1,500	230	0.15	A	480	0.32	A
I-5 at Avenida Pico	SB On	1	1,500	390	0.26	A	620	0.41	A
	NB On[a.]	1	1,500	1,550	**1.03**	**F**	1,740	**1.16**	**F**
	SB Off	2	2,250	2,230	0.99	E	1,830	0.81	D
	NB Off	1	1,500	820	0.55	A	390	0.26	A

a. This ramp is forecast to operate deficiently in the a.m. and/or p.m. peak hour (i.e., the LOS is worse than the LOS E performance standard adopted by Caltrans for I-5 freeway ramps).

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004

TABLE 4.6-23
SHORT-RANGE (YEAR 2010) + PROJECT: FREEWAY RAMP LEVELS OF SERVICE

Interchange	Ramp	Lanes	Year 2010 + Project (Committed Circulation System)							Year 2010 + Project (Committed Circulation System) + La Pata Avenue						Year 2010 + Project (Committed Circulation System) + La Pata Avenue + Arterial South of Oso Parkway					
				A.M. Peak Hour			P.M. Peak Hour			A.M. Peak Hour			P.M. Peak Hour			A.M. Peak Hour			P.M. Peak Hour		
			Peak Hour Capacity	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
I-5 at Oso Parkway	SB Direct On	1	1,080	470	0.44	A	640	0.59	A	470	0.44	A	640	0.59	A	470	0.44	A	640	0.59	A
	SB Loop On	1	1,080	760	0.70	B	410	0.38	A	670	0.62	B	390	0.36	A	670	0.62	B	390	0.36	A
	NB Direct On	1	1,500	1,170	0.78	C	770	0.51	A	1,180	0.79	C	760	0.51	A	1,210	0.81	D	770	0.51	A
	NB Loop On	1	1,500	270	0.18	A	530	0.35	A	270	0.18	A	520	0.35	A	290	0.19	A	560	0.37	A
	SB Off[a.]	1	1,500	1,050	0.70	B	1,750	**1.17**	**F****	1,030	0.69	B	1,700	**1.13**	**F**	1,060	0.71	C	1,820	**1.21**	**F****
	NB Off	1	1,500	760	0.51	A	1,010	0.67	B	710	0.47	A	930	0.62	B	700	0.47	A	950	0.63	B
I-5 at Crown Valley Parkway	SB On	1	1,800	760	0.42	A	940	0.52	A	630	0.35	A	850	0.47	A	610	0.34	A	830	0.46	A
	NB Direct On	1	1,500	1,480	0.99	E	1,490	0.99	E	1,500	1.00	E	1,490	0.99	E	1,490	0.99	E	1,460	0.97	E
	NB Loop On	1	1,080	960	0.89	D	940	0.87	D	960	0.89	D	940	0.87	D	960	0.89	D	930	0.86	D
	SB Off[a.]	2	2,250	1,880	0.84	D	2,960	**1.32**	**F****	1,920	0.85	D	2,990	**1.33****	**F**	1,910	0.85	D	3,010	**1.34**	**F****
	NB Off	1	1,500	1,410	0.94	E	870	0.58	A	1,320	0.88	D	730	0.49	A	1,290	0.86	D	720	0.48	A
I-5 at Avery Parkway	SB On	1	1,080	550	0.51	A	700	0.65	B	530	0.49	A	670	0.62	B	530	0.49	A	690	0.64	B
	NB On	1	1,500	500	0.33	A	830	0.55	A	470	0.31	A	780	0.52	A	510	0.34	A	790	0.53	A
	SB Off	1	1,500	720	0.48	A	910	0.61	B	730	0.49	A	910	0.61	B	730	0.49	A	920	0.61	B
	NB Off	1	1,500	700	0.47	A	910	0.61	B	700	0.47	A	850	0.57	A	690	0.46	A	850	0.57	A
I-5 at Junipero Serra Road	SB On	1	1,080	380	0.35	A	470	0.44	A	380	0.35	A	450	0.42	A	380	0.35	A	420	0.39	A
	NB On	1	1,080	900	0.83	D	810	0.75	C	980	0.91	E	810	0.75	C	940	0.87	D	800	0.74	C
	SB Off	1	1,500	750	0.50	A	850	0.57	A	760	0.51	A	840	0.56	A	740	0.49	A	850	0.57	A
	NB Off	1	1,500	330	0.22	A	340	0.23	A	320	0.21	A	330	0.22	A	320	0.21	A	330	0.22	A
I-5 at Ortega	SB On	1	1,500	790	0.53	A	700	0.47	A	450	0.30	A	500	0.33	A	470	0.31	A	500	0.33	A
	NB On[a.]	1	1,500	1,910	**1.27**	**F****	1,720	**1.15**	**F****	2,090	**1.39**	**F****	1,740	**1.16**	**F****	1,930	**1.29**	**F****	1,710	**1.14**	**F****

TABLE 4.6-23 (Continued)
SHORT-RANGE (YEAR 2010) + PROJECT: FREEWAY RAMP LEVELS OF SERVICE

Interchange	Ramp	Lanes	Year 2010 + Project (Committed Circulation System)							Year 2010 + Project (Committed Circulation System) + La Pata Avenue						Year 2010 + Project (Committed Circulation System) + La Pata Avenue + Arterial South of Oso Parkway					
				A.M. Peak Hour			P.M. Peak Hour			A.M. Peak Hour			P.M. Peak Hour			A.M. Peak Hour			P.M. Peak Hour		
			Peak Hour Capacity	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Highway	SB Off	2	2,250	1,910	0.85	D	2,210	0.98	E	1,880	0.84	D	2,400	**1.07**	**F****	1,850	0.82	D	2,270	**1.01**	**F****
	NB Off	1	1,500	1,040	0.69	B	1,020	0.68	B	820	0.55	A	750	0.50	A	820	0.55	A	760	0.51	A
I-5 at Camino Capistrano	SB On	1	1,500	720	0.48	A	620	0.41	A	610	0.41	A	530	0.35	A	610	0.41	A	520	0.35	A
	NB On	1	1,500	830	0.55	A	460	0.31	A	860	0.57	A	470	0.31	A	840	0.56	A	450	0.30	A
	SB Off	1	1,500	960	0.64	B	1,480	0.99	E	960	0.64	B	1,490	0.99	E	960	0.64	B	1,480	0.99	E
	NB Off	1	1,500	650	0.43	A	840	0.56	A	470	0.31	A	760	0.51	A	480	0.32	A	750	0.50	A
I-5 at Avenida Vista Hermosa	SB On	1	1,080	150	0.14	A	80	0.07	A	360	0.33	A	110	0.10	A	360	0.33	A	140	0.13	A
	NB Direct On	1	1,500	1,170	0.78	C	1,490	0.99	E	920	0.61	B	1,220	0.81	D	910	0.61	B	1,210	0.81	D
	NB Loop On	1	1,080	170	0.16	A	150	0.14	A	210	0.19	A	160	0.15	A	210	0.19	A	160	0.15	A
	SB Off[a.]	1	1,500	1,580	**1.05**	**F**	1,220	0.81	D	1,350	0.90	D	1,120	0.75	C	1,340	0.89	D	1,080	0.72	C
	NB Off	1	1,500	260	0.17	A	500	0.33	A	450	0.30	A	590	0.39	A	460	0.31	A	610	0.41	A
I-5 at Avenida Pico	SB On	1	1,500	390	0.26	A	620	0.41	A	640	0.43	A	690	0.46	A	640	0.43	A	710	0.47	A
	NB On[a.]	1	1,500	1,540	**1.03**	**F**	1,740	**1.16**	**F**	1,450	0.97	E	1,480	0.99	E	1,460	0.97	E	1,480	0.99	E
	SB Off	2	2,250	2,250	1.00	E	1,830	0.81	D	2,070	0.92	E	1,500	0.67	B	2,070	0.92	E	1,480	0.66	B
	NB Off	1	1,500	820	0.55	A	390	0.26	A	640	0.43	A	680	0.45	A	670	0.45	A	650	0.43	A

a. This ramp is forecast to operate deficiently in the a.m. and/or p.m. peak hour (i.e., the LOS is worse than the LOS E performance standard adopted by Caltrans for I-5 freeway ramps).

** Project impact.

A ramp location is considered to be impacted when it is forecast to operate at LOS F and, compared to "without project" conditions, the V/C ratio increases as follows: 0.01 or greater for ramps at intersections in the cities of Mission Viejo and San Juan Capistrano. Greater than 0.01 for ramps at intersections in the cities of Laguna Niguel and San Clemente.

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

Committed Circulation System Plus La Pata Avenue Extension and Arterial South of Oso Parkway

With the La Pata Avenue extension and the arterial south of Oso Parkway, the short-range project impacts the same ramps noted above for the committed circulation system scenario. The following additional ramp is significantly impacted by the short-range project under this scenario:

- I-5 southbound off-ramp at Ortega Highway–1.01 (LOS F), p.m. peak

Short-Range Freeway Mainline Levels of Service

Tables 4.6-24 and 4.6-25 identify the 2010 volumes, V/C ratios, and levels of service without and with the project, respectively. Five I-5 mainline segments are forecast to be deficient in year 2010 without that portion of the proposed Ranch Plan project completed by 2010. Implementation of the short-range project would not result in any significant impacts to these freeway mainline segments under any of the 2010 scenarios.

TABLE 4.6-24
SHORT-RANGE (YEAR 2010) WITHOUT PROJECT: FREEWAY MAINLINE LEVELS OF SERVICE

Location	Direction	Lanes	A.M. Peak Hour				P.M. Peak Hour			
			Capacity	Volume	V/C	LOS	Capacity	Volume	V/C	LOS
I-5 n/o Oso Parkway[a.]	NB	4+1H	9,600	10,160	**1.06**	**F**	9,600	9,110	0.95	E
	SB	4+1H	9,600	8,200	0.85	D	9,600	10,100	**1.05**	**F**
I-5 n/o Crown Valley Parkway	NB	4+1H+1A	10,600	9,160	0.86	D	9,600	8,670	0.90	E
	SB	4+1H	9,600	8,380	0.87	D	9,600	9,380	0.98	E
I-5 n/o Avery Parkway	NB	4+1H+1A	9,600	7,240	0.75	D	9,600	7,120	0.74	D
	SB	4+1H+1A	9,600	6,930	0.72	D	9,600	7,460	0.78	D
I-5 n/o SR-73	NB	4+1H	9,600	7,260	0.76	D	9,600	6,710	0.70	C
	SB	4+1H	9,600	6,430	0.67	C	9,600	7,120	0.74	D
I-5 n/o Junipero Serra Road	NB	6+1H	13,600	11,410	0.84	D	13,600	9,570	0.70	C
	SB	6+1H	13,600	8,020	0.59	C	13,600	11,320	0.83	D
I-5 n/o Ortega Highway	NB	5+1H	11,600	10,740	0.93	E	11,600	9,000	0.78	D
	SB	5+1H	11,600	7,530	0.65	C	11,600	10,760	0.93	E
I-5 n/o Camino Capistrano[a.]	NB	4+1H	9,600	10,130	**1.06**	**F**	9,600	8,710	0.91	E
	SB	4+1H	9,600	7,290	0.76	D	9,600	10,100	**1.05**	**F**
I-5 s/o Camino Capistrano[a.]	NB	4+1H	9,600	10,140	**1.06**	**F**	9,600	9,020	0.94	E
	SB	4+1H	9,600	7,080	0.74	D	9,600	9,950	**1.04**	**F**
I-5 n/o Hermosa[a.]	NB	4	8,000	8,170	**1.02**	**F**	8,000	8,120	**1.02**	**F**
	SB	4	8,000	7,160	0.90	E	8,000	8,840	**1.11**	**F**
I-5 n/o Avenida Pico	NB	4+1A	9,000	7,480	0.83	D	9,000	7,570	0.84	D
	SB	4+1A	9,000	6,540	0.73	D	9,000	8,180	0.91	E
I-5 s/o Avenida Pico[a.]	NB	4	8,000	7,510	0.94	E	8,000	7,680	0.96	E
	SB	4	8,000	6,230	0.78	D	8,000	8,490	**1.06**	**F**

n/o: north of
s/o: south of
A: auxiliary lane
H: high occupancy vehicle lane
a. This segment of I-5 is forecast to operate deficiently in the a.m. and/or p.m. peak hour in one or both directions (i.e., the LOS is worse than the LOS E performance standard adopted by Caltrans for the I-5 mainline).

An I-5 mainline location is considered to be impacted when it is forecast to operate at LOS F and, compared "without project" conditions, the V/C ratio increases by more than 0.03 (the impact threshold specified in the Orange County Congestion Management Program).

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004

TABLE 4.6-25
SHORT-RANGE (YEAR 2010) + PROJECT (WITH ARTERIAL SOUTH OF OSO PARKWAY): FREEWAY MAINLINE LEVELS OF SERVICE

Location	Direction	Lanes	Year 2010 + Project (Committed Circulation System)								Year 2010 + Project (Committed Circulation System) + La Pata Avenue Extension						Year 2010 + Project (Committed Circulation System) + La Pata Avenue Extension + Arterial Extension					
				A.M. Peak Hour			P.M. Peak Hour				A.M. Peak Hour			P.M. Peak Hour			A.M. Peak Hour			P.M. Peak Hour		
			Capacity	Volume	V/C	LOS	Capacity	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
I-5 n/o Oso Parkway[a.]	NB	4+1H	9,600	10,500	**1.09**	**F**	9,600	9,180	0.96	E	10,510	**1.09**	**F**	9,120	0.95	E	10,340	**1.08**	**F**	9,110	0.95	E
	SB	4+1H	9,600	8,280	0.86	D	9,600	10,270	**1.07**	**F**	8,210	0.86	D	10,220	**1.06**	**F**	8,190	0.85	D	10,100	**1.05**	**F**
I-5 n/o Crown Valley Parkway	NB	4+1H+1A	10,600	9,450	0.89	D	9,600	8,720	0.91	E	9,420	0.89	D	8,600	0.90	E	9,150	0.86	D	8,570	0.89	D
	SB	4+1H	9,600	8,480	0.88	D	9,600	9,580	1.00	E	8,340	0.87	D	9,550	0.99	E	8,300	0.86	D	9,310	0.97	E
I-5 n/o Avery Parkway	NB	4+1H+1A	9,600	7,490	0.78	D	9,600	7,180	0.75	D	7,290	0.76	D	6,910	0.72	D	7,010	0.73	D	6,900	0.72	D
	SB	4+1H+1A	9,600	7,020	0.73	D	9,600	7,680	0.80	D	6,710	0.70	C	7,540	0.79	D	6,670	0.69	C	7,240	0.75	D
I-5 n/o SR-73	NB	4+1H	9,600	7,490	0.78	D	9,600	6,780	0.71	C	7,260	0.76	D	6,450	0.67	C	7,040	0.73	D	6,420	0.67	C
	SB	4+1H	9,600	6,540	0.68	C	9,600	7,330	0.76	D	6,200	0.65	C	7,160	0.75	D	6,160	0.64	C	6,880	0.72	D
I-5 n/o Junipero Serra Road	NB	6+1H	13,600	11,760	0.86	D	13,600	9,770	0.72	D	11,590	0.85	D	9,430	0.69	C	11,300	0.83	D	9,370	0.69	C
	SB	6+1H	13,600	8,140	0.60	C	13,600	11,690	0.86	D	7,780	0.57	C	11,550	0.85	D	7,730	0.57	C	11,210	0.82	D
I-5 n/o Ortega Highway	NB	5+1H	11,600	11,000	0.95	E	11,600	9,180	0.79	D	10,820	0.93	E	8,840	0.76	D	10,620	0.92	E	8,780	0.76	D
	SB	5+1H	11,600	7,660	0.66	C	11,600	11,090	0.96	E	7,300	0.63	C	10,940	0.94	E	7,250	0.63	C	10,660	0.92	E
I-5 n/o Camino Capistrano[a.]	NB	4+1H	9,600	10,270	**1.07**	**F**	9,600	8,850	0.92	E	9,890	**1.03**	**F**	8,260	0.86	D	9,760	**1.02**	**F**	8,250	0.86	D
	SB	4+1H	9,600	7,360	0.77	D	9,600	10,150	**1.06**	**F**	6,700	0.70	C	9,650	**1.01**	**F**	6,700	0.70	C	9,490	0.99	E
I-5 s/o Camino Capistrano[a.]	NB	4+1H	9,600	10,160	**1.06**	**F**	9,600	9,150	0.95	E	9,670	**1.01**	**F**	8,460	0.88	D	9,570	1.00	E	8,460	0.88	D
	SB	4+1H	9,600	7,180	0.75	D	9,600	9,920	**1.03**	**F**	6,400	0.67	C	9,320	0.97	E	6,410	0.67	C	9,170	0.96	E
I-5 n/o Hermosa[a.]	NB	4	8,000	8,230	**1.03**	**F**	8,000	8,180	**1.02**	**F**	7,740	0.97	E	7,620	0.95	E	7,600	0.95	E	7,620	0.95	E
	SB	4	8,000	7,250	0.91	E	8,000	8,830	**1.10**	**F**	6,580	0.82	D	8,280	**1.04**	**F**	6,580	0.82	D	8,140	**1.02**	**F**
I-5 n/o Avenida Pico	NB	4+1A	9,000	7,590	0.84	D	9,000	7,690	0.85	D	7,520	0.84	D	7,350	0.82	D	7,410	0.82	D	7,370	0.82	D
	SB	4+1A	9,000	6,650	0.74	D	9,000	8,240	0.92	E	6,390	0.71	C	8,070	0.90	E	6,390	0.71	C	8,020	0.89	D
I-5 s/o Avenida Pico[a.]	NB	4	8,000	7,480	0.94	E	8,000	7,650	0.96	E	7,500	0.94	E	7,650	0.96	E	7,520	0.94	E	7,640	0.96	E
	SB	4	8,000	6,240	0.78	D	8,000	8,440	**1.06**	**F**	6,220	0.78	D	8,450	**1.06**	**F**	6,220	0.78	D	8,450	**1.06**	**F**

n/o: north of s/o: south of

a. This segment of I-5 is forecast to operate deficiently in the a.m. and/or p.m. peak hour in one or both directions (i.e., the LOS is worse than the LOS E performance standard adopted by Caltrans for the I-5 mainline).

An I-5 mainline location is considered to be impacted when it is forecast to operate at LOS F and, compared "without project" conditions, the V/C ratio increases by more than 0.03 (the impact threshold specified in the Orange County Congestion Management Program).

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004

4.6.4 MITIGATION PROGRAM

Project Design Features

PDF 4.6-1 Antonio Parkway at New Ortega Highway is a new intersection that shall be designed to have adequate capacity with and without the proposed SR-241 extension. Lane configurations and potential grade separations shall be determined subject to the review and approval of the County of Orange and Caltrans in future design studies to ensure that the intersection provides the needed capacity for long-range cumulative demand and, therefore, operates at an acceptable level of service.

Standard Conditions and Regulations

Many of the standard conditions and regulations are enacted at subsequent levels of approval. The following are the County of Orange Standard Conditions that would apply to the project although they are not all intended to mitigate significant impacts of the proposed project. These are listed because they would be applicable at subsequent levels of approvals (i.e., grading permits and tract maps). In some instances, the standard conditions identify information (e.g., lot numbers, etc.) that cannot be known at the GPA/ZC level. However, as previously indicated, the identification of the standard conditions at this time is to allow the reader an understanding of conditions that are applicable to the project at subsequent levels of approval. The number of the standard condition is listed in parentheses at the end of each condition.

SC 4.6-1 As a part of the submittal of a Tentative Tract Map for an Urban Activity Center development, the project applicant shall submit a Transportation Demand Management (TDM) program consistent with the requirements of the County of Orange TDM Ordinance.

SC 4.6-2 Prior to the recordation of a subdivision map, the subdivider shall place notes on the final map which release and relinquish vehicular access rights to all arterial highways to the County of Orange, except for access locations approved by the County of Orange, in a manner meeting the approval of the Manager, Subdivision and Grading. (County of Orange Standard Condition of Approval, T01, Access Rights)

SC 4.6-3 Prior to the recordation of a subdivision map, the subdivider shall place a note on the map, in a manner that meets the approval of the Manager, Subdivision and Grading Services, that states:

> "The private streets constructed within this map shall be owned, operated and maintained by the developer, successors or assigns. The County of Orange shall have no responsibility therefore unless pursuant to appropriate sections of the Streets and Highways Code of the State of California, the said private streets have been accepted into the County Road System by appropriate resolution of the Orange County Board of Supervisors." (County of Orange Standard Condition of Approval, T02, Private Street Responsibility)

SC 4.6-4 Prior to the recordation of a subdivision map, the subdivider shall design and construct the following improvements in accordance with plans and specifications meeting the approval of the Manager, Subdivision and Grading:

A. Streets, bus stops, on-road bicycle trails, street names, signs, striping and stenciling.

B. The water distribution system and appurtenances shall also conform to the applicable laws and adopted regulations enforced by the County Fire Chief.

C. Underground utilities (including gas, cable, electrical and telephone), streetlights, and mailboxes. (County of Orange Standard Condition of Approval, T04, Public Improvements)

SC 4.6-5 Prior to the issuance of building permits, the applicant shall pay fees for the Major Thoroughfare and Bridge Fee Program for the Foothill/Eastern Transportation Corridor, in a manner meeting the approval of the Manager, Subdivision and Grading. (County of Orange Standard Condition of Approval, T05, Major Thoroughfare and Bridge Fee Programs)

SC 4.6-6 Prior to the issuance of any grading permits, the applicant shall provide adequate sight distance per Standard Plan 1117 at all street intersections, in a manner meeting the approval of the Manager, Subdivision and Grading. The applicant shall make all necessary revisions to the plan to meet the sight distance requirement such as removing slopes or other encroachments from the limited use area in a manner meeting the approval of the Manager, Subdivision and Grading Services. (County of Orange Standard Condition of Approval, T07, Site Distance)

SC 4.6-7 Prior to the recordation of a subdivision map, the subdivider shall install all underground traffic signal conduits (e.g., signals, phones, power, loop detectors, etc.) and other appurtenances (e.g., pull boxes, etc.) needed for future traffic signal construction, and for future interconnection with adjacent intersections, all in accordance with plans and specifications meeting the approval of the Manager, Subdivision and Grading. (County of Orange Standard Condition of Approval, T08, Traffic Signal Conduit)

SC 4.6-8 A. Prior to the recordation of a subdivision map or the issuance of any building permits, whichever occurs first, the subdivider shall provide plans and specifications meeting the approval of the Manager, Subdivision and Grading, for the design of the following improvements:

1) Internal street common private drive system.

2) Entrance to the site to emphasize that the development is private by use of signs and other features.

B. Prior to the recordation of a subdivision map, the applicant shall construct the above improvements in a manner meeting the approval of the Manager, Construction.

C. Prior to the issuance of any building permits, the subdivider shall provide plans meeting the approval of the Manager, Subdivision & Grading, for the design of the internal pedestrian circulation system within the development. (County of Orange Standard Condition of Approval, T12, Internal Circulation)

SC 4.6-9 Prior to the recordation of a subdivision map, the subdivider shall dedicate a signal maintenance easement to the County of Orange at the project site access, in a manner meeting the approval of the Manager, Subdivision and Grading. (County of Orange Standard Condition of Approval, T13b, Traffic Signal Maintenance Easement)

SC 4.6-10 Prior to the recordation of a subdivision map, the subdivider shall (design and construct/provide a cash deposit of __ % of the cost of / /enter into an agreement with the County of Orange, accompanied by financial security, for the cost of __ % of) a traffic signal at the intersection of ___ and ___, in a manner meeting the approval of the Manager, Subdivision and Grading.[2] (County of Orange Standard Condition of Approval, T14b, Traffic Signal Installation)

SC 4.6-11 Prior to the recordation of a subdivision map, the applicant shall delineate on the subdivision map a two way reciprocal access and parking easement to all parcels within the map and place a note on the final map reserving the easement for the benefit of all parcels on the map, in a manner meeting the approval of the Manager, Subdivision and Grading. (County of Orange Standard Condition of Approval, T15, Access Easement for Commercial Centers)

SC 4.6-12 Prior to the recordation of a subdivision map, the applicant shall submit a traffic study of the development for review and approval by the Manager, Subdivision and Grading, in accordance with the Growth Management Plan, Transportation Implementation Manual. The applicant shall retain a traffic engineer licensed in the State of California to perform the traffic study. (County of Orange Standard Condition of Approval, T16, Traffic Study)

Mitigation Measures

The proposed Ranch Plan project has been formulated as part of a comprehensive planning process for the south Orange County sub-region's remaining undeveloped lands. This comprehensive planning approach is intended to result in the design and implementation of a circulation system that will accommodate the projected growth for the sub-region, including the proposed project.

Given the nature and magnitude of the proposed Ranch Plan project, and the regional planning process, it is important that mitigation also be viewed in this larger context. For this reason, the traffic mitigation program takes a comprehensive approach in order to reduce/avoid significant adverse impacts. This approach recognizes that the proposed project is intended to be built over an extended time period (for purposes of the traffic study, it is assumed that the project will be completed by 2025) and that mitigation program must take into account the circumstances that are reasonably foreseeable when the project is implemented. This includes the consideration of foreseeable changes to the circulation system,[3] as well as the addition of traffic from sources other than the project (i.e., cumulative traffic conditions). Therefore, mitigation has been formulated with a focus on the 2010 and 2025 scenario(s) rather than the "*Existing Conditions + Project Buildout*" scenario.

[2] The specific location of intersections and percentage of deposit would be determined at a future date by the County of Orange.

[3] In addition to improvements proposed as part of the project, the 2025 circulation system also incorporates those improvements that have already been "committed" in conjunction with existing public agency capital improvement programs, state transportation improvement programs, and mitigation for previously entitled development projects.

The proposed mitigation consists of several measures, including road and highway infrastructure improvements that will be provided by means of new and/or expanded capital improvement programs established by the public agencies and funded through fees and/or other methods of financing. The project will contribute to the funding of these programs in an amount proportionate to its contribution to the affected components of the circulation system. This approach to mitigation is consistent with the direction set forth in CEQA Guidelines §15130. That provision requires that reasonable and feasible options be explored in order to mitigate a project's contribution to significant cumulative impacts that may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis.

The proposed long-range transportation improvements for 2025 are depicted in Exhibits 4.6-24 and 4.6-25. The first diagram pertains to the committed circulation system and the second diagram to the committed circulation system plus the addition of the SR-241 extension. Table 4.6-26 lists the transportation improvement program proposed as mitigation for Year 2025. As the exhibits and summary table indicate, the La Pata Avenue extension is a component of the improvement program and the improvements differ depending on whether or not the SR-241 extension is assumed. Exhibits 3.6-26 and 3.6-27 depict the *Year 2025 + Project Buildout* ADT volumes with the proposed improvements under conditions without and with the SR-241 extension, respectively. The mitigation measures needed for the year 2010 level of project development are summarized in Table 4.6-27.

The transportation improvements would be implemented over time as part of a comprehensive transportation improvement program. It will be multi-jurisdictional with specific responsibilities of the various participants clearly defined as part of that program. For CEQA purposes, project shares of the improvements are assumed. While such shares will be considered in developing the improvement program, they will only be one of the factors considered in establishing the responsibility of the project and other participants.

Intersections and Freeway Ramps

MM 4.6-1 Table 4.6-26 and Table 4.6-27 identify the transportation improvement program proposed as mitigation for the Ranch Plan project for year 2025 and year 2010, respectively. The improvements differ depending on whether the SR-241 southerly extension is assumed. The project applicant shall participate on a fair share basis for improvements associated with cumulative impacts. Funds shall be paid to the County of Orange pursuant to the SCRIPTS Program.

The South County Road Improvements and Traffic Signals ("SCRIPTS") Fee Program is being proposed by the County of Orange in conjunction with planning efforts aimed at accelerating completion of critical links in the south County arterial highway system. The County would approve an Action Plan which includes a list of highway and intersection improvements. The SCRIPTS Program is proposed as a comprehensive method of implementing the Action Plan to ensure the timely phasing and financing of the highway improvements and intersection improvements in the Action Plan. The SCRIPTS Program is to be prepared pursuant to Government Code Section 66484.3 and the Orange County Codified Ordinance Section 7-9-316 to finance construction of the highway gaps, intersection improvements, and traffic signals identified in the Action Plan. The "area of benefit" would, at a minimum, include the Rancho Mission Viejo Ranch Plan Area and off-site highway links and intersections included in the Action Plan. The improvements, costs, and fees may be divided into zones depending on land uses and phasing. The SCRIPTS Fee Program is intended to complement, not replace, the existing road fee programs in the south County area. It is proposed for adoption by the County prior to or concurrent with the County's action on the proposed Ranch Plan project.

TABLE 4.6-26
YEAR 2025 CIRCULATION SYSTEM IMPROVEMENT PROGRAM

Location	Jurisdiction	Improvement	Scenario in which Improvements are Needed[a.]	
			Without SR-241	With SR-241
Freeway Interchanges				
Marguerite Parkway-Saddleback College/I-5 Connectors	Caltrans	Construct new connector ramps to and from I-5 north.	X	X
		Note: Implementation of the ramps would require the acquisition of right-of-way. This improvement is expected to impact buildings/structures, as well as require the relocation of utilities. The ramps would be subject to separate, subsequent environmental review. Potential environmental effects may include construction-related traffic, air quality, and noise impacts; land use impacts, aesthetic impacts, and public service and facility impacts.		
Arterial Roads				
Antonio Pkwy. (Old Ortega Hwy. to New Ortega Hwy.)	County	Roadway widening.	X	X
		Note: This roadway widening is assumed as a part of the proposed project. Its impacts are assessed as a part of The Ranch Plan Program EIR.		
New Ortega Hwy. (Antonio Pkwy. to Old Ortega Hwy.)	County	Construct four/six lane roadway to existing Ortega Highway.	X	X
Ortega Highway (I-5 to Antonio Parkway)	San Juan Capistrano/ County	Traffic calming Roadway widening east of existing four-lane section to Antonio Parkway.	X	X
		Note: An Environmental Assessment has been prepared by Caltrans. Implementation of improvements is expected to require right-of-way. Potential environmental effects may include traffic, air quality, noise, land use, aesthetics, and public service and facility impacts.		
Oso Parkway (east of Las Flores to SR-241)	County	Roadway widening.	X	X
		Note: Implementation of this road widening could occur within existing graded right-of-way. The project would be subject to separate environmental review. Potential environmental impacts may include construction-related traffic, air quality, and noise impacts.		

TABLE 4.6-26 (Continued)
YEAR 2025 CIRCULATION SYSTEM IMPROVEMENT PROGRAM

Location	Jurisdiction	Improvement	Scenario in which Improvements are Needed[a.]	
			Without SR-241	With SR-241
Oso Parkway (I-5 to Marguerite Parkway)	Mission Viejo	Roadway widening.	X	X
		Note: Implementation of this road widening is expected to require right-of-way and may impact buildings/structures. The improvement would require separate environmental review. Potential environmental impacts would include construction-related traffic, air quality, and noise impacts. Additional impacts could include land use, aesthetics, and public services and facilities.		
Intersections				
5. Antonio Parkway at Oso Parkway	County	Add fourth eastbound through lane.	X	
		Note: Implementation of these improvements would require right-of-way, but would not affect buildings or structures. The improvements would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as public services and facilities, and land use.		
27. Rancho Viejo Road at Ortega Highway	San Juan Capistrano	Convert NB shared left-/through lane to second left-turn lane. Add separate northbound right-turn lane.	X	X
		Note: Implementation of these improvements would require right-of-way, but would not affect buildings or structures. The improvements would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as aesthetics, public services and facilities, and land use.		
29. Antonio Parkway/La Pata Avenue at Ortega Highway	County	Add second northbound left-turn lane. Add third northbound through lane. Add third southbound through lane.	X	
		Note: Implementation of these improvements would require right-of-way, but would not affect buildings or structures. The improvements would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as aesthetics, public services and facilities, and land use.		

TABLE 4.6-26 (Continued)
YEAR 2025 CIRCULATION SYSTEM IMPROVEMENT PROGRAM

Location	Jurisdiction	Improvement	Scenario in which Improvements are Needed[a.]	
			Without SR-241	With SR-241
30. Camino Capistrano at Del Obispo Street	San Juan Capistrano	Add second eastbound left-turn lane.	X	X
		Note: Implementation of this improvement would require right-of-way and would impact buildings/structures. The improvement would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as aesthetics, public services and facilities, and land use.		
37. Avenida La Pata at Avenida Vista Hermosa	San Clemente	Add southbound free right-turn lane. Add separate westbound right-turn lane. Add third eastbound left-turn lane.	X	
		Note: Implementation of these improvements would require right-of-way, but is not expected to affect any buildings or structures. The improvements would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as public services and facilities and land use.		
39. Camino Vera Cruz at Avenida Vista Hermosa	San Clemente	Add second southbound left-turn lane. Add separate westbound right-turn lane.	X	X
		Note: Implementation of these improvements would require right-of-way, but is not expected to affect any buildings or structures. The improvements would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as public services and facilities and land use.		
43. Antonio Parkway at New Ortega Highway	County	Improve at-grade intersection or reconstruct as grade-separated intersection.	X	X
		Note: This roadway widening is assumed as a part of the proposed project. Its impacts are assessed as a part of The Ranch Plan Program EIR.		

TABLE 4.6-26 (Continued)
YEAR 2025 CIRCULATION SYSTEM IMPROVEMENT PROGRAM

Location	Jurisdiction	Improvement	Scenario in which Improvements are Needed[a.]	
			Without SR-241	With SR-241
59. SR-241 northbound ramps at Antonio Parkway	Rancho Santa Margarita	Add second eastbound left-turn lane.	X	
		Note: Implementation of this improvement would not require right-of-way, but are expected to impact buildings/structures. The improvement would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as aesthetics, public services and facilities and land use.		
74. I-5 northbound ramps at Junipero Serra Road	San Juan Capistrano	Convert eastbound shared left-/thru lane to dedicated left-turn lane. Add second eastbound left-turn lane.	X	X
		Note: Implementation of these improvements would not require right-of-way, but may impact buildings/structures. The improvement would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as aesthetics, public services and facilities and land use.		

Sources: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004 and *The Ranch Plan Traffic/Circulation Improvement Mitigation Measures Report*, Huitt-Zollars, Inc., June 2004.

TABLE 4.6-27
YEAR 2010 CIRCULATION SYSTEM IMPROVEMENT PROGRAM

Location	Jurisdiction	Improvements	Scenario in which Improvements are Needed[a.]		
			1	2	3
Freeway Interchanges					
Ortega Highway at I-5 Interchange	Caltrans	Reconstruct interchange: design to be determined by Caltrans.[d.]	X	X	X
		Note: A Project Study Report is under preparation by Caltrans. Reconstruction of the interchange would require right-of-way, and is expected to impact buildings/structures, as well as require the relocation of utilities. The ramps would be subject to separate environmental review. Potential environmental effects may include construction-related traffic, air quality, and noise impacts; land use impacts, aesthetic impacts, and public service and facility impacts.			
Freeway Ramps					
I-5 southbound off-ramp at Oso Parkway	Caltrans	Add second drop lane from I-5 to the off-ramp.	X		X
		Note: An Environmental Assessment has been prepared by Caltrans. This improvement is not expected to require right-of-way or impact buildings/structures. The lane improvement would be subject to separate environmental review. Potential environmental effects may include construction-related traffic, air quality, and noise impacts; and public service and facility impacts.			
I-5 southbound off-ramp at Crown Valley Parkway	Caltrans	Add second auxiliary lane from I-5 to the off-ramp.	X	X	X
		Note: An Environmental Assessment has been prepared by Caltrans. It is unknown whether this improvement would require right-of-way; it is not expected to impact buildings or structures. The lane improvement would be subject to separate environmental review. Potential environmental effects may include construction-related traffic, air quality, and noise impacts; and public service and facility impacts.			

TABLE 4.6-27 (Continued)
YEAR 2010 CIRCULATION SYSTEM IMPROVEMENT PROGRAM

Location	Jurisdiction	Improvements	Scenario in which Improvements are Needed[a.]		
			1	2	3
Arterial Roads					
La Pata Avenue extension	County	Extend as four-lane primary arterial from current terminus south of Ortega Highway to existing termination point in the City of San Clemente.		X	X
		Note: The County will be preparing an EIR for this project. This road improvement is expected to require right-of-way and result in the following environmental impacts: biological resources, geology, aesthetics, air quality, and noise.			
New Ortega Highway (Antonio Parkway into project site)	County	Construct four-/six-lane roadway into project site.	X[c.]	X[c.]	X[c.]
		Note: This roadway is a part of the proposed project. Its impacts are assessed as a part of The Ranch Plan Program EIR.			
Intersections					
4. Felipe Road at Oso Parkway	Mission Viejo	Add second southbound left-turn lane.	X	X	X
		Note: Implementation of this improvement would require right-of-way, but would not affect buildings or structures. The improvement would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as public services and facilities and land use.			
5. Antonio Parkway at Oso Parkway	County	Add fourth southbound through lane.	X	X	X
		Add third northbound left-turn lane.	X	X	
		Allow right-turn overlap for northbound right.	X	X	X
		Allow right-turn overlap for eastbound right.	X	X	X
		Note: Implementation of these improvements would require right-of-way, but would not affect buildings or structures. The improvements would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as aesthetics, public services and facilities, and land use.			

TABLE 4.6-27 (Continued)
YEAR 2010 CIRCULATION SYSTEM IMPROVEMENT PROGRAM

Location	Jurisdiction	Improvements	Scenario in which Improvements are Needed[a.]		
			1	2	3
11. Marguerite Parkway at Crown Valley Parkway	Mission Viejo	Restripe southbound movement from two through lanes and separate right turn-lane to a dedicated through lane, shared through/right-turn lane, and separate right-turn lane. Add a de-facto westbound right-turn lane.	X	X	X
		Note: Implementation of these improvements would require right-of-way, but would not affect buildings or structures. The improvements would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as aesthetics, public services and facilities, and land use.			
12. Antonio Parkway at Crown Valley Parkway	County	Add third northbound left-turn lane. Add third eastbound left-turn lane. Restripe eastbound movement from two through lanes and separate right-turn lane to single through lane and double right turns.	X	X	X
		Note: Implementation of these improvements would require right-of-way, but would not affect buildings or structures. The improvements would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as aesthetics, public services and facilities, and land use.			
28. La Novia Avenue at Ortega Highway	San Juan Capistrano	Add second westbound left-turn lane.	X		
		Note: Implementation of these improvements would require right-of-way, but would not affect buildings or structures. The improvement would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as public services and facilities.			

TABLE 4.6-27 (Continued)
YEAR 2010 CIRCULATION SYSTEM IMPROVEMENT PROGRAM

Location	Jurisdiction	Improvements	Scenario in which Improvements are Needed[a.]		
			1	2	3
29. Antonio Parkway/La Pata Avenue at Ortega Highway	County	Add southbound free right-turn lane. Add second northbound through lane.	X	X	X
		Note: Implementation of these improvements would require right-of-way, but would not affect buildings or structures. The improvements would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as aesthetics, public services and facilities, and land use.			
30. Camino Capistrano at Del Obispo Street	San Juan Capistrano	Add second westbound left-turn lane. Restripe separate southbound right-turn lane to a shared through/right-turn lane.	X	X	X
		Note: Implementation of these improvements would require right-of-way and would impact buildings/structures. The improvements would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as aesthetics, public services and facilities, and land use.			
32. Valle Road at San Juan Creek Road	San Juan Capistrano	Add second westbound through lane.	X		
		Note: Implementation of these improvements would require right-of-way and would impact buildings/structures. The improvement would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as public services and facilities and land use.			
37. Avenida La Pata at Avenida Vista Hermosa	San Clemente	Add second eastbound left-turn lane.	X	X	
		Note: Implementation of this turning lane improvement would require right-of-way, but is not expected to affect any buildings or structures. The improvement would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as public services and facilities and land use.			
43. Antonio Parkway at New Ortega Highway	County	Construct new at-grade intersection.	X	X	X
		Note: This roadway widening is assumed as a part of the proposed project. Its impacts are assessed as a part of The Ranch Plan Program EIR.			

TABLE 4.6-27 (Continued)
YEAR 2010 CIRCULATION SYSTEM IMPROVEMENT PROGRAM

Location	Jurisdiction	Improvements	Scenario in which Improvements are Needed[a.]		
			1	2	3
56. I-5 southbound ramps at Avenida Pico	San Clemente	Convert second westbound through lane to shared second left-turn/through lane.	X	X	
		Note: An Environmental Assessment has been prepared by Caltrans for this improvement. Implementation of this improvement would require right-of-way, but is not expected to affect any buildings or structures. The improvement would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as public services and facilities and land use.			
59. SR-241 northbound ramps at Antonio Parkway	Rancho Santa Margarita	Restripe westbound movements from three through lanes and separate right-turn lane to two through lanes, shared through/right-turn lane, and separate right-turn lane.	X	X	X
		Note: Implementation of these improvements would not require right-of-way, but are expected to impact buildings/structures. The improvements would require separate environmental review. Potential environmental impacts could include short-term traffic, air quality, and noise impacts, as well as aesthetics, public services and facilities and land use.			

a. The background circulation system assumptions for each scenario are as follows:
Scenario 1: Committed circulation system.
Scenario 2: Committed circulation system with La Pata Avenue extension.
Scenario 3: Committed circulation system with La Pata Avenue extension and arterial road south of Oso Parkway at SR-241.
b. Improvements at this location are not required in the long-range (2025) mitigation program for the project.
c. In the 2010 scenarios, New Ortega Highway is only assumed to extend east of Antonio Parkway into the project site and not to existing Ortega Highway.
d. The proposed mitigation for the I-5/Ortega Highway interchange involves reconstructing the interchange. A traffic study for the interchange reconstruction is currently ongoing by the City of San Juan Capistrano and Caltrans and the study is scheduled for completion by mid-2004.

Sources: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004 and *The Ranch Plan Traffic/Circulation Improvement Mitigation Measures Report*, Huitt-Zollars, Inc., June 2004.

MM 4.6-2 The mitigation program is based on the buildout of land uses in the surrounding area and may change based on the effects of the future land development and future changes to regional transportation patterns. The intersection and freeway ramp improvements shall be implemented and/or pro-rata payment shall be made in advance of the time when traffic volumes increase to the point where the improvements are merited. Prior to the approval of each Master Area Plan, a traffic analysis which verifies ongoing compliance with *The Ranch Plan EIR Traffic Report* (Austin-Foust Associates, Inc., May 2004) shall be submitted for review and approval to the County, Director of Planning and Development Services. The traffic study shall include:

a. An evaluation of how any proposed refinements to the circulation system and/or milestones remain in compliance with appropriate Development Agreement obligations and Program EIR mitigation measures.

b. Average Daily Trips generated by uses proposed within the planning area, as distributed onto the surrounding circulation system (both within the Ranch Plan PC Area, and in the surrounding vicinity) including the peak hour characteristics of those trips.

Freeway Mainline

MM 4.6-3 No improvements are proposed herein to address the cumulative impacts of the project on I-5 mainline. Improvements to the I-5 mainline are a part of regional transportation improvement programs with associated timing and funding sources. If the responsible agencies establish a cumulative mitigation program, the project applicant shall participate on a fair share basis.

4.6.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Table 4.6-28 identifies the deficient intersection locations in 2010 and shows the level of service with and without the proposed improvements. Table 4.6-29 lists the deficient freeway ramps in 2010 and the level of service with and without the proposed improvements. As the summary tables indicate, the proposed improvements result in acceptable levels of service at each improvement location.

Table 4.6-30 identifies deficient intersection locations assuming 2025 cumulative with project conditions and shows the level of service without and with the proposed improvements. Table 4.6-31 identifies deficient freeway ramps and the level of service without and with the proposed improvements. The proposed improvements result in acceptable levels of service at each improvement location with the exception of three intersections (Marguerite Parkway at Crown Valley Parkway in the City of Mission Viejo, Camino Capistrano at Del Obispo Street in the City of San Juan Capistrano, and the I-5 southbound ramp intersection at Avenida Pico in the City of San Clemente) under cumulative with project conditions without the SR-241 extension.

The at-grade and grade-separated plans at the Antonio Parkway/New Ortega Highway intersection both result in acceptable levels of service under cumulative conditions with the SR-241 extension. However, only the grade-separated improvement plan results in acceptable levels of service under cumulative conditions without the SR-241 extension. For this reason, a grade-separated plan may be the preferred design option.

The project's contribution to impacts on freeway mainline segments that are forecast to operate deficiently would be considered significant and unavoidable.

To address those proposed improvements located outside the County's jurisdiction, the County will endeavor to enter into agreements with the affected jurisdictions regarding the design and construction of the improvements and the transfer of monies paid towards funding of these improvements from the SCRIPTS program. However, if the County is not able to reach agreement with one or more of the jurisdictions, for purposes of this Program EIR, the impacts to be mitigated by those improvements may remain significant and be unavoidable.

TABLE 4.6-28
SHORT-RANGE (YEAR 2010) + PROJECT BUILDOUT: INTERSECTION LEVELS OF SERVICE
CIRCULATION SYSTEM IMPROVEMENT PROGRAM

Intersection	Jurisdiction	Before Improvements				After Improvements			
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
		ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
Year 2010: Committed Circulation System									
4. Felipe Road at Oso Parkway	Mission Viejo	0.76	C	**0.96**	**E**	0.69	B	0.82	D
5. Antonio Parkway at Oso Parkway	County	**0.99**	**E**	**1.19**	**F**	0.80	C	0.86	D
11. Marguerite Parkway at Crown Valley Parkway[a.]	Mission Viejo	**1.16**	**F**	1.02	F	0.98	E	0.99	E
12. Antonio Parkway at Crown Valley Parkway	County	0.74	C	**1.16**	**F**	0.66	B	0.90	D
27. Rancho Viejo Road at Ortega Highway	San Juan Capistrano	0.69	B	**0.92**	**E**	0.69	B	0.82	D
28. La Novia Avenue at Ortega Highway	San Juan Capistrano	0.79	C	**0.92**	**E**	0.72	C	0.89	D
29. Antonio Parkway/La Pata at Ortega Highway	County	**1.60**	**F**	**1.19**	**F**	0.85	D	0.72	C
30. Camino Capistrano at Del Obispo Street	San Juan Capistrano	**0.94**	**E**	**1.00**	**E**	0.86	C	0.81	C
32. Valle Road at San Juan Creek	San Juan Capistrano	**0.92**	**E**	0.81	D	0.67	B	0.75	C
33. La Novia Avenue at San Juan Creek	San Juan Capistrano	**0.94**	**E**	0.82	D	0.82	D	0.69	B
59. SR-241 NB Ramps at Antonio Parkway	Rancho Santa Margarita	**1.32**	**F**	0.49	A	0.86	D	0.49	A
Year 2010: Committed Circulation System With La Pata Avenue Extension									
4. Felipe Road at Oso Parkway	Mission Viejo	0.76	C	**0.95**	**E**	0.68	B	0.81	D
5. Antonio Parkway at Oso Parkway	County	**1.03**	**F**	**1.13**	**F**	0.80	C	0.88	D
11. Marguerite Parkway at Crown Valley Parkway[a.]	Mission Viejo	**1.14**	**F**	0.99	E	0.95	E	0.96	E
12. Antonio Parkway at Crown Valley Parkway	County	0.79	C	**1.15**	**F**	0.60	A	0.83	D
29. Antonio Parkway/La Pata at Ortega Highway	County	**1.42**	**F**	**1.06**	**F**	0.86	D	0.88	D
37. Avenida La Pata at Avenida Vista Hermosa	San Clemente	**1.17**	**F**	**0.92**	**E**	0.82	D	0.74	C
56. I-5 SB Ramps at Avenida Pico	San Clemente	**1.00**	**E**	0.78	C	0.84	D	0.73	C
59. SR-241 NB Ramps at Antonio Parkway	Rancho Santa Margarita	**1.33**	**F**	0.49	A	0.87	D	0.49	A
Year 2010: Committed Circulation System With La Pata Avenue Extension and Arterial South of Oso Parkway at SR-241									
4. Felipe Road at Oso Parkway	Mission Viejo	0.75	C	**0.96**	**E**	0.68	B	0.82	D
5. Antonio Parkway at Oso Parkway	County	**0.95**	**E**	**0.94**	**E**	0.87	D	0.85	D

TABLE 4.6-28 (Continued)
SHORT-RANGE (YEAR 2010) + PROJECT BUILDOUT: INTERSECTION LEVELS OF SERVICE
CIRCULATION SYSTEM IMPROVEMENT PROGRAM

Intersection	Jurisdiction	Before Improvements				After Improvements			
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
		ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
11. Marguerite Parkway at Crown Valley Parkway[a.]	Mission Viejo	**1.14**	**F**	0.95	E	0.94	E	0.92	E
12. Antonio Parkway at Crown Valley Parkway	County	0.69	B	**1.02**	**F**	0.59	A	0.83	D
29. Antonio Parkway/La Pata at Ortega Highway	County	**1.32**	**F**	**1.06**	**F**	0.89	D	0.86	D
37. Avenida La Pata at Avenida Vista Hermosa	San Clemente	**1.22**	**F**	**0.93**	**E**	0.87	D	0.78	C
56. I-5 SB Ramps at Avenida Pico	San Clemente	**1.00**	**E**	0.78	C	0.84	D	0.73	C
59. SR-241 NB Ramps at Antonio Parkway	Rancho Santa Margarita	**1.34**	**F**	0.49	A	0.89	D	0.49	A

a. LOS E is acceptable at this location (Congestion Management Program (CMP) intersections and Crown Valley Parkway intersections between I-5 and Marguerite Parkway). LOS D is the adopted performance standard for all other intersection locations that are analyzed.

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

TABLE 4.6-29
SHORT-RANGE (YEAR 2010) + PROJECT BUILDOUT
FREEWAY RAMP LEVELS OF SERVICE
CIRCULATION SYSTEM IMPROVEMENT PROGRAM

Ramp	Lanes	Peak Hour Capacity	A.M. Peak Hour			P.M. Peak Hour		
			Volume	V/C	LOS	Volume	V/C	LOS
2010 Committed								
I-5 at Oso Parkway (southbound off-ramp)								
Before Improvements	1	1,500	1,050	0.70	B	1,750	**1.17**	**F**
After Improvements	2	2,250	1,050	0.47	A	1,750	0.78	C
I-5 at Crown Valley Parkway (southbound off-ramp)								
Before Improvements	2	2,250	1,880	0.84	D	2,960	**1.32**	**F**
After Improvements	2	3,000	1,880	0.63	B	2,960	0.99	E
2010 Committed With La Pata Avenue Extension								
I-5 at Crown Valley Parkway (southbound off-ramp)								
Before Improvements	2	2,250	1,920	0.85	D	2,990	**1.33**	**F**
After Improvements	2	3,000	1,920	0.64	B	2,990	1.00	E
2010 Committed With La Pata Avenue Extension and Arterial South of Oso Parkway at SR-241								
I-5 at Oso Parkway (southbound off-ramp)								
Before Improvements	1	1,500	1,060	0.71	C	1,820	**1.21**	**F**
After Improvements	2	2,250	1,060	0.47	A	1,820	0.81	D
I-5 at Crown Valley Parkway (southbound off-ramp)								
Before Improvements	2	2,250	1,910	0.85	D	3,010	**1.34**	**F**
After Improvements	2	3,000	1,910	0.64	B	3,010	1.00	E

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

TABLE 4.6-30
YEAR 2025 + PROJECT BUILDOUT: INTERSECTION LEVELS OF SERVICE
CIRCULATION SYSTEM IMPROVEMENT PROGRAM

Intersection	Jurisdiction	Before Improvements				After Improvements			
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
		ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
Year 2025 Cumulative + Project Buildout Without SR-241 Extension									
4. Felipe Road at Oso Parkway	Mission Viejo	0.82	D	**1.05**	**F**	0.75	C	0.89	D
5. Antonio Parkway at Oso Parkway	County	**1.11**	**F**	**1.09**	**F**	0.90	D	0.85	D
11. Marguerite Parkway at Crown Valley Parkway[a.]	Mission Viejo	**1.24**	**F**	**1.06**	**F**	0.94	E	**1.02**	**F**
12. Antonio Parkway at Crown Valley Parkway	County	0.90	D	**1.24**	**F**	0.67	B	0.86	D
28. La Novia Avenue at Ortega Highway	San Juan Capistrano	0.85	D	**0.91**	**E**	0.67	B	0.86	D
29. Antonio Parkway/La Pata at Ortega Highway	County	**1.60**	**F**	**1.39**	**F**	0.85	D	0.90	D
30. Camino Capistrano at Del Obispo Street	San Juan Capistrano	**1.03**	**F**	**1.11**	**F**	**0.93**	**E**	0.86	D
32. Valle Road at San Juan Creek Road	San Juan Capistrano	**0.91**	**E**	0.82	D	0.73	C	0.76	C
37. Avenida La Pata at Avenida Vista Hermosa	San Clemente	**1.48**	**F**	**1.19**	**F**	0.85	D	0.79	C
39. Camino Vera Cruz at Avenida Vista Hermosa	San Clemente	**1.16**	**F**	**1.25**	**F**	0.82	D	0.86	D
43. Antonio Pkwy. at New Ortega Hwy.	County								
At-Grade Option		0.89	D	**1.07**	**F**	0.76	C	**0.94**	**E**
Grade-Separated Option		0.89	D	**1.07**	**F**	0.64	B	0.85	D
56. I-5 SB Ramps at Avenida Pico	San Clemente	**1.14**	**F**	**1.01**	**F**	**0.92**	**E**	0.86	D
59. SR-241 NB Ramps at Antonio Parkway	Rancho Santa Margarita	**1.41**	**F**	0.53	A	0.73	C	0.53	A
74. I-5 NB Ramps at Junipero Serra Rd.	San Juan Capistrano	0.78	C	**1.05**	**F**	0.61	B	0.82	D
Year 2025 Cumulative + Project Buildout With SR-241 Extension									
4. Felipe Road at Oso Parkway	Mission Viejo	0.81	D	**1.00**	**E**	0.75	C	0.87	D
5. Antonio Parkway at Oso Parkway	County	**1.21**	**F**	**1.09**	**F**	0.88	D	0.87	D
11. Marguerite Parkway at Crown Valley Parkway[a.]	Mission Viejo	**1.22**	**F**	**1.04**	**F**	0.95	E	0.95	E
12. Antonio Parkway at Crown Valley Parkway	County	**0.99**	**E**	**1.31**	**F**	0.73	C	0.88	D
27. Rancho Viejo Road at Ortega Highway	San Juan Capistrano	0.71	C	0.89	D	0.70	B	0.89	D
29. Antonio Parkway/La Pata at Ortega Highway	County	**1.61**	**F**	**1.39**	**F**	0.89	D	0.89	D
30. Camino Capistrano at Del Obispo St.	San Juan Capistrano	**0.98**	**E**	**1.08**	**F**	0.88	D	0.83	D
32. Valle Road at San Juan Creek Road	San Juan Capistrano	**0.91**	**E**	0.83	D	0.73	C	0.77	C
39. Camino Vera Cruz at Avenida Vista Hermosa	San Clemente	**1.13**	**F**	**1.14**	**F**	0.75	C	0.73	C
43. Antonio at New Ortega Highway	County								
At-Grade Option		0.87	D	**0.94**	**E**	0.76	C	0.87	D
Grade-Separated Option		0.87	D	**0.94**	**E**	0.63	B	0.83	D
59. SR-241 NB Ramps at Antonio Pkwy.	Rancho Santa Margarita	**1.30**	**F**	0.52	A	0.66	B	0.53	A

TABLE 4.6-30 (Continued)
YEAR 2025 + PROJECT BUILDOUT: INTERSECTION LEVELS OF SERVICE
CIRCULATION SYSTEM IMPROVEMENT PROGRAM

Intersection	Jurisdiction	Before Improvements				After Improvements			
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
		ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
74. I-5 NB Ramps at Junipero Serra Rd.	San Juan Capistrano	0.78	C	**0.96**	**E**	0.59	A	0.78	C

a. LOS E is acceptable at this location (Congestion Management Program (CMP) intersections and Crown Valley Parkway intersections between I-5 and Marguerite Parkway).

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

TABLE 4.6-31
YEAR 2025 + PROJECT BUILDOUT
FREEWAY RAMP LEVELS OF SERVICE
CIRCULATION SYSTEM IMPROVEMENT PROGRAM

Ramp	Lanes	Peak Hour Capacity	A.M. Peak Hour			P.M. Peak Hour		
			Volume	V/C	LOS	Volume	V/C	LOS
Year 2025 Cumulative + Project Without SR-241 Extension								
I-5 at Oso Parkway (southbound off-ramp)								
Before Improvements	1	1,500	1,110	0.74	C	1,710	**1.14**	**F**
After Improvements	2	2,250	1,070	0.48	A	1,650	0.73	C
I-5 at Crown Valley Parkway (southbound off-ramp)								
Before Improvements	2	2,250	1,910	0.85	D	2,920	**1.30**	**F**
After Improvements	2	3,000	1,640	0.55	A	2,790	0.93	E
I-5 at Crown Valley Parkway (northbound direct on-ramp)								
Before Improvements	1	1,500	1,360	0.91	E	1,540	**1.03**	**F**
After Improvements	1	1,500	1,110	0.74	C	1,340	0.89	D
I-5 at Junipero Serra Road (northbound on-ramp)								
Before Improvements	1	1,080	1,120	**1.04**	**F**	1,070	0.99	E
After Improvements	1	1,080	1,030	0.95	E	970	0.90	D
Year 2025 Cumulative + Project With SR-241 Extension								
I-5 at Oso Parkway (southbound off-ramp)								
Before Improvements	1	1,500	1,100	0.73	C	1,680	**1.12**	**F**
After Improvements	2	2,250	1,080	0.48	A	1,670	0.74	C
I-5 at Crown Valley Parkway (southbound off-ramp)								
Before Improvements	2	2,250	2,020	0.90	D	3,000	**1.33**	**F**
After Improvements	2	3,000	1,690	0.56	A	2,790	0.93	E
I-5 at Crown Valley Parkway (northbound direct on-ramp)								
Before Improvements	1	1,500	1,470	0.98	E	1,590	**1.06**	**F**
After Improvements	1	1,500	1,160	0.77	C	1,340	0.89	D

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

4.6.6 YEAR 2025 WITHOUT PROJECT BUILDOUT

One of the alternatives addressed in Section 5, Alternatives to the Proposed Project, is the A-1, No Project Alternative (i.e., year 2025 cumulative conditions without development of the project site). Information from the following four scenarios has been compiled into a single table to allow for a comparison of the following scenarios:

- Existing (2003) Conditions
- Year 2025 Without Project Buildout (Committed Circulation System)
- Year 2025 + Project Buildout (Committed Circulation System)
- Year 2025 + Project Buildout With Proposed Mitigation

The fourth scenario shows the level of service under the proposed mitigation program for those locations where improvements are proposed as a part of the Mitigation Program. Table 4.6-32 summarizes the peak hour intersection levels of service for each of the four scenarios. The purpose is to enable intersection performance to be compared from existing to future, with and without the project and with mitigation. Note that several intersections have committed improvements, and the comparison between existing and 2025 includes the effect of such improvements. Table 4.6-33 identifies the freeway ramp levels of service for each of the four scenarios. Table 4.6-34 identifies the freeway mainline segment levels of service for the same scenarios.

TABLE 4.6-32
YEAR 2025 WITH AND WITHOUT PROJECT BUILDOUT:
INTERSECTION LEVELS OF SERVICE (COMMITTED CIRCULATION SYSTEM)

Intersection	Existing				Year 2025 Without Project Buildout				Year 2025 + Project Buildout				Year 2025 + Project Buildout With Mitigation			
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
City of Laguna Hills																
15. Cabot Road at Oso Parkway	0.61	B	0.75	C	0.66	B	0.83	D	0.66	B	0.85	D	–-	–-	–-	–-
City of Laguna Niguel																
16. Moulton Parkway at Crown Valley Parkway[a.]	0.68	B	0.68	B	0.81	D	0.88	D	0.80	C	0.87	D	–-	–-	–-	–-
17. Greenfield Drive at Crown Valley Parkway	0.68	B	0.63	B	0.79	C	0.75	C	0.82	D	0.77	C	–-	–-	–-	–-
18. Cabot Road at Crown Valley Parkway[c.]	0.66	B	0.80	C	0.76	C	0.79	C	0.76	C	0.79	C	–-	–-	–-	–-
19. Forbes at Crown Valley Parkway[c.]	0.49	A	0.74	C	0.66	B	0.74	C	0.67	B	0.75	C	–-	–-	–-	–-
21. Cabot Road at Paseo de Colinas	0.46	A	0.56	A	0.52	A	0.65	B	0.52	A	0.64	B	–-	–-	–-	–-
22. Camino Capistrano at Paseo de Colinas	0.47	A	0.52	A	0.53	A	0.56	A	0.54	A	0.56	A	–-	–-	–-	–-
23. Camino Capistrano at Avery Parkway	0.43	A	0.69	B	0.51	A	0.55	A	0.52	A	0.56	A	–-	–-	–-	–-
70. Greenfield Drive at SR-73 SB Ramps	0.49	A	0.45	A	0.56	A	0.54	A	0.57	A	0.56	A	–-	–-	–-	–-
71. Greenfield Drive at SR-73 NB Ramps	0.63	B	0.44	A	0.68	B	0.46	A	0.70	B	0.45	A	–-	–-	–-	–-
City of Mission Viejo																
1. Marguerite Parkway at La Paz Road	0.58	A	0.81	D	0.60	A	0.83	D	0.64	B	0.86	D	–-	–-	–-	–-
2. Olympiad Road at La Paz Road	0.54	A	0.47	A	0.54	A	0.58	A	0.59	A	0.63	B	–-	–-	–-	–-
3. Marguerite Parkway at Oso Parkway[b., c.]	**1.02**	**F**	**0.91**	**E**	**0.81**	D	0.76	C	0.80	C	0.81	D	–-	–-	–-	–-
4. Felipe Road at Oso Parkway[b.]	0.79	C	0.70	B	0.72	C	0.90	D	0.81	D	**1.07**	**F**	0.75	C	0.89	D
6. Marguerite Parkway at Felipe Road	0.62	B	0.62	B	0.58	A	0.76	C	0.63	B	0.87	D	–-	–-	–-	–-
7. Puerta Real at Crown Valley Parkway[a., c.]	0.66	B	0.75	C	0.75	C	0.80	C	0.77	C	0.82	D	–-	–-	–-	–-
8. Guevara/Medical at Crown Valley Parkway[a., c.]	0.56	A	0.64	B	0.63	B	0.77	C	0.64	B	0.80	C	–-	–-	–-	–-
9. Los Altos at Crown Valley Parkway[a., c.]	0.53	A	0.56	A	0.71	C	0.91	E	0.72	C	0.97	E	–-	–-	–-	–-
10. Bellogente at Crown Valley Parkway[a., c.]	0.58	A	0.48	A	0.70	B	0.65	B	0.71	C	0.67	B	–-	–-	–-	–-
11. Marguerite at Crown Valley Parkway[a., b., c., f.]	0.84	D	**1.04**	**F**	**1.14**	**F**	0.93	E	**1.22**	**F**	**1.05**	**F**	0.94	E	**1.02**	**F**
24. Marguerite Parkway at Avery Parkway[b., d.]	0.73	C	0.75	C	0.90	D	0.86	D	**0.92**	**E**	0.89	D	–-	–-	–-	–-
44. I-5 SB Ramps at Oso Parkway	0.72	C	0.76	C	0.64	B	0.72	C	0.64	B	0.75	C	–-	–-	–-	–-

TABLE 4.6-32 (Continued)
YEAR 2025 WITH AND WITHOUT PROJECT BUILDOUT:
INTERSECTION LEVELS OF SERVICE (COMMITTED CIRCULATION SYSTEM)

Intersection	Existing				Year 2025 Without Project Buildout				Year 2025 + Project Buildout				Year 2025 + Project Buildout With Mitigation			
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
45. I-5 NB Ramps at Oso Parkway	0.75	C	0.89	D	0.72	C	0.84	D	0.74	C	0.89	D	–-	–-	–-	–-
46. I-5 SB Ramps at Crown Valley Parkway[a., c.]	0.61	B	0.85	D	0.74	C	0.93	E	0.74	C	0.95	E	–-	–-	–-	–-
47. I-5 NB Ramps at Crown Valley Parkway[a.]	0.62	B	0.70	B	0.70	B	0.89	D	0.71	C	0.87	D	–-	–-	–-	–-
48. I-5 SB Ramps at Avery Parkway[c.]	0.67	B	0.89	D	0.69	B	0.81	D	0.70	B	0.81	D	–-	–-	–-	–-
49. I-5 NB Ramps at Avery Parkway[c.]	0.68	B	0.77	C	0.63	B	0.79	C	0.61	B	0.82	D	–-	–-	–-	–-
City of Rancho Santa Margarita																
13. Banderas at Antonio	0.62	B	0.77	C	0.68	B	0.73	C	0.68	B	0.75	C	–-	–-	–-	–-
14. Avenida Empresa at Antonio Parkway	0.52	A	0.42	A	0.60	A	0.47	A	0.61	B	0.50	A	–-	–-	–-	–-
58. SR-241 SB Ramps at Antonio Parkway	0.36	A	0.48	A	0.43	A	0.66	B	0.45	A	0.67	B	–-	–-	–-	–-
59. SR-241 NB Ramps at Antonio Parkway[b.]	0.64	B	0.37	A	**1.38**	**F**	0.52	A	**1.38**	**F**	0.53	A	0.73	C	0.53	A
60. SR-241 SB Ramps at Oso Parkway	0.49	A	0.42	A	0.45	A	0.49	A	0.57	A	0.63	B	–-	–-	–-	–-
61. SR-241 NB Ramps at Oso Parkway	0.71	C	0.36	A	0.82	D	0.41	A	0.81	D	0.60	A	–-	–-	–-	–-
City of San Clemente																
37. Ave. La Pata at Avenida Vista Hermosa[b,. c.]	–-	–-	–-	–-	**1.05**	**F**	**0.92**	**E**	**1.11**	**F**	**1.00**	**E**	0.85	D	0.79	C
38. Ave. Talega at Avenida Vista Hermosa[b, c., d.]	–-	–-	–-	–-	0.74	C	0.69	B	**1.06**	**F**	**1.02**	**F**	–-	–-	–-	–-
39. Camino Vera Cruz at Ave. Vista Hermosa[b., c.]	0.66	B	0.52	A	**1.11**	**F**	**1.26**	**F**	**1.16**	**F**	**1.31**	**F**	0.82	D	0.86	D
40. Avenida La Pata at Avenida Pico[c.]	0.28	A	0.32	A	0.43	A	0.69	B	0.46	A	0.74	C	–-	–-	–-	–-
41. Avenida Vista Hermosa at Avenida Pico	0.26	A	0.15	A	0.45	A	0.27	A	0.32	A	0.34	A	–-	–-	–-	–-
54. I-5 SB Ramps at Avenida Vista Hermosa	0.23	A	0.19	A	0.64	B	0.44	A	0.60	A	0.45	A	–-	–-	–-	–-
55. I-5 NB Ramps at Avenida Vista Hermosa	0.33	A	0.34	A	0.69	B	0.60	A	0.71	C	0.59	A	–-	–-	–-	–-
56. I-5 SB Ramps at Avenida Pico[b., f.]	0.72	C	0.75	C	**0.94**	**E**	0.77	C	**1.00**	**E**	**1.05**	**F**	**0.92**	**E**	0.86	D
57. I-5 NB Ramps at Avenida Pico[b., d.]	0.73	C	0.59	A	**0.97**	**E**	0.64	B	**0.99**	**E**	0.73	C	–-	–-	–-	–-
City of San Juan Capistrano																
25. Camino Capistrano at Ortega Highway	0.45	A	0.46	A	0.69	B	0.65	B	0.68	B	0.70	B	–-	–-	–-	–-
26. Del Obispo at Ortega Highway	0.56	A	0.58	A	0.66	B	0.73	C	0.66	B	0.73	C	–-	–-	–-	–-

TABLE 4.6-32 (Continued)
YEAR 2025 WITH AND WITHOUT PROJECT BUILDOUT:
INTERSECTION LEVELS OF SERVICE (COMMITTED CIRCULATION SYSTEM)

Intersection	Existing				Year 2025 Without Project Buildout				Year 2025 + Project Buildout				Year 2025 + Project Buildout With Mitigation			
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
27. Rancho Viejo Road at Ortega Highway	0.66	B	0.73	C	0.67	B	0.83	D	0.72	C	0.87	D	0.69	B	0.89	D
28. La Novia Avenue at Ortega Highway[b.]	0.67	B	0.61	B	0.80	C	0.88	D	0.89	D	**0.99**	**E**	0.67	B	0.86	D
30. Camino Capistrano at Del Obispo[b, f.]	0.65	B	0.75	C	**1.07**	**F**	**1.17**	**F**	**1.08**	**F**	**1.21**	**F**	**0.93**	**E**	0.86	D
31. Camino Capistrano at San Juan Creek	0.34	A	0.43	A	0.67	B	0.78	C	0.66	B	0.79	C	–-	–-	–-	–-
32. Valle Road at San Juan Creek[b.]	0.68	B	0.66	B	**0.91**	**E**	0.84	D	**0.92**	**E**	0.85	D	0.73	C	0.76	C
33. La Novia Avenue at San Juan Creek[b., d.]	0.58	A	0.39	A	**0.98**	**E**	0.87	D	**1.01**	**F**	0.83	D	–-	–-	–-	–-
50. I-5 SB Ramps at Ortega Highway[a., c.]	0.71	C	0.83	D	0.92	E	0.85	D	0.95	E	0.89	D	–-	–-	–-	–-
51. I-5 NB Ramps at Ortega Highway[a.]	0.98	E	0.81	D	0.79	C	0.76	C	0.83	D	0.78	C	–-	–-	–-	–-
52. Camino Capistrano at I-5 SB Ramps[c.]	0.72	C	0.84	D	0.85	D	0.86	D	0.85	D	0.85	D	–-	–-	–-	–-
53. Valle Road at I-5 NB Ramps[b., c., d.]	0.45	A	0.60	A	**0.95**	**E**	**0.99**	**E**	**0.94**	**E**	**0.99**	**E**	–-	–-	–-	–-
72. Camino Capistrano at Junipero Serra Road	0.40	A	0.47	A	0.89	D	0.90	D	0.90	D	0.90	D	–-	–-	–-	–-
73. I-5 SB Ramps at Junipero Serra Road	0.48	A	0.57	A	0.69	B	0.86	D	0.70	B	0.85	D	–-	–-	–-	–-
74. I-5 NB Ramps at Junipero Serra Road[b.]	0.53	A	0.56	A	0.75	C	**1.07**	**F**	0.77	C	**1.10**	**F**	0.61	B	0.82	D
75. Rancho Viejo Road at Junipero Serra Road	0.44	A	0.52	A	0.76	C	0.80	C	0.78	C	0.82	D	–-	–-	–-	–-
Unincorporated Orange County																
5. Antonio Parkway at Oso Parkway[b.]	0.74	C	0.81	D	1.01	**F**	**1.07**	**F**	**1.03**	**F**	**1.05**	**F**	0.90	D	0.85	C
12. Antonio Parkway at Crown Valley Parkway[b.]	0.39	A	0.45	A	0.59	A	**0.95**	**E**	0.82	D	**1.18**	**F**	0.67	B	0.86	C
29. Antonio Pkwy./La Pata at Ortega Hwy.[b., c.]	**1.02**	**F**	0.73	C	**1.60**	**F**	**1.37**	**F**	**1.66**	**F**	**1.51**	**F**	0.85	C	0.90	D

Abbreviations:
ICU: intersection capacity utilization LOS: level of service

a. LOS E is acceptable at this location (Congestion Management Program (CMP) intersections and Crown Valley Parkway intersections between I-5 and Marguerite Parkway). LOS D is the adopted performance standard for all other intersection locations that are analyzed.
b. This location currently operates or is forecast to operate deficiently in the a.m. and/or p.m. peak hour (i.e., the LOS is worse than the adopted LOS performance standard).
c. Committed improvements are assumed to be in place at this intersection under 2025 No Project and Proposed Project conditions.
d. The La Pata Avenue extension eliminates the deficiency that is forecast at this intersection under 2025 Proposed Project conditions.
e. With mitigation, this intersection is forecast to operate at an unacceptable LOS under 2025 Proposed Project conditions with or without the SR-241 southerly extension.
f. With mitigation, this intersection is forecast to operate at an unacceptable LOS under 2025 Proposed Project conditions without the SR-241 southerly extension (this intersection is forecast to operate at an acceptable LOS under 2025 Proposed Project conditions with SR-241 southerly extension).

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

TABLE 4.6-33
YEAR 2025 WITH AND WITHOUT PROJECT BUILDOUT: FREEWAY RAMP LEVELS OF SERVICE (COMMITTED CIRCULATION SYSTEM)

Interchange	Ramp	Existing				Year 2025 Without Project				Year 2025 + Project Buildout				Year 2025 + Project Buildout With Mitigation			
		A.M. Peak		P.M. Peak		A. M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
I-5 at Oso Parkway	SB Direct On	0.48	A	0.48	A	0.41	A	0.56	A	0.43	A	0.64	B	–-	–	–	–
	SB Loop On	0.46	A	0.40	A	0.73	C	0.38	A	0.71	C	0.37	A	–-	–	–	–
	NB Direct On	0.87	D	0.41	A	0.65	B	0.40	A	0.81	D	0.49	A	–-	–	–	–
	NB Loop On	0.35	A	0.31	A	0.19	A	0.37	A	0.17	A	0.37	A	–-	–	–	–
	SB Off[a.]	0.73	C	**1.12**	**F**	0.67	B	**1.01**	**F**	0.74	C	**1.14**	**F**	0.48	A	0.73	C
	NB Off	0.73	C	0.73	C	0.45	A	0.68	B	0.51	A	0.70	B	–-	–	–	–
I-5 at Crown Valley Parkway	SB On	0.35	A	0.47	A	0.46	A	0.48	A	0.43	A	0.48	A	–-	–	–	–
	NB Direct On[a.]	0.72	C	0.75	C	0.93	E	0.98	E	0.91	E	**1.03**	**F**	0.74	C	0.89	D
	NB Loop On	0.78	C	0.79	C	0.87	D	0.90	D	0.88	D	0.87	D	–-	–	–	–
	SB Off[a.]	0.64	B	**1.19**	**F**	0.85	D	**1.28**	**F**	0.85	D	**1.30**	**F**	0.55	A	0.93	E
	NB Off	0.68	B	0.49	A	0.86	D	0.58	A	0.85	D	0.49	A	–-	–	–	–
I-5 at Avery Parkway	SB On	0.38	A	0.58	A	0.56	A	0.57	A	0.51	A	0.57	A	–-	–	–	–
	NB On	0.45	A	0.53	A	0.38	A	0.54	A	0.38	A	0.55	A	–-	–	–	–
	SB Off	0.61	B	0.72	C	0.47	A	0.61	B	0.48	A	0.62	B	–-	–	–	–
	NB Off	0.52	A	0.49	A	0.43	A	0.59	A	0.41	A	0.61	B	–-	–	–	–
I-5 at Junipero Serra Road	SB On	0.30	A	0.30	A	0.35	A	0.46	A	0.35	A	0.46	A	–-	–	–	–
	NB On[a.]	0.97	E	0.55	A	**1.01**	**F**	0.99	E	**1.04**	**F**	0.99	E	0.95	E	0.90	D
	SB Off	0.33	A	0.53	A	0.53	A	0.71	C	0.55	A	0.69	B	–-	–	–	–
	NB Off	0.19	A	0.16	A	0.23	A	0.23	A	0.23	A	0.24	A	–-	–	–	–
I-5 at Ortega Parkway	SB On	0.43	A	0.53	A	0.41	A	0.40	A	0.40	A	0.38	A	–-	–	–	–
	NB On[a.]	**1.38**	**F**	0.89	D	1.17	F	**1.07**	**F**	**1.21**	**F**	**1.16**	**F**	c.	c.	c.	c.
	SB Off	0.63	B	0.91	E	0.88	D	0.79	C	0.94	E	0.85	D	–-	–	–	–
	NB Off	0.69	B	0.53	A	0.59	A	0.51	A	0.61	B	0.53	A	–-	–	–	–

TABLE 4.6-33 (Continued)
YEAR 2025 WITH AND WITHOUT PROJECT BUILDOUT:
FREEWAY RAMP LEVELS OF SERVICE (COMMITTED CIRCULATION SYSTEM)

Interchange	Ramp	Existing				Year 2025 Without Project				Year 2025 + Project Buildout				Year 2025 + Project Buildout With Mitigation			
		A.M. Peak		P.M. Peak		A. M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
I-5 at Camino Capistrano	SB On	0.25	A	0.34	A	0.47	A	0.41	A	0.47	A	0.39	A	–-	–	–	–
	NB On	0.26	A	0.23	A	0.59	A	0.31	A	0.60	A	0.31	A	–-	–	–	–
	SB Off	0.55	A	0.67	B	0.66	B	0.91	E	0.66	B	0.92	E	–-	–	–	–
	NB Off	0.26	A	0.38	A	0.45	A	0.52	A	0.44	A	0.52	A	–-	–	–	–
I-5 at Avenida Vista Hermosa	SB On	0.26	A	0.16	A	0.17	A	0.06	A	0.27	A	0.23	A	–-	–	–	–
	NB Direct On	0.51	A	0.45	A	0.80	C	**1.09**	**F**	0.76	C	0.99	E	–-	–	–	–
	NB Loop On	0.02	A	0.01	A	0.19	A	0.20	A	0.19	A	0.19	A	–-	–	–	–
	SB Off[a., b.]	0.43	A	0.42	A	**1.25**	**F**	0.97	E	1.15	F	0.95	E	–-	–	–	–
	NB Off	0.16	A	0.26	A	0.15	A	0.26	A	0.29	A	0.29	A	–-	–	–	–
I-5 at Avenida Pico	SB On	0.30	A	0.56	A	0.33	A	0.58	A	0.38	A	0.79	C	–-	–	–	–
	NB On[a., b.]	0.94	E	0.97	E	1.00	E	**1.29**	**F**	0.99	E	1.07	F	–-	–	–	–
	SB Off	0.68	B	0.57	A	0.97	E	0.74	C	0.89	D	0.66	B	–-	–	–	–
	NB Off	0.61	B	0.45	A	0.67	B	0.46	A	0.78	C	0.62	B	–-	–	–	–

Abbreviations:
LOS: level of service
V/C: volume/capacity ratio

a. This location currently operates or is forecast to operate deficiently in the a.m. and/or p.m. peak hour (i.e., the LOS is worse than the adopted LOS E performance standard).

b. The La Pata Avenue extension eliminates the deficiency that is forecast at this ramp under 2025 Proposed Project conditions.

c. The deficiency at this ramp is addressed with the reconstruction of the Ortega Highway/I-5 interchange, which is included in the long-range mitigation program that is proposed for the project.

Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

TABLE 4.6-34
YEAR 2025 WITH AND WITHOUT PROJECT BUILDOUT:
FREEWAY MAINLINE LEVELS OF SERVICE (COMMITTED CIRCULATION SYSTEM)

Location	Direction	Existing				Year 2025 Without Project Buildout				Year 2025 + Project Buildout				Year 2025 + Project Buildout With Mitigation			
		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
I-5 n/o Oso Parkway[a.]	Northbound	**1.05**	**F**	0.93	E	**1.06**	**F**	1.00	E	**1.07**	**F**	**1.01**	**F**	–	–	–	–
	Southbound	0.75	D	**1.06**	**F**	0.90	E	1.04	F	0.90	E	**1.04**	**F**	–	–	–	–
I-5 n/o Crown Valley Parkway	Northbound	0.83	D	0.91	E	0.87	D	0.97	E	0.87	D	0.97	E	–	–	–	–
	Southbound	0.77	D	1.00	E	0.92	E	0.98	E	0.91	E	0.97	E	–	–	–	–
I-5 n/o Avery Parkway	Northbound	0.85	D	0.78	D	0.77	D	0.81	D	0.77	D	0.79	D	–	–	–	–
	Southbound	0.65	C	0.87	D	0.78	D	0.80	D	0.76	D	0.79	D	–	–	–	–
I-5 n/o Junipero Serra Road	Northbound	0.77	D	0.66	C	0.94	E	0.87	D	0.94	E	0.87	D	–	–	–	–
	Southbound	0.54	C	0.76	D	0.75	D	0.95	E	0.75	D	0.96	E	–	–	–	–
I-5 n/o Ortega Highway[a.]	Northbound	0.87	D	0.74	D	**1.03**	**F**	0.95	E	**1.03**	**F**	0.95	E	–	–	–	–
	Southbound	0.61	C	0.85	D	0.83	D	**1.04**	**F**	0.84	D	**1.06**	**F**	–	–	–	–
I-5 n/o Camino Capistrano[a.]	Northbound	1.00	E	0.82	D	**1.19**	**F**	**1.12**	**F**	1.19	F	**1.10**	**F**	–	–	–	–
	Southbound	0.63	C	0.89	D	0.97	E	**1.20**	**F**	0.94	E	**1.19**	**F**	–	–	–	–
I-5 s/o Camino Capistrano[a.]	Northbound	1.00	E	0.84	D	**1.19**	**F**	**1.15**	**F**	**1.18**	**F**	**1.12**	**F**	–	–	–	–
	Southbound	0.61	C	0.83	D	0.95	E	**1.19**	**F**	0.92	E	**1.18**	**F**	–	–	–	–
I-5 n/o Avenida Vista Hermosa[a.]	Northbound	0.84	D	0.77	D	**1.25**	**F**	**1.29**	**F**	**1.22**	**F**	**1.26**	**F**	–	–	–	–
	Southbound	0.69	C	0.85	D	**1.12**	**F**	**1.36**	**F**	**1.09**	**F**	**1.33**	**F**	–	–	–	–
I-5 n/o Avenida Pico[a.]	Northbound	0.69	C	0.65	C	**1.02**	**F**	**1.05**	**F**	**1.03**	**F**	**1.05**	**F**	–	–	–	–
	Southbound	0.57	C	0.71	C	0.90	E	**1.11**	**F**	0.90	E	**1.10**	**F**	–	–	–	–
I-5 s/o Avenida Pico[a.]	Northbound	0.71	C	0.63	C	**1.19**	**F**	**1.25**	**F**	**1.20**	**F**	**1.26**	**F**	–	–	–	–
	Southbound	0.50	B	0.74	D	**1.01**	**F**	**1.35**	**F**	**1.01**	**F**	**1.35**	**F**	–	–	–	–

Abbreviations: LOS: level of service V/C: volume/capacity ratio
a. This location currently operates or is forecast to operate deficiently in the a.m. and/or p.m. peak hour (i.e., the LOS is worse than the adopted LOS E performance standard).
Source: *The Ranch Plan EIR Traffic Report*, Austin-Foust Associates, Inc., May 2004.

4.6.7 SPECIAL STUDY ISSUES

The *Ranch Plan EIR Traffic Report* (see Appendix D of this Program EIR) contains a number of informational items that are addressed under the overall heading of "special issues." They involve specific transportation analyses which depict potential conditions not directly covered in this section of the Program EIR or in Section 5, Alternatives to the Proposed Project. Their purpose is to respond to NOP comments or provide information pertinent to the project in accordance with CEQA Guidelines. The subject areas can be summarized as follows:

MPAH Amendments

The proposed project includes specific changes to the Orange County MPAH, as described in Section 3, Project Description. To evaluate these proposed amendments to the MPAH, long-range (year 2025) traffic forecasts with the proposed project land uses are presented in the traffic report for two scenarios, one based on buildout of the current MPAH and the other based on buildout of the MPAH with the proposed MPAH amendments. It should be noted that as required by the OCTA, MPAH amendment requests require a "cooperative process" involving the affected jurisdictions. For the amendments proposed as a part of the Ranch Plan project, that process is currently ongoing, and minutes from the meetings are part of the public record.

Caltrans Traffic Shares

Guidelines prepared by Caltrans for analyzing the traffic impacts of land use developments contain a number of specific requirements. Most of those are included in the overall impact methodology used throughout this Program EIR. One component of the guidelines not directly addressed is a section on traffic shares (Caltrans guidelines, Appendix B). The introductory sentence to that section states "The methodology below is neither intended as, nor does it establish, a legal standard for determining equitable responsibility and cost of a project's impact." Therefore, the share data is informational in nature, and has been included in the traffic report, in accordance with the calculation methodology in the Caltrans guidelines.

Caltrans Intersections

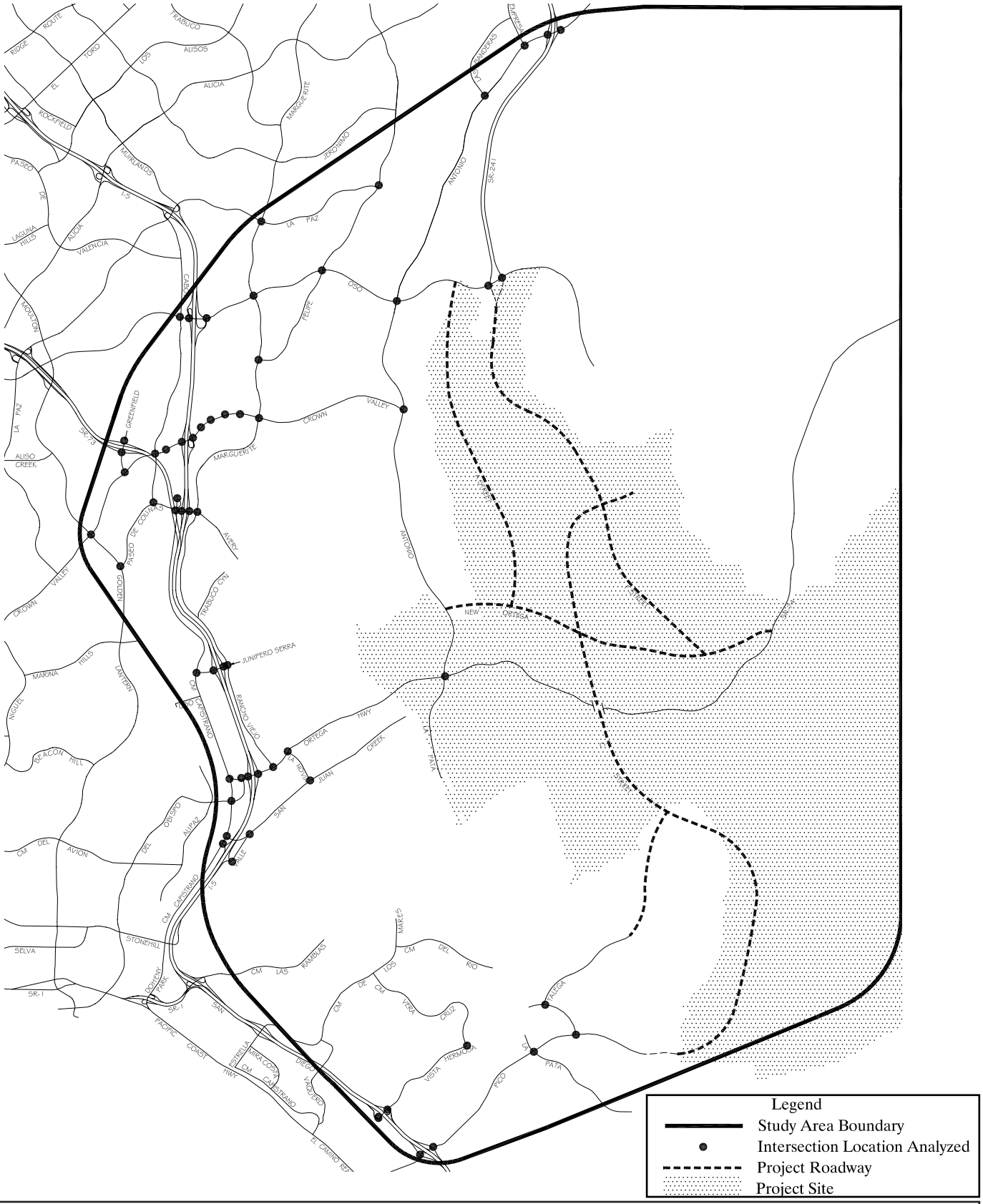
The above referenced Caltrans guidelines indicate a preference for evaluating levels of service at Caltrans intersections using the Highway Capacity Manual (HCM) methodology. This methodology requires information on signal timing and related parameters and, for that reason, is not typically used in Orange County for long-range planning. The traffic report summarizes the HCM level of service results for Caltrans intersections based on year 2025 cumulative with project conditions with the La Pata Avenue and SR-241 extensions and with project mitigation. The HCM calculations were prepared using representative assumptions for future signal operation, thereby providing comparative results to ICU level of service values.

Avery Parkway Extension

The City of San Juan Capistrano prepared a Strategic Transportation Plan in 2003 that outlined a number of potential long-range transportation improvements in and around the City. One of the alternatives considered was an eastward extension of the existing section of Avery Parkway in the City of Mission Viejo to New Ortega Highway, east of Antonio Parkway. The Strategic Transportation Plan concluded that the Avery Parkway extension would result in lower future vehicular traffic volumes on Ortega Highway.

To evaluate this alternative, traffic forecasts that include the Avery Parkway extension are presented in the traffic report for two scenarios, one based on the committed circulation system

and the other based on the committed circulation system plus the La Pata Avenue and SR-241 extensions. Both scenarios assume the proposed project land uses and the proposed on-site amendments to the MPAH.



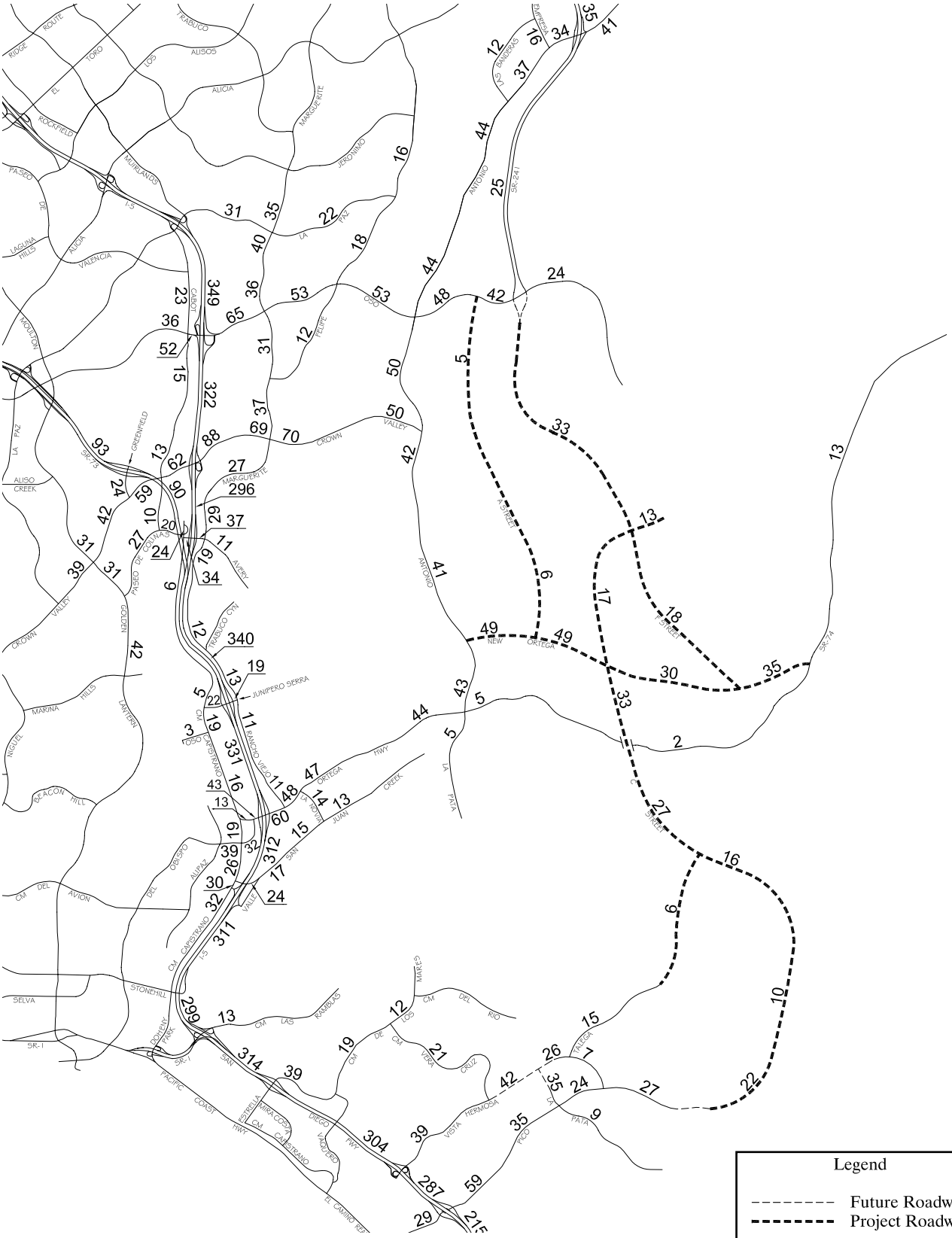
Traffic Study Area

Exhibit 4.6-1

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-1_TrafficStudy_060104.pdf



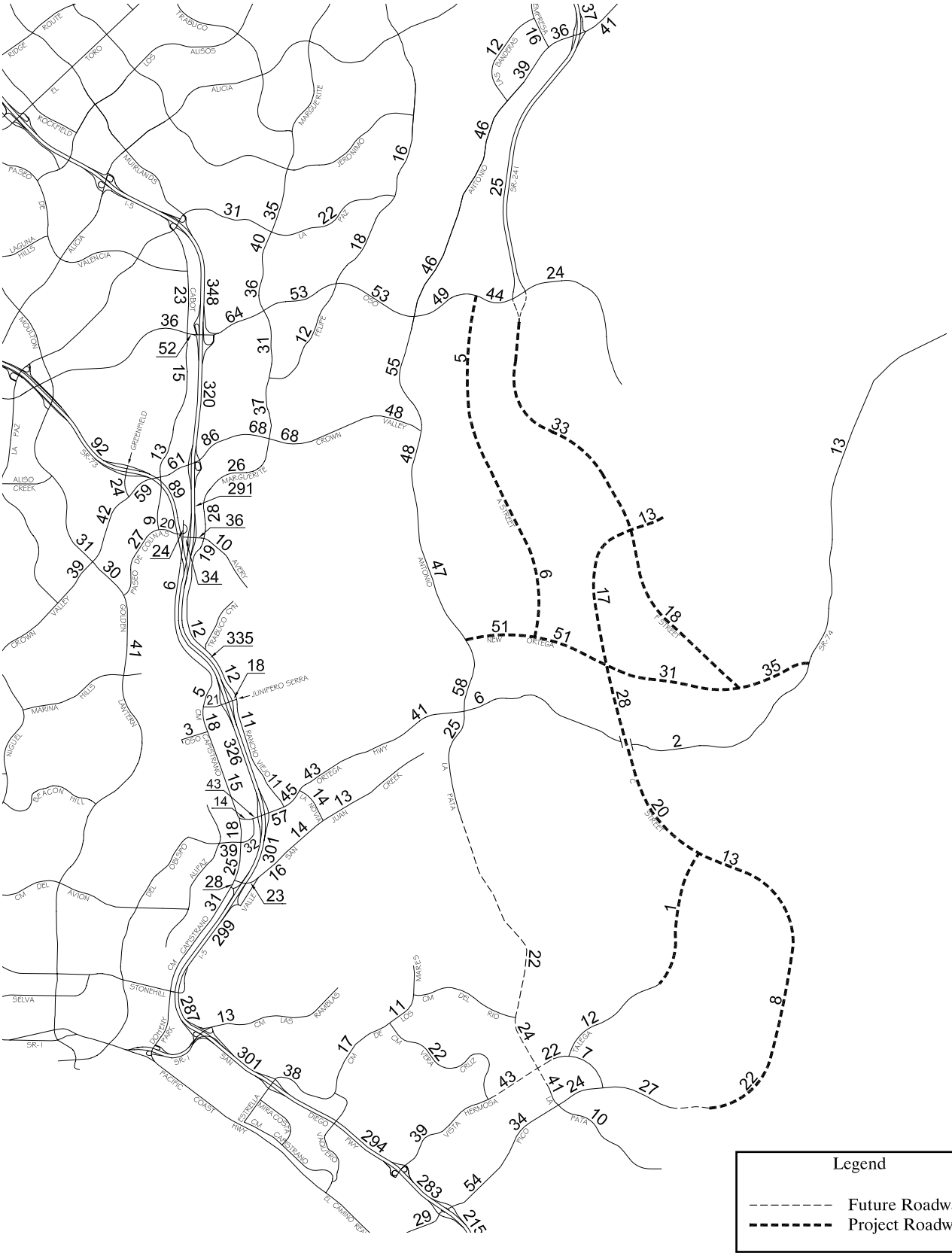
2025 + Project Buildout: ADT Volumes (000s) (Committed Circulation System)

Exhibit 4.6-10

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-10_2025BuildoutADT_060904.pdf



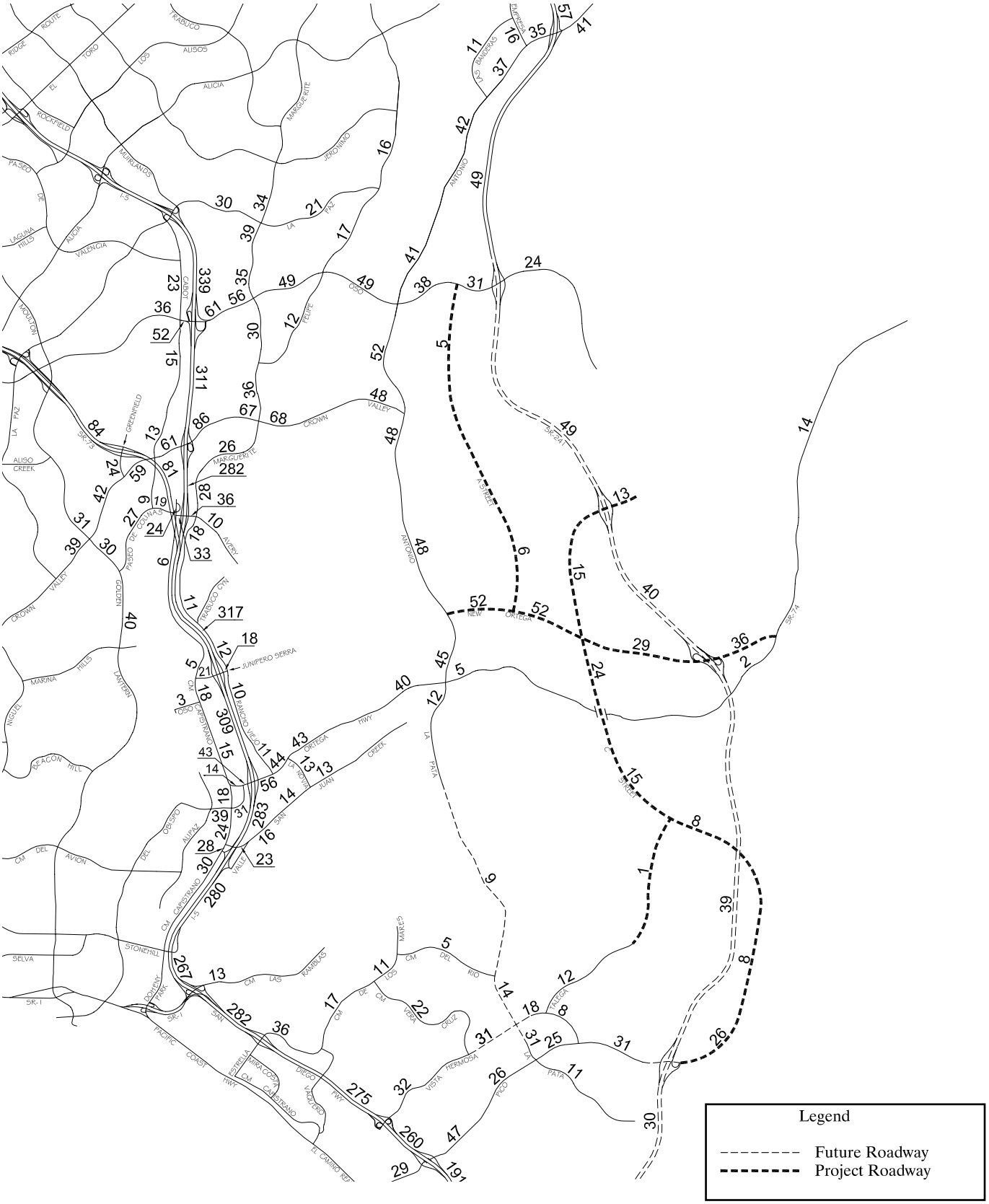
2025 + Project Buildout: ADT Volumes (000s) (Committed Circulation System With La Pata)

Exhibit 4.6-11

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-11_2025WithLaPataADT_060904.pdf

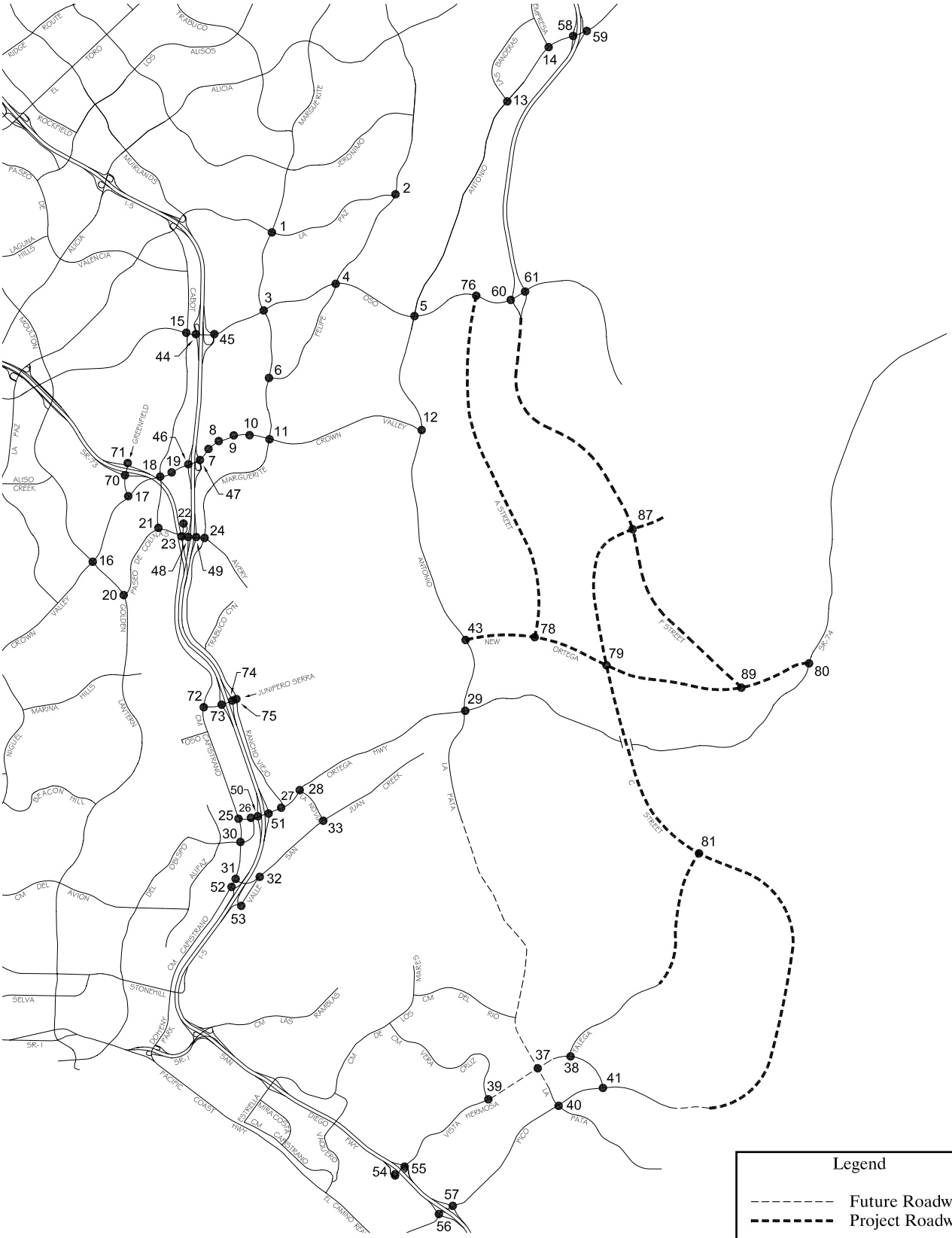


2025 + Project Buildout: ADT Volumes (000s) Exhibit 4.6-12
(Committed Circulation System With La Pata and SR-241 Extension)

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-12_2025WithSR241ADT_060904.pdf



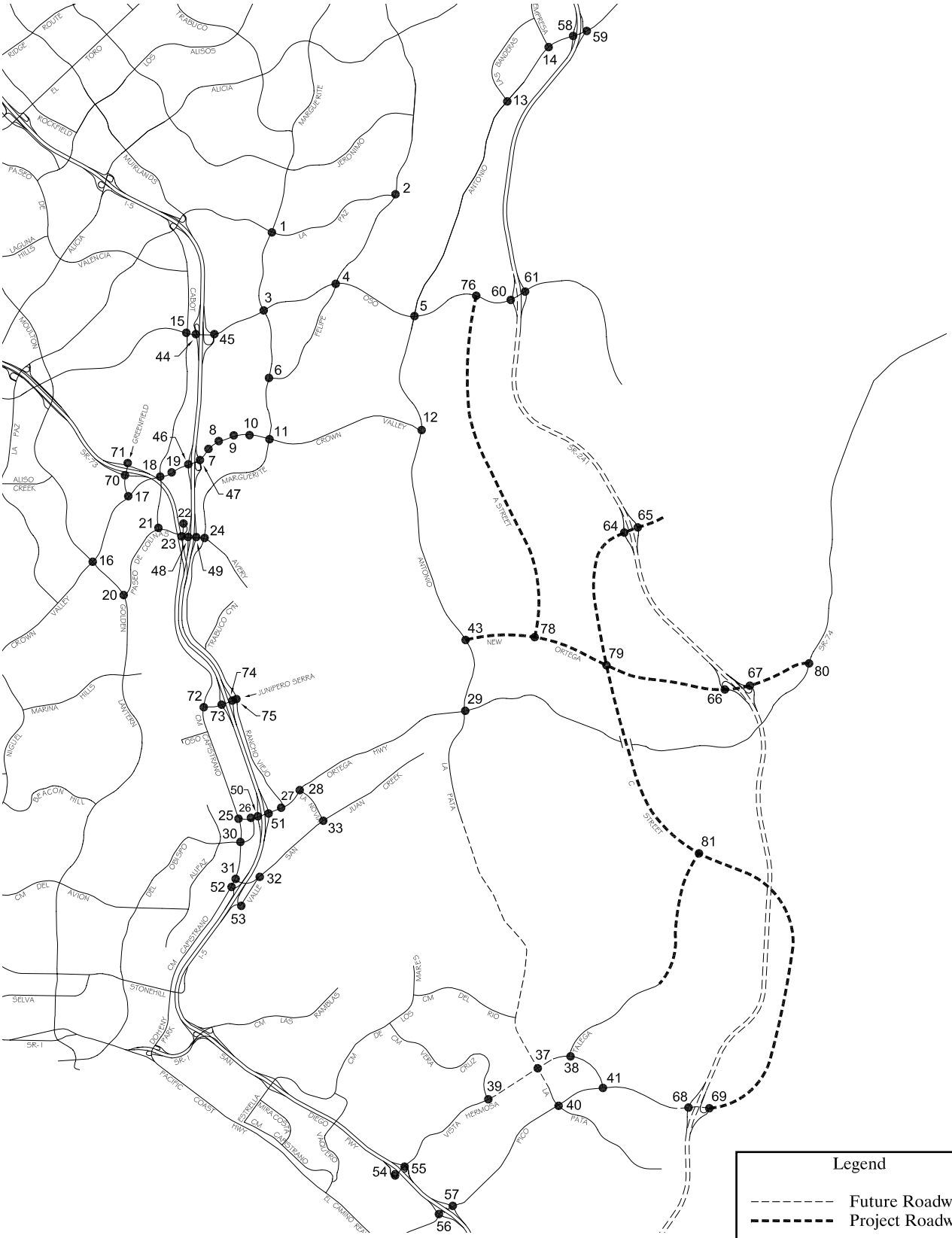
2025 + Project Buildout: Intersection Location Map (Without SR-241 Extension)

Exhibit 4.6-13

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-13_2025Intersections_060904.pdf



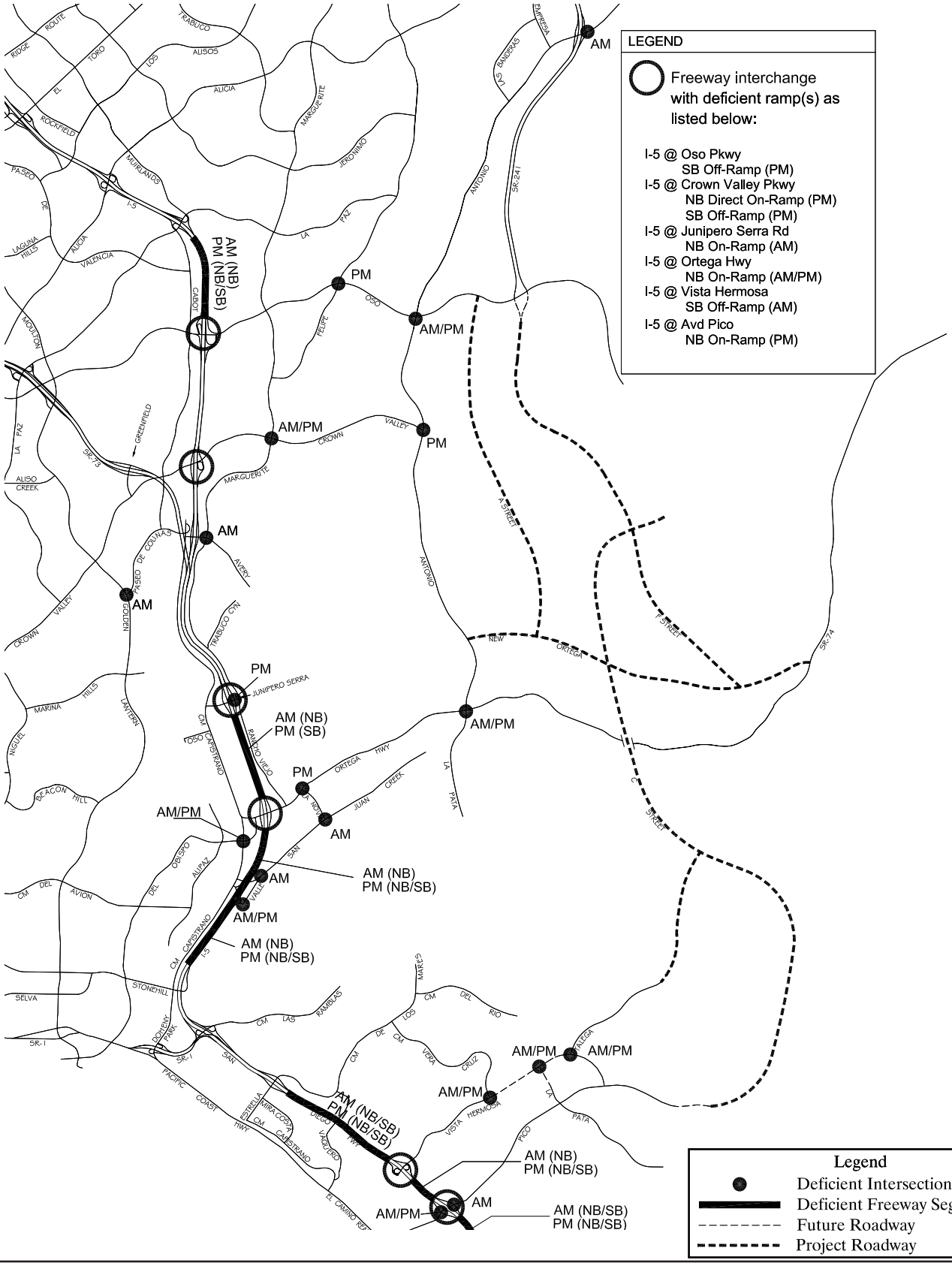
2025 + Project Buildout: Intersection Location Map (With SR-241 Extension)

Exhibit 4.6-14

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-14_2025With241Intersections_060904.pdf



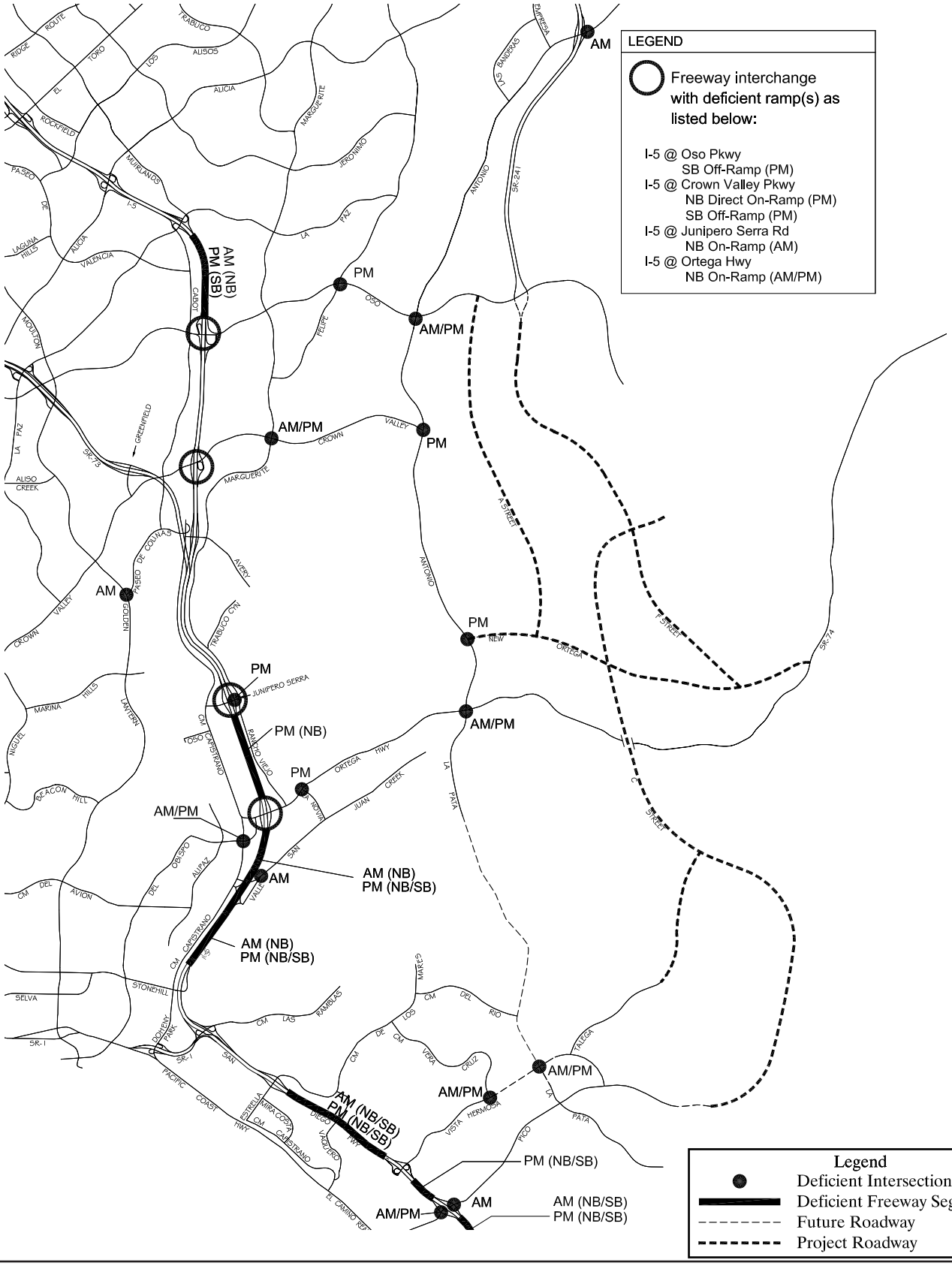
2025 + Project Buildout Deficiencies (Committed Circulation System)

Exhibit 4.6-15

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-15_BuildoutDef_060904.pdf



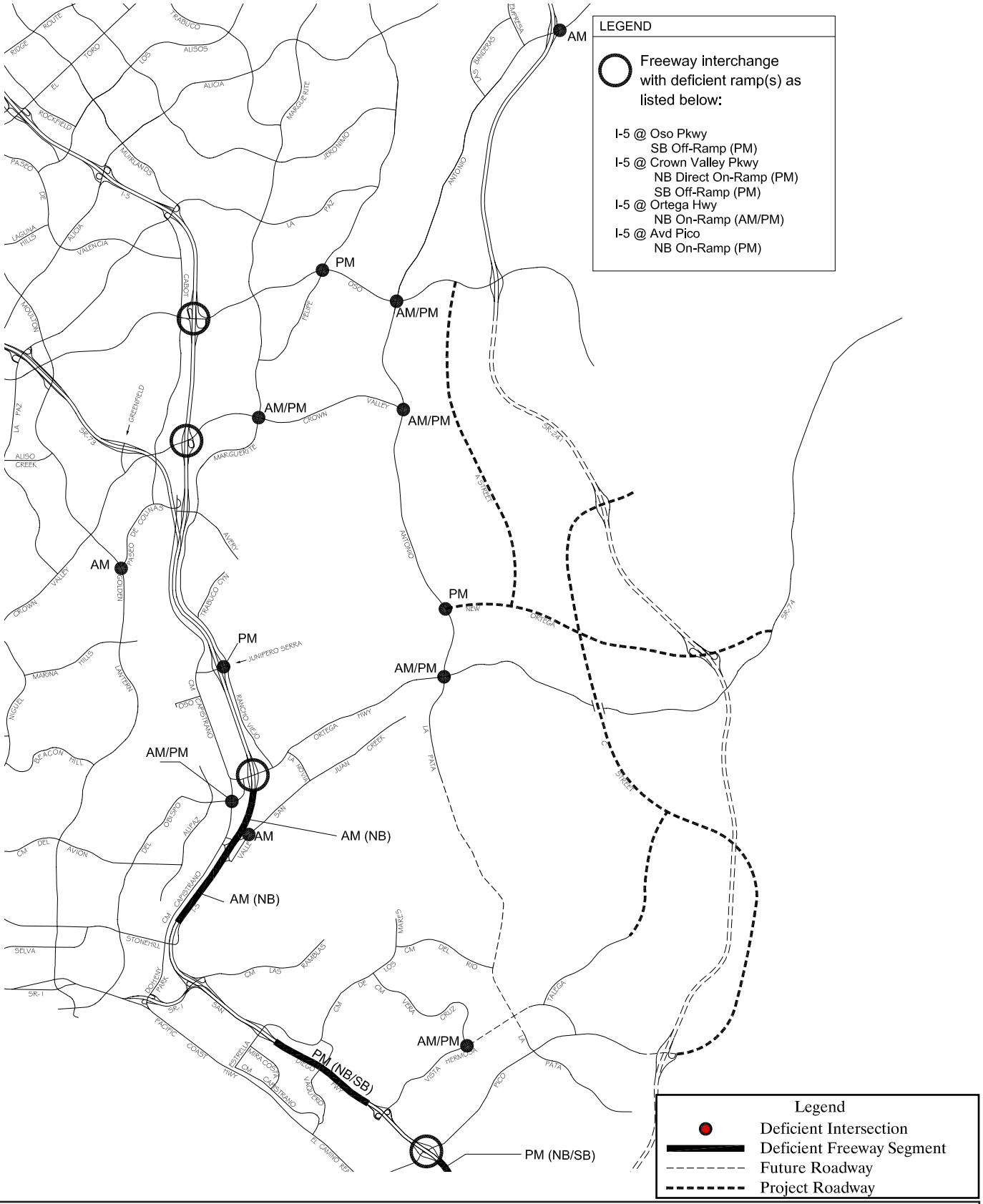
2025 + Project Buildout Deficiencies (Committed Circulation System With La Pata)

Exhibit 4.6-16

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-16_BuildoutDefLaPata_060904.pdf



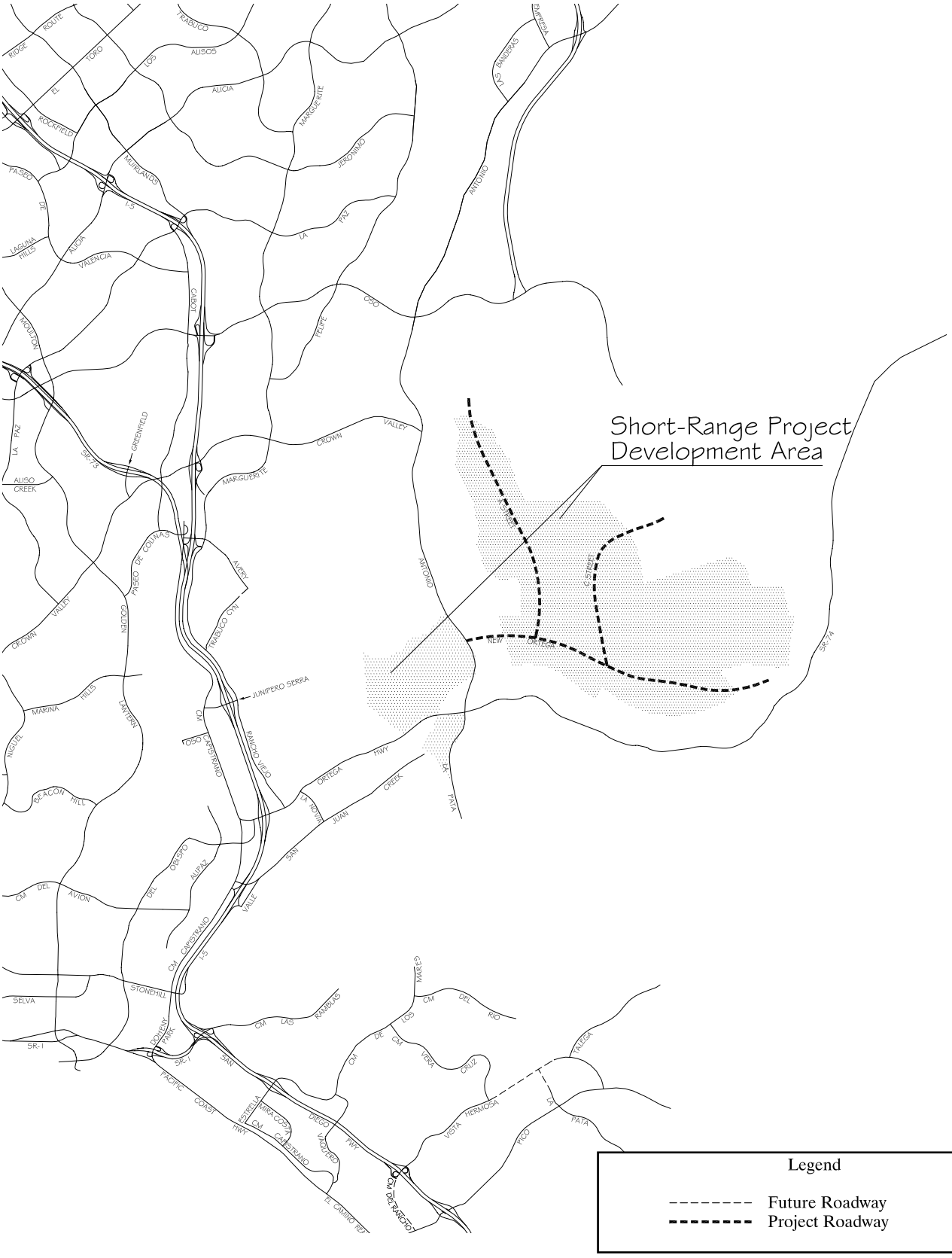
2025 + Project Buildout Deficiencies (Committed Circulation System With La Pata and SR-241 Extension)

Exhibit 4.6-17

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-17_BuildoutDefSR241_060904.pdf



2010 Development Areas

Exhibit 4.6-18

The Ranch Plan

N
W E
S

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-18_2010Dev_060904.pdf

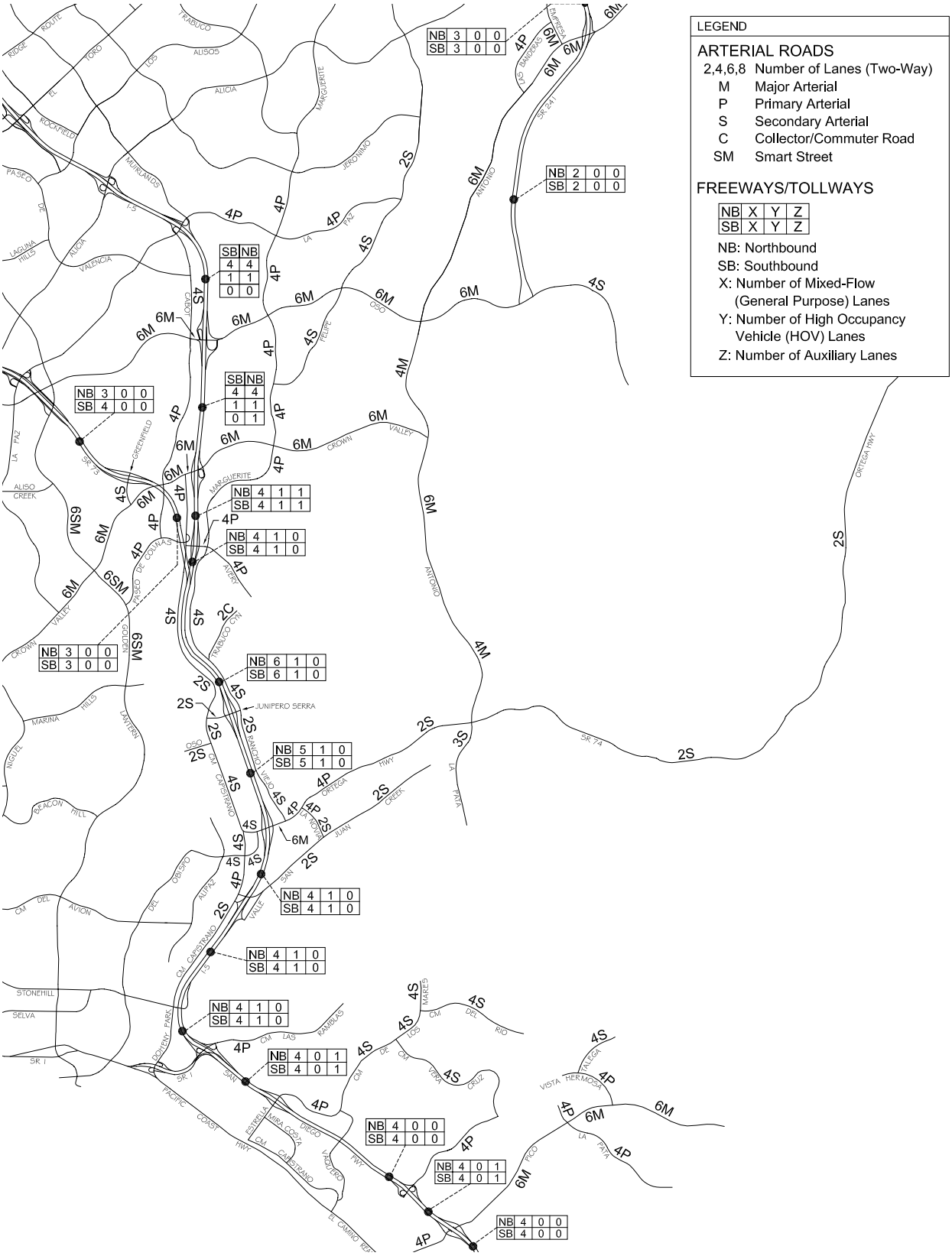
2010 Without Project: ADT Volumes (000s) (Committed Circulation System)

Exhibit 4.6-19

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-19_2010WithoutADT_060904.pdf



Existing Circulation System

Exhibit 4.6-2

The Ranch Plan

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Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-2_ExistingCirc_060104.pdf

2010 + Project: ADT Volumes (000s) (Committed Circulation System)

Exhibit 4.6-20

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-20_2010WithADT_060904.pdf

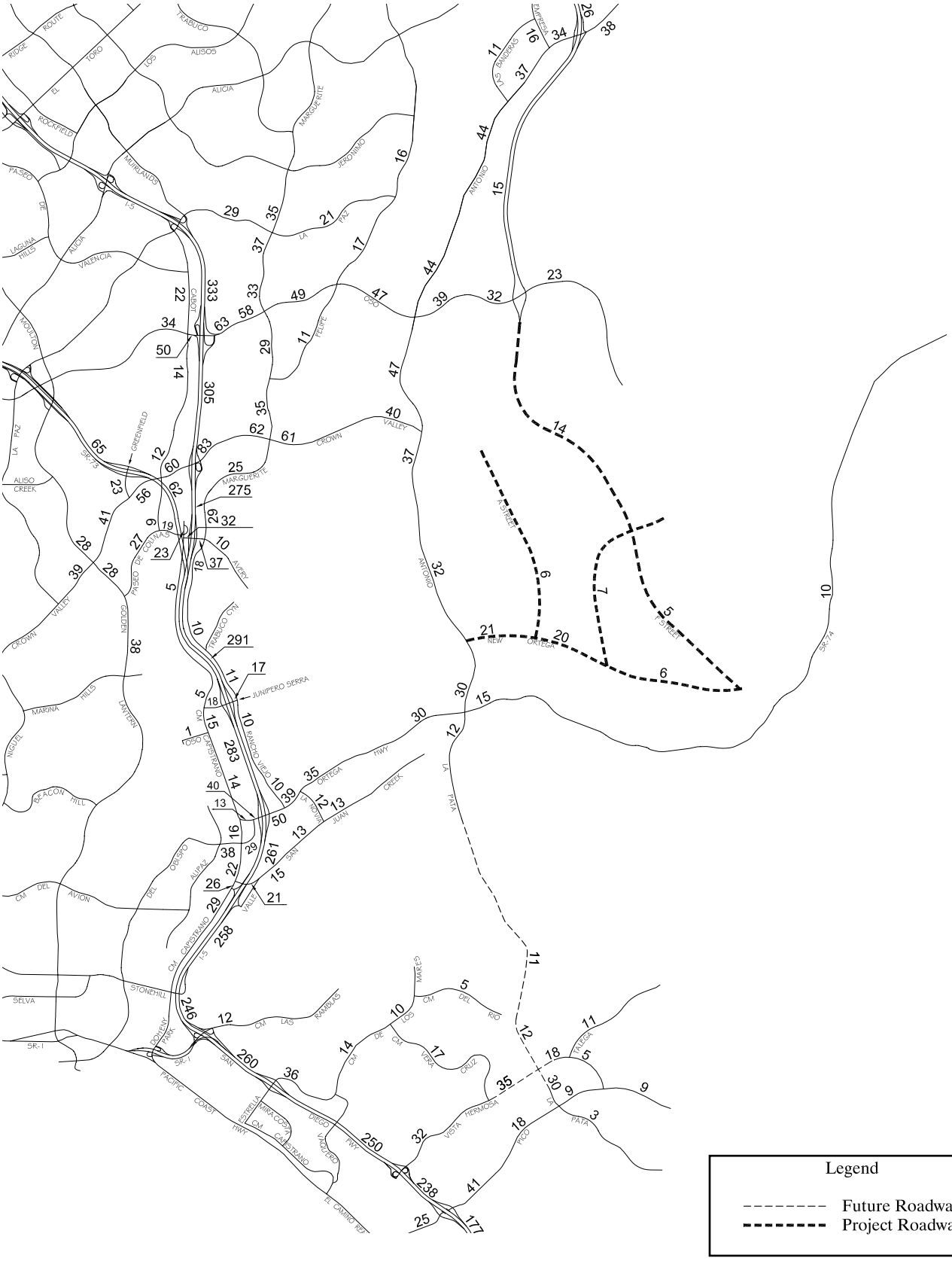
2010 + Project: ADT Volumes (000s) (Committed Circulation System With La Pata)

Exhibit 4.6-21

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-21_2010WithLaPataADT_060904.pdf



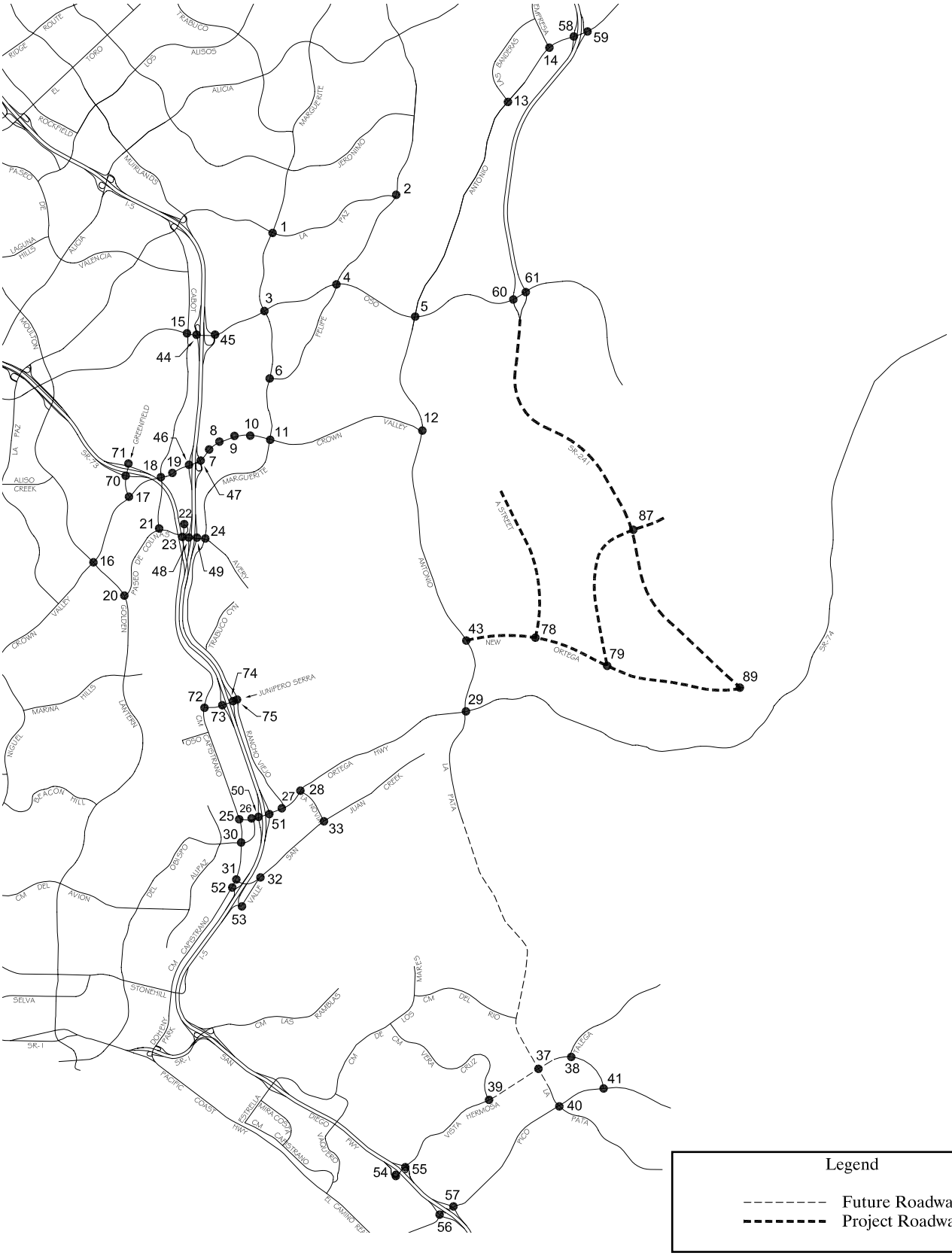
2010 + Project: ADT Volumes (000s) (Committed Circulation System With La Pata and Arterial South of Oso at SR-241)

Exhibit 4.6-22

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-22_2010WithOsoADT_060904.pdf



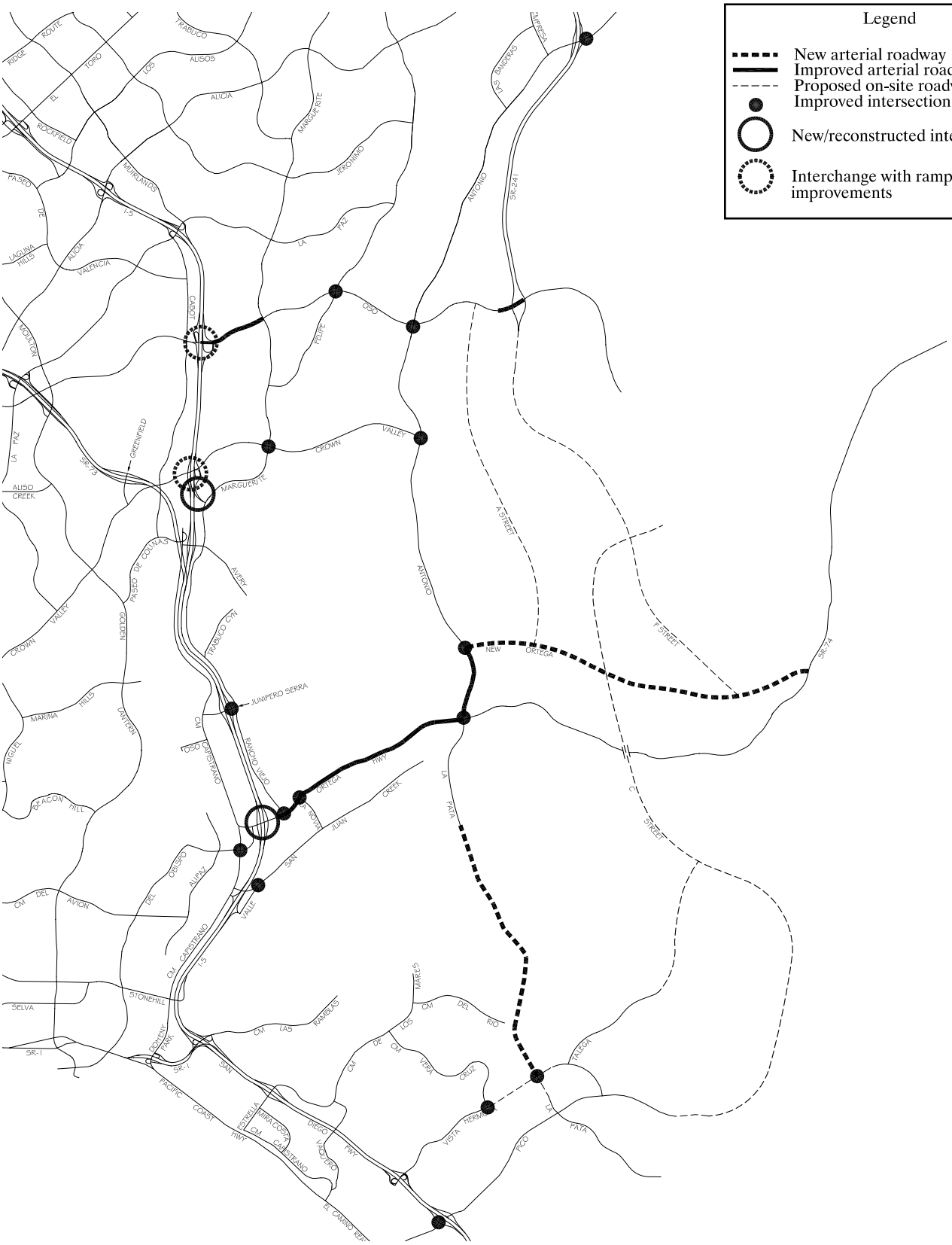
2010 + Project: Intersection Location Map

Exhibit 4.6-23

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-23_Intersections_060904.pdf



2025 Long-Range Circulation System Improvement Program (Without SR-241 Extension)

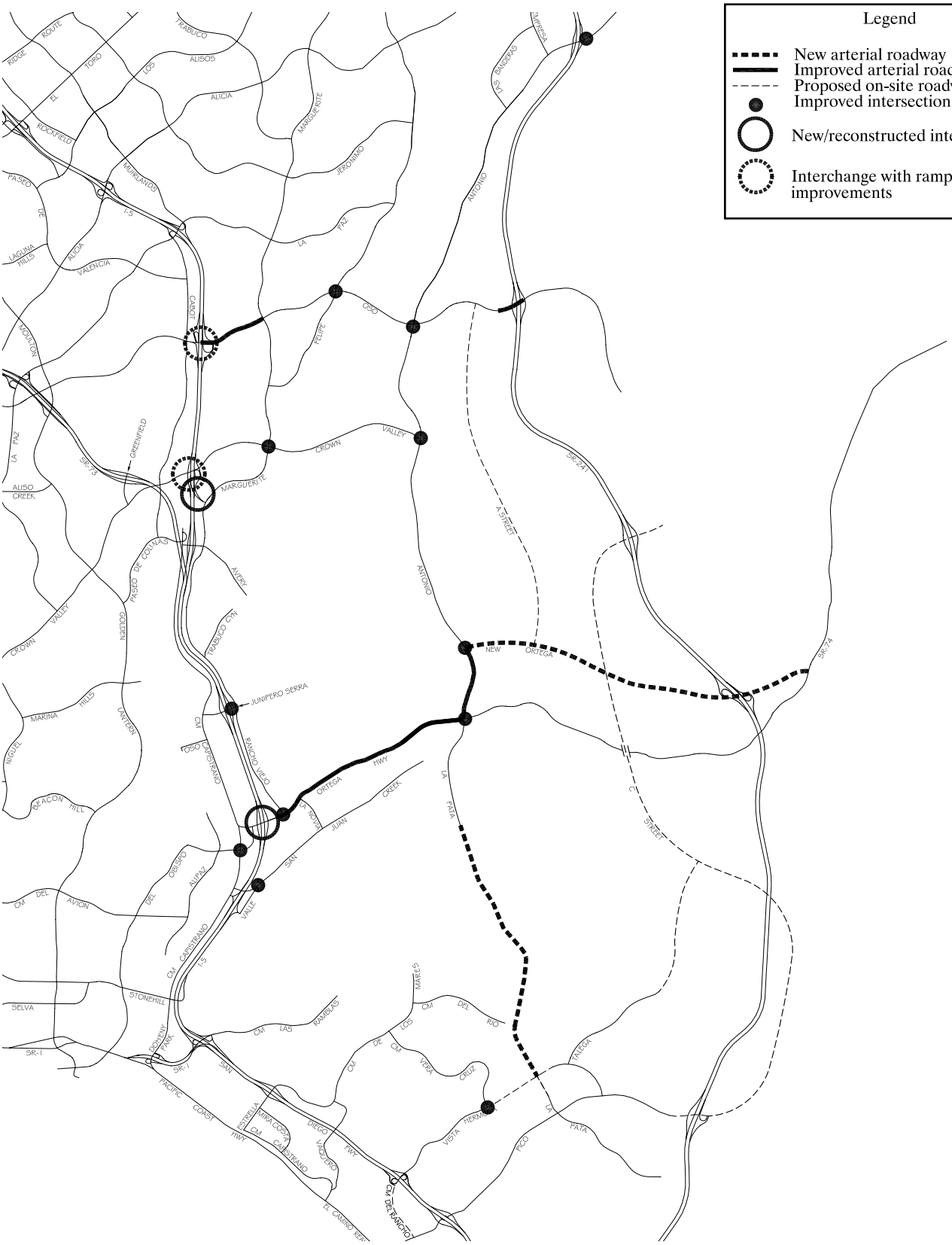
Exhibit 4.6-24

The Ranch Plan

N W E S

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-24_LongRangeWithout_060104.pdf



2025 Long-Range Circulation System Improvement Program (With SR-241 Extension)

Exhibit 4.6-25

The Ranch Plan

N W E S

Source: Austin-Foust Associates, Inc.

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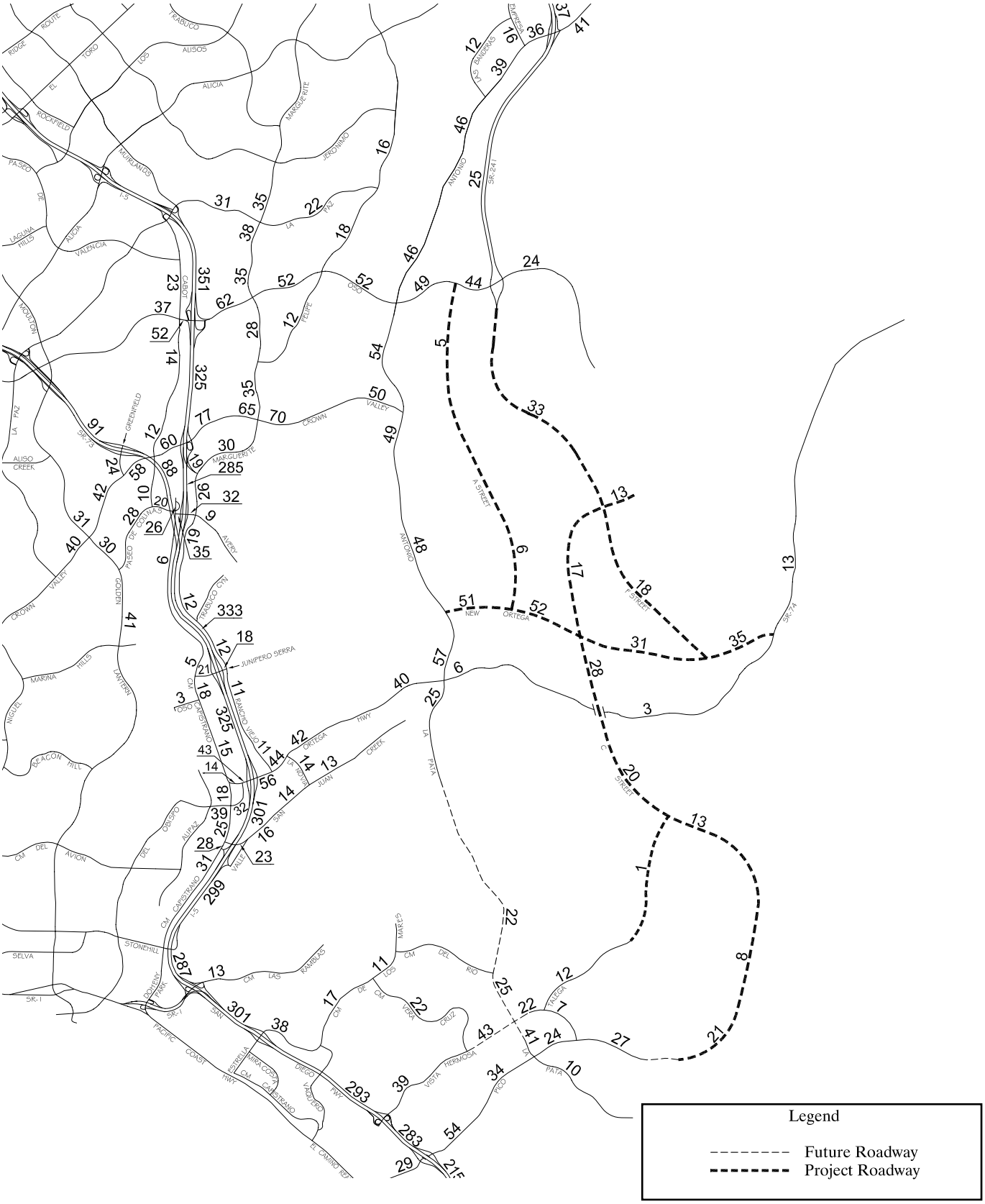


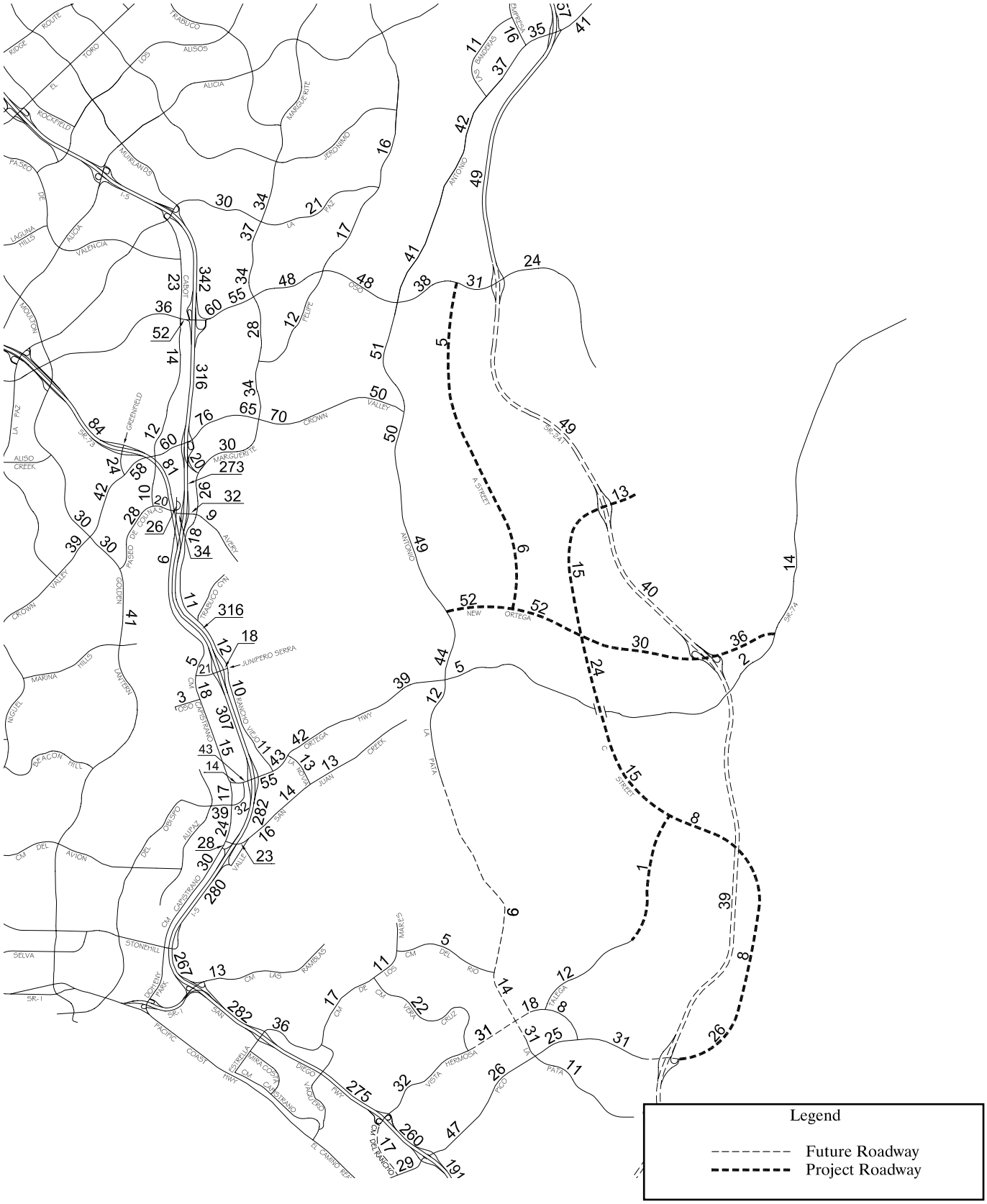
2025 With Project + Mitigation: ADT Volumes (000s) (Without FTC-S)

Exhibit 4.6-26

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-26_2025MitNoFTC_060104.pdf



2025 With Project + Mitigation: ADT Volumes (000s) (With FTC-S)

Exhibit 4.6-27

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-27_2025MitFTC_060104.pdf

Note: Arterial counts were taken in 2003, I-5 counts are 2002 Caltrans annual average daily traffic counts converted to weekday average daily traffic (ADT), and SR-73 and SR-241 counts are 2002 Transportation Corridor Agencies counts.

Existing Conditions: ADT Volumes (000s)

Exhibit 4.6-3

The Ranch Plan

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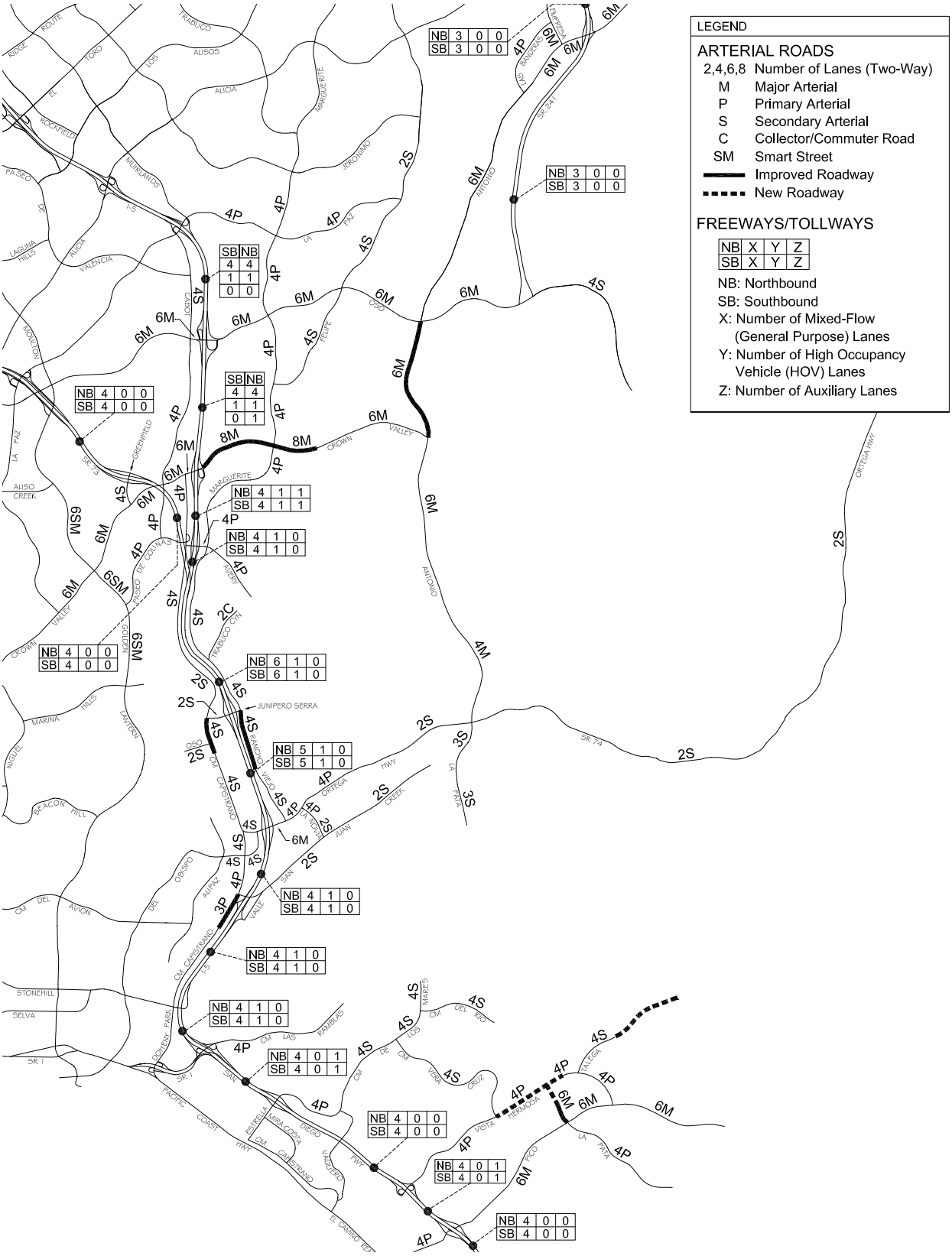
Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-3_ExistingADT_060104.pdf



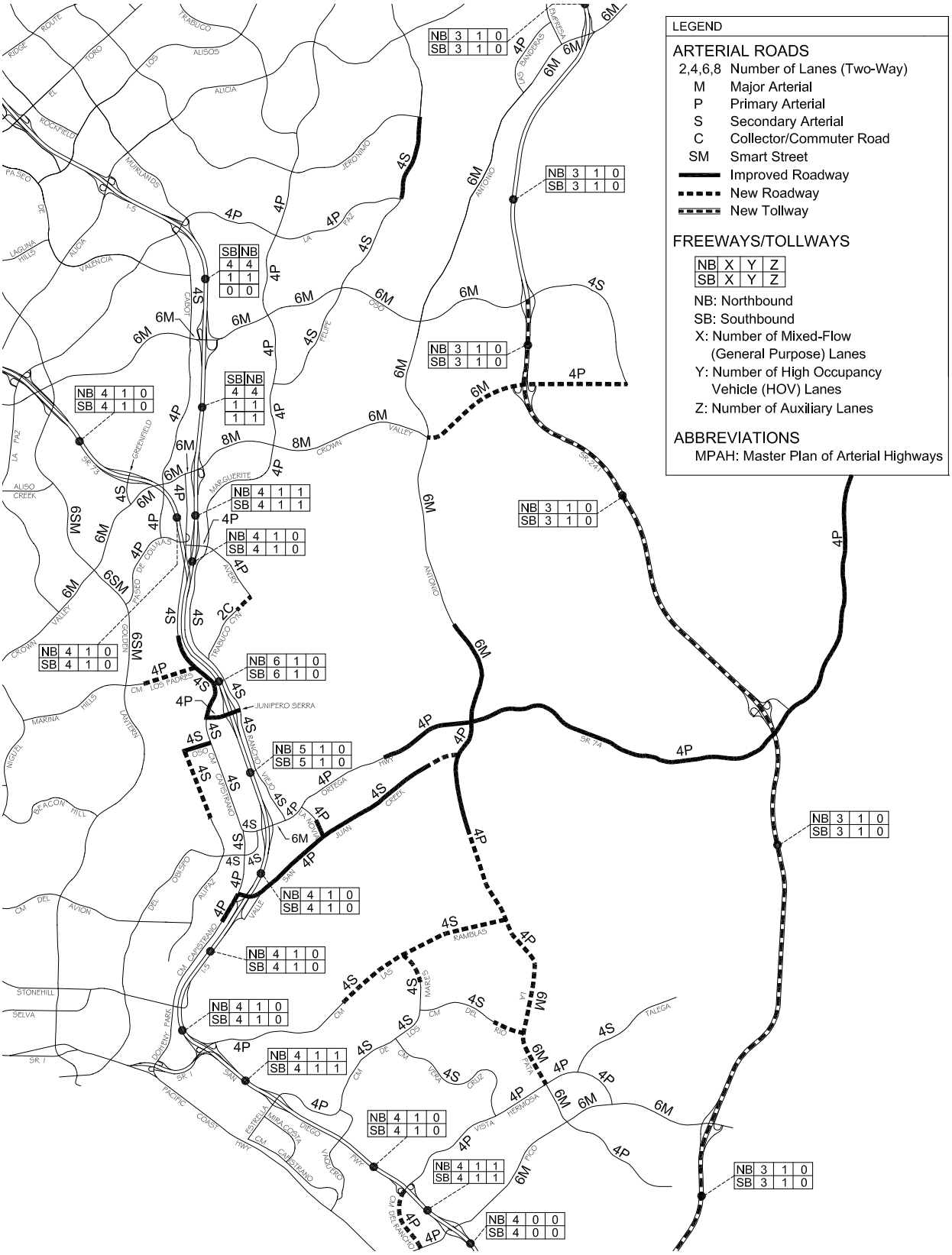
Committed CIrculation System

Exhibit 4.6-4

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-4_CommittedCirc_060104.pdf



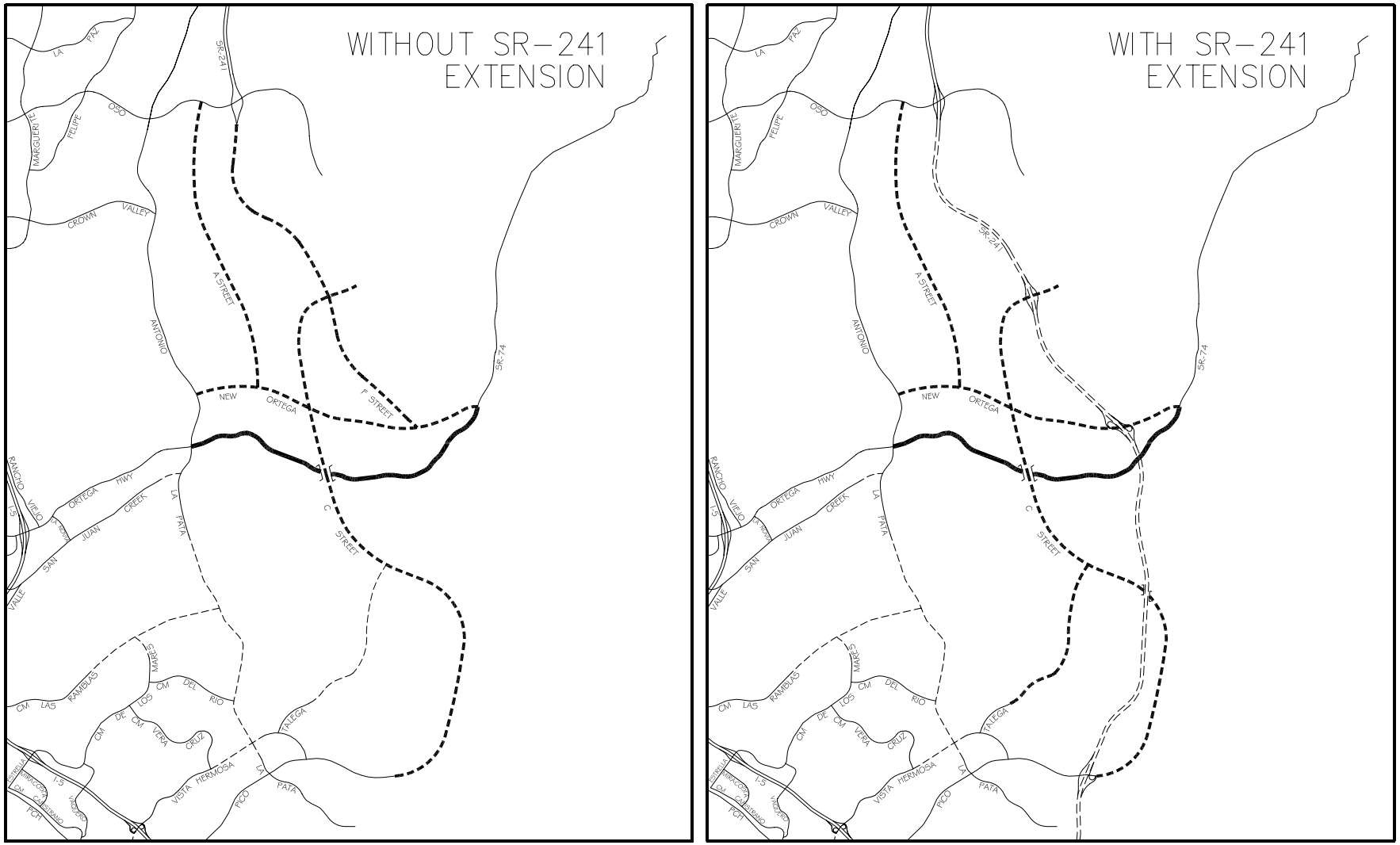
Master Plan of Arterial Highways
Project Buildout Circulation System

Exhibit 4.6-5

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-5_BuildoutMPAH_060904.pdf



Legend

- Future Roadway
- Project Roadway
- Two-Lane Roadway (25 mph)

Project Buildout Roadway System

Exhibit 4.6-6

The Ranch Plan

N
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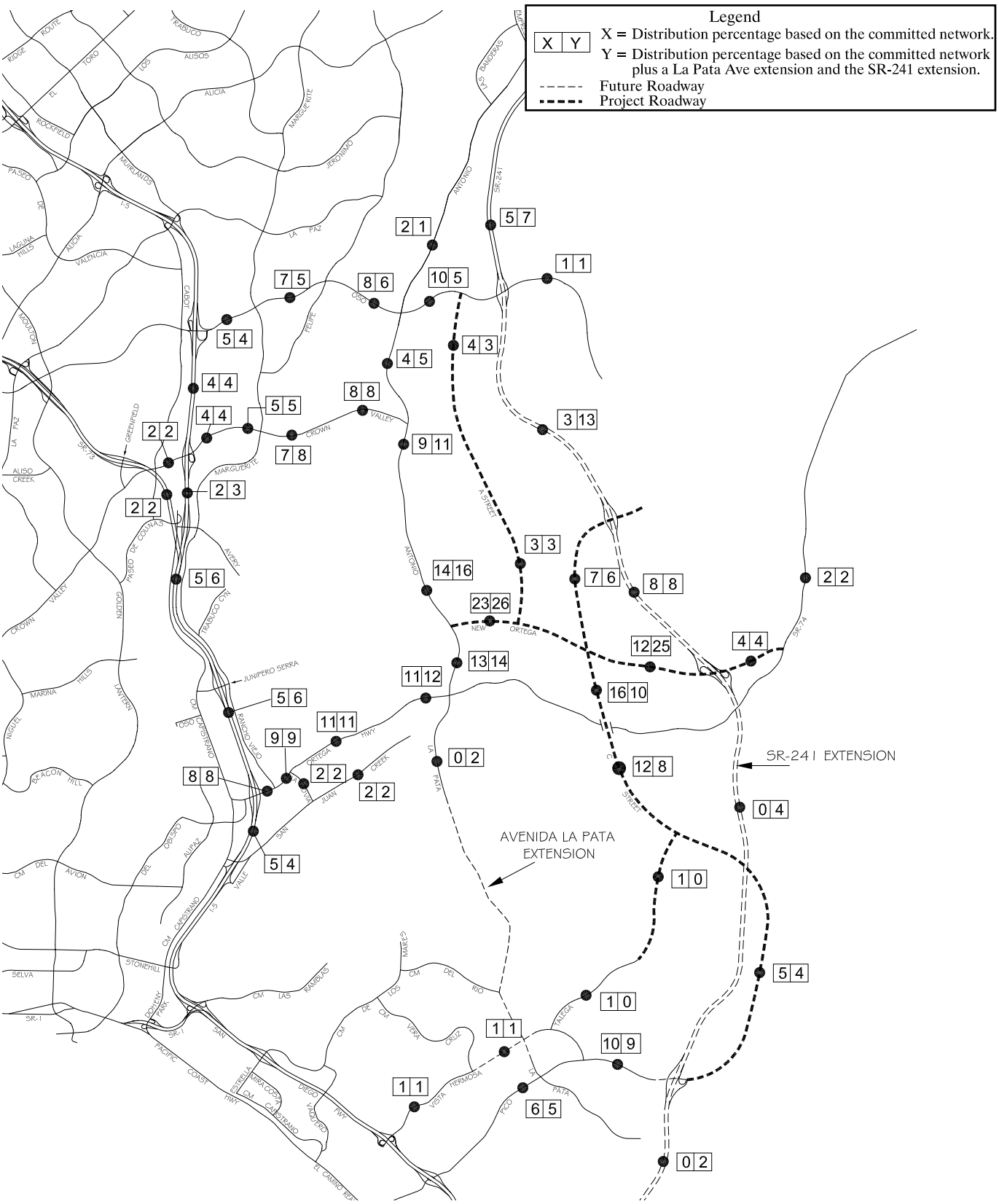
Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-6_BuildoutRoadway_060904.pdf



Project Buildout Trip Distribution

Exhibit 4.6-7

The Ranch Plan

N
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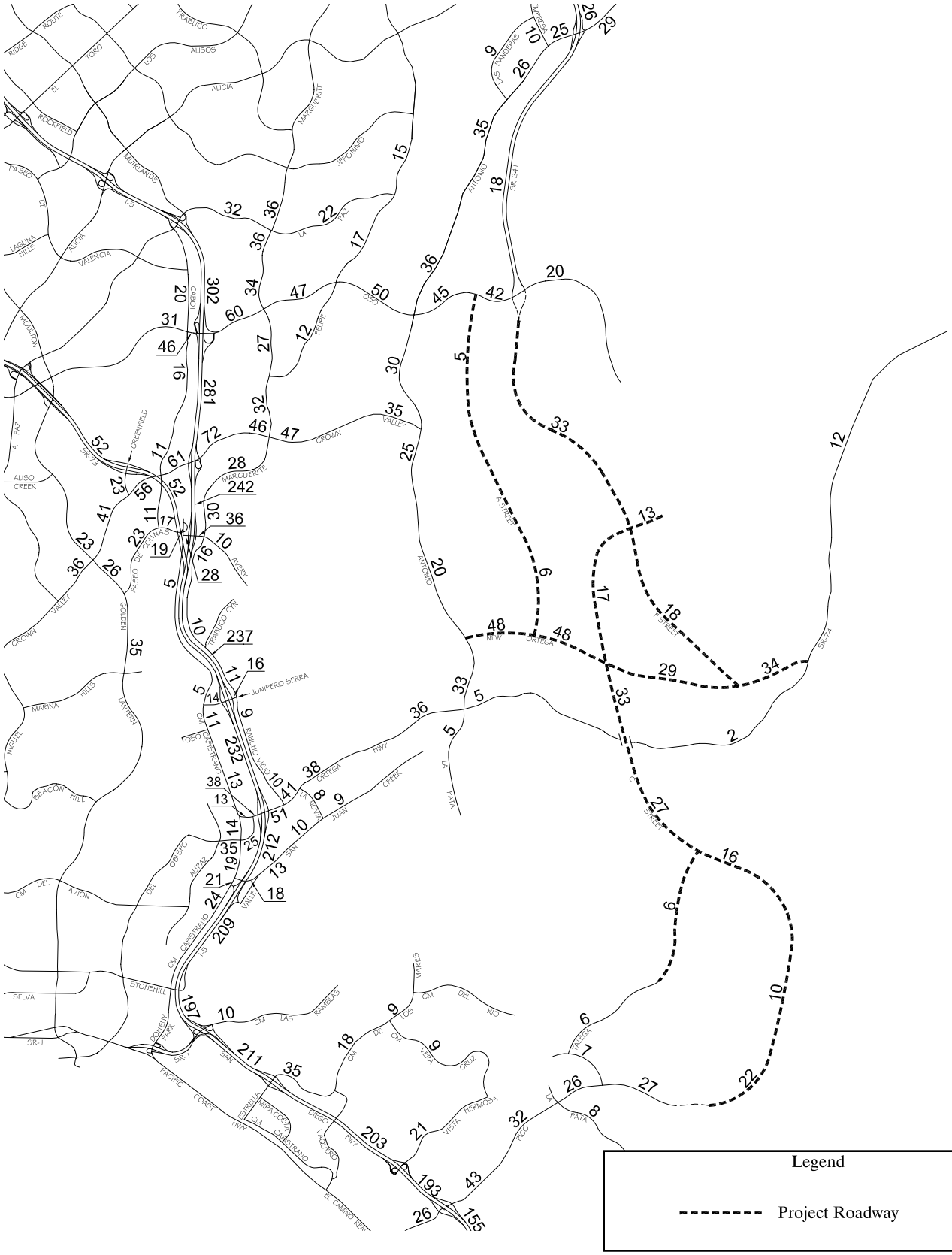
Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-7_BuildoutTrip_060904.pdf

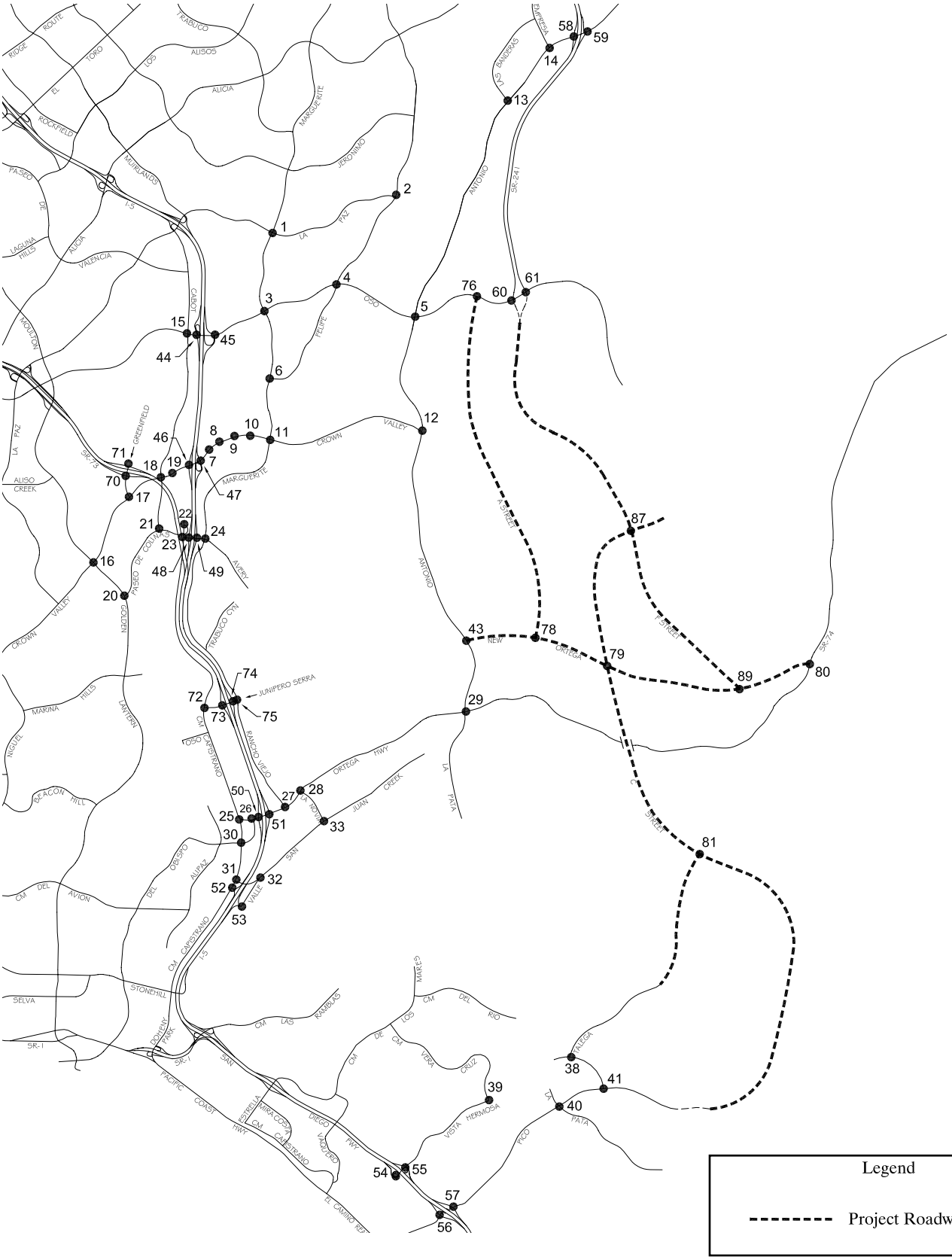


Existing Conditions + Project Buildout: ADT Volumes (000s) Exhibit 4.6-8

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-8_BuildoutADT_060904.pdf



Existing + Project Intersection Locations

Exhibit 4.6-9

The Ranch Plan

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.6-9_Intersections_060904.pdf

4.7 AIR QUALITY

4.7.1 INTRODUCTION

JHA Environmental Consultants prepared an air quality assessment for the Ranch Plan project in June 2004. Traffic volume information used in the assessment to project air emissions was provided by Austin-Foust Associates, Inc. The assessment is summarized below and included in its entirety as Appendix E of this Program EIR.

Regional Study Area

The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. Orange County is in the South Coast Air Basin (SCAB), a 6,600-square-mile area comprised of all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The SCAB's climate and topography are highly conducive to the formation and transport of air pollution. Peak ozone concentrations in the SCAB over the last two decades have occurred at the base of the mountains around Azusa and Glendora in Los Angeles County and at Crestline in the mountains above the City of San Bernardino.

Methodology

The analysis was based on federal, state, and regional regulations applicable to the project site. Construction grading and operational emissions were analyzed with the CARB model, URBEMIS2002. This computer model estimates construction and operational emissions associated with the specific land uses identified for a project, including grading based on the total acreage and timeframe in which grading would occur. The model uses current CARB emission factors for automobile and truck emissions and EPA emission factors for equipment emissions and fugitive dust emissions. The model is approved for use on all projects in the SCAB.

Criteria Air Pollutants

The quality of the ambient air is affected by pollutants emitted into the air from stationary and mobile sources. Stationary sources can be divided into two major subcategories: point sources and area sources. Point sources consist of one or more emission sources at a facility with an identified location and are usually associated with manufacturing and industrial processing plants. Area sources are widely distributed, such as residential water heaters, and produce many small emissions.

Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources include automobiles, trucks, and buses. Indirect sources are sources that, by themselves, may not emit air contaminants, but which indirectly cause the generation of air pollutants by attracting vehicle trips or consuming energy. Examples of indirect sources include office complexes that generate commuter trips and commercial centers that consume energy resources through the use of natural gas for space heating. Indirect sources also include actions proposed by local governments, such as redevelopment districts, and private projects involving the development of either large buildings or tracts. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment.

Air pollutants emitted into the ambient air environment by stationary and mobile sources are regulated by federal and state law. These regulated air pollutants are known as "criteria air

pollutants" and are categorized as primary and secondary pollutants. Primary criteria air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROGs), nitrogen oxides (NO_x), sulfur dioxide (SO_2), and most fine particulate matter (PM_{10}, $PM_{2.5}$), including lead (Pb) and fugitive dust, are primary criteria air pollutants. Secondary criteria air pollutants are those pollutants formed by chemical and photochemical reactions in the atmosphere. Ozone (O_3) and nitrogen dioxide (NO_2) are the principal secondary pollutants.

The following paragraphs describe these primary and secondary criteria air pollutants and their known health effects.

Primary Criteria Air Pollutants

Carbon Monoxide (CO). Carbon monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances (e.g., gasoline or diesel fuel). The primary adverse health effect associated with CO is the interference of normal oxygen transfer to the blood, which may result in tissue oxygen deprivation.

Reactive Organic Gases (ROGs). Reactive organic gases (ROGs) are compounds comprised primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROG include the evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROG, but by reactions of ROG to form secondary pollutants.

Nitrogen Oxides (NO_x). Nitrogen oxides (NO_x) serve as integral participants in the process of photochemical smog production. The two major forms of NO_x are nitric oxide (NO) and nitrogen dioxide (NO_2). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown irritating gas formed by the combination of NO and oxygen. NO_x acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.

Sulfur Dioxide (SO_2). Sulfur dioxide (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. Fuel combustion is the primary source of SO_2. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue.

Particulates (PM). Particulate matter (PM) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulate are now recognized. Course particles, or PM_{10}, includes that portion of the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 one-millionths of a meter or 0.0004 inch) or less. Fine particles, or $PM_{2.5}$, has an aerodynamic diameter of 2.5 microns (i.e., 2.5 one-millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind action on the arid landscape also contributes substantially to the local particulate loading. Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in individuals who are naturally sensitive or susceptible to breathing problems.

Fugitive dust has primarily two public health and safety concerns. The first concern is that of respiratory problems attributable to the suspended particulates in the air. The second concern is that of motor vehicle accidents caused by reduced visibility during severe wind conditions. Fugitive dust may also cause significant property damage during strong windstorms by acting as

an abrasive material agent (much like sandblasting activities). Finally, fugitive dust can result in a nuisance factor due to the soiling of proximate structures and vehicles.

Secondary Criteria Air Pollutants

Ozone (O_3). Ozone (O_3) is one of a number of substances called photochemical oxidants that are formed when reactive organic compounds (ROCs) [1] and NO_x (both byproducts of the internal combustion engine) react with sunlight. O_3 is present in relatively high concentrations in the SCAB, and the damaging effects of photochemical smog are generally related to the concentrations of O_3. O_3 may pose a health threat to those who already suffer from respiratory diseases, as well as healthy people. Additionally, O_3 has been tied to crop damage, typically in the form of stunted plant growth and pre-mature death. O_3 can also act as a corrosive resulting in property damage, such as the embrittlement of rubber products.

Nitrogen Dioxide (NO_2). Nitrogen Dioxide (NO_2) is a byproduct of fuel combustion. The principal form of NO_2 produced by combustion is NO. NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 part per million (ppm). NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO_2 also contributes to the formation of PM_{10}.

<u>Regulatory and Planning Requirements for the South Coast Air Basin</u>

Federal Attainment Status

The federal Clean Air Act (CAA), enacted in 1970 and last amended in 1990, represents the cornerstone of the national air pollution control effort. Basic elements of the CAA include federal ambient air quality standards for major air pollutants, hazardous air pollutants standards, state attainment plans, motor vehicle emissions standards, stationary source emissions standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

The CAA requires state air quality plans to provide for the implementation of all reasonably available control measures, including the adoption of reasonably available control technology for reducing emissions from existing sources. Emission control innovations in the form of market-based approaches are explicitly encouraged by the CAA. The South Coast Air Quality Management District (SCAQMD) was the first local agency in the country to adopt a market-based approach for controlling stationary source emissions of oxides of nitrogen and sulfur. Other federal requirements include mechanisms to track plan implementation and milestone compliance for O_3 and CO.

The SCAB was the nation's only "extreme" ozone (O_3) non-attainment area until the EPA changed the San Joaquin Valley Air Basin's status from "severe" to "extreme" in October 2001; the San Joaquin Valley Air Basin was given until 2010 to achieve the federal 1-hour ozone standard. The SCAB is designated a "serious" non-attainment area for CO and PM_{10}.

[1] The inclusive term "reactive organic compounds" generally and collectively describes reactive organic gases (ROGs), volatile organic compounds (VOCs), and hydrocarbons (HC), except in cases where such separation provides additional clarification and definition. For purposes of this analysis, these terms are used synonymously.

The CAA has identified 2000 (for CO) and 2005 (for PM_{10}), respectively, as attainment deadlines for "serious" non-attainment areas. The 8-hour CO standard was not met in 2000. Although no CO standard was exceeded anywhere in the SCAB in 2001, the 8-hour federal standard was exceeded twice in 2000 in the South Central Los Angeles County Source-Receptor Area. Federal EPA regulations specify that an area attains the CO standard when there are two years of data with no more than one exceedance at any one monitoring station. The 2003 Air Quality Management Plan (AQMP) states that the CO attainment requirements were met in 2002. However, the SCAQMD has not yet requested that the EPA redesignate the SCAB an attainment area.

The national nitrogen dioxide (NO_2) standard was regularly exceeded in Los Angeles County until 1992, and the SCAB was the only NO_2 non-attainment area in the nation in 1998 when the EPA redesignated it "attainment."

In July 1997, the federal Environmental Protection Agency (EPA) promulgated a new 8-hour standard for ozone and a new standard for fine particulate matter ($PM_{2.5}$). On April 15, 2004, the EPA released its list of 8-hour ozone non-attainment areas and identified the deadline for each non-attainment area to attain the standard. Areas with the highest 8-hour concentrations and the greatest number of days exceeding the new standard were given the longest time to reach attainment. The SCAB is in the most severely degraded ozone category and was given 17 years, or until 2021, to reach the new standard.

Although the promulgation of the new standards for ozone and fine particulates is complete, the EPA has yet to promulgate the air quality designations (i.e., attainment compared to non-attainment) of the various regions for $PM_{2.5}$ standards. Designation of $PM_{2.5}$ non-attainment areas by the EPA is expected in late 2004 or sometime in 2005. Until these designations are made and the timeframe for meeting the new standard is established, the existing federal PM_{10} standards are the only particulate standards of reference for determining attainment.

California Attainment Status

In addition to federal requirements, each air basin must meet California Clean Air Act (CCAA) requirements. According to the CCAA, air pollution control districts must design their air quality attainment plans to achieve a reduction in basin-wide emissions of 5 percent or more per year (or 15 percent or more in a three-year period) for all non-attainment pollutants and their precursors. For emission reduction accounting purposes, the CARB established a seven-year initial reporting period (1988 to 1994) with reporting intervals every three years thereafter. New AQMPs were adopted by the air districts in 1989 to meet federal standards and in 1991 to meet California standards. These AQMPs were revised in 1994 and 1997, and the EPA approved the 1994 AQMP in 1996 as part of the State Implementation Plan.

Under federal conformity regulations, all federal or federally funded transportation projects must conform to the State Implementation Plan and must not be a cause of impeding progress toward attainment of the federal standards. To establish conformity, emissions from future projects must be accounted for in the future baseline emissions inventories, such that the attainment demonstrations include these future emissions. For transportation projects, planning is now underway to year 2030.

Regional Planning

The SCAQMD and the Southern California Association of Governments (SCAG) jointly prepare the AQMP for the SCAB. The AQMP contains measures to meet state and federal

requirements. When approved by CARB and the EPA, the AQMP becomes part of the State Implementation Plan.

After the EPA announced that it had concerns about the ozone control strategies in the 1997 AQMP, the SCAQMD revised its AQMP in 1999 to address the EPA issues. The revised plan, known as the *1997/1999 AQMP*, was approved by the EPA on May 10, 2000 and replaced the 1994 AQMP as the federally enforceable State Implementation Plan for the SCAB. The most recent AQMP was prepared by the SCAQMD and SCAG in 2003, and the SCAQMD adopted the revised plan as the 2003 AQMP on August 1, 2003. CARB approved the 2003 AQMP in October 2003 and forwarded it to the EPA for review and approval. When approved, the revised plan will replace the *1997/1999 AQMP* as the State Implementation Plan for the SCAB.

Ambient Air Quality Standards

Air quality impacts of a project, combined with existing background air quality levels, must be compared to the applicable ambient air quality standards (AAQS) to gauge their significance. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. The standards are designed to protect sensitive persons most susceptible to further respiratory distress, such as persons with respiratory illnesses or impaired lung function caused by other illness, the elderly, and young children. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. The SCAQMD's *CEQA Air Quality Handbook* defines land uses considered to be sensitive receptors as long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, child care centers, and athletic facilities. California standards are generally stricter than national standards, but have no penalty for non-attainment. California and national ambient air standards are shown on Table 4.7-1.

4.7.2 EXISTING CONDITIONS

The SCAQMD is responsible for monitoring air quality in the SCAB and for adopting controls, in conjunction with CARB, to improve air quality. The SCAQMD has established "source-receptor" areas (SRAs) for monitoring air pollution, based on topographical and meteorological barriers. The project site is located in SRA 21, Capistrano Valley, which is in the southernmost portion of Orange County and extends from the mountains to the coast. The SCAQMD does not maintain a monitoring station in this SRA. The SCAQMD monitoring station for this forecast area, known as Inland Orange County, is in SRA 19 (i.e., the Saddleback Valley).

Overall, air quality improved considerably throughout the SCAB in the 1990s. In 1990, the peak ozone concentration in SRA 19 was 0.19 parts per million (ppm) and the state ozone standard was exceeded 32 times. In 2002, the peak reading at that same station was 0.136 ppm and the State standard was exceeded only nine times. These improvements have occurred despite extensive population growth in Orange County during the past 12 years.

Pending EPA designation of $PM_{2.5}$ non-attainment areas, the SCAQMD is monitoring levels of concentrations of $PM_{2.5}$ in the SCAB. Where readings are available, the $PM_{2.5}$ concentrations are shown in Table 4.7-2 for informational purposes. Readings for SRA 19 for the past five years, together with the applicable state and national standards, are also presented in this table.

TABLE 4.7-1
AMBIENT AIR QUALITY STANDARDS

Air Pollutant	State Standard	National Standard	
		Primary	Secondary
Ozone (O_3)	0.09 ppm, 1-hr avg.	0.12 ppm, 1-hr avg. 0.08 ppm, 8-hr avg.	0.12 ppm, 1-hr avg. 0.08 ppm, 8-hr avg.
Respirable Particulate Matter (PM_{10})	50 $\mu g/m^3$, 24-hr avg. 20 $\mu g/m^3$ AGM	150 $\mu g/m^3$, 24-hr avg. 50 $\mu g/m^3$ AAM	150 $\mu g/m^3$, 24-hr avg. 50 $\mu g/m^3$ AAM
Fine Particulate Matter ($PM_{2.5}$)	No 24-hr., State std. 12 $\mu g/m^3$ AGM	65 $\mu g/m^3$, 24-hr avg. 15 $\mu g/m^3$ AAM	65 $\mu g/m^3$, 24-hr avg. 15 $\mu g/m^3$ AAM
Carbon Monoxide (CO)	9.0 ppm, 8-hr avg. 20 ppm, 1-hr avg.	9 ppm, 8-hr avg. 35 ppm, 1-hr avg.	None
Nitrogen Dioxide (NO_2)	0.24 ppm, 1-hr avg.	0.053 ppm, annual avg.	0.053 ppm, annual avg.
Sulfur Dioxide (SO_2)	0.25 ppm, 1-hr 0.04 ppm, 24-hr avg.	0.03 ppm, annual avg. 0.14 ppm, 24-hr avg.	0.5 ppm, 3-hr avg.
Lead (Pb)	1.5 $\mu g/m^3$, monthly avg.	1.5 $\mu g/m^3$, calendar quarter	1.5 $\mu g/m^3$
Visibility-Reducing Particles	Extinction coefficient of 0.23 per km, visibility of 10 miles at relative humidity less than 70%, 1 observation	—	—
Sulfates (SO_4)	25 $\mu g/m^3$, 24-hr avg.	—	—
Hydrogen Sulfide (H_2S)	0.03 ppm, 1-hr avg.	—	—
Vinyl Chloride	0.010 ppm, 24-hr avg.	—	—

ppm = parts per million by volume
$\mu g/m^3$ = micrograms per cubic meter
AAM = annual arithmetic mean
AGM = annual geometric mean

Source: California Air Resources Board, July 9, 2003

TABLE 4.7-2
SADDLEBACK VALLEY (INLAND ORANGE COUNTY) SRA 19
AIR QUALITY DATA SUMMARY

Pollutant Standards	1998	1999	2000	2001	2002
Ozone (O_3)					
State standard (1-hr avg. 0.09 ppm)					
National standard (1-hr avg. 0.12 ppm)					
National standard (8-hr avg. 0.08 ppm)					
Maximum 1-hr concentration (in ppm)	0.16	0.01	0.13	0.125	0.136
Maximum 8-hr concentration (in ppm)	0.11	0.08	0.11	0.098	0.095
Number of days state standard exceeded	15	2	3	10	9
Number of days national 1-hr standard exceeded	1	0	1	1	2
Number of days national 8-hr standard exceeded	3	0	2	2	2
Carbon Monoxide (CO)					
State standard (1-hr avg. 20 ppm)					
National standard (1-hr avg. 35 ppm)					
State standard (8-hr avg. 9.0 ppm)					
National standard (8-hr avg. 9.0 ppm					
Maximum concentration 1-hr period (in ppm)	6.0	4.0	5.0	3.0	3.0
Maximum concentration 8-hr period (in ppm)	3.1	2.5	3.3	2.38	3.6
Number of days state/national 1-hr standard exceeded	0	0	0	0	0
Number of days state/national 8-hr standard exceeded	0	0	0	0	0
Nitrogen Dioxide (NO_2)[1]					
State standard (1-hr avg. 0.25 ppm)					
National standard (0.0534 AAM in ppm)					
Annual arithmetic mean (in ppm)	0.0200	0.0209	0.0205	0.0182	0.0187
Percent national standard exceeded	0	0	0	0	0
Maximum 1-hr concentration	0.12	0.12	0.11	0.08	0.11
Number of days state 1-hr standard exceeded	0	0	0	0	0
Suspended Particulates (PM_{10})					
State standard (24-hr avg. 50 $\mu g/m^3$)					
National standard (24-hr avg. 150 $\mu g/m^3$)					
Maximum 24-hr concentration	70	111	98[2]	60	80
Percent samples exceeding state standard	10.2	10	3	5	8.3
Percent samples exceeding national standard	0	0	0	0	0
Suspended Particulates ($PM_{2.5}$)					
National standard (24-hr avg. 65 $\mu g/m^3$)					
Maximum 24-hr concentration		56.6	94.7[2]	53.4	58.5
Percent samples exceeding national standard	NM	0	0	0	0

[1] Readings are from SRA 18 (North Orange County; NO_2 not monitored in SRA 19)
[2] Year 2000 PM_{10} and $PM_{2.5}$ readings are from special monitoring station set up on temporary basis in SRA 19 and were only $PM_{2.5}$ readings that year in SRA 19. PM_{10} readings were from some monitoring station for comparison purposes.

ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter
NM = Mot Monitored. $PM_{2.5}$ monitoring began in 1999.

Source: SCAQMD Air Quality Data–1998 through 2002.

Pollutant concentrations, particularly those of particulates, vary somewhat from year to year, depending on meteorological conditions. Although readings in SRA 19 for 1998 to 2002 (the most recent published data) are basically unchanged for ozone and carbon monoxide, concentrations of the two pollutants have declined since 1998. For all other pollutants, the observed concentration levels are basically unchanged over the past five-year period. The area experiences relatively low ozone pollution compared to elsewhere in the SCAB. Notwithstanding, concentrations of ozone are the highest in Orange County; state and national standards are regularly exceeded. As is the case throughout Orange County, carbon monoxide

levels have not exceeded state and national standards in the period. Particulate readings are relatively constant and well below national PM_{10} standards, although they exceed state standards. The new national $PM_{2.5}$ standard would have been exceeded occasionally in SRA 19.

4.7.3 PROJECT AND CUMULATIVE IMPACTS

Thresholds of Significance

A project's air quality impacts can be separated into short-term impacts due to construction and long-term permanent impacts from project operations. The County of Orange, as the lead agency, is responsible for making determinations regarding the existence of significant air quality impacts. Determination of significant impact is the responsibility of the lead agency, which is the County of Orange. The SCAQMD's emission thresholds apply to all federally regulated air pollutants except lead, which is not exceeded in the SCAB.

A significant air quality impact would occur if the project would:

- Result in a violation of any state or national ambient air quality standard or contribute substantially to an existing or projected air quality violation. The significance thresholds recommended by the SCAQMD in its *CEQA Air Quality Handbook,* as revised in November 1993 and approved by the SCAQMD's Board of Directors, are the basis for determining significance of an impact for this project. Construction and operational emissions are considered by the SCAQMD to be significant if they exceed the thresholds identified in Table 4.7-3.

TABLE 4.7-3
EMISSIONS THRESHOLDS OF SIGNIFICANCE

Pollutant	Construction		Operations (pounds/day)
	pounds/day	tons/quarter	
Carbon Monoxide (CO)	550	24.75	550
Sulfur Oxides (SO_x)	150	6.75	150
Nitrogen Oxides (NO_x)	100	2.5	55
Particulate Matter (PM_{10})	150	6.75	150
Reactive Organic Compounds (ROC)	75	2.5	55
Source: South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993			

- Result in an increase in carbon monoxide concentrations where: (1) an increase in CO concentrations is sufficient to cause an exceedance of the most stringent state or national CO standard (20 parts per million for 1-hour concentrations and nine parts per million for 8-hour concentrations); or (2) in an area that already exceeds national or state CO standards, the project increase exceeds 1 part per million (ppm) for a 1-hour average or 0.45 ppm for an 8-hour average.

In addition, the SCAQMD *CEQA Air Quality Handbook* lists additional indicators of potential air quality impacts (Secondary Effects). Projects would have a significant impact if they would:

- Conflict with or obstruct implementation of the applicable air quality plan.

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including release in emissions which exceed quantitative thresholds for ozone precursors).

- Expose sensitive receptors to substantial pollutant concentrations.

- Expose a substantial number of people to objectionable odors. An objectionable odor is defined in the SCAQMD *CEQA Air Quality Handbook* as 1 over 10 dilution to thresholds (D/T).

Construction Impacts

Impact 4.7-1: *Construction-related air quality emissions would result in significant impacts on a daily and quarterly basis.*

Construction impacts may be regional or local and include (1) airborne dust from demolition, grading, excavation, and dirt hauling and (2) gaseous emissions from the use of heavy equipment, delivery and dirt hauling trucks, employee vehicles, and paints and coatings. Regional pollutants, such as ozone, are those where emissions from many sources combine in the atmosphere and impact areas far removed from the emission sources. Local pollutants are those where the impacts occur very close to the source, such as carbon monoxide or large particulate matter (fugitive dust) that settles in the vicinity of the source and does not become airborne.

The proposed project is projected to take approximately 20 to 25 years to be fully built out and would be developed in seven grading phases (over 19 years) and eight construction phases. The peak construction day and quarter would occur in Phase 6 in the four years between the beginning of 2013 and the end of 2016. This is when the most cut and fill would be occurring, as well as the most heavy-duty construction equipment in use. The analysis assumes that the peak period would occur in 2014. Based on the phasing plan for the Ranch, there would be overlap with Phase 4 construction in areas that have been previously graded.

Both construction grading and operation emissions were analyzed with the California Air Resources Board model, URBEMIS2002. This computer model estimates both construction and operational emissions associated with the specific land uses associated with a project, including grading based on the total acreage and the time frame in which grading will occur. The model uses current CARB emission factors for automobile and truck emissions and EPA emission factors for equipment emissions and fugitive dust emissions. The model is approved for use on all projects in the South Coast Air Basin. Because the URBEMIS estimates of worker trips and truck trips are based on average construction requirements for total land uses in the project, the worker and truck trip estimates were based on assumed needs in 2014 and include worker trips and truck trips for other activities besides grading. Table 4.7-4 and Table 4.7-5 identify the construction-related daily and quarterly emissions, respectively, for peak construction activities on the project site. As shown in the tables, emissions of all pollutants except sulfur oxides would be significant, based on the thresholds of significance set forth in this Program EIR.

TABLE 4.7-4
MAXIMUM CONSTRUCTION EMISSIONS (IN POUNDS PER DAY)
PRIOR TO MITIGATION

Source Category	Pollutant				
	Carbon Monoxide (CO)	Volatile Organic Compounds (VOC)	Oxides of Nitrogen (NO_X)	Oxides of Sulfur (SO_X)	Particulate Matter (PM_{10})
Earthmoving/Grading	n/a	n/a	n/a	n/a	12,047
Diesel-Powered Equipment	1,412	169	1,049	0	28
Worker Trips[a., b.]	23/112	1/8	2/5	0	0/5
Architectural Coatings[a.]	n/a	1,409	n/a	n/a	n/a
Maximum Daily Construction Emissions (highest phase)	1,435	1,417	1,051	0	12,085
SCAQMD Daily Significance Thresholds	550	75	100	150	150
Significant	**Yes**	**Yes**	**Yes**	**No**	**Yes**

n/a: Not Applicable
a. Grading phase
b. Architectural coatings phase

Sources: URBEMIS 2002 model; JHA Environmental Consultants, June 2004.

TABLE 4.7-5
PEAK QUARTER CONSTRUCTION EMISSIONS (in tons)
PRIOR TO MITIGATION

Source Category	Pollutant				
	Carbon Monoxide (CO)	Volatile Organic Compounds (VOC)	Oxides of Nitrogen (NO_X)	Oxides of Sulfur (SO_X)	Particulate Matter (PM_{10})
Earthmoving/Grading	n/a	n/a	n/a	n/a	397.55
Diesel-Powered Equipment	46.60	5.58	34.62	0	1.25
Worker Trips[a., b.]	0.76/3.70	0.03/0.26	0.07/0.17	0	0/0.17
Architectural Coatings	0	46.0	0	0	0
Total Construction Emissions (highest phase)	49.70	46.26	34.69	0	398.80
SCAQMD Quarterly Significance Thresholds	24.75	2.5	2.5	6.75	6.75
Significant	**Yes**	**Yes**	**Yes**	**No**	**Yes**

n/a: Not Applicable
a. Grading phase
b. Architectural coatings phase

Sources: URBEMIS 2002 model, JHA Environmental Consultants, June 2004.

Grading and Excavation

Grading concepts for the proposed project were developed by EDAW. These concepts were used by the civil engineering firm of Huitt-Zollars, Inc. to produce cut and fill quantities, as measured between the proposed landform alterations and existing terrain. The analysis was

conducted at varying scales between 1"=200' and 1"= 400' (depending on the size and required detail for the planning area). The raw data was analyzed for adjustments in elevation to allow for the balancing between mass excavation and mass fills for each planning area. The data was also reviewed by the geotechnical consultant for feasibility including the estimations of quantities associated with the removal, replacement, and re-compaction of low-density materials; the stabilization of slopes and landslides, as required, and other buttressing, over-excavation, and remedial work estimated to construct the project in accordance with the County's current standards of practice. This information was also used to determine construction equipment and construction employee requirements.

Project implementation would require approximately 288,461,000 cubic yards (cy) of cut and fill grading, inclusive of remedial grading. Of this amount, 107,957,000 cubic yards of soil movement are expected to occur in Phase 6, resulting in an average of 26,989,250 cy in the year. Assuming 22 workdays per month, this would average 102,232 cy per day. During each development phase, all soil will be balanced (retained) on the site. Therefore, the model assumes no on-road truck travel.

SCAQMD Rule 403, last amended April 2, 2004, governs fugitive dust emissions from construction projects. This rule sets forth a list of control measures that must be undertaken for any activity or man-made condition capable of generating fugitive dust to prevent, reduce or mitigate fugitive dust emissions. The rule applies to all construction projects with a disturbed area of five or more acres. In addition, large projects, which are defined as active operations on property which contains in excess of 50 acres of disturbed surface area or any operation which exceeds a daily earthmoving or throughput volume of 5,000 cubic yards three times over a 365-day period, must file a fully executed Large Operation Notification Form (Form 403N) with the SCAQMD Executive Officer within 7 days of qualifying as a large operation under the rule. The rule sets forth a number of requirements regarding record keeping, as well as specific mitigation measures that must be contained in an approved dust-control plan. Recommended dust control measures are incorporated in the URBEMIS model. Because the proposed project would exceed 50 acres and would move at least 5,000 cubic yards of dirt three or more times in a year during construction, the proposed project would be required to file a 403N form.

SCAQMD Rule 402, Nuisance, also would apply to this project. Most of the fugitive dust associated with construction is comprised of particles larger than 10 microns in diameter. While these larger particles settle out quickly and do not cause the health effects associated with the smaller sized particles (i.e., PM_{10} and $PM_{2.5}$), they can damage plants and property sufficiently to qualify as a nuisance. Rule 402 prohibits visible dust emissions from extending beyond the project boundaries. The same mitigation measures used to control PM_{10} would also effectively control the unwanted transmission of larger particles.

Equipment

Based on the applicant's proposed phasing plan and the grading estimates prepared by the project engineers, the analysis assumes that there would be a total of 69 pieces of heavy equipment required for the peak-grading day. Equipment would consist of very large dozers, some moderate to smaller dozers, graders, scrapers, etc. There would be a need for 6 off-road water trucks. All equipment is assumed to operate eight hours per day.

Worker Trips

The URBEMIS2002 model calculates daily worker trip emissions based on the land uses and amount of equipment.

Architectural and Asphalt Coatings

The proposed schedule assumes partial construction of Planning Area 4 simultaneously with the peak grading period. Some VOC emissions would occur during this construction. The amount of these emissions will depend on the painting schedule and duration, as well as the season in which painting occurs. Planning Area 4 is a small planning area. In order to more accurately depict a typical worst-case day for VOC emissions from architectural coatings, the construction that will follow in Planning Areas 5, 6, and 7, which have the same boundaries as Grading Phase 6, was assessed for potential daily emissions from architectural coatings. These emissions are a high estimate. The project applicant would be required to ensure that all coatings are SCAQMD-compliant.

Sensitive Receptors

The CARB has identified diesel particulate emissions as carcinogenic air toxics. Because much of the project area is remote from the nearest currently populated area, there are few identified sensitive receptors in the immediate vicinity of where most of the grading would occur. Sensitive receptors would include existing residents contiguous to the project site (e.g., Coto de Caza); and students and faculty at Tesoro High School. However, cancer risk is cumulative, based on lifetime exposure, and the CARB has not set a safe level for exposure to diesel exhaust. Therefore, a receptor's exposure to any amount of diesel exhaust should be mitigated. Construction workers would be most at risk because of the large amount of diesel equipment that would be operating simultaneously. Workers should wear masks when working near diesel equipment or diesel trucks; all diesel equipment should be fitted with particulate traps.

Regional Operational Impacts

Impact 4.7-2: *On a regional basis, operational air quality emissions would result in significant impacts, with the exception of sulfur oxides.*

Regional Operational Impacts

As addressed in Section 3 of this Program EIR, buildout of the proposed Ranch Plan project would contain up to 14,000 dwelling units; approximately 6,000 of the 14,000 dwelling units would be senior housing. Other development would include neighborhood and urban activity centers, as well as supporting infrastructure including schools, road improvements, and utilities. As set forth in the traffic analysis, at full build-out, it is estimated that the project would generate approximately 183,338 trip ends daily. (Please refer to Section 4.6, Transportation and Circulation.)

The primary source of operational emissions would be vehicle travel; a small amount of gaseous emissions would occur from use of natural gas and other area sources. There would also be some indirect emissions from electricity usage. Landscaping emissions are principally those associated with garden equipment (such as mowers, leaf blowers, etc.) while emissions from consumer products are principally generated by activities associated with typical residential and commercial land uses (e.g., hair sprays, household and industrial cleaning solvents, floor cleaners and waxes, colognes, and deodorants).

Existing Conditions + Project Buildout

This scenario assumes that the Ranch Plan project would be fully implemented at present. Under this scenario, buildout would occur under an accelerated schedule. The project applicant

does not propose this accelerated schedule. However, in compliance with CEQA, immediate full buildout is assumed in order to allow for substantial evaluation of the potential air quality impacts associated with the completed project.

The *Existing Conditions + Project Buildout* scenario assumes project-specific traffic at buildout (year 2025) with the air quality modeling conducted for 2005. As previously noted, vehicle and area emissions were calculated using the CARB model (URBEMIS2002), adjusted for total trips for the project. Existing traffic was estimated by the traffic consultant, as well as cumulative and project-related traffic at buildout in 2025. These traffic numbers were combined to develop an existing scenario in 2005. Emissions were calculated for both summer and winter conditions. Specifically, NO_X emissions are higher in winter because of heating with natural gas; ROC emissions are slightly higher in summer because of increased landscaping activities. To show a worst-case, the higher number for each pollutant is used in Table 4.7-6. Emissions of all pollutants, except sulfur oxides, would be significant based on SCAQMD thresholds of significance. As shown on the table, operation of the proposed project would result in significant emissions of all pollutants except sulfur oxides on a regional scale.

TABLE 4.7-6
EXISTING CONDITIONS + PROJECT BUILDOUT
OPERATIONAL EMISSIONS (POUNDS PER DAY)

Source Category	Pollutant				
	CO	**VOC**	**NO_X**	**SO_X**	**PM_{10}**
Traffic Emissions	19,577	1,894	2,477	16	1,443
Consumer Products and Landscaping	119	699	2	4	1
Natural Gas Emissions	73	13	173	0	0
Total Project Emissions	19,769	2,606	2,652	20	1,444
SCAQMD Significance Thresholds for Operation	550	55	55	150	150
Significant	**Yes**	**Yes**	**Yes**	**No**	**Yes**

Note: Emissions calculated with URBEMIS2002
Source: JHA Environmental Consultants, June 2004

Year 2025 + Project Buildout

This scenario assumes buildout of the proposed project plus cumulative growth in the study area through 2025. Table 4.7-7 identifies the operational air quality emissions associated with this scenario. As shown in this table, operation of the proposed project would result in significant emissions of all pollutants except sulfur oxides on a regional scale based on SCAQMD thresholds of significance. However, because of fleet turnover to vehicles with already implemented emission controls and because of the implementation of already adopted but future effective vehicle emissions controls, total emissions in 2025 would be considerably lower than they would be if the project were operative in 2005.

TABLE 4.7-7
YEAR 2025 + PROJECT BUILDOUT
OPERATIONAL EMISSIONS (Pounds per Day)

Source Category	Pollutant				
	CO	VOC	NO_X	SO_X	PM_{10}
Traffic Emissions	4,073	495	330	10	1,434
Consumer Products and Landscaping	62	691	1	2	0
Natural Gas Emissions	73	13	173	2	0
Total Project Emissions	4,208	1199	504	14	1,434
SCAQMD Significance Thresholds for Operation	550	55	55	150	150
Significant	**Yes**	**Yes**	**Yes**	**No**	**Yes**
Source: JHA Environmental Consultants, June 2004					

Local Operational Impacts

Impact 4.7-3: *Local operational impacts would be less than significant.*

The purpose of the local analysis is to determine if the proposed project could cause or contribute to CO hot spots (defined as locations where the CO concentrations exceed a state or federal CO standard). Because of carbon monoxide controls that have been implemented in the past decade, the number of potential CO hotspots has been greatly reduced throughout the SCAB. It is expected that potential hotspots will continue to decline in the foreseeable future as background CO levels decrease. The entire SCAB has been an attainment area for all 1-hour CO standards for more than five years; therefore, the 8-hour CO standards are the critical standards for assessing hotspots. No CO standard has been exceeded in Orange County since 1992; and the SCAQMD's 2003 AQMP demonstrates attainment of all standards throughout the Basin, as well as continued maintenance of that status. Background CO levels are projected to decline until 2010 and remain stable thereafter despite continued projected population and traffic growth.

The SCAQMD requires that current or projected background CO concentrations at the air monitoring station nearest a project be added to modeled concentrations. This addition is intended to provide an extra measure of safety to account for any amount of carbon monoxide that might be in the ambient air. In general, this addition is very conservative because CO dissipates within a few hundred feet from where it is emitted. Because cumulative traffic from sources other than the proposed project is included in the traffic analysis, the modeling accounts for almost all the CO that could be present.

The background concentration is indicative of conditions near the monitoring station, which is in an area of high traffic volume, not where the project would have the greatest impact. CO concentrations are projected to continue to decline until at least 2010; and the SCAQMD has generated a table of estimated future 1-hour and 8-hour CO concentrations at each of its monitoring stations that accounts for this decrease through the year 2020. In this analysis, 2025 traffic is used with Year 2020 projected background levels. Because background carbon monoxide concentrations have declined substantially, actual 2002 CO concentrations are much lower than those predicted by the SCAQMD for that year. Predicted 2020 concentrations may be similarly overstated.

Existing traffic volumes (2003) and future traffic volumes (project buildout) were used to determine the potential for future hotspots occurring as a result of the proposed project. All of the future traffic projections include the cumulative traffic impacts resulting from related projects that may be built in the vicinity of the project between now and 2025.

The following intersections were modeled with CARB's Caline 4 model: Marguerite Parkway at Avery Parkway, I-5 southbound ramps at Avenida Pico, and SR-241 southbound ramps at Oso Parkway. Intersections were selected for modeling on the basis of whether they currently exist, would experience relatively heavy traffic from both the project and other sources, and would experience a level of service of F (LOS F) when both cumulative traffic and traffic from the project are combined. The SCAQMD has determined that intersections operating at LOS C or better would not exceed existing CO standards. Decreases in CO concentrations at some intersections between existing levels and those in 2006 are the result of decreases in per-vehicle emissions resulting from fleet turnover with new, better-controlled vehicles.

Eight-hour concentrations were assumed at 70 percent of the modeled 1-hour concentration, consistent with Caltrans, CARB, and SCAQMD guidelines. Emission factors were those contained in EMFAC 2002, V2.2 issued September 23, 2002. Receptors were set at three meters from the roadway edges. A breakdown of 1-hour and 8-hour CO concentrations within these intersections for year 2005 is provided in Table 4.7-8. The table shows that no intersections would exceed the strictest CO standard (i.e., the state 8-hour standard of 9.0 ppm) even after adding background concentrations.

For year 2025, the same intersections were modeled with CARB's Caline 4 model. A breakdown of 1-hour and 8-hour CO concentrations within these intersections is provided in Table 4.7-9. The table shows that no intersections would exceed the strictest CO standard (i.e., the state 8-hour standard of 9.0 ppm) even after adding background concentrations. Emission levels are forecast to be lower in 2025 because of new vehicle emission controls. Therefore, there would be no significant adverse impacts on local air quality with implementation of the project.

Odors

Impact 4.7-4: *Project operations are not expected to expose a substantial number of people to objectionable odors.*

There would be some odors, such as from cooking and gardening, associated with residential uses, but those odors are not considered significant on a regional scale. Local odors would be no different than in any other residential area with supporting services and would not be significant. The proposed land uses would not significantly contribute to background air toxics.

TABLE 4.7-8
CARBON MONOXIDE CONCENTRATIONS AT IMPACTED INTERSECTIONS (IN PPM) IN 2005

Intersection	Time	Monitored CO[a.]	Modeled Existing Traffic	Adjusted CO Existing Traffic	Projected CO (2005)[b.]	Modeled CO Cumulative Without Project	Adjusted CO Cumulative Without Project	Modeled CO Cumulative With Project	Adjusted CO Cumulative With Project[c.]
1-Hour									
Marguerite Parkway/Avery Parkway	A.M.	6.0	4.7	10.7	6.0	1.1	7.1	1.1	7.1
I-5 SB Ramps/Avenida Pico	A.M.	6.0	4.9	10.9	6.0	1.1	7.1	1.1	7.1
SR-241 SB Ramp/Oso Parkway	A.M.	6.0	3.3	9.3	6.0	0.6	6.6	1.2	7.2
Marguerite Parkway/Avery Parkway	P.M.	6.0	6.3	12.3	6.0	1.3	7.3	1.3	7.3
I-5 SB Ramps/Avenida Pico	P.M.	6.0	5.9	11.9	6.0	1.3	7.3	1.4	7.4
SR-241 SB Ramps/Oso Parkway	P.M.	6.0	3.1	9.1	6.0	0.6	6.6	1.7	7.7
8-Hour									
Marguerite Parkway/Avery Parkway	A.M.	3.1	2.80	5.90	3.1	0.77	3.87	0.77	3.87
I-5 SB Ramps/Avenida Pico	A.M.	3.1	3.43	6.53	3.1	0.77	3.87	0.77	3.87
SR-241 Ramps/Avenida Pico	A.M.	3.1	2.31	5.41	3.1	0.42	3.52	0.84	3.94
Marguerite Parkway/Avery Parkway	P.M.	3.1	4.41	7.51	3.1	0.91	4.01	0.91	4.01
I-5 SB Ramps/Avenida Pico	P.M.	3.1	4.13	7.23	3.1	0.91	4.01	0.98	4.08
SR-241 SB Ramps/Oso Parkway	P.M.	3.1	2.17	5.27	3.1	0.42	3.52	1.19	4.29

a. CO concentrations measured in 2002 at SRA 19 monitoring station
b. SCAQMD projected concentration in 2020 (Source: www.AQMD.org)
c. The project would not have a significant impact because no concentration would exceed the most stringent 1-hour CO standard of 20 ppm or the most stringent 8-hour standard of 9 ppm.

Source: JHA Environmental Consultants, June 2004.

TABLE 4.7-9
CARBON MONOXIDE CONCENTRATIONS AT IMPACTED INTERSECTIONS (IN PPM) IN 2025

Intersection	Time	Monitored CO[a.]	Modeled Existing Traffic	Adjusted CO Existing Traffic	Projected CO (2025)[b.]	Modeled CO Cumulative Without Project	Adjusted CO Cumulative Without Project	Modeled CO Cumulative With Project	Adjusted CO Cumulative With Project[c.]
1-Hour									
Marguerite Parkway/Avery Parkway	A.M.	3.0	4.7	7.7	5.1	1.1	6.2	1.1	6.2
I-5 SB Ramps/Avenida Pico	A.M.	3.0	4.9	7.9	5.1	1.1	6.2	1.1	6.2
SR-241 SB Ramp/Oso Parkway	A.M.	3.0	3.3	6.3	5.1	0.6	5.7	1.2	6.3
Marguerite Parkway/Avery Parkway	P.M.	3.0	6.3	9.3	5.1	1.3	6.4	1.3	6.8
I-5 SB Ramps/Avenida Pico	P.M.	3.0	5.9	8.9	5.1	1.3	6.4	1.4	6.5
SR-241 SB Ramps/Oso Parkway	P.M.	3.0	3.1	6.1	5.1	0.6	5.6	1.7	6.8
8-Hour									
Marguerite Parkway/Avery Parkway	A.M.	3.6	2.80	6.40	1.8	0.77	2.57	0.77	2.57
I-5 SB Ramps/Avenida Pico	A.M.	3.6	3.43	7.03	1.8	0.77	2.57	0.77	2.57
SR-241 Ramps/Avenida Pico	A.M.	3.6	2.31	5.91	1.8	0.42	2.22	0.84	2.64
Marguerite Parkway/Avery Parkway	P.M.	3.6	4.41	8.01	1.8	0.91	2.71	0.91	2.71
I-5 SB Ramps/Avenida Pico	P.M.	3.6	4.13	7.73	1.8	0.91	2.71	0.98	2.78
SR-241 SB Ramps/Oso Parkway	P.M.	3.6	2.17	5.77	1.8	0.42	2.22	1.19	2.99

a CO concentrations measured in 2002 at SRA 19 monitoring station
b SCAQMD projected concentration in 2020 *(Source: www.AQMD.org)*
c The state CO standards of 20 ppm (1-hour) and 9.0 ppm (8-hour) are the most stringent CO standards. A project would result in a significant impact if it caused a standard to be exceeded in an area that presently does not exceed that standard.

Source: JHA Environmental Consultants, June 2004.

Air Quality Management Plan Consistency

Impact 4.7-5: *The Ranch Plan project would not c*onflict with or obstruct implementation of the Air Quality Management Plan.

Consistency with an AQMP requires that the project be consistent with the approved Air Quality Management Plan/SIP for the region that provides controls sufficient to attain the national ozone standards by the required attainment date. The AQMP is based on growth projections agreed to the five affected counties and SCAG. If the total population accommodated by a new project, together with the existing population and the projected population from all other planned projects in the subarea, does not exceed the growth projections for that subarea incorporated in the most recently adopted AQMP, the completed project is consistent with the AQMP. The entire County of Orange is considered to be one subarea. The AQMP is region-wide and accounts for, and offsets, cumulative increases in emissions that are the result of anticipated growth throughout the region. Because implementation of the proposed Ranch Plan project would not exceed growth projections for the subarea, the project is considered consistent with the AQMP.

MITIGATION PROGRAM

Project Design Features

PDF 4.7-1 The project has been designed to minimize the need for external vehicular trips through the provision of residential, commercial, office, and institutional uses within the boundaries of the project site, thereby reducing vehicular air emissions.

Standard Conditions and Regulations

Construction: Fugitive Dust Emissions (PM_{10})

The proposed Ranch Plan project qualifies as a “large project” under SCAQMD Rule 403 and the applicant is required to file a fugitive dust emissions control notice with the SCAQMD. The SCAQMD must determine that the project is implementing controls, as specified by the Rule, prior to the commencement of grading. The newly revised Rule 403 Implementation Handbook contains compliance guidelines for large operations and suggests dust control measures for incorporation into the fugitive dust emissions control plans, where applicable. Control measures are incorporated in the URBEMIS model. SCAQMD Rule 402, Nuisance, also would apply to this project. Rule 402 prohibits visible dust emissions from extending beyond the project boundaries.

SC 4.7-1 All construction contractors shall comply with South Coast Air Quality Management District (SCAQMD) regulations, including Rule 403, Fugitive Dust, and Rule 402, Nuisance. All grading (regardless of acreage) shall apply best available control measures for fugitive dust in accordance with Rule 403. To ensure that the project is in full compliance with applicable SCAQMD dust regulations and that there is no nuisance impact off the site, the contractor would implement each of the following:

a. Moisten soil not more than 15 minutes prior to moving soil or conduct whatever watering is necessary to prevent visible dust emissions from traveling more than 100 feet in any direction.

b. Apply chemical stabilizers to disturbed surface areas (i.e., completed grading areas) within five days of completing grading or apply dust suppressants or vegetation sufficient to maintain a stabilized surface.

c. Water excavated soil piles hourly or cover with temporary coverings.

d. Water exposed surfaces at least twice a day under calm conditions. Water as often as needed on windy days when winds are less than 25 miles per day or during very dry weather in order to maintain a surface crust and prevent the release of visible emissions from the construction site.

e. Wash mud-covered tires and under-carriages of trucks leaving construction sites.

f. Provide for street sweeping, as needed, on adjacent roadways to remove dirt dropped by construction vehicles or mud, which would otherwise be carried off by trucks departing from project sites.

Construction: ROC and NO_X Emissions

SC 4.7-2 The applicant shall comply with the following measures, as feasible, to reduce NO_X and ROC from heavy equipment.

a. Turn equipment off when not in use for more than five minutes.

b. Maintain equipment engines in good condition and in proper tune as per manufacturers' specifications.

c. Lengthen the construction period during smog season (May through October) to minimize the number of vehicles and equipment operating at the same time.

<u>Mitigation Measures</u>

Construction: Diesel Emissions

MM 4.7-1 In order to reduce diesel fuel engine emissions, the project applicant shall require that all construction bid packages include a separate "Diesel Fuel Reduction Plan." This plan shall identify the actions to be taken to reduce diesel fuel emissions during construction activities (inclusive of grading and excavation activities). Reductions in diesel fuel emissions can be achieved by measures including, but not limited to, the following: a) use of alternative energy sources, such as compressed natural gas or liquefied petroleum gas, in mobile equipment and vehicles; b) use of "retrofit technology," including diesel particulate trips, on existing diesel engines and vehicles; and c) other appropriate measures. Prior to the issuance of a grading permit, the Diesel Fuel Reduction Plan shall be filed with the County of Orange. The Diesel Fuel Reduction Plan shall include the following provisions:

a. All diesel fueled off-road construction equipment shall be California Air Resources Board (CARB) certified or use post-combustion controls that reduce pollutant emissions to the same level as CARB certified equipment. CARB certified off-road engines are engines that are three years old or less

and comply with lower emission standards. Post-combustion controls are devices that are installed downstream of the engine on the tailpipe to treat the exhaust. These devices are now widely used on construction equipment and are capable of removing over 90 percent of the PM_{10}, carbon monoxide, and volatile organic compounds from engine exhaust, depending on the specific device, sulfur content of the fuel, and specific engine. The most common and widely used post-combustion control devices are particulate traps (i.e., soot filters), oxidation catalysts, and combinations thereof.

b. All diesel fueled on-road construction vehicles shall meet the emission standards applicable to the most current year to the greatest extent possible. To achieve this standard, new vehicles shall be used or older vehicles shall use post-combustion controls that reduce pollutant emissions to the greatest extent feasible.

c. The effectiveness of the latest diesel emission controls is highly dependant on the sulfur content of the fuel. Therefore, diesel fuel used by on-road and off-road construction equipment shall be low sulfur ($\geq$15 ppm) or other alternative low polluting diesel fuel formulation such as PuriNOxTM or Amber363. Low sulfur diesel fuel shall be required by existing regulations after the year 2007 and it is already being produced and sold as the regulation is phased in.

Local and Regional Operational Impacts

Traffic mitigation measures incorporated into the project would reduce local impacts to less than significant levels. No additional feasible mitigation is available to reduce regional operational impacts to a less than significant level. Please refer to Section 4.6, Transportation and Circulation.

4.7.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

As shown in Table 4.7-10, the recommended control measures would substantially reduce short-term, construction-related PM_{10} emissions. However, short-term, construction-related emissions of NO_X, CO, VOC, and PM_{10} during the peak construction period would remain significant after mitigation. Heavy-duty equipment emissions are assumed with today's emissions standards. However, both CARB and the EPA are proposing new controls on off-road diesel equipment that should go into effect prior to the peak construction period. Equipment will comply with all control regulations in force at that time. NO_X emissions identified in the table represent a worst-case assumption.

With respect to local operational air emissions, no additional mitigation beyond that assumed in the traffic analysis (see Section 3.6) is assumed for traffic emissions. The project would not result in significant local operational air quality effects. Long-term operational emissions of CO, VOC, NO_X, and PM_{10} would remain significant and unavoidable.

TABLE 4.7-10
PEAK DAILY CONSTRUCTION EMISSIONS AFTER MITIGATION
(In Pounds Per Day)

Source Category	Pollutant				
	CO	**VOC**	**NO_X**	**SO_X**	**PM_{10}**
Total Daily Emissions Before Mitigation	1,435	170	1,049	0	12,085
Particulate Emissions Reduced					11,007
Maximum Daily Construction Emissions After Mitigation	1,4,12	169	1,049	0	1,078
SCAQMD Significance Thresholds for Construction	550	75	100	150	150
Significant	**Yes**	**Yes**	**Yes**	**No**	**Yes**
Source: JHA Environmental Consultants, June 2004.					

4.8 NOISE

Mestre Greve Associates prepared a noise assessment in June 2004 for the proposed Ranch Plan project. The noise assessment is summarized in this section of the Program EIR and is included in its entirety in Appendix F.

4.8.1 BACKGROUND

Sound is technically described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dB higher than another is judged to be twice as loud; and 20 dB higher four times as loud; and so forth. Everyday sounds normally range from 30 dB (very quiet) to 100 dB (very loud).

Because the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. Community noise levels are measured in terms of the "A-weighted decibel," abbreviated dBA. Exhibit 4.8-1 provides examples of various noises and their typical A-weighted noise level.

Sound levels decrease as a function of distance from the source as a result of wave divergence, atmospheric absorption, and ground attenuation. As the sound wave form travels away from the source, the sound energy is dispersed over a greater area, thereby dispersing the sound power of the wave. Atmospheric absorption also influences the levels that are received by the observer. A greater distance traveled results in a greater influence and resultant fluctuations of the sound wave. The degree of absorption is a function of the frequency of the sound as well as the humidity and temperature of the air. Turbulence and gradients of wind, temperature and humidity also play a significant role in determining the degree of attenuation. Intervening topography can also have a substantial effect on the perceived noise levels.

Noise has been defined as unwanted sound, and it is known to have several adverse effects on people. From these known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. These criteria are based on such known impacts of noise on people as hearing loss, speech interference, sleep interference, physiological responses, and annoyance. Each of these potential noise effects on people is briefly discussed in the following narratives.

Hearing loss is not a concern in community noise situations such as residential developments. The potential for noise induced hearing loss is more commonly associated with occupational noise exposures in heavy industry or very noisy work environments. Typical neighborhood noise levels, including very noisy airport environs, are not sufficiently loud to cause hearing loss.

Speech interference is one of the primary concerns in environmental noise problems. Normal conversational speech is in the range of 60 to 65 dBA and any noise in this range or louder may interfere with speech. There are specific methods of describing speech interference as a function of distance between speaker and listener and voice level.

Sleep interference is a major noise concern for traffic noise. Sleep disturbance studies have identified interior noise levels that have the potential to cause sleep disturbance. Sleep

disturbance does not necessarily mean awakening from sleep, but can refer to altering the pattern and stages of sleep.

Physiological responses are those measurable effects of noise on people that are realized as changes in pulse rate, blood pressure, etc. While such effects can be induced and observed, the extent to which these physiological responses cause harm or are a sign of harm is not known.

Annoyance is the most difficult of all noise responses to describe. Annoyance is a very individual characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing capability.

Noise Assessment Metrics

The description, analysis, and reporting of community noise levels around communities is made difficult by the complexity of human response to noise and the myriad of noise metrics that have been developed for describing noise impacts. Each of these metrics attempts to quantify noise levels with respect to community response. Most of the metrics use the A-Weighted noise level to quantify noise impacts on humans. As previously identified, A-Weighting is a frequency weighting that accounts for human sensitivity to different frequencies.

Noise metrics can be divided into two categories: single event and cumulative. Single-event metrics describe the noise levels from an individual event such as an aircraft fly over or perhaps a heavy equipment pass-by. Cumulative metrics average the total noise over a specific time period, which is typically 1 hour or 24 hours for community noise problems. For the Ranch Plan assessment, cumulative noise metrics were used.

Several rating scales have been developed for measurement of community noise. These account for: (1) the parameters of noise that have been shown to contribute to the effects of noise on man; (2) the variety of noises found in the environment; (3) the variations in noise levels that occur as a person moves through the environment; and (4) noise variations associated with the time of day. The rating scales are designed to account for the known health effects of noise on people described previously. Based on these effects, the observation has been made that the potential for a noise to impact people is dependent on the total acoustical energy content of the noise. A number of noise scales have been developed to account for this observation. Two of the predominate noise scales are the Equivalent Noise Level (LEQ) and the Community Noise Equivalent Level (CNEL).

LEQ is the sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. LEQ is the "energy" average noise level during the time period of the sample. LEQ can be measured for any time period, but is typically measured for 1 hour. This 1-hour noise level can also be referred to as the Hourly Noise Level (HNL). It is the energy sum of all the events and background noise levels that occur during that time period.

CNEL (Community Noise Equivalent Level) is the predominant rating scale now in use in California for land use compatibility assessment. The CNEL scale represents a time weighted 24-hour average noise level based on the A-weighted decibel. Time weighted refers to the fact that noise which occurs during certain sensitive time periods is penalized for occurring at these times. The evening time period (7 p.m. to 10 p.m.) penalizes noises by 5 dBA, while nighttime (10 p.m. to 7 a.m.) noises are penalized by 10 dBA. These time periods and penalties were selected to reflect people's increased sensitivity to noise during these time periods. A CNEL noise level may be reported as a "CNEL of 60 dBA," "60 dBA CNEL," or simply "60 CNEL."

Typical noise levels in terms of the CNEL scale for different types of communities are presented in Exhibit 4.8-2.

Ldn, the day-night scale is similar to the CNEL scale except that evening noises are not penalized. It is a measure of the overall noise experienced during an entire day. In the Ldn scale, those noise levels that occur during the night (10 p.m. to 7 a.m.) are penalized by 10 dB. This penalty was selected to attempt to account for increased human sensitivity to noise during the quieter period of a day, when sleep is the most probable activity.

L(%) is a statistical method of describing noise which accounts for variance in noise levels throughout a given measurement period. L(%) is a way of expressing the noise level exceeded for a percentage of time in a given measurement period. For example since 5 minutes is 25% of 20 minutes, L(25) is the noise level that is equal to or exceeded for 5 minutes in a 20-minute measurement period. It is L(%) that is used for most noise ordinance standards. For example, most daytime city, state, and county noise ordinances use a standard of 55 dBA for 30 minutes per hour or an L(50) level of 55 dBA. In other words, the noise ordinance states that no noise level should exceed 55 dBA for more that 50 percent of a given period.

Noise Standards

The County's *Noise Ordinance* and *General Plan Noise Element* contain the County's policies on noise. The County *Noise Ordinance* applies to noise generated on one property impacting a neighboring property. Specifically, the *Noise Ordinance* establishes maximum noise levels that may be experienced on a neighboring property as a result of noise generated on/from another property. The *Noise Ordinance* is part of the *County of County Municipal Code* (Division 6, Section 4.6.1) and is enforceable throughout all unincorporated portions of the County. A project that proposes a zone change to residential uses must provide measures to ensure that existing noise sources do not violate the *Noise Ordinance* standards. The *Noise Ordinance* requirements cannot be applied to noise generated by vehicles traveling on public roadways, railroads, or aircraft. Federal and state laws preempt control of mobile noise sources on public roads. However, the County's *Noise Ordinanc*e can be applied to vehicles traveling on private property (e.g., parking lots or loading docks).

The *General Plan Noise Element* identifies limits on noise levels from transportation noise sources, vehicles on public roadways, railroads, and aircraft. These limits are imposed on all new developments (i.e., new developments must incorporate the measures to ensure that the limits are not exceeded)

County Of Orange Noise Element

The County of Orange specifies outdoor and indoor noise limits for various land uses impacted by transportation noise sources. The noise limits specified in the County's *General Plan Noise Element* are in terms of the Community Noise Equivalent Level (CNEL) for residential uses and LEQ(h) for commercial uses, where (h) is the duration of the specific use in hours. Assuming the standard day-evening-night traffic distribution, CNEL levels are 1.4 dB higher than average daytime LEQ(h).

The County has established exterior noise standards for residential uses, schools, hospitals, and places of worship. For residential uses, the standard is 65 CNEL. For schools, hospitals, and places of worship, the standard is 65 LEQ(h), which is equivalent to 66 CNEL. These standards are applicable only at "outdoor living areas." The County defines "outdoor living areas" to be spaces that are typically used for passive recreational activities or other noise sensitive uses. Such spaces include patio areas, barbecue areas, and Jacuzzi areas for

residential uses. Outdoor areas that are usually not included in the definition for residential areas include front yard areas, driveways, greenbelts, maintenance areas, and storage areas. For hospital uses, "outdoor living areas" include outdoor patient recovery or resting areas. Outdoor areas at hospitals that are not used for patient activities are not included in this category. For places of worship, areas that have a significant role in services or other noise sensitive activities are considered "outdoor living areas," while areas principally used for short-term social gatherings are not. For schools, areas routinely used for educational purposes that may be adversely impacted by noise are considered "outdoor living areas," while other areas not used for education uses such as play yard areas are not considered "outdoor living areas."

Table 4.8-1 identifies the interior noise standards established by the County. These interior standards are applicable to "habitable rooms," as defined by the County. Closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces are not considered "habitable rooms."

TABLE 4.8-1
COUNTY OF ORANGE INTERIOR NOISE STANDARDS

Use	Standard
Residential	
All	45 CNEL
Commercial	
Hotel, Motel	45 CNEL
Hospital	45 CNEL
Private Office, Church Sanctuary, College, Preschool, Schools (Grade K-12), Board Room, Conference Room, etc.	45 LEQ(h)[a.] (46 CNEL[b.])
General Office, Reception Clerical, etc.	50 LEQ(h)[a.] (51 CNEL[b.])
Other Schools and Colleges	52 LEQ(h)[a.] (53 CNEL[b.])
Bank Lobby, Retail Store, Restaurant, Typing Pool, etc.	55 LEQ(h)[a.] (56 CNEL[b.])
Manufacturing, Kitchen, Warehousing, etc.	65 LEQ(h)[a.] (66 CNEL)[b.]

a. H=time duration of usage in hours
b. Standard is in terms of LEQ(h). CNEL limit given assumes standard day-evening-night traffic distribution which results in CNEL level being 1.4 dB higher than daytime LEQ(h).

County Of Orange Noise Ordinance

The County *Noise Ordinance* prescribes exterior and interior noise standards for the protection of residential zoned areas. Table 4.8-2 presents Orange County's Noise Ordinance standards. The Noise Ordinance is designed to control unnecessary, excessive, and annoying sounds from sources on private property by setting limits that cannot be exceeded at adjacent properties. The Noise Ordinance requirements cannot be applied to mobile noise sources such as heavy trucks when traveling on public roadways. As previously discussed, the control of the mobile noise sources on public roads is preempted by federal and state laws, but does apply to vehicles on private property.

The County *Noise Ordinance* specifies dBA noise levels that cannot be exceeded at residential areas for a specified period of time. The time limits are listed in the first column of the table. Column 2 lists the equivalent noise metric in terms of "percent noise level" or L%. The percent noise level describes the noise level that is exceeded during a certain percentage of the measurement period. For example, the L(50) noise level is the level exceeded 50 percent of the measurement period or 30 minutes in an hour. Columns 3 and 4 list the daytime and nighttime noise levels, for the specified metric, that cannot be exceeded under the *Noise Ordinance*. Greater noise levels are permitted during the day (7 a.m. to 10 p.m.) as compared to nighttime (10 p.m. to 7 a.m.).

TABLE 4.8-2
ORANGE COUNTY NOISE ORDINANCE STANDARDS

Maximum Time of Exposure	Noise Metric	Noise Levels Not To Be Exceeded In Residential Zone	
		7 a.m. to 10 p.m. (daytime)	10 p.m. to 7 a.m. (nighttime)
Exterior Noise Standards			
30 Minutes/Hour	L(50)	55 dBA	50 dBA
15 Minutes/Hour	L(25)	60 dBA	55 dBA
5 Minutes/Hour	L(8.3)	65 dBA	60 dBA
1 Minute/Hour	L(1.7)	70 dBA	65 dBA
Any period of time	L(max)	75 dBA	70 dBA
Interior Noise Standards			
5 Minutes/Hour	L(8.3)	55 dBA	45 dBA
1 Minute/Hour	L(1.7)	60 dBA	50 dBA
Any period of time	L(max)	65 dBA	55 dBA
Source: County of Orange Municipal Code Division 6, Section 4.6.1.			

The *Noise Ordinance* states that the daytime noise level for a noise source measured at an outdoor area of a residential property cannot ever exceed 75 dBA; 70 dBA for more than 1 minute of any hour; 65 dBA for more than 5 minutes of any hour; 60 dBA for more than 15 minutes of any hour; or 55 dBA for more than 30 minutes of any hour. Nighttime noise level limits are reduced by 5 dB to reflect the increased sensitivity to noise occurring during this time period. The *Noise Ordinance* also states that the noise level for a source measured at an indoor area of a residential property cannot ever exceed 65 dBA; 60 dBA for more than 1 minute of any hour; and 55 dBA for more than 5 minutes of any hour. The nighttime interior noise level limits are reduced by 10 dB. The *Noise Ordinance* contains a clause that, in the event that the ambient noise level exceeds any of the noise limit categories, the cumulative period applicable to that category shall be increased to reflect the ambient noise level. Additionally, the noise level limits are reduced by 5 dB for noise consisting of a pure tone or primarily speech or music to account for increased sensitivity to these sources.

For daytime noise, the County's outdoor standard is more stringent than the interior standard because a typical residence can achieve a 12 dB noise reduction with windows open (i.e., interior noise levels will be at least 12 dB lower than the exterior noise levels with open windows). The *Noise Ordinance* requires the levels to be 10 dB lower. However, for nighttime noise levels, depending on the characteristics of the noise source, the interior or exterior noise standards may be the most stringent. Additional, the *Noise Ordinance* exempts noise

generated by construction from the ordinance standards during the hours between 7 a.m. and 8 p.m. on weekdays and Saturdays; this exemption does not include Sundays or holidays.

4.8.2 METHODOLOGY

The noise measurement survey prepared for this Program EIR to determine existing noise levels used a Brüel & Kjær 2236 automated digital noise data acquisition system for short-term (15 minutes) readings. This instrument automatically calculates both the Equivalent Noise Level (LEQ) and Percent Noise Level (L%) for any specific time period. The noise monitor was equipped with a Brüel & Kjær 1/2-inch electric microphone and was calibrated with a Brüel & Kjær calibrator with calibrations traceable to the National Bureau of Standards. Calibration for the instruments is performed annually and is certified through the duration of the measurements. This measurement system satisfies the ANSI (American National Standards Institute) Standards 1.4 for Type 1 precision noise measurement instrumentation.

Existing roadway noise levels, in terms of CNEL, for the roadways anticipated to be affected by project-related traffic were calculated using a computation of highway noise. In preparing these computations, the Highway Noise Model published by the Federal Highway Administration (*FHWA Highway Traffic Noise Prediction Model*, FHWA-RD-77-108, December, 1978) was used. The CALVINO noise emission curves developed by Caltrans were used with the FHWA model because these curves better model the California vehicle mix. The FHWA Model uses traffic volume, vehicle mix, vehicle speed, and roadway geometry to compute the "equivalent noise level." A computer code has been written which computes equivalent noise levels for each of the time periods used in the calculation of CNEL. Weighting these noise levels and adding them together results in the CNEL for the traffic projections used.

4.8.3 EXISTING CONDITIONS

The project study area is defined as the Ranch Plan project site and the immediately contiguous properties. To determine the existing noise environment at the proposed project site, ambient noise measurements were taken on January 28, 2004 at one location (Site 5) and on March 29, 2004 at four locations (Sites 1 through 4). The locations of the noise measurement sites are depicted in Exhibit 4.8-3. Noise levels were measured for 15 minutes at each location with the exception of Site 5 where a 30-minute measurement was performed. The measurement results are presented in Table 4.8-3 in terms of equivalent noise levels (LEQ), maximum noise levels, minimum noise levels, and percentile noise levels (L%). The L(50) percentile level, for example, represents the noise levels exceeded 50 percent of the time, and represents the median ambient noise level. The L(90) noise levels represent the background noise levels that are exceeded 90 percent of the time.

TABLE 4.8-3
EXISTING NOISE MEASUREMENTS

Site	Start Time	Sound Level (in dBA)					
		LEQ	Lmax	L(10)	L(50)	L(90)	L(min)
1	12:13 p.m.	51	72	44	38	33	29
1[a.]	12.13 p.m.	39	49	43	38	32	29
2	1:08 p.m.	45	54	47	44	41	37
3	1:50 p.m.	42	53	45	41	39	37
4	2:34 p.m.	41	53	44	34	31	30
5	8:16 p.m.	44	56	47	42	38	35

[a]. Effects of vehicles entering the Northrop Grumman TRW Capistrano Test Site removed.
Source: Mestre Greve Associates, June 2004

The noise measurement sites were near the western perimeter of the proposed project. The measured noise levels show that even at the perimeter of this primarily undeveloped area, noise levels are relatively low. Noise levels further inside and along the eastern perimeter of the project site are likely slightly lower as they are removed from areas of activity. In general, the sources of noise affecting the site consisted of birds, wind blowing through vegetation, and distant traffic, in addition to local sources of noise described below.

Site 1 is located near the current terminus of Avenida Pico off of the entry road to the Northrop Grumman TRW Capistrano Test Site. The primary source of noise affecting the recorded noise levels was six vehicles entering the TRW site. Background noise included birdcalls and distant traffic. Table 4.8-3 presents the recorded noise levels during the entire measurement period along with an edited version of the measurement that removed the periods when vehicles passed by the site entering the TRW site. The results of the measurements show very low noise levels when the effect of the vehicles is removed. Background sources of noise included bird and distant traffic noise. The average noise level would not be expected to drop much below the 40 dBA level during the daytime. Nighttime noise levels would be lower as wildlife activity ceased along with levels of traffic on roadways in the vicinity of the site.

Site 2 is located just beyond the end of San Juan Creek Road. The primary sources of noise at Site 2 were distant traffic and noise generated by activities in the nearby residential areas. The noise environment around Site 2 would be characterized as quiet, with an average noise level of 45 dBA.

Site 3 is located approximately 1,000 feet north of Ortega Highway in the existing agricultural operations. The primary source of noise at Site 3 was truck traffic associated with the agricultural operations. Background noise sources included birds, distant traffic, and distant agricultural operation activities.

Site 4 is located near the Santa Margarita Water District Chiquita Water Reclamation Plant. Noise sources affecting Site 4 included overhead aircraft, birds, and wind through vegetation. No discernable noise from the Water Reclamation Plant was detected. No discernable noise from the Water Reclamation Plant was detected which is reflective of ongoing conditions at the plant. These types of facilities do not generate significant noise levels.

Site 5 is located near the south end of Tesoro High School. Noise experienced at Site 5 included activities at the high school, traffic on Oso Parkway, birds, and distant traffic.

Existing Roadway Noise Levels

The distances to the existing 60, 65, and 70 CNEL contours for selected roadways in the vicinity of the project are identified in Table 4.8-4. The CNEL at 100 feet from the roadway centerline is also presented. These represent the distance from the centerline of the road to the contour value shown. The values represent existing noise levels and do not take into account the effect of any existing noise barriers or topography that may affect ambient noise levels. Where the line of sight between an observer and a roadway is blocked by a substantial object (e.g., a berm, block wall, or building), the traffic noise levels are reduced by a minimum of approximately 5 dB.

The roadway segments presented in the table are those that are projected to experience a 0.5 dB or greater traffic noise CNEL increase due to the development of the project, or are projected to experience a 1.5 dB or greater traffic noise CNEL increase over existing conditions in the future with the project. Existing traffic noise levels along all roadways assessed in the traffic study prepared for the project are presented in Appendix F.

TABLE 4.8-4[a.]
EXISTING ROADWAY TRAFFIC NOISE LEVELS

Roadway Segment	CNEL at 100 ft.	Distance to CNEL Contour[D.] (feet)		
		70 CNEL	65 CNEL	60 CNEL
I-5				
Avery Parkway to Junipero Serra	80.5	499	1,075	2,315
Junipero Serra to Ortega Highway	80.4	490	1,056	2,275
Ortega Highway to San Juan Creek	80.0	465	1,003	2,160
San Juan Creek to Stonehill	80.0	462	996	2,147
Stonehill to Camino Las Ramblas	79.7	445	958	2,063
Camino Las Ramblas to Camino de Los Mares	80.0	465	1,003	2,160
Camino de Los Mares to Avenida Vista Hermosa	79.8	454	977	2,105
Avenida Vista Hermosa to Avenida Pico	79.5	432	931	2,007
SR-73				
Oso Parkway to Crown Valley Parkway	72.5	147	317	684
Crown Valley Parkway to I-5	72.4	145	313	673
SR-241				
North of Antonio Parkway	69.6	94	204	438
Antonio Parkway to Oso Parkway	66.1	55	119	255
Oso Parkway				
East of I-5	70.7	111	240	517
West of Marguerite Parkway	69.1	88	189	406
Marguerite Parkway to Felipe Road	69.1	88	189	406
Felipe Road to Antonio Parkway	69.1	88	189	406
East of Antonio Parkway	67.8	72	155	333
West of SR-241	67.4	67	144	310
East of SR-241	66.2	56	121	260
Crown Valley Parkway				
West of Marguerite Parkway	69.1	88	189	406
East of Marguerite Parkway	68.9	84	182	392
West of Antonio Parkway	67.0	63	136	294
Junipero Serra				
West of I-5	63.5	RW	80	171
Ortega Highway				
I-5 to Rancho Viejo	72.8	154	332	715
West of La Novia	71.6	128	275	593
East of La Novia	70.7	112	242	521
West of La Pata	69.9	98	212	457
East of New Ortega Highway	65.5	50	108	233
San Juan Creek Road				
West of La Novia	62.0	RW	64	137
East of La Novia	61.1	RW	55	118
Avenida Vista Hermosa				
East of I-5	66.2	56	121	260

TABLE 4.8 4[a.] (Continued)
EXISTING ROADWAY TRAFFIC NOISE LEVELS

Roadway Segment	CNEL at 100 ft.	Distance to CNEL Contour[b.] (feet)		
		70 CNEL	65 CNEL	60 CNEL
Avenida Pico				
East of I-5	69.0	86	185	399
West of La Pata	66.8	62	133	286
La Pata to Avenida Vista Hermosa	63.6	RW	81	175
East of Avenida Vista Hermosa	61.0	RW	54	117
Camino Capistrano				
South of Paseo de Colinas	59.0	RW	40	86
North of Junipero Serra	59.0	RW	40	86
Junipero Serra to Roso	62.5	RW	68	146
Antonio Parkway				
North of SR-241	67.8	72	155	333
Empresa to SR-241	67.2	65	140	302
Empresa to Banderas	67.4	67	144	310
Oso Parkway to Crown Valley Parkway	67.8	72	155	333
South of Crown Valley Parkway	65.3	48	104	224
North of New Ortega Highway	64.0	RW	86	185
North of Ortega Highway	64.0	RW	86	185
Avenida La Pata				
South of Ortega Highway	58.0	RW	RW	73
South of Avenida Pico	60.2	RW	48	103
Camino Vera Cruz				
Camino de Los Mares to Vista Hermosa	61.6	RW	59	128
Avenida Talega				
East of Avenida Vista Hermosa	52.0	RW	RW	RW

a. Modeled
b. From roadway centerline
RW: Contour does not extend beyond roadway right-of-way

Source: Mestre Greve Associates, June 2004

The table shows that high traffic noise levels are generated along I-5 and SR-73 (i.e., 72.4 to 80.5 dB CNEL. Considerable noise levels are generated along SR-241, Oso Parkway, Crown Valley Parkway, Ortega Highway, Avenida Pico, and Antonio Parkway (i.e., 61.0 to 72.8 dB CNEL). Moderate noise levels are experienced along Junipero Serra, San Juan Creek, Avenida Vista Hermosa, Camino Capistrano, and Camino Vera Cruz (i.e., 59.0 to 66.2 dB CNEL). Noise levels along Avenida La Pata and Avenida Talega are minor (i.e., 52.0 to 60.2 dB CNEL).

Existing Aircraft Noise Levels

***Airport Operations*.** The project site is not located in the immediate vicinity of any airfield and is not directly impacted by noise generated by any airport operations. Enroute aircraft overfly the project site and are audible at times. However, because of the relatively low aircraft noise levels experienced on the site and the limited time that this occurs, aircraft do not generate noise levels on the project site that approach the County's noise standards.

***On-Site Heliport*.** A private heliport is located at the RMV headquarters within the Ranch Plan project boundaries. This heliport is used infrequently, approximately four times a year, for aerial tours of the site or for other RMV business. Areas around the heliport are exposed to substantial noise levels as helicopters arrive and depart the heliport. However, because of the infrequency of operations, noise levels in the vicinity of the heliport do not approach the County's noise standards.

***Camp Pendleton*.** Marine Corps Base (MCB) Camp Pendleton is located along the southern and eastern boundaries of the project site at the southeast corner. MCB Camp Pendleton is one of the busiest Department of Defense installations in the United States. Approximately 40,000 to 45,000 training events are scheduled at the base each year. These events range from small unit training to larger Regimental and Marine Expeditionary Brigade exercises. Nearly 60,000 service members train at the base each year. Training activities include amphibious landings, use of tracked vehicles, infantry and vehicle maneuvers, artillery and small arms firing, aerial weapons delivery, engineer support operations, logistics support, field combat service support, communications, airlift support for troops and weapons, equipment maintenance, and field medical treatment. In terms of noise generation, the most significant activities are artillery training and aircraft operations.

MCB Camp Pendleton has an airfield where approximately 180 helicopters are based. Its airfield is located near the southern end of the base approximately 16 miles south of the project site. There are no fixed wing aircraft based at MCB Camp Pendleton. However, turbo prop and jet aircraft from MCAS Miramar and other local military facilities use the facility for aerial weapons delivery training and other training. There is a Helicopter Outlying Landing Field located approximately 1.2 miles from the project site boundary that is used for night vision goggle training. Both fixed wing aircraft and helicopters operate throughout the entirety of the base, including the boundaries of the base.

Much of the central portion of MCB Camp Pendleton consists of two Impact Areas that receive live fire from aircraft and ground troops. There are Artillery Firing Areas situated throughout the base from where ordnance is fired into the Impact Areas. There are no Artillery Firing Areas located within 0.5 mile of the project site. Several Arterial Firing Areas are located between 0.5 and 1.0 mile from the project boundary; many more are located further than 1.0 mile.

A Range Compatible Use Zone (RCUZ) study was prepared for the Base in the early 1990s and approved in 1993. The RCUZ assesses potential impacts, including noise, from the operations at Camp Pendleton MCB. However, Mr. Larry Rannals (Community Plans & Liason Officer MCB Camp Pendleton) indicated that the 1993 RCUZ referenced operations had changed substantially since the document's preparation. MCB Camp Pendleton is commencing the update the RCUZ with completion planned for early- to mid-2005. Due to current military activities in Iraq, operations at MCB Camp Pendleton are substantially lower than normal. Any noise monitoring performed at this time would not be representative of typical operations (source: Rannals, personal communication).

MCB Camp Pendleton-related noise affecting the project site would be primarily from aircraft and large artillery firings. Generally, these activities do not occur constantly but periodically. However, during larger training exercises, almost constant activity and noise occurs 24 hours per day. These busy periods, lasting from a few days to a couple of weeks, occur several times a year. Noise levels on the project site would be dependant on the specific activities conducted and the locations of the activities. Based on historic activities at MCB Camp Pendleton and the base's relation to the project site, noise levels generated by these activities are not expected to exceed the County's CNEL noise criteria for the project site.

Some training activities would generate readily audible noise levels at the southern portion of site. However, the relative infrequency with which these activities are expected to occur should not result in the exceedance of the applicable CNEL criteria. Note that CNEL is strictly defined as an annual average noise level with the evening and nighttime weightings. It is possible that CNEL levels on the project site could approach or even possibly exceed the 65 CNEL residential outdoor noise standard on a daily basis during periods of heavy activity at MCB Camp Pendleton. However, including periods with little or no noise being generated by the base, the CNEL level calculation should result in the CNEL level being below 65 CNEL.

4.8.4 PROJECT AND CUMULATIVE IMPACTS

Thresholds of Significance

The project would be considered to have a significant noise effect if:

- short-term construction noise impacts would violate the provisions of the *County of Orange Noise Ordinance*.
- both of the following criteria are met:
  a. the project traffic results in a substantial noise level increase on a roadway segment adjacent to a noise sensitive land use (e.g., residential use) (a substantial noise increase is defined as an increase of 3 dB or more); and
  b. the resulting "future with project" noise level exceeds the criteria for the noise sensitive land use, as identified above, for the County of Orange. The following interior and exterior noise standards apply to the proposed project:
     – 45 CNEL residential interior noise levels
     – 65 CNEL residential exterior noise levels

Impact Criteria

Off-site impacts resulting from on-site activities, both temporary and long-term, are measured against the *Noise Ordinance* standards. Construction activities and commercial area activities must also comply with these standards.

Long-term off-site impacts from traffic noise are measured against two criteria, and both criteria must be met for a significant impact to be identified. First, traffic generated by the project must cause a substantial noise level increase on a roadway segment adjacent to a noise sensitive land use. Second, the resulting "future with project" noise level must exceed the criteria level for the noise sensitive land use. For project analysis purposes, the criteria level is the Orange County *General Plan Noise Element* standard of 65 CNEL (outdoor) for residential land uses. Other land uses would permit a higher noise level and are therefore not addressed in this analysis.

In community noise assessment, changes in noise levels greater than 3 dB are often identified as significant, while changes less than 1 dB will not be discernible to local residents. In the range of 1 to 3 dB, residents who are very sensitive to noise may perceive a slight change. In laboratory testing situations, humans are able to detect noise level changes of slightly less than 1 dB. However, in a community noise situation, noise exposures are over a long time period, and changes in noise levels occur over years rather than the immediate comparison made in a

laboratory situation. Therefore, the level at which changes in community noise levels become discernible is likely to be some value greater than 1 dB; 3 dB appears to be appropriate for most people. For the proposed Ranch Plan project, a 3 dB traffic noise level increase due to the project is considered substantial.

Cumulative impacts are measured by an assessment of the total noise increase due to the project together with other growth in the area as compared to existing conditions. Because increases over existing conditions will take place over a long period of time, a 3 dB cumulative increase over existing conditions would be considered substantial. Therefore, for purposes of this noise analysis, a cumulative noise increase is considered a significant cumulative impact if the cumulative increase over existing conditions would be 3 dB or more, and the resulting future noise level would exceed the interior noise level standard of 45 CNEL or the exterior noise level standard of 65 CNEL.

Long-term on-site traffic noise impacts are measured against the noise level limits applied by the County (Table 4.8-2). Long-term on-site impacts associated with on-site activities are measured against the *Noise Ordinance* standards.

Project and Cumulative Impacts

Potential noise impacts are commonly divided into two groups: short-term and long-term. Short-term impacts are usually associated with noise generated by construction activities. Long-term impacts are further divided into impacts on surrounding land uses generated by the proposed project, and those impacts that occur from activities at the proposed project site. Potential traffic noise impacts on the proposed project are also assessed.

Impact 4.8-1: *Construction noise represents a short-term effect on ambient noise levels. Construction conducted consistent with the County of Orange Noise Ordinance would not result in any significant short-term noise impacts.*

Generally, construction noise represents a short-term impact on ambient noise levels. Noise generated by construction equipment and construction activities can reach high levels. Construction equipment noise comes under the control of the Environmental Protection Agency's Noise Control Program (Part 204 of Title 40, Code of Federal Regulations). Examples of construction noise at 50 feet are presented in Exhibit 4.8-4. However, noise measurements made by Mestre Greve Associates for other projects show that the noise levels generated by commonly used grading equipment (i.e., loaders, graders and trucks) generate noise levels that typically do not exceed the middle of the range shown in the exhibit.

The equipment used for site grading would generate the highest construction noise levels. Peak noise level generated by the equipment that would be used during grading is 70 to 95 dBA at a distance of 50 feet (Exhibit 4.8-4). When grading occurs directly adjacent to residences, high noise levels, upwards of 100 dBA, can reach the yards of the residences for very short periods of time as a piece of equipment passes by the home. At 150 feet, the peak construction noise levels range from 61 to 86 dBA. At 1,000 feet, the peak noise levels range from 44 to 69 dBA. It should be noted that these noise levels are based upon worst-case conditions and, typically, noise levels near the site would be less.

Most of the proposed development is located away from existing noise-sensitive uses. The exception to this situation is at the edge of the project near Ortega Highway where development would occur directly adjacent to existing residences. The project would be developed in phases, potentially resulting in construction occurring adjacent to or near residential areas

already constructed within or proximate to the project site. The Noise Ordinance limits noise generated by construction to the hours of 7 a.m. to 8 p.m. on weekdays and Saturdays. No noise generating activities are expected outside of these hours. In addition, the County requires compliance with the *Noise Ordinance*, the use of mufflers, and location of stock piles away from residential areas. Therefore, the construction of the project would not result in any significant short-term noise impacts.

Impact 4.8-2: *Project implementation would not result in any significant project-specific traffic noise impacts on surrounding land uses.*

Impacts from noise produced by project-generated traffic are estimated based on the traffic projections presented in the Austin-Foust Associates, Inc. traffic study (see Appendix D). By comparing the traffic volumes for different scenarios, the changes in noise levels along roadways in the vicinity of the project site can be estimated. To estimate noise level increases and noise impacts due to the development of the project, the "with project" traffic volumes are compared to the "without project" traffic volumes. This analysis is performed below for three scenarios:

- Existing Conditions + Project Buildout
- Year 2010
- Year 2025

Existing Conditions + Project Buildout

Table 4.8-5 identifies traffic noise level increases along roadways that would be caused by the project if full buildout of the project were constructed now with no other changes to the region. This is done by comparing traffic noise generated under *Existing Conditions* to what would be generated based on the *Existing Conditions* + *Project Buildout* traffic volumes.

To focus on the roadway segments that are most impacted by projected changes in traffic noise, only roadway segments projected to experience noise level increases of greater than 0.5 dB due to the project are identified in the table. Increases in noise associated with the proposed project for all roadway segments analyzed in the traffic study are presented in Appendix F. Noise level increases in excess of the 3 dB threshold are shown in bold italics. Increases of greater than 3 dB would only result in a significant noise impact if they exceed the thresholds of significance set forth in this Program EIR. The table indicates that the *Existing Conditions* + *Project Buildout* scenario would increase noise levels over existing conditions by 3 dB or more along five roadway segments. However, based on the thresholds of significance set forth in this Program EIR, no significant impacts would occur. These roadway segments are as follows:

- SR-241 between Antonio Parkway and Oso Parkway
- Avenida Pico between Avenida La Pata and Avenida Vista Hermosa
- Avenida Pico, east of Avenida Vista Hermosa
- Antonio Parkway, north of Ortega Highway
- Avenida Talega, east of Avenida Vista Hermosa

TABLE 4.8-5
EXISTING CONDITIONS + PROJECT BUILDOUT
TRAFFIC CNEL NOISE LEVEL INCREASES

Roadway Segment	Existing CNEL at 100 ft.[a.]	Traffic Noise CNEL Change	Existing + Project Buildout CNEL[b.]	Significant Impact?
SR-73				
Oso Parkway to Crown Valley Parkway	72.5	0.6	73.1	No
Crown Valley Parkway to I-5	72.4	0.7	73.1	No
SR-241				
North of Antonio Parkway	69.6	1.6	71.2	No
Antonio Parkway to Oso Parkway	66.1	***3.5***	69.6	***No***
Oso Parkway				
West of Marguerite Parkway	69.1	1.9	71.0	No
Marguerite Parkway to Felipe Road	69.1	0.8	69.9	No
Felipe Road to Antonio Parkway	69.1	1.1	70.2	No
East of Antonio Parkway	67.8	1.9	69.7	No
West of SR-241	67.4	2.1	69.5	No
Crown Valley Parkway				
West of Marguerite Parkway	69.1	0.7	69.8	No
East of Marguerite Parkway	68.9	1.0	69.9	No
West of Antonio Parkway	67.0	1.6	68.6	No
Ortega Highway				
I-5 to Rancho Viejo	72.8	0.5	73.3	No
West of La Novia	71.6	0.8	72.4	No
East of La Novia	70.7	1.3	72.0	No
West of Avenida La Pata	69.9	1.9	71.8	No
East of New Ortega Highway	65.5	0.8	66.3	No
San Juan Creek Road				
East of La Novia	61.1	0.5	61.6	No
Avenida Pico				
East of I-5	69.0	0.5	69.5	No
West of Avenida La Pata	66.8	1.4	68.2	No
La Pata to Avenida Vista Hermosa	63.6	***3.7***	67.3	***No***
East of Avenida Vista Hermosa	61.0	***6.5***	67.5	***No***
Antonio Parkway				
South of Crown Valley Parkway	65.3	1.9	67.2	No
North of New Ortega Highway	64.0	2.2	66.2	No
North of Ortega Highway	64.0	***4.4***	68.4	***No***
Avenida La Pata				
South of Ortega Highway	58.0	2.2	60.2	No
South of Avenida Pico	60.2	2.0	62.2	No
Rancho Viejo				
North of Ortega Highway	61.6	0.5	62.1	No
Avenida Talega				
East of Avenida Vista Hermosa	52.0	***7.8***	59.8	***No***

a. From roadway centerline
b. Without existing noise attenuation (e.g., sound walls)

Source: Mestre Greve Associates, June 2004

***SR-241 between Antonio Parkway and Oso Parkway*.** There are residences located on the northwest side of SR-241 between Antonio Parkway and Oso Parkway. Most of these residences are located more than 500 feet from the centerline of SR-241 and are forecast to be exposed to noise levels less than 65 CNEL. A few residences at the northeast end of the segment are within the forecast future 65 CNEL contour. However, they face the transportation corridor and only the front yards (which are not subject to the County's standard) would experience noise levels in excess of 65 CNEL. The building structures act as noise barriers reducing rear yard noise levels to below 65 CNEL. There are no other noise sensitive uses along this roadway segment. Therefore, the project would not result in a significant traffic noise impact along this roadway segment.

***Avenida Pico between Avenida La Pata and Avenida Vista Hermosa*.** There are existing residences located on the north side of this roadway segment. These residences are either located outside the forecast future 65 CNEL contour or have existing sound walls. An analysis of the performance of the sound walls found that all of the residences along this roadway segment are expected to be exposed to future traffic noise levels less than 65 CNEL. Therefore, the project would not result in a significant traffic noise impact along this roadway segment.

***Avenida Pico, east of Avenida Vista Hermosa*.** Existing residences located on the north side of this roadway segment have existing sound walls. Analysis of the performance of the sound walls found that all of the residences along this roadway segment are projected to be exposed to future traffic noise levels of less than 65 CNEL. Therefore, the project would not result in a significant traffic noise impact along this roadway segment.

***Antonio Parkway, north of Ortega Highway*.** This entire roadway segment is located within the project boundaries. The proposed project would not result in a significant traffic noise impact along this roadway segment.

***Avenida Talega, east of Avenida Vista Hermosa*.** There are existing residences on both sides of this roadway segment; all of the residences have existing sound walls. Analysis of the performance of the sound walls found that all residences along this roadway segment are forecast to be exposed to future traffic noise levels less than 65 CNEL. The proposed project would not result in a significant traffic noise impact along this roadway segment.

Year 2010 Project

As a part of the proposed Ranch Plan project, this Program EIR assesses potential environmental impacts associated with that portion of the project that is projected to be implemented by year 2010. For the purpose of this Program EIR, this initial development consists of 5,000 residential dwelling units and 510,000 square feet of commercial and business center development. Table 4.8-6 identifies the forecast 2010 traffic noise level increases along roadways with implementation of the project. The analysis was conducted by comparing traffic noise generated in year 2010 without the project to traffic noise generated in 2010 by the proposed project.

To focus on the roadway segments that are most impacted by projected changes in traffic noise, only roadway segments projected to experience noise level increases of greater than 0.5 dB associated with the project are presented in the table. Increases due to the project for all roadway segments analyzed the traffic study are presented in Appendix F. Noise level increases in excess of the 3 dB threshold are shown in bold italics. However, based on the thresholds of significance set forth in this Program EIR, no significant project-specific impacts would occur.

TABLE 4.8-6
YEAR 2010 PROJECT TRAFFIC NOISE LEVEL INCREASES

Roadway Segment	2010 Project Traffic Noise CNEL Change	Significant?
Crown Valley Parkway		
East of Marguerite Parkway	0.6	No
West of Antonio Parkway	0.9	No
Ortega Highway		
I-5 to Rancho Viejo Road	0.5	No
West of La Novia	0.7	No
East of La Novia	0.9	No
West of Avenida La Pata	1.1	No
Antonio Parkway		
Oso Parkway to Crown Valley Parkway	0.7	No
South of Crown Valley Parkway	2.1	No
North of New Ortega Highway	***3.6***	***No***
North of Ortega Highway	2.0	No
Avenida La Pata		
South of Ortega Highway	1.2	No
Rancho Viejo		
South of Junipero Serra	0.5	No
Source: Mestre Greve Associates, June 2004		

Table 4.8-6 identifies that the project is forecast to increase noise levels by 3.6 dB on one roadway segment: Antonio Parkway north of New Ortega Highway.

***Antonio Parkway, north of New Ortega Highway*.** Most of this roadway segment is within the project boundaries. There are no existing residences outside of the project boundaries that would be located within the future 65 CNEL contour. Therefore, development of the proposed Ranch Plan project through 2010 would not result in a significant traffic noise impact along this roadway segment.

Project Buildout (Year 2025)

To assess the project-specific impacts of project buildout, year 2025 conditions with and without the project were compared. Both scenarios assume the committed circulation system described in Section 4.6 of this Program EIR. Table 4.8-7 identifies project-specific traffic noise level increases associated with project buildout (year 2025). To focus on the roadway segments that are most impacted by projected changes in traffic noise, only roadway segments expected to have project-specific noise level increases of greater than 0.5 dB are presented in the table. Increases associated with the project for all roadway segments analyzed the traffic study are presented in Appendix F. Noise level increases in excess of the 3 dB threshold are shown in bold italics.

TABLE 4.8-7
YEAR 2025 PROJECT BUILDOUT TRAFFIC NOISE CNEL INCREASES

Roadway Segment	Project Buildout Traffic Noise CNEL Change	Significant?
SR-241		
North of Antonio Parkway	1.1	No
Antonio Parkway to Oso Parkway	2.2	No
Oso Parkway		
East of I-5	0.3	No
West of Marguerite Parkway	0.3	No
Marguerite Parkway to Felipe Road	0.7	No
Felipe Road to Antonio Parkway	1.0	No
East of Antonio Parkway	1.8	No
West of SR-241	2.1	No
Crown Valley Parkway		
West of Marguerite Parkway	0.5	No
East of Marguerite Parkway	0.7	No
West of Antonio Parkway	1.1	No
Ortega Highway		
I-5 to Rancho Viejo Road	0.5	No
West of La Novia	0.7	No
East of La Novia	1.0	No
West of Avenida La Pata	1.5	No
East of New Ortega Highway	0.7	No
Avenida Vista Hermosa		
Avenida Talega to Avenida Pico	2.4	No
Avenida Pico		
West of Avenida La Pata	1.3	No
Avenida La Pata to Vista Hermosa	***4.3***	***No***
East of Avenida Vista Hermosa	***4.3***	***No***
Antonio Parkway		
South of Crown Valley Parkway	1.0	No
North of New Ortega Highway	2.9	No
North of Ortega Highway	***3.1***	***No***
Avenida La Pata		
South of Ortega Highway	2.2	No
South of Avenida Pico	1.8	No
Avenida Talega		
East of Avenida Vista Hermosa	1.8	No
Source: Mestre Greve Associates, June 2004		

The table shows that the project is forecast to result in noise increases greater than the 3 dB threshold along three roadway segments. However, based on the thresholds of significance set forth in this Program EIR, no significant project-specific impacts would occur.

Avenida Pico, Avenida La Pata and Avenida Vista Hermosa. As addressed for the *Existing Conditions + Project Buildout scenario*, there are existing residences located on the north side

of this roadway segment. These residences are either located outside the forecast future 65 CNEL contour or have existing sound walls. Therefore, under both scenarios, the project would not result in a significant traffic noise impact along this roadway segment.

***Avenida Pico, east of Avenida Vista Hermosa*.** As addressed for the *Existing Conditions + Project Buildout scenario*, there are existing residences located on the north side of this roadway segment have existing sound walls. Analysis of the performance of the sound walls found that all of the residences along this roadway segment are projected to be exposed to future traffic noise levels of less than 65 CNEL. Therefore, under both scenarios, the project would not result in a significant traffic noise impact along this roadway segment because the project would be designed to avoid impacts to sensitive receptors such that uses are not subject to noise levels exceeding 65 CNEL.

***Antonio Parkway, north of Ortega Highway*.** As with the *Existing Conditions + Project Buildout* scenario, the segment of Antonio Parkway north of Ortega Highway would experience increased noise levels. Buildout of the proposed project would not result in significant noise impacts to this roadway segment because the project would be designed to avoid impacts to sensitive receptors such that uses are not subject to noise levels exceeding 65 CNEL.

Impact 4.8-3 *The project's contribution to cumulative noise would result in significant traffic noise impacts.*

Cumulative traffic noise impacts are assessed by comparing traffic noise CNEL increases compared to existing conditions with the proposed project and all other projected development within the study area. To estimate the noise level increases compared to existing conditions, existing traffic volumes were compared to the forecast future with project traffic volumes. This provides the forecast traffic noise level increases due to the proposed project in addition to other projects and general growth anticipated for the area. Cumulative traffic noise impacts in a) 2010 with development of the project through 2010 and b) 2025 with buildout of the project have been assessed. This presents the cumulative noise increases due to the project and general growth in the area.

Year 2010 Project + Cumulative

Under this scenario, traffic noise CNEL increases were compared to existing conditions. The following transportation system scenarios were assessed:

- Committed circulation system
- Committed circulation system plus La Pata Avenue extension
- Committed circulation system plus La Pata Avenue extension and arterial south of Oso Parkway from SR-241 to north of San Juan Creek, connecting to New Ortega Highway at this point

Table 4.8-8 identifies increases greater than the 3 dB threshold in bold italics. Only those roadway segments that are forecast to experience an increase of greater than 1.5 dB is shown. Traffic noise level increases for all road segments assessed in the traffic study are presented in Appendix F.

TABLE 4.8-8
YEAR 2010 PROJECT + CUMULATIVE TRAFFIC NOISE CNEL INCREASES

Roadway Segment	Cumulative Traffic Noise CNEL Change			
	2010 Project + Cumulative (Committed Circulation System)	2010 Project + Cumulative (Committed + La Pata)	2010 Project + Cumulative (Committed Circulation System+ La Pata + Arterial South of Oso Parkway)	Significant Impact?
SR-73				
Oso Parkway to Crown Valley Parkway	1.7	1.6	1.6	No
Crown Valley Parkway to I-5	1.6	1.6	1.5	No
SR-241				
North of Antonio Parkway	1.2	1.2	1.6	No
Antonio Parkway to Oso Parkway	2.1	2.1	2.7	No
Oso Parkway				
West of Marguerite Parkway	1.6	1.6	1.7	No
Crown Valley Parkway				
West of Marguerite Parkway	2.2	2.1	2.0	No
East of Marguerite Parkway	2.4	2.2	2.2	No
West of Antonio Parkway	2.5	2.3	2.2	No
Ortega Highway				
East of La Novia	1.7	1.2	1.0	No
West of Avenida La Pata	1.9	1.4	1.2	No
San Juan Creek Road				
West of La Novia	1.5	1.1	1.1	No
East of La Novia	2.1	2.1	2.1	No
Avenida Vista Hermosa				
East of I-5	2.3	2.0	2.0	No
Avenida Pico				
East of Avenida Vista Hermosa	2.2	1.8	1.8	No
Antonio Parkway				
Empressa to Banderas	1.6	1.6	1.5	No
Oso Parkway to Crown Valley Parkway	2.5	2.6	2.1	No

TABLE 4.8-8 (Continued)
YEAR 2010 PROJECT + CUMULATIVE TRAFFIC NOISE CNEL INCREASES

Roadway Segment	Cumulative Traffic Noise CNEL Change			
	2010 Project + Cumulative (Committed Circulation System)	2010 Project + Cumulative (Committed + La Pata)	2010 Project + Cumulative (Committed Circulation System+ La Pata + Arterial South of Oso Parkway)	Significant Impact?
South of Crown Valley Parkway	***4.5***	***4.7***	***3.6***	***No***
North of New Ortega Highway	***5.1***	***5.4***	***4.3***	***No***
North of Ortega Highway	***3.5***	***4.3***	***4.0***	***No***
Avenida La Pata				
South of Ortega Highway	1.2	***6.0***	***6.0***	***No***
Camino Vera Cruz				
Camino de Los Mares to Avenida Vista Hermosa	2.5	***3.0***	2.8	***No***
Source: Mestre Greve Associates, June 2004				

The table shows that five roadway segments are projected to experience traffic noise level increases over existing conditions greater than 3 dB as a result of the development of the project, projected growth in the study area, and roadway network changes. No significant impacts would occur under all of the roadway scenarios.

***Antonio Parkway, south of Crown Valley Parkway*.** There are residences located on the west side of this roadway segment. Because they are between 25 and 40 feet below the roadway grade, topography acts as a noise barrier. Analysis of the performance of the topographic noise barrier found that all of the residences along this roadway segment are projected to be exposed to future traffic noise levels less than 65 CNEL. Therefore, project development through 2010 with cumulative growth would not result in a significant cumulative traffic noise impact along this roadway segment under each of the roadway scenarios.

***Antonio Parkway, north of New Ortega Highway*.** Noise levels along Antonio Parkway north of New Ortega Highway were previously addressed and it was noted that there would be substantial traffic noise increases associated with development of the project through 2010. Forecast noise levels at sensitive receptors along this roadway segment are expected to be below the County standards. Therefore, the project in combination with cumulative growth would not result in a significant cumulative traffic noise impact along this roadway segment under each of the roadway scenarios.

***Antonio Parkway, north of Ortega Highway*.** As previously addressed, noise levels along Antonio Parkway north of Ortega Highway are forecast to experience substantial traffic noise increases. However, noise levels at sensitive receptors along this roadway segment are forecast to be below County standards. Therefore, development of the project site through 2010 plus cumulative growth would not result in a significant cumulative traffic noise impact along this roadway segment under each of the roadway scenarios.

***Avenida La Pata, south of Ortega Highway*.** Noise levels along Avenida La Pata south of Ortega Highway were previously noted as forecast to result in traffic noise increases due to development the project. However, these noise levels at sensitive receptors along this roadway segment are projected to be below County standards. Therefore, the project with cumulative growth would not result in a significant cumulative traffic noise impact along this roadway segment under each of the roadway scenarios.

***Camino Vera Cruz between Camino de los Mares and Avenida Vista Hermosa*.** There are residences along both sides of the entire roadway segment; some have existing sound walls and others do not. An analysis of forecast future noise levels, including the effects of sound walls, showed that residences that back up to Camino Vera Cruz on Pavoreal, Bello Panorama, Campo Raso, and Camino Oleada are expected to experience future noise levels in excess of the County's 65 CNEL standard. However, implementation of the proposed project does not change the traffic noise levels along this roadway segment (noise levels with and without the project would be the same). The noise level increase is due to other projects and growth in the area. Therefore, that portion of the Ranch Plan project implemented through 2010 would not contribute to a significant cumulative traffic noise impact along this roadway segment under each of the roadway scenarios.

Year 2025 Project Buildout + Cumulative

Table 4.8-9 identifies the cumulative traffic noise CNEL increases with buildout of the project. Three circulation system scenarios are used for the *Year 2025* analysis as follows:

- Committed circulation system.
- Committed circulation system plus La Pata Avenue extension.
- Committed circulation system plus La Pata Avenue extension and the southerly extension of SR-241.

Increases greater than the 3 dB threshold are shown in bold italics. Segments presented in the table are those projected to experience noise level increases of 1.5 dB or greater. Traffic noise level increases for all road segments assessed in the traffic study are presented in Appendix F. Up to 14 roadway segments (depending on the above-noted circulation system scenarios) are forecast to experience 2025 traffic noise level increases over existing conditions greater than 3 dB as a result of implementation of the proposed project and projected growth in the area. These segments are:

SR-73 between Oso Parkway and Crown Valley Parkway**.** Residences are located along both sides of the entire roadway segment. All of the residences have existing sound walls or elevation differences from the roadway such that the roadway structure and/or topography act as a noise barrier. Analysis of the performance of the sound walls and noise barriers found that all of the residences along this roadway segment are forecast to be exposed to future traffic noise levels less than 65 CNEL. Therefore, the project, in combination with cumulative growth, would not result in a significant cumulative traffic noise impact along this roadway segment for each of the roadway scenarios.

SR-73 between Crown Valley Parkway and I-5**.** There are residences located along both sides of the entire roadway segment. All of the residences have existing sound walls or elevation differences from the roadway where the roadway structure and/or topography act as a noise barrier. Analysis of the performance of the sound walls and noise barriers found that all of the residences along this roadway segment are forecast to be exposed to future traffic noise levels less than 65 CNEL. Therefore, the project, in combination with cumulative growth, would not result in a significant cumulative traffic noise impact along this roadway segment for each of the roadway scenarios.

SR-241, north of Antonio Parkway**.** Under the committed circulation system and the committed circulation system with the La Pata Avenue extension, SR-241 north of Antonio Parkway would increase noise levels by more than 3 dB. As previously noted for the *Existing Conditions + Project Buildout* scenario, the project plus cumulative growth scenario would not result in a significant traffic noise impact along this roadway segment for each of the roadway scenarios. Residences are either outside of the 65 CNEL contour or have existing sound walls.

SR-241, Antonio Parkway to Oso Parkway**.** Note: this segment is forecast to experience substantial traffic noise increases under the *Existing Conditions + Project Buildout* scenario. The project, in combination with cumulative growth in the study area, would not result in a significant cumulative traffic noise impact along this roadway segment for each of the roadway scenarios. Residences are either outside of the 65 CNEL contour or have existing sound walls.

TABLE 4.8-9
YEAR 2025 PROJECT + CUMULATIVE TRAFFIC NOISE CNEL INCREASES

Roadway Segment	Cumulative Traffic Noise CNEL Change			
	Project Buildout + Cumulative (Committed Circulation System)	Project Buildout + Cumulative (Committed Circulation System + La Pata)	Project Buildout + Cumulative (Committed Circulation System+ La Pata + Arterial South of Oso Parkway)	Significant Impact?
I-5				
Avery Parkway to Junipero Serra	1.6	1.6	1.3	No
Junipero Serra to Ortega Highway	1.6	1.6	1.3	No
Ortega Highway to San Juan Creek	1.7	1.7	1.3	No
San Juan Creek to Stonehill	1.7	1.6	1.3	No
Stonehill to Camino Las Ramblas	1.8	1.7	1.3	No
Camino Las Ramblas to Camino de Los Mares	1.7	1.6	1.3	No
Camino de Los Mares to Vista Hermosa	1.8	1.6	1.3	No
Avenida Vista Hermosa to Avenida Pico	1.8	1.8	1.4	No
SR-73				
Oso Parkway to Crown Valley Parkway	***3.2***	***3.1***	2.7	***No***
Crown Valley Parkway to I-5	***3.1***	***3.1***	2.7	***No***
SR-241				
North of Antonio Parkway	2.9	***3.1***	***5.0***	***No***
Antonio Parkway to Oso Parkway	***4.9***	***4.9***	***7.9***	***No***
Oso Parkway				
West of Marguerite Parkway	2.2	2.2	1.6	No
Marguerite to Felipe Road	1.3	1.3	1.0	No
Felipe Road to Antonio Parkway	1.3	1.3	1.0	No
East of Antonio Parkway	2.2	2.3	1.2	No
West of SR-241	2.1	2.3	0.8	No
Crown Valley Parkway				
West of Marguerite Parkway	2.5	2.4	2.4	No
East of Marguerite Parkway	2.8	2.6	2.6	No
West of Antonio Parkway	***3.2***	***3.0***	***3.0***	***No***

TABLE 4.8-9 (Continued)
YEAR 2025 PROJECT + CUMULATIVE TRAFFIC NOISE CNEL INCREASES

Roadway Segment	Cumulative Traffic Noise CNEL Change			
	Project Buildout + Cumulative (Committed Circulation System)	Project Buildout + Cumulative (Committed Circulation System + La Pata)	Project Buildout + Cumulative (Committed Circulation System+ La Pata + Arterial South of Oso Parkway)	Significant Impact?
Junipero Serra				
West of I-5	2.0	1.8	1.8	No
Ortega Highway				
West of La Novia	1.5	1.2	1.1	No
East of La Novia	2.2	1.9	1.9	No
West of La Pata	2.8	2.5	2.4	No
East of New Ortega Highway	1.1	1.1	1.5	No
San Juan Creek Road				
West of La Novia	1.8	1.5	1.5	No
East of La Novia	2.1	2.1	2.1	No
Avenida Vista Hermosa				
East of I-5	2.9	2.9	2.0	No
Avenida Pico				
East of I-5	1.9	1.5	0.9	No
West of La Pata	1.8	1.7	0.5	No
La Pata to Avenida Vista Hermosa	***3.4***	***3.4***	***3.6***	***No***
East of Avenida Vista Hermosa	***6.5***	***6.5***	***7.1***	***No***
Camino Capistrano				
South of Paseo de Colinas	0.8	0.8	0.8	No
North of Junipero Serra	***4.8***	0.0	0.0	***No***
Junipero Serra to Roso	2.4	2.1	2.1	No
Antonio Parkway				
North of SR-241	1.5	1.5	1.5	No
Empressa to SR-241	1.3	1.6	1.5	No
Empressa to Banderas	1.5	1.8	1.5	No

TABLE 4.8-9 (Continued)
YEAR 2025 PROJECT + CUMULATIVE TRAFFIC NOISE CNEL INCREASES

Roadway Segment	Cumulative Traffic Noise CNEL Change			
	Project Buildout + Cumulative (Committed Circulation System)	**Project Buildout + Cumulative (Committed Circulation System + La Pata)**	**Project Buildout + Cumulative (Committed Circulation System+ La Pata + Arterial South of Oso Parkway)**	**Significant Impact?**
Oso Parkway to Crown Valley Parkway	2.4	2.8	2.5	No
South of Crown Valley Parkway	***4.2***	***4.8***	***4.8***	***No***
North of New Ortega Highway	***5.3***	***5.9***	***6.0***	***No***
North of Ortega Highway	***5.5***	***6.8***	***5.7***	***No***
Avenida La Pata				
South of Ortega Highway	2.2	***9.2***	***6.0***	***No***
South of Avenida Pico	2.6	***3.0***	***3.4***	***No***
Camino Vera Cruz				
Camino de Los Mares to Avenida Vista Hermosa	***3.7***	***3.9***	***3.9***	***No***
Avenida Talega				
East of Avenida Vista Hermosa	***11.8***	***10.8***	***10.8***	***No***
Source: Mestre Greve Associates, June 2004				

Crown Valley Parkway, west of Antonio Parkway: There are residences on both sides of the entire roadway segment. Some have existing sound walls and others have topographical features that act as noise barriers. Analysis of the performance of the sound walls and topography found that all of the residences along this roadway segment are projected to be exposed to future traffic noise levels of less than 65 CNEL. There are no other noise sensitive uses along this roadway segment. Therefore, the project, in combination with cumulative growth in the study area, is not expected to result in a significant cumulative traffic noise impact along this roadway segment for each of the roadway scenarios.

***Avenida Pico, Avenida La Pata to Avenida Vista Hermosa*.** Note: this segment is forecast to experience substantial traffic noise increases under the *Existing Conditions + Project Buildout* scenario. Cumulative growth with buildout of the proposed Ranch Plan project would not result in a significant cumulative traffic impact for each of the roadway scenarios. Residences are either located outside of the 65 CNEL contour or have existing sound walls.

***Avenida Pico, east of Avenida Vista Hermosa*.** Note: this segment is forecast to experience substantial traffic noise increases under the *Existing Conditions + Project Buildout* scenario. Cumulative growth with buildout of the proposed Ranch Plan project would not result in a significant cumulative traffic impact for each of the roadway scenarios Residences would be exposed to noise levels less than 65 CNEL.

***Camino Capistrano, north of Junipero Serra*.** There are scattered residences located on the west side of this roadway segment. These residences do not have noise barriers and are exposed to existing and future noise levels in excess of 65 CNEL. I-5 is located on the east side of the roadway segment and dominates the noise environment. The actual noise level increase along this segment is a combination of the increase along Camino Capistrano and the increase along I-5. The actual noise level increase is dependant on the specific receptor location relative to these two roadways. The greatest increase is forecast to occur at the receptor closest to Camino Capistrano (which experiences the greatest increase in noise level) and is furthest from I-5 (which generates the highest noise levels). The greatest increase in noise levels over existing conditions is projected to be 2.6 dB. Therefore, while the traffic noise level generated by vehicles on Camino Capistrano will increase by more than 3 dB, the total traffic noise level at the residences would not be greater than 3 dB. Therefore, the project in combination with cumulative growth would not result in a significant traffic noise impact along this roadway segment for each of the roadway scenarios.

***Antonio Parkway, south of Crown Valley Parkway*.** Note: this segment is forecast to experience substantial traffic noise increases under the *Year 201 Project* scenario. As with this scenario, cumulative growth with buildout of the proposed Ranch Plan project would not result in a significant cumulative traffic impact for each of the roadway scenarios. Residences would be exposed to noise levels less than 65 CNEL.

***Antonio Parkway, north of New Ortega Highway*.** Note: this segment is forecast to experience substantial traffic noise increases under the *Existing Conditions + Project Buildout* scenario. As with this scenario, buildout of the proposed project combined with cumulative growth would not result in significant cumulative noise impacts for each of the roadway scenarios. Forecast noise levels would be less than the County standards.

***Antonio Parkway, north of Ortega Highway*.** Note: this segment is forecast to experience substantial traffic noise increases under the *Existing Conditions + Project Buildout* scenario. As with this scenario, cumulative growth with buildout of the Ranch Plan project would not result in significant noise impacts for each of the roadway scenarios. Forecast noise levels would be less than the County standards.

***Junipero Serra, west of I-5*.** No noise sensitive uses are located within the future forecast 65 CNEL contour from this roadway segment. Therefore, the project, in combination with cumulative growth and changes in the area's roadway network, would not result in a significant traffic noise impact along this roadway segment for each of the roadway scenarios.

***Avenida La Pata, south of Ortega Highway*.** Note: this segment is forecast to experience substantial traffic noise increases under the *Existing Conditions + Project Buildout* scenario. As with this scenario, cumulative growth with buildout of the Ranch Plan project would not result in significant noise impacts for each of the roadway scenarios for each of the roadway scenarios, sensitive receptors would not be exposed to noise levels exceeding County standards.

***Avenida La Pata, south of Avenida Pico*.** Under the committed circulation system and the committed circulation system with the La Pata Avenue extension, there would be 3 dB or greater noise increases. There are no existing noise sensitive uses located within the forecast future 65 CNEL contour for this roadway segment. Therefore, the project, in combination with all other growth and changes in the area's roadway network, would not result in a significant traffic noise impact along this roadway segment for each of the roadway scenarios.

***Camino Vera Cruz, Camino de los Mares to Avenida Vista Hermosa*.** Future forecast noise levels at some sensitive receptors along the Camino Vera Cruz segment are projected to be exposed to traffic noise levels greater than County standards. However, implementation of the project does not change the traffic noise levels along this roadway segment. Therefore, the project, in combination with cumulative growth, would not result in a significant cumulative traffic noise impact to this roadway segment for each of the roadway scenarios.

***Avenida Talega, east of Avenida Vista Hermosa*.** Buildout of the proposed project in combination with cumulative growth in the study area would not result in a significant cumulative traffic noise impact along these roadway segments for each of the roadway scenarios.

Impact
4.8-4 *Prior to mitigation, on-site activities could result in significant noise impacts thereby impacting sensitive receptors.*

Ranch Plan On-Site Land Uses and Activities

Noise from activities on one property impacting another typically occurs only where non-residential land uses (e.g., commercial, manufacturing, etc.) abuts residential uses. Typical sources of noise from commercial uses adjacent to residential uses that have the potential to impact residential uses include parking lot activity, mechanical equipment, and delivery trucks/loading docks. Although the Ranch Plan project does not propose commercial uses directly adjacent to any existing residential areas, the Urban Activity Center land use designation permits residential development. The nearest commercial uses to existing residential uses would be Urban Activity Center uses in Planning Area 1. These uses are located more than 1,500 feet from the nearest existing residence and there will be residential uses developed by the project between the commercial and existing residences. Specific uses in the commercial portions of the project not yet identified could generate significant noise levels internal to the project site. Restaurants, nightclubs, and bars are often sources of noise issues due to their late night operation. Proposed commercial uses would be required to comply with the Noise Ordinance at the nearer residential areas developed by the project and would not approach the Noise Ordinance limits at the nearest existing residences. Compliance with County Standard Condition N08 would ensure that commercial uses proposed by the project would not significantly impact any proposed residential uses. This condition will require a specific noise study for any commercial uses that are deemed to have the potential to generate

noise levels in excess of the Noise Ordinance. Measures that may be required to meet the Noise Ordinance include additional setbacks through site design, noise barriers, mufflers/silencers, and/or operational restrictions.

Golfing is not a significant noise-generating activity and therefore, would not result in a significant noise impact. Maintenance activities on the golf courses have the potential to result in a noise impact. The County of Orange exempts noise associated with the maintenance of real property if these activities occur between 7:00 a.m. and 8:00 p.m. Monday through Saturday, or between 9:00 a.m. and 8:00 p.m. on a Sunday or a federal holiday. Therefore, maintenance activities occurring within these hours would not result in a significant noise impact. However, golf course operators typically mow greens as early as possible in the morning. Residences located near greens would be subject to early morning mowing noise. Further, some golf course operations begin mowing fairways early in the morning; therefore, residences located adjacent to fairways could be subject to early morning noise. Application of County Standard Condition N08 would ensure that the golf course facilities proposed by the project would not significantly impact any proposed residential uses. This condition will require a specific noise study for any golf course facilities that are deemed to have the potential to generate noise levels in excess of the Noise Ordinance. Measures that may be required to meet the Noise Ordinance include additional setbacks through site design, noise barriers, mufflers/silencers, and/or operational restrictions.

Parks

The project proposes a regional sports park that could include baseball and soccer fields with night lighting. Other parks would be developed in other planning areas. Noise generated by sports park activities is typically limited to the voices of participants and spectators. These noise levels are quite varied and dependent on the specific activity. Larger crowds will tend to generate higher noise levels. Important games (e.g., championship vs. preseason) with close scores will tend to result in higher noise levels. Any amplified speech (e.g., bull-horns) or music could generate substantial noise levels. Noise levels at sensitive receptors would depend on their location relative to activity areas at the park and any intervening terrain or walls that act as sound barriers. Section 4-6-7 of the County of Orange Noise Ordinance specifically exempts "Activities conducted on any park or playground, provided such park or playground is owned and operated by a public entity." If the park is publicly owned and operated and designed to County of Orange standards and required to comply with the Noise Ordinance, noise generated by the park would be considered less than significant.

SR-241 Southerly Extension

The proposed southern extension of SR-241 (i.e., the alignment that was selected by the Transportation Corridor Agencies (TCA) as the locally preferred toll road alignment in 1991) would traverse the Ranch Plan site. The TCA and Federal Highway Administration (FHWA) are currently evaluating the South Orange County Transportation Infrastructure Improvement Project (SOCTIIP), which includes the southern extension of SR-241; the EIS/EIR is currently under public review. Selection of an alignment for the SR-241 extension is anticipated to occur by mid-2005, approximately one year after the release of the environmental document. Should the TCA and FHWA select an alignment for the SR-241 extension that is different from the 1991 alignment, the proposed Ranch Plan project would be modified to reflect the adopted alignment. The impacts associated with the construction of the extension of SR-241 are being addressed in a separate environmental document for the SOCTIIP study. Because the construction of the toll road is not part of the Ranch Plan project and the project is not dependent on the completion of the toll road, this project is not required to evaluate impacts associated with the development of the toll road. However, potential noise impacts from traffic generated by the southern extension

of SR-241 have been evaluated in this Program EIR for informational purposes. The southerly extension of SR-241 could result in noise levels that would exceed 65 CNEL at 100 feet from the toll road centerline to 18 roadway segments. Sound attenuation would be required for proposed Ranch Plan sensitive receptors affected by SR-241 noise.

Airfields

As previously addressed, the project site is not located in the immediate vicinity of any airfield and is not directly impacted by noise generated from any airport operations. Enroute aircraft overfly the project site and are audible at times. These conditions are not expected to change in the future. Because of the relatively low aircraft noise levels experienced on the project site and the limited time that this occurs, aircraft do not generate noise levels that approach the County's noise standards.

On-Site Heliport

There is a private heliport located at the RMV headquarters within the project boundaries. The heliport is used infrequently, approximately four times a year, for aerial tours of the ranch property or other RMV business. Typically, operations do not occur during the nighttime hours and this is not projected to change in the future. Areas around the heliport would be exposed to substantial single-event noise levels as helicopters arrive and depart the heliport. These levels could be high enough to interfere with speech in the immediate area around the heliport. However, because of the infrequency of operations, noise levels in the vicinity of the heliport would not approach the County's noise standards. The project site is not significantly impacted by aircraft noise.

Camp Pendleton

Residences proposed in Planning Area 8 would be the most impacted by noise generated from activities at MCB. As previously addressed, noise levels from the base are not expected to exceed the County's 65 CNEL outdoor residential noise standard within the project boundaries, including Planning Area 8. However, noise from activities on the base, including aircraft and artillery firings, would be audible in Planning Area 8.

Planning Area 8 is currently leased by Northrop Grumman Space Technology. The lease for this area lasts until 2018 and would preclude development of Planning Area 8 before this time. Activity at MCB and their noise impacts on the project may be substantially different than it is today. Section 4.1, Land Use and Related Planning Programs provides additional analysis of the potential effects of MCB activities on the project. Two mitigation measures are included in the section and require a buyer's notification program for residents of Planning Area 8 and the compliance with the most current RCUZ at the time of Area Plan approval to ensure that noise levels in Planning Area 8 do not exceed the appropriate noise standards. With these mitigation measures, Planning Area 8 would not be significantly impacted by noise from activities at the base.

4.8.5 MITIGATION PROGRAM

<u>Project Design Features</u>

No project design features have been identified.

Standard Conditions and Regulations

Many of the standard conditions and regulations are enacted at subsequent levels of approval. The following are the County of Orange Standard Conditions associated with noise that would apply to the project. These are listed even though they may not be applicable at the GPA/ZC level of approval, but because they would be applicable at subsequent levels of approvals (i.e., grading permits and tract maps). The number of the standard condition is listed in parentheses at the end of each condition.

Construction Noise

SC 4.8-1 During construction, the project applicant shall ensure that all noise generating activities be limited to the hours of 7 a.m. to 8 p.m. on weekdays and Saturdays. No noise generating activities shall occur on Sundays and holidays in accordance with the County of Orange *Noise Ordinance*.

SC 4.8-2

A. Prior to the issuance of any grading permits, the project proponent shall produce evidence acceptable to the Manager, Building Permits Services, that:

(1) All construction vehicles or equipment, fixed or mobile, operated within 1,000' of a dwelling shall be equipped with properly operating and maintained mufflers.

(2) All operations shall comply with Orange County Codified Ordinance Division 6 (Noise Control).

(3) Stockpiling and/or vehicle staging areas shall be located as far as practicable from dwellings.

B. Notations in the above format, appropriately numbered and included with other notations on the front sheet of the project's permitted grading plans, will be considered as adequate evidence of compliance with this condition. (County of Orange Standard Condition N10)

Residential Development

SC 4.8-3 The applicant shall sound attenuate all residential lots and dwellings against present and projected noise (which shall be the sum of all noise impacting the project) so that the composite interior standard of 45 dBA CNEL for habitable rooms and a source specific exterior standard of 65 dBA CNEL for outdoor living areas is not exceeded. The applicant shall provide a report prepared by a County-certified acoustical consultant, which demonstrates that these standards will be satisfied in a manner consistent with Zoning Code Section 7-9-137.5, as follows:

a. Prior to the recordation of a subdivision map or prior to the issuance of grading permits, as determined by the Manager, Building Permits Services, the applicant shall submit an acoustical analysis report to the Manager, Building Permits Services, for approval. The report shall describe in detail the exterior noise environment and preliminary mitigation measures. Acoustical design features to achieve interior noise standards may be included in the report in which case it may also satisfy Condition B below.

b. Prior to the issuance of any building permits for residential construction, the applicant shall submit an acoustical analysis report describing the acoustical design features of the structures required to satisfy the exterior and interior noise standards to the Manager, Building Permits Services, for approval along with satisfactory evidence which indicates that the sound attenuation measures specified in the approved acoustical report have been incorporated into the design of the project.

c. Prior to the issuance of any building permits, the applicant shall show all freestanding acoustical barriers on the project's plot plan illustrating height, location and construction in a manner meeting the approval of the Manager, Building Permits Services. (County of Orange Standard Condition N01)

Multi-Family Residential Development

SC 4.8-4 Prior to the issuance of any certificates of use and occupancy, the applicant shall perform field testing in accordance with Title 24 Regulations to verify compliance with FSTC and FIIC standards if determined necessary by the Manager, Building Inspection Services. In the event such a test was previously performed, the applicant shall provide satisfactory evidence and a copy of the report to the Manager, Building Inspection Services, as a supplement to the previously required acoustical analysis report. (County of Orange Standard Condition N09)

Non-Residential Development

SC 4.8-5 Except when the interior noise level exceeds the exterior noise level, the applicant shall sound attenuate all nonresidential structures against the combined impact of all present and projected noise from exterior noise sources to meet the interior noise criteria as specified in the Noise Element and Land Use/Noise Compatibility Manual.

Prior to the issuance of any building permits, the applicant shall submit to the Manager, Building Permit Services, an acoustical analysis report prepared under the supervision of a County-certified acoustical consultant which describes in detail the exterior noise environment and the acoustical design features required to achieve the interior noise standard and which indicates that the sound attenuation measures specified have been incorporated into the design of the project. (County of Orange Standard Condition N02)

Noise-Generating Equipment (Non-Residential Projects)

SC 4.8-6 Prior to the issuance of any building or grading permits, the applicant shall obtain the approval of the Manager, Building Permits Services of an acoustical analysis report and appropriate plans which demonstrate that the noise levels generated by this project during its operation shall be controlled in compliance with Orange County Codified Ordinance, Division 6 (Noise Control). The report shall be prepared under the supervision of a County-certified Acoustical Consultant and shall describe the noise generation potential of the project during its operation and the noise mitigation measures, if needed, which shall be included in the plans and specifications of the project to assure compliance with Orange County Codified Ordinance, Division 6 (Noise Control). (County of Orange Standard Condition N08)

Other

SC 4.8-7 Prior to the issuance of certificates of use and occupancy, the developer shall produce evidence to the Manager, Building Inspection Services, that the Department of Real Estate has been notified that the project area is adjacent to a regional transportation corridor. The corridor is expected to be a high capacity, high-speed, limited-access facility for motor vehicles, and will have provisions for bus lanes and other mass transit type facilities. (County of Orange Standard Condition N12)

Mitigation Measures

Cumulative Vehicular Traffic Noise

MM 4.8-1 For Camino Capistrano, north of Junipero Sera, prior to the issuance of precise grading permits, a detailed acoustical study shall be performed by a qualified acoustical consultant and submitted to the County of Orange to determine the specific height and location of the noise barriers required to meet the County's noise standards. To be effective, a noise barrier is required to have a surface density of at least 3.5 pounds per square foot and have no openings or cracks. It may be constructed as a solid wall, an earthen berm, or a combination of the two. It may be constructed of wood studs with stucco exterior, 1/4-inch plate glass, 5/8-inch Plexiglas, any masonry material, or a combination of these materials.

4.8.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the recommended standard conditions and mitigation measures would reduce all impacts to less than significant levels with the exception of cumulative noise impacts on Camino Capistrano north of Junipero Serra that would require the construction of a sound wall on private residential property. If a sound barriers could be constructed on public right-of-way in a manner to reduce noise levels at the affected residences to below 65 CNEL, the significant impact would be fully mitigated. Where this is not possible due to the topography between the road and the residence, permission to construct a sound wall on the resident's property would be requested. However, at this time, it cannot be guaranteed that this permission would be granted. Therefore, an unavoidable significant noise impact would occur when it is not feasible to construct an effective sound wall on public property and the affected resident does not grant permission for construction of a sound wall on his/her property.

All other impacts would be reduced to less than significant levels with implementation of the recommended Standard Conditions and Regulations and Mitigation Measures.

SOUND LEVELS AND LOUDNESS OF ILLUSTRATIVE NOISES IN INDOOR AND OUTDOOR ENVIRONMENTS

Numbers in Parentheses are the A-Scale Weighted Sound Levels for that Noise Event

dB(A)	OVER-ALL LEVEL Sound Pressure Level Reference: 0.0002 Microbars	COMMUNITY (Outdoor)	HOME OR INDUSTRY	LOUDNESS Human Judgement of Different Sound Levels
130		Military Jet Aircraft Take-Off With After-Burner From Aircraft Carrier @ 50 Ft. (130)	Oxygen Torch (121)	120 dB(A) 32 Times as Loud
120 110	UNCOMFORTABLY LOUD	Concord Takeoff (113)*	Riveting Machine (110) Rock-N-Roll Band (108-114)	110 dB(A) 16 Times as Loud
100		Boeing 747-200 Takeoff (101)*		100 dB(A) 8 Times as Loud
90	VERY LOUD	Power Mower (96) DC-10-30 Takeoff (96)* Motorcycle @25 Ft. (90)	Newspaper Press (97)	90 dB(A) 4 Times as Loud
80		Car Wash @ 20 Ft. (89) Boeing 727 w/ Hushkit Takeoff (96)* Diesel Truck, 40 MPH @ 50 Ft. (84) Diesel Train, 45 MPH @ 100 Ft. (83)	Food Blender (88) Milling Machine (85) Garbage Disposal (80)	80 dB(A) 2 Times as Loud
70	MODERATELY LOUD	High Urban Ambient Sound (80) Passenger Car, 65 MPH @ 25 Ft. (77) Freeway @ 50 Ft. From Pavement Edge, 10:00 AM (76 +or- 6) Boeing 757 Takeoff (76)*	Living Room Music (76) TV-Audio, Vacuum Cleaner	70 dB(A)
60		Propeller Airplane Takeoff (67)* Air Conditioning Unit @ 100 Ft. (60)	Cash Register @ 10 Ft. (65-70) Electric Typewriter @ 10 Ft. (64) Dishwasher (Rinse) @ 10 Ft. (60) Conversation (60)	60 dB(A) 1/2 as Loud
50	QUIET	Large Transformers @ 100 Ft. (50)		50 dB(A) 1/4 as Loud
40		Bird Calls (44) Lower Limit Urban Ambient Sound (40)		40 dB(A) 1/8 as Loud
20	JUST AUDIBLE	(dB[A] Scale Interrupted) Desert at Night		
10	THRESHOLD OF HEARING			

*Aircraft takeoff noise measured 6,500 meters from beginning of takeoff roll

SOURCE: Leo L. Beranek "Noise And Vibration Control," 1971
*Aircraft Levels From FAA Advisory Circular AC-36-3G

Typical A-Weighted Noise Levels — Exhibit 4.8-1

The Ranch Plan

Source: Mestre Greve Associates

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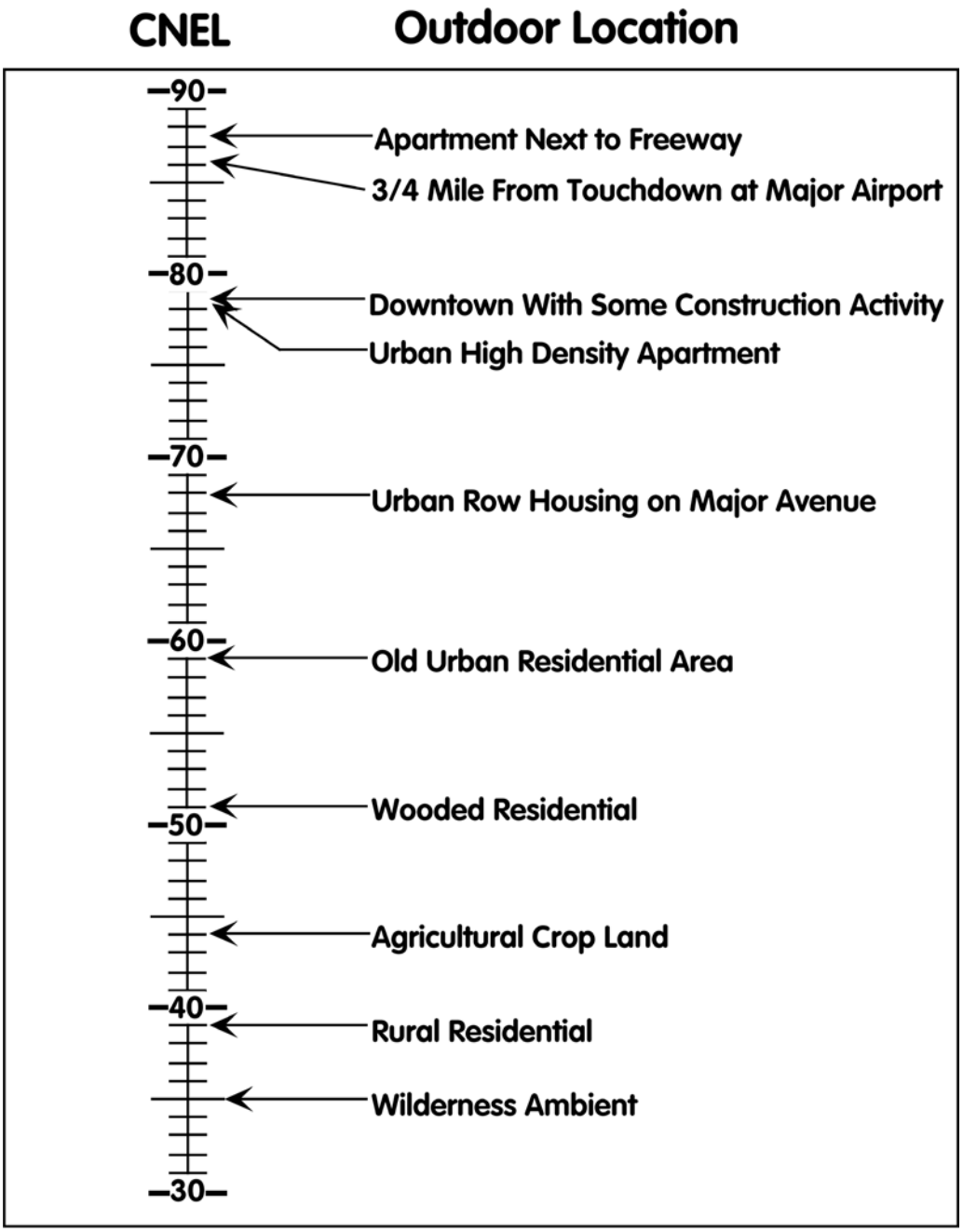

Source: U.S. Environmental Protection Agency, "Impact Characterization of Noise Including Implications of Identifying and Achieving Levels of Cumulative Noise Exposure," EPA Report NTID 73.4, 1973.

Typical Outdoor Noise Levels — Exhibit 4.8-2

The Ranch Plan

Source: Mestre Greve Associates

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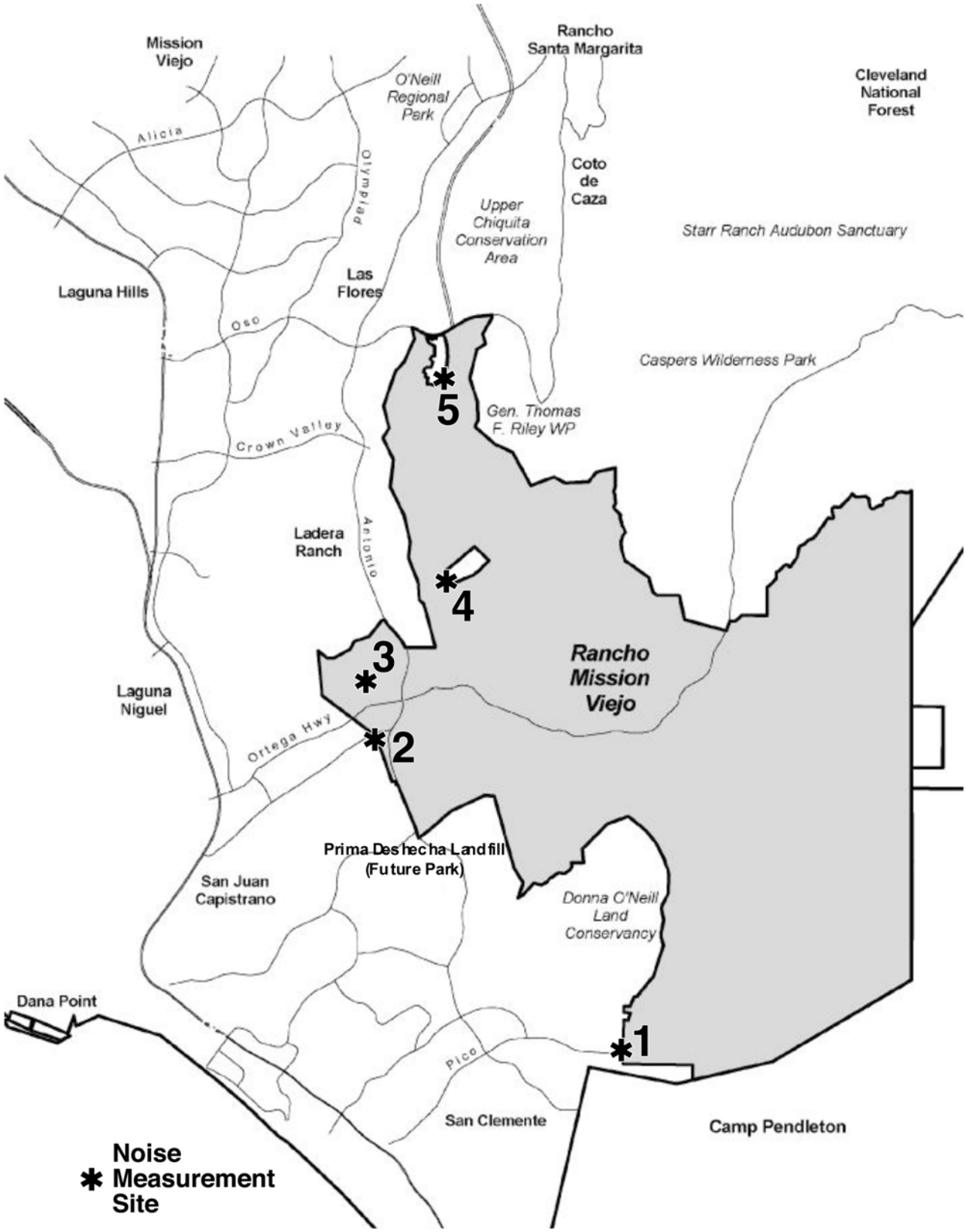


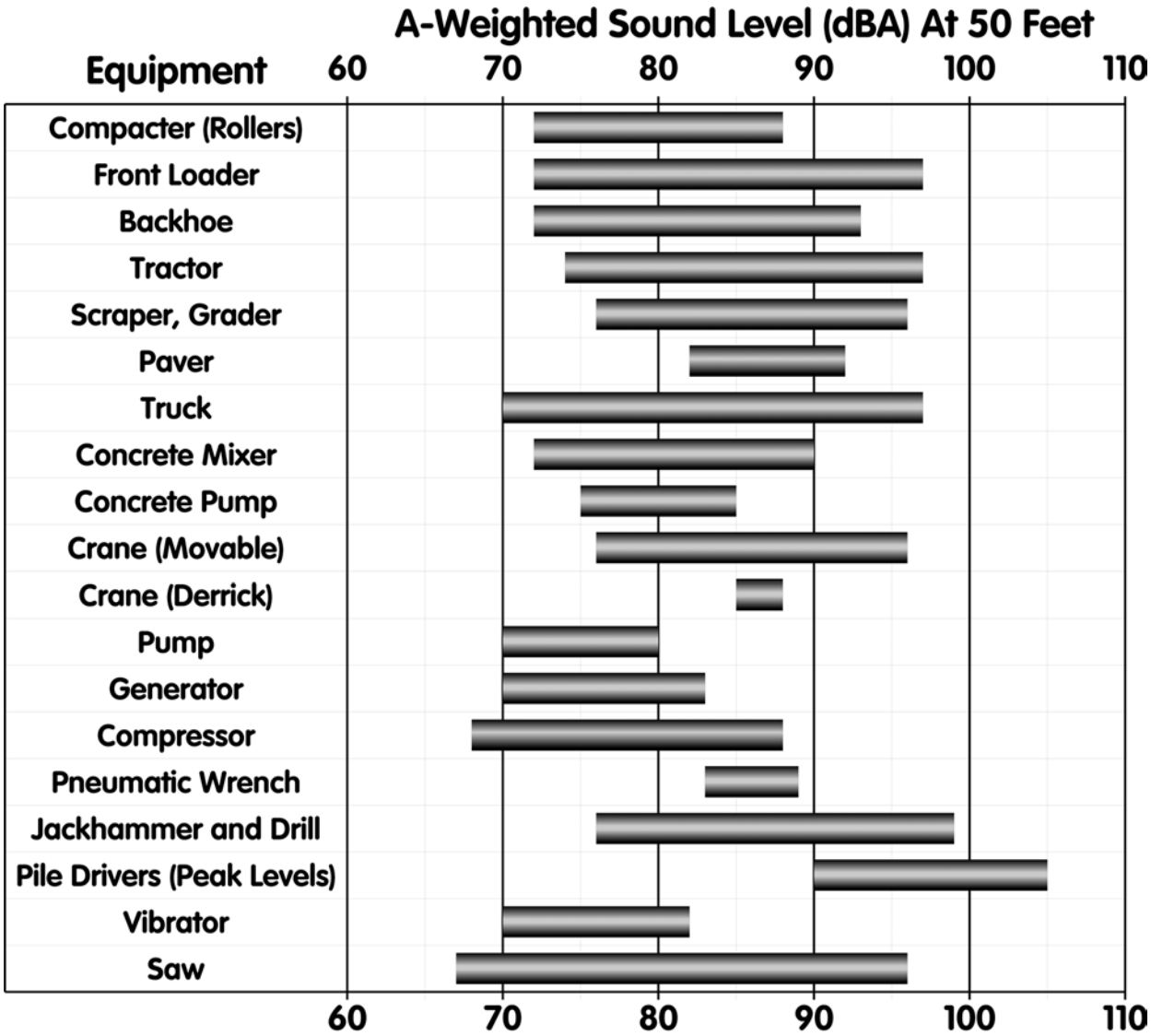
Location of Noise Measurement Sites — Exhibit 4.8-3

The Ranch Plan — *1" = 9,500'*

N W E S

Source: Austin-Foust Associates, Inc.

R:\Projects\RMVJ008\Ex4.8-3_NoiseLocations_060704.pdf



Source: "Handbook of Noise Control," by Cyril Harris, 1979

Construction Equipment Noise Levels — Exhibit 4.8-4

The Ranch Plan

Source: Mestre Greve Associates

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4.9 BIOLOGICAL RESOURCES

The majority of the biological resources information for this section was provided by Dudek & Associates, Inc. (Dudek), GLA, and supplemented and reviewed as appropriate by BonTerra Consulting. Additional technical information was provided by the County of Orange, RMV, Dr. Dennis Murphy, and staff at BonTerra, who worked with the resource specialist at GLA and Dudek to present the biological resource information below.

4.9.1 INTRODUCTION

Study Area

The boundaries of RMV coincide with the study area when determining direct impacts and evaluating the ability for the project to meet the NCCP/HCP and SAMP/MSAA planning principles and guidelines; however, these larger planning boundaries have been evaluated for cumulative impacts.

Existing Protected Open Space

A fundamental premise of the Proposed Project is that land use planning within the study area for both open space and development should build upon the significant open space planning, protection, and management efforts on the part of local government, state and federal agencies, and private and quasi-public landowners that have already taken place within the Southern Subregion. These prior open space preservation actions provide a firm foundation for the current effort to formulate a protected open space system capable of being adaptively managed, and amend the Orange County General Plan and process a Zone Change to establish compatible development. Since these prior protection actions are so fundamental to this planning process, and hence the biological resources discussed in this section, these actions are summarized here.

Within the NCCP/HCP Southern Subregion, these prior combined efforts already have resulted in the permanent protection of more than 22,200 acres, including about 13,000 acres of regional parkland within the incorporated County area and the City of San Juan Capistrano, and 8,000 acres as part of permanent conservation easements, conservancies, and the National Audubon Society Starr Ranch. These previous open space commitments include the following (refer to Exhibit 3-15 and other resource exhibits in this section):

- Dedication and assembling four County regional parks and other open space based on land dedications by landowners participating in the NCCP/HCP and SAMP/MSAA processes and others (i.e., Caspers Wilderness Park, O'Neill Regional Park, Thomas F. Riley Wilderness Park and portions of Prima Deshecha landfill which is proposed by the County to become a future regional park), totaling about 13,000 acres;

- National Audubon Society purchase and management of the 4,000-acre Starr Ranch;

- Preservation of about 1,200 acres as part of Donna O'Neill Land Conservancy at Rancho Mission Viejo;

- Preservation of about 1,600 acres by RMV as part of the Ladera Land Conservancy:

- Preservation of about 1,000 acres by the City of San Juan Capistrano;

- TCA purchase and preservation of about 1,100 acres as a conservation easement within Upper Chiquita Canyon;

- Dedications pursuant to the Section 404 permit for the Arroyo Trabuco Golf Course, totaling 200 acres; and

- Creation and restoration of more than 100 acres of wetland and riparian habitats as part of the Gobernadora Ecological Restoration Area (GERA) by RMV.

These previously protected areas cumulatively provide for preservation and management of species habitat, habitat linkages, and wildlife movement corridors supporting a broad range of species. The pattern of preserved open space has directly influenced the open space and development pattern of the Proposed Project and may, in the future, contribute directly and significantly to the creation of a future Habitat Reserve and an Aquatic Resource Reserve Management Program.

4.9.2 METHODOLOGY

Database Development Methods

The information used to prepare this biological resources discussion is derived from various databases that have been developed over time to support the NCCP/HCP, SAMP/MSAA, and GPA/ZC processes. The initial database consisted of a vegetation map and sensitive species information compiled into a Geographic Information Systems (GIS) database by the County of Orange for the Southern Subregion NCCP/HCP study area. This database was provided to the NCCP/HCP consultant, Dudek, by the County in 1993 and has been updated with additional species surveys by Dudek, MBA, TCA, BonTerra Consulting, and others between 1993 and 2003. The database was supplemented with the watershed level delineations completed by the U.S. Army Corps of Engineers (USACE) Waterways Experiment Station (WES) and a "Functional Assessment" prepared by the USACE Cold Regions Research and Engineering Laboratory (CRREL) that addresses the extent and quality of probable wetlands and other waters of the U.S. located within SAMP/MSAA study area (the San Juan Creek and western San Mateo Creek watersheds) which largely overlap the NCCP/HCP study area. Finally, the database was amended to include the data and information presented in the Baseline Geomorphic and Hydrologic Conditions report prepared by RMV consultants (PCR/BALANCE/ PWA 2002) for the GPA/ZC study area. The methods used to prepare and update the study area database are briefly described below.

Habitat and Vegetation Communities

The vegetation layer of the database is based on vegetation mapping originally performed by Dames and Moore, circa 1992. The mapping was based primarily on color aerial photo (circa 1990) interpretation. The vegetation layer has been modified in-house by Dudek in response to changing biological conditions in the Southern Subregion, primarily where grading for various large-scale developments has removed vegetation (e.g., Ladera Ranch, Talega). The most recent revision to the vegetation database was made in 2004 when the map was updated to reflect changes in vegetation in GERA. The 2004 vegetation database is used for descriptions and acreages reported in this section.

The vegetation mapping follows the Orange County Land Cover/Habitat Classification System (Gray and Bramlet 1992), which is a hierarchical system that identifies separate vegetation associations and subassociations. The classification system facilitates data analysis while

maintaining the level of detail required to accurately identify habitat areas of high biological (i.e., areas supporting listed species) and/or strategic value (i.e., wildlife movement corridors).

As noted above, the WES/CRREL and NCCP databases are intended to characterize the study area at a landscape level. Beginning in 2002, wetland specialists from Glenn Lukos Associates (GLA) conducted a project-level jurisdictional delineation for the proposed development and project alternatives, to identify with a higher level of precision, the limits of the USACE jurisdiction pursuant to Section 404 of the Clear Water Act (GLA 2003a) and the California Department of Fish and Game (CDFG) pursuant to Section 1600 of the Fish and Game Code, including areas of riparian habitat (GLA 2003b). The jurisdictional delineation for CDFG focused on a functional definition of "riparian habitat" and thus defined riparian resources which would be subject to evaluation under CEQA. During the performance of the project-level USACE and CDFG jurisdictional delineations, it became apparent that many features identified by WES/CRREL as Waters of the United States (WoUS) did not meet the criteria set forth in 33 CFR 328.3 due to a lack of characteristics consistent with the presence of an Ordinary High Water Mark (OHWM) or jurisdictional wetlands in accordance with the 1987 Wetland Manual. It was also noted that areas identified as riparian habitat by WES/CRREL and/or the NCCP databases sometimes overestimated the extent of riparian habitat, and in some instances mapped upland areas as riparian habitat because of the inherent generalization based on aerial photo interpretation compared to the specific characterization of habitat at the project-level delineation. Overall the WES/CRREL and NCCP databases were generally accurate for mainstem creeks and associated riparian habitat and were less accurate on smaller tributaries extending into upland habitats. The general description of the existing setting in the study area provided in this section will be based on the WES/CRREL and NCCP databases to provide a broad landscape overview. However, because CEQA requires an analysis of potential impacts on existing "on the ground" conditions, the impact analyses within development planning areas and adjacent open space potentially impacted by infrastructure facilities will be based on the GLA (2003a,b) USACE/CDFG delineations.

Sensitive Wildlife and Plant Species

The database for sensitive wildlife and plant species in the study area is excerpted from the larger Southern Subregion database which is compiled from the cumulative results of a number of general and focused biological survey efforts and existing databases for the study area, including the following (Dudek 2004):

- California gnatcatcher (*Polioptila californica*) surveys conducted by Michael Brandman Associates (MBA) on various private lands in 1990 and 1991 and for the proposed Foothill Transportation Corridor-South (FTC-S) in 1994 to 1996 and 2001.
- Focused surveys for the orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*) conducted by Lilburn Corporation on portions of RMV in 1994.
- Focused surveys conducted by David Bontrager for the California gnatcatcher (1989), coastal cactus wren (*Campylorhynchus brunneicapillus*) (1989 to 1990), and tricolored blackbird (*Agelaius tricolor*) (1989) in the study area.
- A general survey of the distributions of sensitive biological resources and wildlife corridors in the study area conducted by David Bontrager from 1989 to 1991 (Bontrager 1990).
- Focused bird surveys conducted by Dudek in three areas: Coto de Caza/Dove Canyon, Northrup-Grumman/Ford Aerospace, and Reservoir Canyon in 1994.
- A wildlife corridor study conducted by Dudek throughout the Southern NCCP/HCP in 1994.

- A cumulative database on historic raptor nest sites in the study area compiled by Pete Bloom between approximately 1990 and 2000.
- Focused surveys conducted in 1998 by Dudek and Harmsworth Associates throughout RMV for riparian birds.
- Focused surveys conducted in 1998 by Glenn Lukos Associates (GLA) throughout RMV for sensitive and rare plants. Focused surveys conducted in 1998 by Pete Bloom throughout the study area for arroyo toad (*Bufo californicus*) and western spadefoot toad (*Scaphiopus hammondii*).
- Focused surveys for sensitive wildlife and plants by Dudek in middle Chiquita Canyon in 1998.
- Vernal pool and fairy shrimp surveys conducted in 2001 in the study area jointly by Dudek and PCR.
- The California Natural Diversity Database (CNDDB). The database has been reviewed periodically between 1993 and 2003.
- A cumulative database for sensitive and rare plants compiled by botanist Fred Roberts (formerly with the U.S. Fish and Wildlife Service [USFWS]) received circa 1994.
- Various other studies and anecdotal records of species from the NCCP/HCP Science Advisors and other biologists for the study area and specific projects (e.g., Beier and Barrett 1993; Padley 1992).
- Updates to sensitive plant information for RMV provided by GLA in 2002 and 2003.

These various survey efforts have resulted in a cumulative database that provides a strong portrayal of the abundance, richness, and distribution of biological resources in the study area.

As noted above, the sensitive species database has been updated periodically to incorporate new data and provide the best available data for planning purposes. Such updates to the database were coordinated with and approved by the USFWS and California Department of Fish and Game (CDFG). In the updates, new location data include several areas that have been surveyed more than once; e.g., the FTC-S study area has been surveyed several times in the past decade. Because the California gnatcatcher and cactus wren are non-migratory species that tend to use the same home range/territories over their life span, simply adding the new locations would erroneously inflate the number of occupied locations. Alternatively, simply deleting the old data and “plugging in” the new data would result in a “snapshot” of occupied habitat. For example, if the most recent survey were following a poor breeding season, suitable habitat would be underestimated. To control for the “double-counting” problem and to prevent the loss of “old” species locations, new locations of gnatcatchers and wrens were incorporated into the existing database using a method that results in a composite species location map showing “occupied” habitat; i.e., any location documented to have supported the California gnatcatcher or cactus wren since the database was originally created. Creating a cumulative database helps identify suitable habitat and recognizes the variability of the distribution and density of populations over any given year.

New data for the California gnatcatcher in the study area were incorporated on two separate occasions: 1994-1996 Dudek and FTC-S data; and 2001 FTC-S data. An 11-acre circular buffer (400-foot radius from the data insertion point) was plotted around each existing gnatcatcher location (Bontrager 1991). Since this original estimate was used in 1996, more data on home ranges have been collected indicating smaller home ranges and higher densities in coastal areas (e.g., Atwood *et al*. 1998). However, the 11-acre estimate was based on site-specific observations by Bontrager and furthermore provides a conservative estimate of the typical density and carrying capacity in the subregion.

A similar exercise was conducted for cactus wrens using a 4.5-acre buffer (250-foot radius). This buffer was selected based on 4.8-acre average territories (range 2.9-6.9 acres) observed in Arizona (Anderson and Anderson 1973).

It should be noted that nomenclature for scientific names of sensitive species follows that used in the NCCP/HCP rather than the most recent scientific literature to facilitate comparisons between the EIR and the Draft NCCP/HCP Planning Guidelines.

Analysis Methods

The following is intended to provide the reader with an overview of the approach to analyzing potential impacts to biological resources that may result from implementation of the Proposed Project. The assessment of the significance of impacts is set in the subregional context within which Rancho Mission Viejo exists. As described in this section, particularly the Existing Setting description and supporting technical documents, particularly the NCCP Guidelines and Watershed Planning Principles, significant information on the biological resources present and not present on RMV has been developed over more than ten years of study. The relationship of these resources to resources within the Southern Subregion and broader region (defined as the southern Orange County area) is key to the analysis of impacts. Whereas the CEQA Guidelines Appendix G significance criteria focus on generic performance criteria e.g., impacts to listed species, the significance thresholds used in this analysis also focus on specific performance criteria set forth in the NCCP Guidelines and Watershed Planning Principles. These specific performance criteria include protection, restoration, and management recommendations keyed to the specific resources located on RMV lands. Thus in addition to evaluating potential impacts on the basis of the Appendix G criteria, this analysis also evaluates consistency with the sub-basin specific performance criteria contained in the NCCP Guidelines and Watershed Planning Principles as follows:

- Impacts
    - Proposed Project Consistency with Sub-basin Planning Guidelines and Principles
    - Summary of Potentially Significant Impacts
        - Vegetation Communities
        - Listed Planning Species
        - Other Listed Species
        - Unlisted Planning Species
        - Other Sensitive Species

Mitigation of impacts identified as either potentially significant or significant is analyzed in the context of the subregional planning goals for maintaining net habitat value for natural communities and associated species.

Draft NCCP/HCP Planning Guidelines & Draft Watershed & Sub-basin Planning Principles

Section 3.3 discusses the project history including the development of Draft NCCP/HCP Planning Guidelines and Draft Watershed and Sub-basin Planning Principles by the NCCP/SAMP Working Group. These documents have been included as Appendices G-2 and G-3. These Planning Guidelines and Planning Principles provide guidance for decision-makers that are keyed to local biologic, hydrologic, and geomorphic conditions. Although considered a “work in progress,” both the guidelines and principles represent the most current thinking regarding protection, restoration, and management priorities for the resources within the study

area. For this reason, these Planning Guidelines and Planning Principles are utilized in this GPA/ZC EIR as a metric to determine the level of potential impact to biological resources. The Planning Guidelines and Planning Principles have been subject to public input during public workshops associated with the NCCP/HCP and SAMP/MSAA programs and are available for review on the County website (http://pdsd.oc.ca.gov/soccpp/).

The Draft Planning Guidelines for the Southern Subregion NCCP/HCP (Draft NCCP/HCP Planning Guidelines) were updated in 2004. The original Draft Planning Guidelines for the Southern NCCP/HCP Guidelines were made available to the public in April 2003. The primary differences between this updated version and the April 2003 version are: (1) the addition of species accounts for 14 additional unlisted planning species in Section 4 (submitted to the resource agencies in June 2003); and (2) revised accounts for the arroyo toad, thread-leaved brodiaea, and many-stemmed dudleya) based on recent information.

Planning Species

As discussed in the Section 4 of the Draft NCCP/HCP Planning Guidelines, certain species were selected as conservation planning surrogates for identifying habitat areas that should be considered for protection. Because the Draft NCCP/HCP Planning Guidelines are being utilized as a metric on the evaluation of the biological importance of habitats and species, this document has identified the planning status of the special status species that are discussed in the guidelines. The Draft NCCP/HCP Planning Guidelines "Planning Species" include the following:

<u>State- and Federally-Listed Species</u>

California gnatcatcher
Arroyo toad
Least Bell's vireo
Southwestern willow flycatcher
San Diego fairy shrimp
Riverside fairy shrimp
Thread-leaved brodiaea

<u>Unlisted Species</u>

Cactus wren
Yellow warbler
Yellow-breasted chat
Tricolored blackbird
Grasshopper sparrow
White-tailed kite
Copper's hawk
Merlin
Golden eagle
Western spadefoot toad
Western pond turtle
San Diego horned lizard
Orange-throated whiptail
Mule deer
Mountain lion
Many-stemmed dudleya
Intermediate mariposa lily
Southern tarplant

Coulter's saltbush
Mud nama
Chaparral Beargrass
Saltspring Checkerbloom

Mapping of Major and Important Populations

As part of the preparation of the sub-basin guidelines for certain Planning Species which were selected to facilitate reserve design and analysis, the NCCP/SAMP Working Group determined that it was necessary to consider each of the species' regional and subregional distribution, specific habitat affinities (including soil specific requirements), and life history characteristics. In this context, the following issues were addressed:

- The species' regional and subregional distribution;
- The relative importance of the NCCP/HCP Southern Subregion for the continued survival or recovery of the species;
- Key and important habitat characteristics of the species;
- Key and important life history characteristics (e.g., plant pollinators, dispersal, response to fire); and
- Response to management (including enhancement and restoration).

With the above information, *major populations* and *important populations* of the Planning Species were identified during the preparation of the Draft NCCP/HCP Planning Guidelines. *Major populations* are those considered sufficiently large to be self-sustaining with a minimum of active or intensive management intervention or that at least support enough breeding individuals to contribute reliably to the overall metapopulation stability of the species. *Important populations* may not meet the relative size standards of *major populations*, but may nonetheless be important to the species' long-term survival. For example, a smaller population in a key habitat linkage may be important for breeding success and exchange of genetic material and thus would be considered to be an *important population*, even though it would not be considered a *major population*.

Key locations also were defined for some Planning Species. *Key locations* are those locations that are deemed necessary for the conservation of the species in the subregion. Conservation, as defined here, is the effective, long-term protection, restoration, and management of natural communities that support Planning Species. For example, populations of a species that are concentrated in a single or few locations would be *key locations*. *Key locations* may not be identifiable for some species that are widely scattered and lack population concentrations. *Major populations*, or some portion thereof, may be *key locations*, but not all *major populations*, or portions thereof, are necessarily *key locations*. With respect to *important populations*, most *important populations* would also be in *key locations*. An *important population* may not be a *key location* where, for example, more than one *important population* can fulfill a desired reserve design and species sustainability function (e.g., connectivity). The identification of a *key location* within a *major* or *important population* defines that portion of the population that is necessary for conservation of the species in the subregion. Portions of *major* or *important populations* that are not identified as *key locations* may be impacted by the proposed project if they are consistent with the conservation of the species within the subregion.

U.S. Army Corps of Engineers & California Department of Fish and Game Jurisdiction

In support of the SAMP/MSAA, the USACE conducted a landscape level delineation to identify areas of potential USACE and CDFG jurisdiction along with the mapping of areas of potential wetlands and riparian habitat within the SAMP/MSAA study area.[1]

This landscape level delineation was used during the development of alternatives that would be used in the NCCP/HCP, SAMP/MSAA, and GPA/ZC processes, and during the modifications to the Proposed Project discussed in Section 3, Project Description.

To determine impacts to actual USACE and CDFG jurisdiction versus potential jurisdiction, regulatory specialists from Glenn Lukos Associates (GLA) conducted a project level jurisdictional delineation between October 29, 2002 and November 5, 2003 to identify and quantify the extent of areas subject to the jurisdiction of the (1) USACE pursuant to Section 404 of the Clean Water Act and (2) the CDFG pursuant to Section 1600 of the Fish and Game Code within the study area. A total of nine development planning areas within the study area were evaluated with the maximum potential limits of each planning area subject to the project-level delineation. In addition, all major roadway alignments not included within the nine planning areas were also examined. The 1987 *Wetland Delineation Manual* was used to evaluate potential USACE jurisdictional areas, and *A Field Guide to Lake and Streambed Alteration Agreements: Section 1600-1607 California Fish and Game Code* was used to evaluate CDFG jurisdiction. These methods are described in detail in Appendix G-1, which includes the delineations in their entirety.

Prior to beginning the field delineation, a 200-scale color aerial photograph, a 200-scale topographic base map, and the USGS topographic maps Cañada Gobernadora (dated 1968, photo revised in 1988), San Clemente (dated 1968 and photo revised in 1975), and San Juan Capistrano (dated 1968 and photo revised in 1981) were examined to determine the locations of potential areas of ACE/CDFG jurisdiction. Prior to completing the jurisdictional delineation, GLA was provided a copy of a landscape level delineation prepared by the USACE in September of 2000. All areas identified as potentially jurisdictional in the planning level delineation were evaluated for USACE and CDFG jurisdiction. All suspected jurisdictional areas were field checked for the presence of definable channels and/or wetland vegetation, soils, and hydrology. Suspected wetland habitats were evaluated using the methodology set forth in the USACE Wetland Delineation Manual[2]. While in the field, the jurisdictional area was recorded onto a 200-scale color aerial photograph using visible landmarks. Other data were recorded onto wetland data sheets.

Beginning on March 11, 2003, regulatory specialists from GLA; a representative of RMV; representatives of the USACE; and representatives of CDFG conducted a field verification of the project-level delineation.

Prior to beginning the field-level verification, the USACE representative noted that the USACE would generally assert jurisdiction over drainages that conduct flows during 10-year storm events or less, and that drainages that do not conduct flows during 10-year events are not

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[1] Lichvar, R., G. Gustina, D. MacDonald, and M. Ericsson. 2000. *Planning Level Delineation and Geospatial Characterization of Riparian Ecosystems of San Diego Creek Watershed, Orange County California. Prepared for the U.S. Army Corps of Engineers, Engineering and Research Development Center (ERDC) Cold Regions Research and Engineering Laboratory (CRREL), Hanover N.H. September 2000.*

[2] Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

considered as Waters of the U.S. Following the initial site visits in early March, the area experienced a rainfall event on March 15, 2003 that averaged over five inches for most of the study area, corresponding very closely with a 10-year event. The 10-year storm event resulted in clear discharge in many of the drainages evaluated, including presence of litter and debris (e.g., oak leaves or other plant materials), sediment deposits, and destruction of terrestrial vegetation (through scouring or buried by sediments). However, many of the features failed to exhibit any signs of discharge. The 10-year storm event recorded on March 15, 2003, in at least some instances, allowed for determination of (1) presence of a streambed that exhibits flowing water and, where present, (2) the lateral extent of the streambed and/or associated aquatic resources.

For the project level delineation of CDFG jurisdiction, the document *A Field Guide to Lake and Streambed Alteration Agreements: Section 1600-1607 California Fish and Game Code* and input from CDFG biologists during the verification process was utilized to determine the extent of jurisdictional riparian habitat as follows:

- Where all riparian habitat was included within the bank-full stream channel (e.g., riparian herb), the outermost limits of either the bank or riparian habitat was mapped as the limits of CDFG riparian jurisdiction/habitat.

- Where riparian habitat extended beyond the bank-full channel to the active flood plain, and did not extend outside the active floodplain, the outermost limits of either the active floodplain or riparian habitat was mapped as the limits of CDFG riparian jurisdiction/ habitat.

- Where riparian habitat extended beyond the active flood plain to active terraces, the outermost limits of the riparian habitat on the terrace was mapped as the limits of CDFG riparian jurisdiction/habitat. This latter case was most typically applied to southern coast live oak riparian forest. In some cases, particularly in “U”-shaped canyons, the limits of the active terrace was not always discernible. In such cases, coast live oaks (and in a few instances California sycamores) were included as riparian where they either (1) exhibited roots that reached the banks of the drainage; thereby, benefiting from the drainage or by providing stabilization for the banks (i.e., a benefit for the stream) or (2) where meaningful portions of the canopy overhung the stream; thereby providing for shading or litter (nutrient cycling) which would benefit the stream. Coast live oaks (and California sycamores) located above active terraces or (where terraces were not distinct) beyond where either roots or shading provided direct benefits to the stream, were not included as riparian vegetation.

Geomorphic and Hydrologic Conditions

The geomorphic and terrains and hydrologic conditions studies were evaluated at two spatial scales: (1) the landscape level that encompasses the entire San Juan Creek and San Mateo Creek watersheds from the headwaters to the coast; and (2) the scale of the property boundary for RMV. Included in these studies were analyses of sediment yield and transport, water quality, and groundwater. The reader is directed to the Baseline Geomorphic and Hydrologic Conditions report for the detailed descriptions of these studies (PCR/BALANCE/PWA 2002) (Appendix G-1).

4.9.3 EXISTING CONDITIONS

Regional Setting

The study area is located within the San Juan Creek Watershed and the western portion of the San Mateo Creek Watershed. The following descriptions of climate, geomorphology, and existing preserved open space have been provided to familiarize the reader with the regional setting of the resources within the study area.

Climate

Southern California is located in a Mediterranean climate, characterized by mild, rainy winters and hot, dry summers. There can also be dramatic differences in rainfall from year to year. Consequently, the plant communities growing in these regimes often consist of drought-tolerant, woody shrubs and trees, and annual, fall-sprouting grasses (World Climate 2003).

The temperature is moderated by nearby large bodies of water making for comfortable conditions through most of the year. The warmest monthly means are in the upper 70 to 80 degrees Fahrenheit (F), and no monthly temperature mean falls below 32 degrees F. The stable atmosphere creates cloudless conditions giving the dry summer subtropical climate many days of sunshine (Ritter 2003).

The most distinguishing characteristic of a Mediterranean climate is its seasonal precipitation. In southern California, precipitation is characterized by brief, intense storms between November and March. It is not unusual for a majority of the annual precipitation to fall during a few storms in close proximity to each other. Average annual rainfall resulting from this Mediterranean precipitation pattern is 12 to 16 inches in the study area. The higher elevation portion of the watershed (usually the headwater areas) typically receives significantly greater precipitation due to orographic effects (i.e., rainfall amounts increase dramatically as you move farther up the mountain on the windward side). In addition, rainfall patterns are subject to extreme variations from year to year and longer term wet and dry cycles. The combination of steep, short watersheds; brief intense storms; and extreme temporal variability result in “flashy” systems where stream discharge can vary by several orders of magnitude over very short periods of time.

Many coastal dry summer subtropical climate regions experience frequent fogs. As warm, moist Pacific air travels over the colder ocean water of the California Current, it is chilled. Cooling the air by contact brings the air to its saturation point causing condensation and the development of an advection fog (Ritter 2003).

Geomorphology

Geology

The San Juan Creek and San Mateo Creek watersheds are located on the western slopes of the Santa Ana Mountains, which are part of the Peninsular Ranges that extend from the tip of Baja California, Mexico northward to the Palos Verdes Peninsula and Santa Catalina Island. See Section 4.4 for exhibits related to geology and soils.

The geology of the region is complex and has been dominated by alternating periods of depression and uplift, mass wasting, and sediment deposition. Within the watersheds, the Santa Ana Mountains are composed of igneous, metavolcanic, and metasedimentary rocks of

Jurassic age and younger. The exposed rocks in the mountainous areas are slightly metamorphosed volcanics, which have been intruded by granitic rocks of Cretaceous age, principally granites, gabbros, and tonalites. Overlying these rocks are several thousand stratigraphic feet of younger sandstones, siltstones, and conglomerates of upper Cretaceous age, composed largely of material eroded from the older igneous and metavolcanic rocks now underlying the Santa Ana Mountains. Most of the study area is underlain by marine and non-marine sandstones, limestones, siltstones, mudstones, shales, and conglomerates, many of which weather, erode, and/or hold groundwater in characteristic ways.

Terrains

Terrain designations are largely based on soils, geology, and topography, as these provide many of the fundamental factors that influence the hydrology and geomorphology characteristic of each terrain. There are three major geomorphic terrains found within the San Juan Creek and San Mateo Creek watersheds: (1) sandy and silty-sandy; (2) clayey; and (3) crystalline. These terrains are manifested primarily as roughly north-south oriented bands of different soil types[3].

The soils and bedrock that comprise the western portions of the San Juan Creek Watershed (i.e., Oso Creek, Arroyo Trabuco, and the lower third of San Juan Creek) contain a high percentage of clays in the soils. The soils typical of the clayey terrain include the Alo and Bosanko clays on upland slopes and the Sorrento and Mocho loams in floodplain areas. In contrast, the middle portion of the San Juan basin, (i.e., Cañada Chiquita, Bell Canyon, and the middle reaches of San Juan Creek) is a region characterized by silty-sandy substrate that features the Cieneba, Anaheim, and Soper loams on the hillslopes and the Metz and San Emigdio loams on the floodplains. The upstream portions the San Juan Creek watershed, which comprise the headwaters of San Juan Creek, Lucas Canyon Creek, Bell Creek, and Trabuco Creek, may be characterized as a "crystalline" terrain because the bedrock underlying this mountainous region is composed of igneous and metamorphic rocks. Here, slopes are covered by the Friant, Exchequer, and Cieneba soils, while stream valleys contain deposits of rock and cobbley sand. The upland slopes east of both Chiquita Canyon and Cañada Gobernadora are unique in that they contain somewhat of a hybrid terrain. Although underlain by deep sandy substrates, these areas are locally overlain by between two and six feet of exhumed hardpan.

Topography

Physiographic features of the study area range from rugged topography to a wide, meandering creek channel. North-south trending ridges and valleys dominate the topography north of San Juan Creek, and east-west ridges valleys dominate to the south of San Juan Creek. San Juan Creek, trending west, bisects these ridges across the middle of the development area. Major named valleys addressed in this report include Cañada Chiquita, Cañada Gobernadora, Trampas Canyon, Cristianitos Canyon, Gabino Canyon, Talega Canyon, and Blind Canyon. Gentle to moderate topography bounds Cañada Chiquita, Cañada Gobernadora, and Trampas Canyon. East of Cañada Gobernadora and Cristianitos Canyon, terrain is moderately steep to rugged.

Fluvial terrace deposits, creating, wide, nearly flat mesas stepping down to the creek channel overlay the flanks of the ridges north of San Juan Creek, east of Cristianitos Creek, south of Gabino Canyon, and north of Talega Canyon.

[3] The different bands of terrain types should be considered as general trends; not every stream is comprised of a single terrain, and inclusions of other soil types occur within each terrain.

Study Area

Vegetation Community Descriptions

The following descriptions of vegetation communities are from the NCCP/HCP database, but are discussed more specifically here for the study area. Table 4.9-1 shows acreages for generalized vegetation communities/land covers including upland, riparian, and wetland habitats in the study area. Distribution of vegetation communities is shown on Exhibit 4.9-1. The breakdown of riparian vegetation communities is shown in Table 4.9-2.

TABLE 4.9-1
VEGETATION COMMUNITIES/LAND COVERS
IN THE STUDY AREA

Vegetation Community/Land Cover[1]	Acres
Natural Habitats	
Grassland	5,040.9
Coastal Sage Scrub	7,682.0
Riparian[2]	1,920.3
Open Water	135.7
Freshwater Marsh	25.2
Slope Wetland	2.2
Watercourses	13.2
Vernal Pools	19.9
Woodland	275.9
Forest	311.9
Chaparral	3,792.9
Cliff and Rock	6.2
Subtotal – Natural Habitats	**19,226.3**
Non-habitat Land Covers	
Developed	534.7
Disturbed	501.2
Agriculture	2,554.8
Subtotal – Non-habitat Land Covers	**3,590.7**
TOTAL	**22,817.0**

[1] Source: Southern NCCP/HCP Vegetation Database (1993), as revised by Dudek in 2004 (file date 3/24/04).
[2] See table 4.9-2 for a breakdown of specific riparian vegetation communities.

Grasslands

The vegetation database for the study area as reported in Table 4.9-1 does not distinguish between annual and native grasslands. However, several individual mapping efforts have been conducted in various areas of RMV, which allows for a general characterization of the annual and native grasslands. Grasslands in the study area include annual grassland, wild rye grassland, needlegrass grassland, deergrass grassland, and ruderal.

Annual Grasslands

Annual grasslands in the study area are dominated by bromes (*Bromus madritensis* ssp. *rubens, Bromus diandrus, Bromus hordeaceus*), wild oats (*Avena barbata, Avena fatua*), rat-tail fescue (*Vulpia myuros*), barleys (*Hordeum* spp.), and Italian ryegrass (*Lolium multiflorum*) (e.g., Gray and Bramlet 1992; MBA 1996; Dudek 2001). Annual forbs common to annual grasslands

in the study area include Indian milkweed (*Asclepias eriocarpa*), tocalote (*Centaurea melitensis*), common fiddleneck (*Amsinckia menziesii*), popcornflower (*Plagiobothrys* spp.), black mustard (*Brassica nigra*), field mustard (*Brassica rapa*), common catchfly (*Silene gallica*), stickwort (*Spergula arvensis*), miniature lupine (*Lupinus bicolor*), white-whorl lupine (*Lupinus microcarpus* var. *microcarpus*), burclover (*Medicago polymorpha*), bristled clover (*Trifolium hirtum*), red-stemmed filaree (*Erodium cicutarium*), white-stemmed filaree (*Erodium moschatum*), and fluellin (*Kickxia spurria*) (MBA 1996). Tarweeds (*Hemizonia* spp.) and doveweed (*Eremocarpus setigerus*) become dominant in later summer and fall (MBA 1996). Cardoon (*Cynara cardunculus*) also occurs in portions of the annual grasslands in the study area.

TABLE 4.9-2
RIPARIAN VEGETATION COMMUNITIES IN THE STUDY AREA

Riparian Community[1]	Acres[2]
Herbaceous Riparian	17.2
Willow Riparian Scrub (Southern Willow Scrub)	357.5
Southern Arroyo Willow Riparian Forest	168.1
Coast Live Oak Riparian Forest	1,116.2
Cottonwood-Willow Riparian Forest	1.2
Sycamore Riparian Woodland	246.9
White Alder Riparian Forest	1.6
Mule Fat Scrub	11.6
TOTAL	**1,920.3**

[1] Source: Southern NCCP/HCP Vegetation Database (1993), as revised by Dudek in 2004 (file date 3/24/04).
[2] Acres not representative of USACE or CDFG jurisdiction, see Table 4.9-30 for USACE and CDFG jurisdiction impacts.

Wild Rye Grassland

Grasslands dominated by giant wild rye (*Leymus condensatus*) typically occur in small dense stands on north-facing slopes in the study area. This association is typically found in ravines/canyons and consists of monotypic stands of giant wild rye.

Needlegrass Grasslands

Native grasslands in the study area are designated as valley needlegrass grassland (called southern coastal needlegrass grassland by Gray and Bramlet). Gray and Bramlet define needlegrass grassland as grassland with more than 10 percent cover of purple needlegrass (*Nassella pulchra*). It is associated with the annual grasses listed above, leafy bentgrass (*Agrostis pallens*), junegrass (*Koeleria macrantha*), cane bluestem (*Bothriochloa barbinodis*), coast range melic (*Melica imperfecta*) and annual forbs such as common goldenstar (*Bloomeria crocea*), blue dicks (*Dichlostemma pulchellum*), Cleveland's goldenstar (*Dodecatheon clevelandii*), smooth cat's-ear (*Hypochaeris glabra*), lilac mariposa lily (*Calochortus splendens*), many-stemmed dudleya (*Dudleya multicaulis*), blue-eyed grass (*Sisyrinchium bellum*), and rosin weed (*Osmadenia tenella*) (Gray and Bramlet 1992; Dudek 2001; MBA 1996).

Deergrass Grassland

Deergrass grassland is dominated by deergrass (*Muhlenbergia rigens*), typically in association with needlegrass grassland. Additional species also present include creeping spikerush

(*Eleocharis palustris*), needle spikerush (*Eleocharis acicularis*), Mexican rush (*Juncus mexicanus*), and wrinkled rush (*Juncus rugulosus*).

Ruderal

Gray and Bramlet (1992) also describe ruderal grassland that consists of early successional grassland dominated by pioneering herbaceous species such as thistle (*Centaurea* spp.), mustard (*Brassica* spp.), mallow (*Malva* spp.), Russian thistle (*Salsola tragus*), dove weed (*Eremocarpus setiger*), Amaranth (*Amaranthus* spp.), and saltbush (*Atriplex* spp.).

The study area contains ruderal habitat, which are typically areas that were subject to significant disturbance. The weedy species present in these areas vary according to the nature and severity of the disturbance. Plant species typically present within these areas include Russian thistle (*Salsola tragus*), cardoon, milk thistle (*Silybum marianum*), black mustard, shortpod mustard (*Hircshfeldia incana*), tocalote, Australian saltbush (*Atriplex semibaccata*), and cheeseweed (*Malva parviflora*). Nonnative annual grasses are also present as a significant component of this community including wild oats, bromes, and barleys.

Distribution of Grasslands

Grasslands are scattered throughout the lower elevations of the study area, with the largest, contiguous concentration in the southern portion of the study area. Areas supporting large patches of grassland include Trampas Canyon, Bell Canyon, Cristianitos Canyon, the Northrup-Grumman lease area, and upper Gabino Canyon.

It should be noted that substantial areas in Chiquita Canyon and Cañada Gobernadora are mapped as “agriculture” in the vegetation database. Much of these areas are periodically disced and planted with barley to provide summer forage for cattle. While these areas technically are not natural “grassland” communities, they provide habitat values similar to grassland for many wildlife species associated with grasslands, as described below. The grazed “agricultural” areas north of San Juan Creek are distinguished from grazed areas south of San Juan Creek mapped as grassland (primarily in Cristianitos Canyon, Gabino Canyon, and Blind Canyon, and along the Radio Tower Road mesa west of Trampas Canyon) by the fact that these southern pastures are not disced and support annual and native grasses that provide fall to spring forage for cattle.

Although annual and native grasslands are not differentiated in the vegetation database, survey work was performed in the study area by St. John in 1989 (St. John 1990) and later mapping in specific areas was been completed by Dudek (1997, 2001) and MBA (1996). Generally, native grasslands are patchy north of Highway 74, with patches occurring in Chiquita Canyon (St. John 1990; Dudek 1997; MBA 1996). Much of the native grassland in the study area is located in the southern San Juan Creek and San Mateo Creek watersheds in upper Gabino Canyon (St. John 1990; Dudek 2001), Verdugo Creek Canyon (St. John 1990), and Cristianitos Canyon (St. John 1990; MBA 1996; Dudek 1990). St. John made a preliminary estimate of approximately 3,300 to 4,000 acres of native grassland in the study area property, but based on the Dudek’s refined mapping of native grasslands, the total appears to be closer to 1,100 acres. Major areas of native grassland include Cristianitos Canyon (approximately 405 acres) and upper Gabino Canyon (276 acres), with smaller areas of native grassland in Blind Canyon (102 acres) and middle and lower Chiquita Canyon (76 acres). There are likely to be several smaller patches of unmapped native grassland scattered throughout the study area, but individual patches are unlikely to be more than a few tens of acres in size. The cumulative total of these unmapped areas is likely no more than a hundred acres.

Wildlife Associated with Grasslands

The NCCP/HCP Science Advisors identified several wildlife species that are indicative of grasslands and also indicate the presence of other grassland species. These species include white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), burrowing owl (*Athene cunicularia*), grasshopper sparrow (*Ammodramus savannarum*), California horned lark (*Eremophila alpestris actia*), savannah sparrow (*Passerculus sandwichensis*), lark sparrow (*Chondestes grammacus*), western meadowlark (*Sturnella neglecta*), loggerhead shrike (*Lanius ludovicianus*), American badger (*Taxidea taxus*), western skink (*Eumeces skiltonianus*), ring-necked snake (*Diadophis punctatus*), western spadefoot toad, and a variety of bats. Several raptors depend on grasslands for foraging, including red-tailed hawk (*Buteo jamaicensis*), golden eagle (*Aquila chrysaetos*), ferruginous hawk (*Buteo regalis*), turkey vulture (*Cathartes aura*), and merlin (*Falco columbarius*). It should be noted that although the NCCP/HCP Science Advisors listed burrowing owl as a grassland indicator species, they are quite rare in the study area and currently there are no known nesting sites on RMV (Hamilton and Willick 1996).

Coastal Sage Scrub

Coastal sage scrub is dominated by low-statured, aromatic, drought-deciduous shrubs and subshrub species. Composition varies substantially depending on physical circumstances and the successional status of the habitat. Characteristic species include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), California encelia (*Encelia californica*), and several species of sage (e.g., black sage [*Salvia mellifera*], white sage [*Salvia apiana*]) (Holland 1986; Sawyer and Keeler-Wolf 1995). Other common species include brittlebush (*Encelia farinosa*), lemonadeberry (*Rhus integrifolia*), sugarbush (*Rhus ovata*), yellow bush penstemon (*Keckiella antirrhinoides*), Mexican elderberry (*Sambucus mexicana*), sweetbush (*Bebbia juncea*), boxthorn (*Lycium* spp.), prickly-pear (*Opuntia littoralis*), coastal cholla (*Opuntia prolifera*), tall prickly-pear (*Opuntia oricola*), and several species of stonecrop (*Dudleya* sp.). Sage scrub often is patchily distributed throughout its range (O'Leary 1990). Over a scale of several miles, it can be found in diverse habitat mosaics with other vegetation communities, particularly grassland and chaparral, and oak/riparian woodland in more mesic (i.e., moist) areas. Coastal sage scrub may convert to chaparral or grassland, depending on slope, aspect, climate, fire history, and other physical factors and biological phenomena. Conversely, chaparral or grassland areas may convert to coastal sage scrub (Axelrod 1978; White 1995; O'Leary 1995; Allen *et al.* 1999).

Coastal sage scrub typically is found on xeric (i.e., dry) sites, notably steep, south-facing slopes with thin and/or rocky soils. It also is found on exposed sea bluffs, coastal and river terraces composed of coarse alluvial outwash, and coastal dunes (Axelrod 1978). The open nature of the canopy permits persistence of a diverse herbaceous component of forbs, grasses, and succulents. It often is mixed with chaparral and grassland communities and the distinct boundaries between each can sometimes be difficult to delineate.

Coastal sage scrub, as defined for the study area, roughly corresponds to Holland's (1986) descriptions of Venturan-Diegan coastal sage scrub (a transitional community containing elements of two major types described by Holland), southern coastal bluff scrub, and Riversidean coastal sage scrub. In the study area, coastal sage scrub is characterized primarily by an open community composed of low, drought deciduous shrubs, with a sparse understory of annual and perennial grasses and forbs. Coastal sage scrub in the study area includes several sub-associations including maritime succulent cactus scrub, sagebrush sage scrub, sagebrush-buckwheat scrub, sagebrush-monkeyflower scrub, black sage scrub, white sage scrub, sagebrush-black sage scrub, coyote brush scrub, mixed scrub, sagebrush-coyote brush scrub, southern cactus scrub, scalebroom scrub, quailbrush scrub, sagebush scrub-grassland, and

sage scrub-grassland. These sub-associations are defined by the dominant species present in the association, for example, white sage scrub.

Distribution of Coastal Sage Scrub

Coastal sage scrub is well distributed throughout the study area. At elevations typically below 800 feet in the Chiquita Canyon and Cañada Gobernadora areas north of San Juan Creek, the coastal sage scrub is interspersed with annual grasslands and agricultural areas (primarily barley fields used for summer cattle forage). The coastal sage scrub south of San Juan Creek in the Radio Tower Road mesa area west of Trampas Canyon is interspersed with annual grasslands. The coastal sage scrub in the eastern portion of the study area in the Trampas, Verdugo, Gabino, La Paz, and Talega canyon areas typically occurs at elevations of 400 feet to 1,200 feet, on steeper slopes, and interspersed with chaparral.

Wildlife Associated with Coastal Sage Scrub

Coastal sage scrub supports a rich diversity of wildlife species, including birds, mammals, reptiles, and invertebrates. While many widely ranging species that occur throughout shrublands in California may be encountered in coastal sage scrub, some species are restricted almost exclusively to this habitat type.

The NCCP/HCP Science Advisors identified several species that are indicative of high quality coastal sage scrub and indicators of the potential presence of other species dependent on this vegetation community. These species include California gnatcatcher, cactus wren, Dulzura kangaroo rat (*Dipodomys simulans*), Dulzura California pocket mouse (*Chaetodipus californicus femoralis*), northern red-diamond rattlesnake (*Crotalus ruber ruber*), orange-throated whiptail, San Diego horned lizard (*Phrynosoma coronatum blainvillei*), and spotted night snake (*Hypsiglena torquata*).

Riparian and Wetland

Nine distinct associations of riparian vegetation are included in the vegetation database for the study area (Table 4.9-2).[4] In order of their prevalence in the study area, they are coast live oak riparian forest, willow riparian scrub (southern willow scrub), sycamore riparian woodland, southern arroyo willow riparian forest, herbaceous riparian, mule fat scrub, white alder riparian forest, cottonwood-willow riparian forest, and general riparian. The descriptions of these riparian communities are primarily based on Gray and Bramlet (1992) and MBA (1996).

Riparian communities typically consist of one or more deciduous tree species with an assorted understory of shrubs and herbs (Holland and Keil 1995). The transition between riparian habitats and adjacent non-riparian habitats often is abrupt (Grenfell 1988). Vegetation height can vary from three to ten feet in scrub habitats to 100 feet in riparian forest habitats (Grenfell 1988). Riparian habitats generally occur among mid- to large-order streams below 4,000 feet above msl, primarily within the foothills and valleys (Stephenson and Calcarone 1999). Riparian communities are not restricted to specific climates or soil types, but are primarily dependent on

[4] The riparian and wetland habitat acreages are based on the 2004 NCCP vegetation database and provide a general characterization of the study area. This original mapping was based on aerial photo interpretation and field checking, but was not performed using the USACE and CDFG formal criteria for jurisdictional waters of the U.S./State, including wetlands. Formal USACE/CDFG delineations have been performed by GLA and confirmed by the USACE. The location and acreage information for riparian and wetland habitats based on this refined work is used to assess impacts, make significance findings, and identify appropriate mitigation.

a permanent supply of water. In southern California, most streams have very low flow during the summer, and in many cases surface flow may dry up (Stephenson and Calcarone 1999).

Riparian communities are dynamic systems. The stream channels may be swept clean of vegetation during floods as sediments are shifted during erosion flood events. Many riparian woody and herbaceous species are adapted to periodic flooding. Some have deep root systems that anchor them against the floodwaters and some have flexible stems that bend with the floodwaters.

In addition to riparian communities, the study area supports several distinct wetland communities, including open water, freshwater marsh, water courses, and vernal pools, which support their own unique plants and wildlife and contribute additional biodiversity and ecological functions to the study area.

Descriptions

Herbaceous Riparian

Herbaceous riparian is an early successional stage of riparian forest and scrub typically resulting from frequent flooding or scouring of woody vegetation. Disturbed sites are colonized by pioneer wetland species such as verbena (*Verbena* sp.), California mugwort (*Artemisia douglasiana*), knotgrass (*Paspalum* sp.), barnyard grass (*Echinochloa crus-galli*), sweet clover (*Melilotus* spp.), Bermuda grass (*Cynodon dactylon*), cattails (*Typha* spp.), smilo grass (*Piptatherum miliaceum*), Mexican sprangletop (*Leptochloa uninervia*), cocklebur (*Xanthium* spp.), willow herb (*Epilobium* spp.), Johnson grass (*Sorghum halapense*), western ragweed (*Ambrosia psilostachya* var. *californica*), rabbit's-foot grass (*Polypogon monspeliensis*), mustard (*Brassica* sp.), wild radish (*Raphanus sativa*), and speedwell (*Veronica* spp.).

Willow Riparian Scrub (Southern Willow Scrub)

Willow riparian scrub is dominated by willow trees (*Salix* spp.) and also may contain gooseberry (*Ribes* spp.), Mexican elderberry, and an understory of herbaceous hydrophytes. Arroyo willow (*Salix lasiolepis*) is the dominant species within perennial and intermittent stream channels at elevations up to about 2,450 feet. Goodding's black willow (*Salix gooddingii*) occurs along streambanks and in wet places within drier habitats at elevations below about 1,500 feet (Faber and Keller 1985).

Southern Arroyo Willow Riparian Forest

Southern arroyo willow riparian forest has a closed canopy of arroyo willow in arborescent form. The understory within this community varies, but can include southern cattail, California bulrush, tall flatsedge (*Cyperus eragrostis*), whorled dock, willow dock, cut-leaf water-parsnip, mulefat, poison oak, mugwort, and nightshade.

Coast Live Oak Riparian Forest

Coast live oak riparian forest is dominated by coast live oak (*Quercus agrifolia*), with western sycamore (*Platanus racemosa*), Mexican elderberry, arroyo willow, red willow (*Salix laevigata*), and Goodding's black willow. Understory vegetation includes holly-leaf redberry (*Rhamnus ilicifolia*), California coffeeberry (*Rhamnus californica*), mule fat (*Baccharis salicifolia*), coastal goldenbush (*Isocoma menziesii*), poison oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), laurel sumac, California mugwort, and Douglas' nightshade (*Solanum douglasii*).

Cottonwood-Willow Riparian Forest

Cottonwood-willow riparian forest is a multi-layered forest community dominated by cottonwoods (*Populus* spp.) and willows (*Salix* spp.), with other tree species occurring at lower numbers and percent cover (Gray and Bramlet 1992). Dominant species in cottonwood-willow riparian forest are Goodding's black willow, Fremont's cottonwood (*Populus fremontii*), and black cottonwood (*P. balsamifera* ssp. *trichocarpa*). Other species common in the second canopy layer include arroyo willow, mule fat, poison oak, false indigo (*Amorpha fruticosa*), and desert grape (*Vitus girdiana*). The understory is comprised of species such as stinging nettle (*Urtica dioica*), branching phacelia (*Phacelia ramosissima*), dock (*Rumex* sp.), and California blackberry (*Rubus ursinus*). Several non-native species occur in cottonwood-willow riparian forest, including castor bean (*Ricinus communis*), giant reed (*Arundo donax*), and tree tobacco (*Nicotiana glauca*).

Sycamore Riparian Woodland

Sycamore riparian woodland is an open to dense woodland dominated by western sycamore and coast live oak. Understory vegetation includes scalebroom (*Lepidospartum squamatum*), mule fat, willow, holly-leaf redberry, California coffeeberry, laurel sumac, Mexican elderberry, fuschia-flowered gooseberry (*Ribes speciosum*), poison-oak, giant wild rye, beardless wild rye (*Leymus triticoides*), lemonadeberry, Douglas' nightshade, and California mugwort. Large patches of grassland dominated by bromes also may be present.

White Alder Riparian Forest

White alder riparian forest typically is a montane riparian community found along perennial streams above 4,000 feet. It is dominated by white alder (*Alnus rhombifolia*) along with red willow, black cottonwood, California laurel, and big-leaf maple. California mugwort, California rose (*Rosa californica*), and California blackberry occur as understory species.

Mule Fat Scrub

Mule fat scrub is dominated by mule fat, but also may include willows, sedges (*Carex* spp.), stinging nettle, Bermuda grass, western ragweed, California mugwort, Douglas' nightshade, castorbean, cocklebur, rabbit's-foot grass, knotgrass, and barnyard grass (*Echinochloa* sp.) (Gray and Bramlet 1992; Holland 1986; Sawyer and Keeler-Wolf 1995). Mule fat scrub usually occurs in intermittent streambeds, seeps, and the toe of landslides where local seeps develop.

Open Water

Open water refers to permanent or semi-permanent bodies that hold water year-round or for the majority of the year (as opposed to vernal pools which are more ephemeral). This mapping unit includes open water, fluctuating shorelines, and basins. They may support vegetation that is tolerant of, or requires, permanently flooded conditions (Gray and Bramlet 1992).

Open water often contains several phytoplankton species and filamentous blue-green and green algae (Gray and Bramlet 1992). Other vegetation in lakes and reservoirs include aquatic species such as horned-pondweed (*Zannichellia palustris*), mosquito fern (*Azolla filiculoides*), duckweed (*Lemna* spp.), milfoil (*Myriophyllum* spp.), waterwort (*Elatine* sp.), fennel-leaved pondweed (*Potamogeton pectinatus*), common water nymph (*Najas guadalupensis*), and hornwort (*Ceratophyllum demersum*) (Gray and Bramlet 1992; MBA 1996). Emergent hydrophytes include cattail, bulrush (*Scirpus* sp.), nutsedge (*Cyperus eragrostis*), spike rush, (*Eleocharis* sp.), and knotgrass (MBA 1996). Terrestrial species along the fluctuating shoreline

of lakes and reservoirs include willow, mule fat, dock, swamp Timothy (*Crypsis schoenoides*), toad rush (*Juncus bufonius*), hyssop loosestrife (*Lythrum hyssopifolia*), and cocklebur. Invasive forbs and grasses along shorelines include Bermuda grass, *Echinochloa* sp., Mexican sprangletop, bristle grass (*Setaria* spp.), goosefoot (*Chenopodium* spp.), alkali-mallow (*Malvella leprosa*), and pigweed (*Amaranthus* spp.).

Freshwater Marsh

Coastal and valley freshwater marshes are seasonally or permanently flooded sites typically dominated by perennial hydrophytic monocots up to six or seven feet in height (Gray and Bramlet 1992; Kramer 1988). Freshwater marsh supports cattails (*Typha domingensis, T. angustifolia*), bulrush (*Scirpus americanus, S. maritimus, S. californicus S. acutus, S. microcarpus*), sedges (*Cyperus eragrostis, C. niger, C. odoratus, C. esculentus*), spike rushes (*Eleocharis acicularis, E. palustris*), and yerba mansa (*Anemopsis californica*) (Barbour and Major 1977; Holland and Keil 1995; MBA 1996; Sawyer and Keeler-Wolf 1995). Forbs in freshwater marsh include marsh fleabane (*Pluchea odorata*), common monkeyflower (*Mimulus guttatus*), scarlet monkeyflower (*Mimulus cardinalis*), willow weed (*Polygonum lapathifolium*), whorled dock (*Rumex conglomeratus*), willow dock (*Rumex salicifolius*), willow-herb (*Epilobium ciliatum*), yellow waterweed (*Ludwigia peploides*), cut-leaf water parsnip (*Berula erecta*), slender aster (*Aster subulatus* var. *ligulatus*), rosilla (*Helenium puberulum*), western goldenrod (*Euthania occidentalis*), white water-cress (*Rorippa nasturtium-aquaticum*), and stinging nettle (MBA 1996). Grasses associated with freshwater marsh include rabbit's-foot grass, knotgrass, water bent (*Agrostis viridis*), Mexican sprangletop, and western witchgrass (*Panicum capillare*).

Watercourses

The WES/CRREL study mapped perennial rivers and streams, intermittent rivers and streams, and flood control channels. These watercourses generally are defined as rivers, streams, drainages, and channels that generally are devoid of vegetation either as a result of severe flooding or as a maintained flood control channel. Although they are often intermixed with riparian and open water habitats, they are characterized by their lack of vegetation. Watercourses are dynamic, high-energy systems and the active part of the channel may change over time based on rainfall and recent flow and flooding patterns (MBA 1996).

Vernal Pools

The study area supports one complex of three vernal pools located south of San Juan Creek along Radio Tower Road. Three other pools occur in close proximity to the study area on Chiquita Ridge adjacent to the study area, but are located in Ladera Open Space. The geology of the vernal pools in the study area is different from the underlying vernal pools occurring elsewhere in southern California, such as the "mima mound" formations on the mesas in San Diego County. Both the Chiquita Ridge and Radio Tower Road pools originate from young bedrock slides associated with the Cristianitos fault zone. The formation of these vernal pools apparently derives from the differential settings of fine-grained materials (high clay content) from San Onofre Breccia, Monterey, and Topanga formations. These pools are underlain by Soper gravelley loam on 15 to 30 percent slopes and Alo clay on zero to 15 percent slopes.

The vegetation in the vicinity of the pool complex is native and non-native grassland and the areas continue to be grazed. Plant species in the vernal pools in the study area include hairy pepperwort (*Marsilea vestitsa*), goldenbush, cocklebur, bracted vervain (*Verbena bracteata*), curly docks (*Rumex crispus*), water pigmy-stonecrop (*Crassula aquatica*), low barley (*Hordeum depressum*), yerba mansa, toad rush, rabbits-foot grass, and Bermuda grass (*Cynodon dactylon*)

Slope Wetlands

Slope wetlands are normally found where there is a discharge of ground water to a sloping land surface. Elevation gradients may range from steep to slight and these wetlands can occur in nearly flat landscapes if ground water discharge is a dominant source to the wetland surface. Principle water sources are usually ground water return flow, interflow from surrounding uplands, and precipitation. Hydrodynamics of slope wetlands are dominated by downslope unidirectional water flow and water losses are primarily by saturation and subsurface discharge soil, surface flows, and by evapotranspiration. Slope wetlands may develop channels, but the channels generally serve only to convey water away from the slope wetland following periods of heavy precipitation. The vegetation communities in slope wetlands can be emergent or scrub-shrub depending on the hydroregime and soil type. The slope wetlands in the study area vary from perennially saturated to those that are saturated only during the winter months.

Distribution of Riparian and Wetland

Riparian habitats are distributed throughout the study area in both major and minor drainages.

The dominant riparian habitat, coast live oak riparian forest, is widespread, but is particularly dominant in the San Mateo Creek Watershed in the Middle Gabino, La Paz, and Blind canyons, as well as major tributaries to Gabino Canyon. It also occurs in Cristianitos and Talega canyons. In the San Juan Creek Watershed, coast live oak riparian forest is the dominant riparian habitat in Verdugo Canyon and its main tributaries. It also is present in drainages within Trampas Canyon and tributaries to San Juan Creek, and in smaller patches in drainages to Gobernadora Creek and within Chiquita Creek.

Willow riparian scrub is most prevalent in the San Juan Creek Watershed in San Juan Creek, along Chiquita Creek, in Gobernadora Creek above GERA and in drainages to Verdugo Canyon. In the San Mateo Creek Watershed, willow riparian scrub primarily occurs in the upper Cristianitos headwater area, in lower Cristianitos near and below the confluence with Gabino Creek, and in Lower Gabino Creek.

Southern arroyo willow riparian forest in the San Juan Creek Watershed occurs in association with willow riparian scrub along San Juan Creek, in lower Gobernadora Creek in GERA, in small patches along Chiquita Creek and in small patches in the San Juan Creek. In the San Mateo Creek Watershed, southern arroyo willow riparian forest is confined to the lower reach of Cristianitos Creek where it exits the southern study area boundary.

Sycamore riparian woodland primarily occurs in the San Mateo Creek Watershed and is co-dominant with coast live oak riparian forest in Talega Canyon and willow riparian scrub in Lower Gabino Canyon. It also occurs in a patchy distribution in Middle Gabino Canyon and toward Upper Gabino Canyon and in La Paz Canyon. In the San Juan Creek Watershed, sycamore riparian woodland occurs in San Juan Creek in the reach between Gobernadora and Chiquita creeks, as well as in a small patch near the confluence of San Juan and Verdugo creeks.

Mule fat scrub is mapped in one large patch in San Juan Creek at the confluence with Bell Canyon, at a pond west of Gobernadora Creek, and in a tributary to Chiquita Creek. White alder riparian forest is limited to a small patch along a tributary to Gabino Creek. Cottonwood-willow riparian forest is limited to a small tributary to San Juan Creek. Herbaceous riparian is located in several small patches, including a tributary to Talega Canyon in the far southeastern corner of the RMV property, at the confluence of the Gabino, Blind, and Cristianitos canyons, along Trampas Canyon as it drains to San Juan Creek and along Chiquita Creek above the “Narrows” and below the treatment plant.

Larger bodies of open water occur in three general locations: CalMat Lake in San Juan Creek, a smaller open water area upstream in San Juan Creek, and the artificial lake in Trampas Canyon associated with the silica mining operation. Several smaller waterbodies are scattered around the study area, including the ponds associated with the clay mining pits in lower Gabino Canyon and various small stock ponds. Freshwater marsh occurs in association with CalMat Lake in San Juan Creek, in association with a pond southeast of Colorspot Nursery, and along Chiquita Creek north of the "Narrows."

The major watercourses located within the study area are: Chiquita Creek located in Chiquita Canyon. The headwaters of Chiquita Creek lie outside of the study area boundary in the Upper Chiquita Canyon Conservation Area owned by RMV and managed by the Transportation Corridor Agencies. Chiquita Creek is a north-south naturally perennial watercourse that confluences with San Juan Creek upstream of the existing Ortega Highway bridge. Chiquita Creek has a sandy substrate and resultant high infiltration rates. Gobernadora Creek is located in Cañada Gobernadora and is also tributary to San Juan Creek. Gobernadora Creek is also perennial in its upper reaches outside the study area largely due to urban development, whereas perennial flow in the lower portion of the creek within the study area are likely a combination of urban runoff (Coto de Caza is a significant contributor), increased recharge from upstream areas and lateral subsurface inflow to the valley floor. Gobernadora Creek also has a sandy substrate. Verdugo Creek in Verdugo Canyon is an intermittent watercourse with a predominately coarse substrate. As a tributary to San Juan Creek, Verdugo Creek is an important contributor of coarse sediment to San Juan Creek. Trampas Creek in Trampas Canyon is also tributary to San Juan Creek and is characterized by clayey silts and sands.

In the San Mateo Watershed, Cristianitos Creek is a north-south watercourse that outside the study area confluences with San Mateo Creek. Above the confluence with Gabino Creek, Cristianitos Creek is characterized by a clay substrate that contributes fine sediments downstream. Below the Gabino confluence the Gabino Creek geomorphology dominates. Tributaries to Cristianitos Creek are Gabino and Blind creeks. Gabino Creek in Gabino Canyon is an intermittent watercourse characterized by clay substrate in the upper portions of the creek and sands and cobbles in the middle portion of the creek. Substrates in the lower portion are mixed. The coarse sediments are probably important to downstream channel structure and provide geomorphic elements of habitat for sensitive species (i.e., arroyo toad) downstream. Blind Creek in Blind Canyon is characterized by erodible and less erodible clays which also contribute fine sediments downstream. La Paz Creek confluences with Gabino Creek in Gabino Canyon and is characterized by a relatively large proportion of very coarse substrates (i.e., large cobbles and boulders). These coarse substrates are likely mobilized very infrequently during large-scale episodic storm events, at which time they play a significant role in reshaping the geomorphology of the lower portions of the watershed. La Paz Creek is an intermittent watercourse.

As described above, the three vernal pools in the study area property are located in the along Radio Tower Road south of San Juan Creek.

Slope wetlands primarily occur in Chiquita Canyon, with five slope wetlands located in the Radio Tower Road area south of San Juan Creek and ten slope wetlands located laterally to Chiquita Creek north of San Juan Creek. One slope wetland is located in a tributary to Gobernadora Creek and one is located on the northern tip of the Donna O'Neill Land Conservancy just west of the study area.

Wildlife Associated with Riparian and Wetland

The multiple strata (e.g., canopy, shrubs, herbaceous species) of riparian and wetland communities provide diverse and valuable habitat for terrestrial wildlife, including breeding areas, shade, cover, water and food (Warner and Hendrix 1984). Fish and other aquatic species benefit from important shading and other attributes. Riparian areas are of particular importance because the moisture of the stream channels is important as a water source in the dry California landscape and the areas are productive during the summer months when upland plant communities tend to be dormant (Warner and Hendrix 1984; Grenfell 1988; Holland and Keil 1995). Riparian areas can also function as important movement, migration, and dispersal corridors for a variety of wildlife.

The NCCP/HCP Science Advisors identified several wildlife species as indicators of healthy riparian systems and indicators of the presence of other riparian species. These species included red-shouldered hawk (*Buteo lineatus*), Cooper's hawk (*Accipiter cooperii*), common yellowthroat (*Geothlypis trichas*), two-striped garter snake (*Thamnophis hammondii*), red racer (coachwhip) (*Masticophis flagellum piceus*), arroyo toad, California treefrog (*Hyla cadaverina*), southwestern pond turtle (*Clemmys marmorata pallida*), arroyo chub (*Gila orcutii*), and several bats. It should be noted, however, that all these species do not occur in all types of riparian habitat. For example, the pond turtle requires perennial water and would not be expected to occur in sycamore alluvial woodland unless that woodland also supported a pond or perennial river or stream.

In addition to the species associated with riparian habitats listed above, several wildlife species are closely associated with wetlands such as open water, freshwater marsh, and vernal pools. Open water provides resting and foraging habitat for a variety of waterfowl species (e.g., dabbling ducks, and geese), grebes, gulls, osprey (*Pandion haliaetus*), and double-crested cormorant (*Phalacrocora*x *auritus*). Freshwater marsh provides nesting, resting and/or foraging habitat for species such as great blue heron (*Ardea herodias*), black-crowned night heron (*Nycticorax nycticorax*), snowy egret (*Egetta thula*), pied-billed grebe (*Podilymbus podiceps*), tricolored blackbird, red-winged blackbird (*Agelaius phoeniceus*), sora (*Porzana carolina*), common yellowthroat, southwestern pond turtle, Pacific treefrog (*Hyla regilla*), and western toad (*Bufo boreas*).

Vernal pools in the study area notably support the Riverside fairy shrimp (*Streptocephalus woottoni*) and San Diego fairy shrimp (*Branchinecta sandiegonensis*), as well as the western spadefoot toad.

Woodlands and Forest

Woodlands and forests in the study area consist of coast live oak woodland, coast live oak forest, and Mexican elderberry woodland.

Description

Coast Live Oak Woodland

Oak woodlands consist of multilayered vegetation with a canopy that is 20 to 80 percent tree cover (Gray and Bramlet 1992). Oak woodlands occur throughout the lower elevations of western California, generally from sea level to 4,900 feet above msl (Holland and Keil 1995). Generally, oak woodlands are open where moisture is limited in drier more exposed aspects, and densest in moist areas (Holland and Keil 1995). North-facing slope occurrences are also

denser than south-facing slope occurrences (Holland and Keil 1995). Oak trees, in general, require 60 to 80 years to mature (Holland 1988).

Common soils that support coast live oak include sandstone and shale-derived soils (Sawyer and Keeler-Wolf 1995). Coast live oaks typically occupy slopes with deep soils, alluvial terraces, and the recent alluvium of canyon bottoms (Griffin 1977; Brown 1982). Open woodlands form when soils are shallow (Holland and Keil 1995).

Many understory shrubs in woodlands and forest are shade tolerant and include scrub oak (*Quercus berberidifolia*), California blackberry, snowberry (*Symphoricarpos mollis*), California-lilac (*Ceanothus* spp.), laurel sumac, gooseberry, toyon, California laurel, manzanita (*Arctostaphylos* spp.), poison oak, Mexican elderberry, mountain-mahogany (*Cercocarpus* sp.), sugarbush, big-leaf maple, and white alder. Herbaceous understory species include California goldenrod (*Solidago californica*), western wild rye (*Leymus glaucus*), giant wild rye, melic grass (*Melica* spp.), chickweed (*Stellaria* spp.), miner's lettuce (*Claytonia* spp.), ripgut grass, wild cucumber (*Marah macrocarpus*), nightshade (*Solanum* sp.), phacelia (*Phacelia* spp.), and common eucrypta (*Eucrypta chrysanthemifolia*) (Gray and Bramlet 1992).

Mexican Elderberry Woodland

Mexican elderberry woodland is present in scattered locations within the study area, typically associated with linear ravines, tributary to Cañada Chiquita. Mexican elderberry is the dominant plant species present, with coastal sage scrub understory species also present, including California sagebrush, and California buckwheat. Nonnative grasses are also often present in the understory including wild oats, slender oats, and rattail fescue.

Coast Live Oak Forest

Oak forests are similar to oak woodlands, but have 80 percent or more canopy cover (Gray and Bramlet 1992).

Distribution of Woodlands and Forests

Coast live oak woodland occurs in several locations in the study area. Several east-west trending drainages east of Gobernadora Creek support relatively large stands of oak woodlands. Coast live oak woodland also occurs along Chiquadora Ridge, in Lower Chiquita Canyon, along the mainstem of Trampas Canyon, in Lower Gabino and Blind canyons, and in the lower portion of La Paz Canyon. Coast live oak forest primarily occurs in Trampas Canyon, Lower Chiquita Canyon, southern Cañada Gobernadora east of the creek, Lower Gabino Canyon, and Blind Canyon.

Wildlife Associated with Woodlands and Forests

Woodlands and forests provide habitat for a variety of species, including nesting, cover, and food. The NCCP/HCP Science Advisors identified several key wildlife species that are indicators of high quality woodlands and forests, and indicators of other woodland/forest species: Cooper's hawk, long-eared owl (*Asio otus*), western screech owl (*Otus kennicottii*), acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Picoides nutallii*), ash-throated flycatcher (*Myiarchus cinerascens*), bobcat (*Lynx rufus*), brush mouse (*Peromyscus boylii*), Pacific slender salamander (*Batrachoseps pacificus*), and various bats.

Chaparral

Description

Chaparral is one of the major upland vegetation communities in the study area, comprising approximately 3,793 acres. Gray and Bramlet (1992) identify several chaparral subassociations and scrub-chaparral ecotone/seres in Orange County. Within the study area, the vegetation database includes ten chaparral subassociations or ecotone/seres, with mixed middle-elevation chaparral (southern mixed chaparral) at approximately 1,577 acres and scrub oak chaparral at approximately 1,266 acres, as the two dominant subassociations. Mixed middle-elevation chaparral typically occurs between 1,000 and 3,000 feet above msl and includes chamise (*Adenostoma fasciculatum*), laurel sumac, lilacs (*Ceanothus* spp.), manzanitas (*Arctostaphylos* spp.), holly-leaf redberry (*Rhamnus ilicifolia*), black sage, orange-bush monkeyflower (*Mimulus aurantiacus*), yellow bush penstemon, Our Lord's candle (*Yucca whipplei*), and California buckwheat. Scrub oak chaparral is dominated by scrub oak, with sub-dominants including lilacs, toyon, laurel sumac, and buckthorns (*Rhamnus* spp.). Chamise chaparral, dominated by chamise, and snowball ceanothus, dominated by snowball (hoary-leaved) ceanothus (*Ceanothus crassifolius*), are sub-dominant associations, with 277 acres and 163 acres in the study area, respectively. The dominant ecotone/sere is scrub-chaparral comprising approximately 449 acres in the study area. This ecotone/sere is a gradation between coastal sage scrub and chaparral, with component species of both communities and usually occurring as patches of sage scrub with a strong component of chaparral species within a chaparral matrix (Gray and Bramlet 1992). The remaining five subassociations or ecotone/seres – chamise-sage scrub, general chaparral, maritime chaparral, scrub oak-sagebrush, and toyon-sumac chaparral – account for only about 60 acres of the 3,800 acres (1.6 percent) in the study area.

Distribution of Chaparral

The majority of chaparral in the study area is located in the San Mateo Creek Watershed, particularly in the Gabino Canyon, La Paz Canyon, and in the eastern portion of the Talega Canyon. Within the San Juan Creek Watershed, chaparral occurs in the eastern portions of Cañada Gobernadora, Bell Canyon, and the sleep sloped adjacent to San Juan Creek. Smaller, scattered patches of chaparral are interspersed with coastal sage scrub in the Chiquita Canyon area and along Chiquadora Ridge.

Wildlife Associated with Chaparral

The NCCP/HCP Science Advisors identified several wildlife species that are indicative of high quality chaparral and also indicate the presence of other chaparral species. The chaparral indicator species are wrentit (*Chamaea fasciata*), bushtit (*Psaltriparus minimus*), spotted towhee (*Pipilo erythrophthalmus*), California thrasher (*Toxostoma redivivum*), black-chinned sparrow (*Spizella atrogularis*), Dulzura kangaroo rat, Dulzura California pocket mouse, rosy boa (*Charina trivirgata*), coastal western whiptail (*Cnemidophorus tigris multiscutatus*), northern red-diamond rattlesnake, and lyre snake (*Trimorphodon biscutatus*).

Cliff and Rock

Description

Cliff and rock habitats support a variety of vascular plants and lichens, depending on the amount of water and microhabitat conditions of the particular site (Gray and Bramlet 1992).

Gray and Bramlet distinguish between xeric (i.e., dry) and mesic (i.e., moist) cliffs and rock outcrops.

Xeric Cliffs

Xeric cliffs typically are on inland, south- and southwest-facing slopes. Plant species on xeric cliffs include California brickellbush (*Brickellia californica*), long-stemmed buckwheat (*Eriogonum elongatum*), chia (*Salvia columbariae*), Bigelow's spike-moss (*Selaginella biglovii*), bird's-foot fern (*Pellea mucronata*), wild canterbury-bell (*Phacelia minor*), dudleya (*Dudleya* spp.), littleseed muhly (*Muhlenbergia microsperma*), California fluffweed (*Filago californica*), grape soda lupine (*Lupinus excubitus*), Our Lord's candle, needlegrass (*Achnatherum coronata*), strigose deerweed (*Lotus strigosus*), San Diego jewelflower (*Caulanthus heterophyllus*), sapphire eriastrum (*Eriastrum sapphanirum*), white pincushion (*Chaenactis artemisiaefolia*), and bicolor cudweed (*Gnaphalium bicolor*).

Mesic Cliffs

Mesic cliffs typically occur in moist canyons and ravines near perennial water sources. Plant species on mesic cliffs include California wishbone (*Mirablis californica*), Bigelow's spike-moss, *Phacelia* spp., coffee fern (*Pellea andromedaefolia*), lanceleaf dudleya (*Dudleya lanceolata*), snapdragon (*Antirrihinum* spp.), California polypody (*Polypodium californicum*), silverback fern (*Pentagramma triangularis*), California cloak fern (*Notholaena californica*), and California threadstem (*Pterostegia drymarioides*). Mesic cliffs also support foliose- and cructose-type lichens, mosses, and liverworts (Gray and Bramlet 1992).

Rock Outcrops

Rock outcrops are similar to vegetated cliffs, but occur on gentler slopes and support a different vegetation community (Gray and Bramlet 1992). Typical species found on rock outcrops include pine-bush (*Ericameria pinifolia*), dot-seed plantain (*Plantago erecta*), rat-tail fescue, California croton (*Croton californicus*), rosin-weed (*Osmadenia tenella*), many-stemmed dudleya (*Dudleya multicaulis*), Turkish rugging (*Chorizanthe staticoides*), rattlesnake spurge (*Chamaesyce albomarginata*), sapphire eriastrum, Bigelow's spike-moss, awn grass (*Aristida* spp.), cottonweed (*Micropus* spp.), nest straw (*Stylocline* spp.), herba impia (*Filago* spp.), and cryptantha (*Cryptantha* spp.).

Distribution of Cliff and Rock

Cliff and rock are only known from one location in the study area in the western portion of Trampas Canyon.

Wildlife Associated with Cliff and Rock

Cliff and rock may be used by a variety of wildlife. Prominent species associated with cliff and rock habitats include golden eagle, prairie falcon (*Falco mexicanus*), coastal rosy boa, banded gecko (*Coleonyx variegatus*), woodrats (*Neotoma* spp.), and various bats.

Non-habitat Land Covers

Non-habitat land covers in the study area consist of developed, disturbed, and agriculture.

Descriptions

Developed

The developed category includes all urban areas, road, non-natural parks, and cleared and graded areas (may overlap with the disturbed category) (Gray and Bramlet 1992).

Disturbed Habitat

Disturbed habitat includes cleared or graded, burned, and mined areas. Disturbed areas may be barren or support ruderal (weedy) vegetation such as tocalote, wild oat, black mustard, prickly sow-thistle (*Sonchus asper*), and prickly lettuce (*Lactuca serriola*) (Gray and Bramlet 1992).

Agriculture

Agriculture consists of annual crops, vineyards, orchards, dairies, stockyards, and other farming and ranching activities (Gray and Bramlet 1992). Agriculture in the study area primarily is cattle grazing, orchards, and nursery operations.

Distribution of Non-habitat Land Covers

These areas are primarily located at the Northrup-Grumman facility north of Talega Canyon, in areas previously mined east of Cristianitos Canyon, at the silica mine south of Ortega Highway, within facilities along San Juan Creek, nursery and orchard areas north of Ortega Highway, and the water treatment facility in Chiquita Canyon. Roadways and areas part of the active agricultural activities on RMV are also included within this category.

Wildlife Associated with Agriculture

As discussed above, much of the area mapped as agriculture, especially in Chiquita Canyon and Cañada Gobernadora, is grazed pasture that is planted in barley to provide summer forage. These barley fields provide habitat value similar to grasslands, especially for species such as grasshopper sparrow, tricolored blackbird, California horned lark and foraging raptors, including red-tailed hawk, golden eagle, merlin, ferruginous hawk (*Buteo regalis*), turkey vulture, white-tailed kite (*Elanus leucurus*), loggerhead shrike (*Lanius ludovicianus*), and wintering burrowing owls.

Sensitive Species

Draft NCCP/HCP Planning Guidelines and Draft Watershed & Sub-basin Planning Principles

Sensitive species detected or with potential to occur in the study area are provided in **Error! Reference source not found.** and **Error! Reference source not found.**. Discussions of the species follow the tables. Exhibits 4.9-2 through 4.9-10 show the locations of sensitive species observed and wildlife movement areas within RMV.

Prior to preparation of the NCCP/HCP Planning Guidelines, the Science Advisors (1997) generated a list of “sensitive” species for consideration in the NCCP planning process. A species planning hierarchy was developed for the purpose of conducting conservation analyses based on life history characteristics, degree of rarity or endemism, regional and global context, response to management, extant population size and trend, genetics, and other variables as

necessary. These sensitive species were assigned to one of three groups by the NCCP/HCP Science Advisors based on these factors:

Group 1

Minimal conservation action is needed for Group 1 species. Their conservation would be minimally affected by the outcome of the GPA/ZC process based on the following criteria. Criteria for Group 1 species include one or more of the following:

- The conservation would have a very limited impact on the species; or
- The species is not found or is insignificant in the study area; or
- The species has very high population numbers in the study area.

Group 2

Group 2 species are best conserved by protecting habitats at a landscape level through general NCCP/HCP reserve design tenets (discussed in Section 2 of the Draft NCCP/HCP Planning Guidelines) and through adaptive management. Their conservation can be inferred from a well-planned and managed network of protected open space in a functioning landscape. Criteria for Group 2 species include one or more of the following:

- The species is relatively widespread in the study area;
- The species occurs in relatively robust populations within the study area and possibly elsewhere;
- Life history characteristics respond to habitat/landscape-level conservation;
- Detailed surveys or inventories are not crucial in order to conserve the species;
- The species is known to, or likely to, respond well to habitat management;
- The species is locally genetically indistinct; or
- No individual action is needed other than habitat conservation and management.

Group 3

Group 3 species are best conserved at the species-specific level. They require one or more of three types of conservation action: (1) fine-tuning of protected open space areas or specific management activities; (2) reintroduction and/or specific enhancement; and/or (3) additional data and research are necessary to determine basic needs. Criteria for Group 3 species include one or more of the following:

- The species is known or predicted to occur in extremely low populations;
- The species is narrowly endemic in the study area;
- The species has highly specialized life history requirements;
- The study area is known to be crucial to the survival of the entire species;
- The species is known or suspected to respond poorly to management;
- The species is highly sensitive to small changes in the landscape or habitat;
- The species is dependant on intensive conservation activities; or
- The species is widespread, but extremely uncommon.

In addition to the Group 1, 2 and 3 species, the NCCP/HCP Science Advisors identified several wildlife species that may serve as effective “umbrella” species for conservation planning purposes. These umbrella species have habitat requirements that would provide for other species. For example, mountain lion (*Puma concolor*) and bobcat require landscape-level habitat linkages and movement corridors that may serve other species. Species with large

foraging territories such as large raptors provide habitat for other species. Umbrella species identified by the NCCP/HCP Science Advisors include:

- American badger
- bobcat
- coyote
- mountain lion
- red-tailed hawk
- great horned owl
- golden eagle
- barn owl

Groups 1, 2, and 3 species, as well as umbrella species, are also noted in the tables below.

All Group 2 and 3 species have been included in the sensitive wildlife and plant tables (**Error! Reference source not found.** and **Error! Reference source not found.**). Several of the Group 1 species have not been included if they (1) are not expected to occur due to the lack of suitable habitat; (2) may occur as migrants only to the study area, but are listed by the resource agencies because of impacts to nesting locations; or (3) have no status from either the USFWS or CDFG. Umbrella species that are also listed by the resource agencies as sensitive or are Group 2 or 3 species are also included in the sensitive species tables.

As discussed in the Draft NCCP/HCP Planning Guidelines, the Science Advisors list was further refined to include certain species that were selected as conservation planning surrogates for identifying habitat areas that should be considered for protection. These “Planning Species” are noted and discussed in **Error! Reference source not found.** and **Error! Reference source not found.**

TABLE 4.9-3
SENSITIVE WILDLIFE SPECIES

Scientific Name	Common Name	Status[1] Federal/ State	NCCP/HCP Planning Species	NCCP/HCP Science Advisors Group	Primary Habitat Associations	Occurrence in Study Area
Invertebrates						
Branchinecta lynchi	Vernal pool fairy shrimp	FT/None	–	None	Vernal pools.	Species does not occur within the study area.
Branchinecta sandiogonensis	San Diego fairy shrimp	FE/None	*	3	Small, shallow vernal pools, occasionally ditches and road ruts.	Occurs in one location in the study area in three pools located along Radio Tower Road south of Ortega Highway.
Euphydryas editha quino	Quino checkerspot butterfly	FE/None	–	3	Sparsely vegetated hilltops, ridgelines, occasionally rocky outcrops; host plant *Plantago erecta* and nectar plants must be present.	Species does not occur within subregion or expected within the study area.
Euphyes vestris harbisoni	Harbison's dun skipper	None/None	–	3	Restricted to springs and seeps within riparian, oak woodlands, and chaparral habitats supporting host plant *Carex spissa.*	Although no data points exist for this species, it potentially occurs within the study area due to the presence of *Carex spissa.*
Streptocephalus woottoni	Riverside fairy shrimp	FE/None	*	3	Deep, long-lived vernal pools, vernal pool-like seasonal ponds, stock ponds; warm water pools that have low to moderate dissolved solids.	Known from two pools located along Radio Tower Road south of Ortega Highway.
Fish						
Eucyclogobius newberryi	Tidewater goby	FE/CSC	–	None	Low-salinity waters in coastal wetlands.	Not expected, no suitable habitat present within the study area.
Gasterosteus aculeatus microcephalus	Partially armored threespine stickleback	None/None	–	3	Weedy permanent pools or backwaters, and in slow moving water along the margins of the stream.	Known to occur within San Juan Creek.
Gila orcuttii	Arroyo chub	FSC/CSC	–	3	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams; substrates of sand or mud.	Known to occur within San Juan Creek and lower Cañada Gobernadora.
Oncorhynchus mykiss	Steelhead – Southern California Evolutionarily Significant Unit (ESU)	FE/CSC	–	None	Adult phase primarily in ocean, occur in drainages of coastal watersheds, from lagoons and estuaries to lower reaches of headwater systems with perennial flow. Spawn in meandering channels containing pools, riffles and runs with gravel and small cobble.	No current records for San Juan Creek, believed to be extirpated from this drainage.
Amphibians						
Aneides lugubris	Arboreal salamander	None/None	–	None	Woodlands.	Observed within the study area, suitable habitat present throughout the study area.
Bufo californicus	Arroyo toad	FE/CSC	*	3	Open, braided stream channels for breeding and adjacent stream terraces and uplands for foraging and wintering.	San Juan Creek, lower Gabino Creek, lower Cristianitos Creek, and Talega Creek.
Rana aurora draytoni	California red-legged frog	FT/CSC	–	3	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands.	Does not occur within the study area.
Scaphiopus hammondii	Western spadefoot toad	FSC/CSC	*	3	Most common in grasslands, coastal sage scrub near rain pools or vernal pools; riparian habitats.	Vernal pools on Radio Tower Road, San Juan Creek from the Rancho Mission Viejo Headquarters to the confluence with Verdugo Canyon, a stock pond in upper Cristianitos Canyon, and Lower Gabino Canyon.

TABLE 4.9-3 (Continued)
SENSITIVE WILDLIFE SPECIES

Scientific Name	Common Name	Status[1] Federal/ State	NCCP/HCP Planning Species	NCCP/HCP Science Advisors Group	Primary Habitat Associations	Occurrence in Study Area
Taricha torosa torosa	Western newt	None/CSC	–	2	Grassland, woodland, forest, but require ponds, reservoirs or slow-moving streams for reproduction.	Although not observed, potential to occur within suitable habitat in the study area.
Reptiles						
Anniella pulchra pulchra	Silvery legless lizard	FSC/CSC	–	3	Loose soils (sand, loam, humus) in coastal dune, coastal sage scrub, woodlands, and riparian habitats.	Expected within San Juan Creek and other areas within the study area containing suitable habitat.
Arizona elegans occidentalis	Coastal (California) glossy snake	None/None	–	3	Grassland, chaparral, coastal sage scrub, woodlands in sandy and rocky substrates.	Observed in upland habitats adjacent to San Juan Creek. Expected elsewhere throughout the study area.
Charina trivirgata	Rosy boa	FSC/None	–	2	Rocky chaparral, coastal sage scrub, oak woodlands, desert and semi-desert scrub.	Although not observed within the study area, species is known from nearby Casper's Wilderness Park. Expected within the study area in rocky areas.
Clemmys marmorata pallida	Southwestern pond turtle	FSC/CSC	*	3	Slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used during winter.	Known to occur in San Juan Creek, the upper portion of Cristianitos Creek in a small stockpond, at Jerome's Lake in the upper portion of Gabino Canyon, and at a stock pond within the nursery north of Ortega Highway.
Cnemidophorus tigris multiscutatus	Coastal western whiptail	None/None	–	2	Coastal sage scrub, chaparral, and woodland.	Known to occur throughout the study area within suitable habitat.
Cnemidophorus hyperythrus beldingi	Orange-throated whiptail	None/CSC	*	2	Coastal sage scrub, chaparral, grassland, juniper and oak woodland.	Known to occur throughout the study area within suitable habitat.
Coleonyx variegatus abbotti	San Diego banded gecko	None/None	–	3	Cismontane chaparral, coastal sage scrub, desert scrub; granite outcrops.	Although not observed within the study area, this secretive species may still occur within the study area in suitable habitat.
Crotalus ruber ruber	Northern red-diamond rattlesnake	None/CSC	–	3	Variety of shrub habitats where there is heavy brush, large rocks, or boulders.	Known to occur throughout the study area within suitable habitat.
Diadophis punctatus modestus	San Bernardino ringneck snake	None/None	–	None	Moist habitats; woodland, forest, grassland, chaparral; typically found under debris.	Study area believed to be outside the range of this subspecies; study area within range of *Diadophis punctatus similis.*
Diadophis punctatus similis	San Diego ringneck snake	None/None	–	2	Moist habitats; woodland, forest, grassland, scrub, chaparral; typically found under debris.	Known to occur throughout the study area within suitable habitat.
Eumeces skiltonianus interparietalis	Coronado Island skink	None/CSC	–	2	Grassland, riparian and oak woodland; found in litter, rotting logs, under flat stones.	Known to occur throughout the study area within suitable habitat although distinction from western skink is not clear.
Lampropeltis zonata	San Diego mountain kingsnake	None/CSC	–	2	Coniferous forest, oak-pine and riparian woodlands, chaparral, and scrub.	Although not observed, this species may still occur within the study area in suitable habitat.
Phrynosoma coronatum blainvillei	San Diego horned lizard	None/CSC	*	2	Coastal sage scrub, annual grassland, chaparral, oak and riparian woodland, coniferous forest.	Known to occur throughout the study area within suitable habitat.
Salvadora hexalepis virgultea	Coast patch-nosed snake	None/CSC	–	2	Chaparral, grassland, woodland, washes, sandy flats, rocky areas.	Although only observed at one location with the study area in upper Cristianitos Canyon, this species is expected to occur throughout the study area within suitable habitat.

TABLE 4.9-3 (Continued)
SENSITIVE WILDLIFE SPECIES

Scientific Name	Common Name	Status[1] Federal/ State	NCCP/HCP Planning Species	NCCP/HCP Science Advisors Group	Primary Habitat Associations	Occurrence in Study Area
Thamnophis sirtalis sp.	South coast garter snake	None/CSC	–	None	Marsh and upland habitats near permanent water that have strips of riparian vegetation.	Although not observed, this species may still occur within the study area in suitable habitat.
Thamnophis hammondii	Two-striped garter snake	None/CSC	–	3	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools.	Know to occur at Chiquita Canyon, San Juan Creek, Talega Cayon, and upper Gabino Canyon. May occur elsewhere the study area within suitable habitat.
Birds						
Accipiter cooperii	Cooper's hawk	None/CSC	*	2	Riparian and oak woodlands, mountain canyons.	Known to occur in the study area for foraging and nesting.
Accipiter striatus	Sharp-shinned hawk	None/CSC	–	2	Nests in coniferous forests, ponderosa pine, black oak, riparian deciduous, mixed conifer, Jeffrey pine; winters in lowland woodlands and other habitats.	This species occurs in Orange County only as a migrant and winter visitor and does not breed here. This species is known to occur and is expected throughout the study area.
Agelaius tricolor	Tricolored blackbird	FSC,BCC/ CSC	*	3	Nests near fresh water, emergent wetland with cattails or tules; forages in grasslands, woodland, agriculture.	This species has been observed in Chiquita Canyon north and south of the "Narrows," lower Cañada Gobernadora, grassland south of Ortega Highway, CalMat in San Juan Creek, Trampas Canyon, Riverside Cement north of Gabino Canyon, and mouth of Verdugo Canyon. This species may forage throughout the study area within suitable habitat.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	None/CSC	–	2	Grass-covered hillsides, coastal sage scrub, chaparral with boulders and outcrops.	Known to occur throughout the study area within suitable habitat.
Ammodramus savannarum	Grasshopper sparrow	None/None	*	2	Open grassland and prairie, especially native grassland with a mix of grasses and forbs.	Known to occur throughout the study area within suitable habitat.
Amphispiza belli belli	Bell's sage sparrow	FSC, BCC/CSC	–	2	Coastal sage scrub and dry chaparral along coastal lowlands and inland valleys.	Although not observed within the study area, this species may still occur within the study area in suitable habitat.
Aquila chrysaetos	Golden eagle	BCC/CSC, FP	–	2, Umbrella Species	Open country, especially hilly and mountainous regions; grassland, coastal sage scrub, chaparral, oak savannas, open coniferous forest.	Suitable foraging habitat for this species occurs within the study area. Unlikely to nest within the study area.
Asio flammeus	Short-eared owl	None/CSC	–	2	Grassland, prairies, dunes, meadows, irrigated lands, saline and freshwater emergent wetlands.	Although not observed, this species may still occur within the study area in suitable habitat.
Asio otus	Long-eared owl	None/CSC	–	3	Riparian, live oak thickets, other dense stands of trees, edges of coniferous forest.	This species nests and forages within suitable habitat in the study area.
Athene cunicularia	Burrowing owl	FSC, BCC/CSC	–	3	Grassland, lowland scrub, agriculture, coastal dunes and other artificial open areas.	Species not believed to nest within the study area but may occur during the winter.
Botarus lentiginosus	American bittern	FSC/None	–	1	Emergent habitat of freshwater marsh and vegetation borders of ponds and lakes.	Observed within Cañada Chiquita. Freshwater marsh area of Cañada Gobernadora currently provides potential nesting habitat for this species.
Buteo swainsoni	Swainson's hawk	FSC, BCC/ST	–	2	Open grassland, shrublands, croplands.	Species known to occur within the area as a rare migrant. May periodically forage onsite during migration. No longer nests in Orange County.

TABLE 4.9-3 (Continued)
SENSITIVE WILDLIFE SPECIES

Scientific Name	Common Name	Status[1] Federal/ State	NCCP/HCP Planning Species	NCCP/HCP Science Advisors Group	Primary Habitat Associations	Occurrence in Study Area
Buteo regalis	Ferruginous hawk	FSC, BCC/CSC	–	3	Open, dry country, grasslands, open fields, agriculture.	Species known to occur within the study area during winter as a visitor for foraging. Does not nest in the region.
Buteo lineatus	Red-shouldered hawk	None/None	–	2	Riparian and woodland habitats, eucalyptus.	Known to nest throughout the study area within suitable habitat.
Calypte costae	Costa's hummingbird	FSC/None	–	1	Occurs in desert wash, edges of desert riparian and valley foothill riparian, coastal scrub, desert scrub, desert succulent shrub, lower-elevation chaparral, and palm oasis.	Known to nest throughout the study area within suitable habitat.
Campylorhynchus brunneicapillus cousei	Coastal cactus wren	BCC/CSC	*	2	Southern cactus scrub, maritime succulent scrub, cactus thickets in coastal sage scrub.	Known to occur throughout the study area within suitable habitat.
Carduelis lawrencei	Lawrence's goldfinch	FSC, BCC/ None	–	2	Riparian and woodland habitats in association with grasslands.	Known from one location but likely to occur throughout the study area within suitable habitat.
Charadrius montanus	Mountain plover	FSC, BCC/CSC	–	1	Nests in open, shortgrass prairies or grasslands; winters in shortgrass plains, plowed fields, open sagebrush, and sandy deserts.	Not expected, no suitable wintering habitat.
Chondestes grammacus	Lark sparrow	FSC/None	–	2	Grassland-shrub-woodland margins.	Known to occur throughout the study area in suitable habitat.
Circus cyaneus	Northern harrier	None/CSC	–	3	Open wetlands (nesting), pasture, old fields, dry uplands, grasslands, rangelands, coastal sage scrub.	Known to occur within the study area and potentially nests within the study area.
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	FC, BCC/SE	–	3	Dense, wide riparian woodlands and forest with well-developed understories.	Species has not been observed within study area, not expected.
Dendroica petechia	Yellow warbler	None/CSC	*	3	Nests in lowland and foothill riparian woodlands dominated by cottonwoods, alders and willows; winters in a variety of habitats.	Known to occur within Cristianitos Creek, San Juan Creek, Cañada Gobernadora, and Cañada Chiquita.
Elanus leucurus	White-tailed kite	FSC,MNBM/ FP	*	3	Open grasslands, savanna-like habitats, agriculture, wetlands, oak woodlands, and riparian.	Known to occur within San Juan Creek, Cañada Gobernadora, Gabino Canyon, and Donna O'Neill Land Conservancy.
Empidonax difficilis	Pacific slope flycatcher	None/None	–	2	Woodland and riparian habitats.	Known to occur within the study area in suitable habitat.
Empidonax traillii extimus	Southwestern willow flycatcher	FE/SE	*	3	Riparian woodlands along streams and rivers with mature, dense stands of willows or alders; may nest in thickets dominated by tamarisk.	Known to nest in Cañada Gobernadora.
Eremophila alpestris actia	California horned lark	None/CSC	–	2	Open habitats, grassland, rangeland, shortgrass prairie, montane meadows, coastal plains, fallow grain fields.	Known to occur throughout the study area in suitable habitat.
Falco columbarius	Merlin	None/CSC	*	2	Nests in open country, open coniferous forest, prairie; winters in open woodlands, grasslands, cultivated fields, marshes, estuaries and sea coasts.	This species occurs in Orange County only as a rare migrant and winter visitor. This species has been observed in the study area.
Falco mexicanus	Prairie falcon	BCC/CSC	–	1	Grassland, savannas, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs.	Species known to occur within the area as an occasional winter visitor to forage. No longer nests in Orange County.

TABLE 4.9-3 (Continued)
SENSITIVE WILDLIFE SPECIES

Scientific Name	Common Name	Status[1] Federal/ State	NCCP/HCP Planning Species	NCCP/HCP Science Advisors Group	Primary Habitat Associations	Occurrence in Study Area
Falco peregrinus anatum	American peregrine falcon	Delisted to FSC, BCC/SE, FP	–	1	Nests on cliffs, buildings, bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present.	Species known to occur within the area as an occasional winter visitor to forage. Not expected to nest within the study area.
Haliaeetus leucocephalus	Bald eagle	FPD, FT/SE, FP	–	1	Seacoasts, rivers, swamps, large lakes; winters at large bodies of water in lowlands and mountains.	Not expected.
Icteria virens	Yellow-breasted chat	None/CSC	*	3	Dense, relatively wide riparian woodlands and thickets of willows, vine tangles and dense brush.	Known to occur within Cañada Chiquita, Cañada Gobernadora, San Juan Creek, Cristianitos Creek, Blind Canyon, and Gabino Canyon
Ixobrychus exilis	Least bittern	None/CSC	–	1	Dense emergent wetland vegetation, sometimes interspersed with woody vegetation and open water.	Has occurred within the study area, Cañada Gobernadora may provide suitable habitat for this species.
Lanius ludovicianus	Loggerhead shrike	FSC, BCC/CSC	–	2	Open ground including grassland, coastal sage scrub, broken chaparral, agriculture, riparian, and open woodland.	Known to occur infrequently within the study area. Resident, migrant, and wintering populations expected.
Larus californicus	California gull	None/SSC	–	2	Agriculture, water, beach, and marsh.	Known to occur within the study area.
Pandion haliaetus	Osprey	None/CSC	–	1	Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely observed along the coast.	Know to occur along San Juan Creek and in the vicinity of the open water areas of the silica mining operations south of Ortega Highway.
Pelecanus erythrorhynchos	American white pelican	None/SSC	–	2	Open water.	Potential to occur within the study area.
Phalacrocorax auritus	Double-crested cormorant	None/CSC	–	2	Lakes, rivers, reservoirs, estuaries, ocean; nests in tall trees, rock ledges on cliffs, rugged slopes.	Known to occur within the study area. Open water areas along San Juan Creek and at the silica mine south of Ortega Highway provide suitable habitat.
Piranga rubra	Summer tanager	None/CSC	–	1	Nests in riparian woodland; winter habitats include parks and residential areas.	May occur within the study area but only as a rare migrant.
Plegadis chihi	White-faced ibis	FSC/CSC	–	1	Nests in marsh; winter foraging in shallow lacustrine waters, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields and estuaries.	Expected to occur within the study area in suitable habitat but only as a rare visitor.
Polioptila californica	California gnatcatcher	FT/CSC	*	2	Coastal sage scrub, coastal sage scrub-chaparral mix, coastal sage scrub-grassland ecotone, riparian in late summer.	Known to occur throughout the study area.
Progne subis	Purple martin	None/CSC	–	1	Nests in tall sycamores, pines, oak woodlands, coniferous forest; forages over riparian, forest and woodland.	May occur within the study area but only as a rare migrant.
Rynchops niger	Black skimmer	FSC, BCC/SSC	–	2	Open water of ocean and coastal zone.	Not expected.
Selasphorus sasin	Allen's hummingbird	FSC/None	–	1	In the region, breeds primarily in riparian and urban habitats. Migrants occur in a variety of woodland and scrub habitats.	Known to nest within the study area within suitable habitat.
Sphyrapicus ruber	Red-breasted sapsucker	FSC/None	–	2	Riparian and woodland habitats.	Expected occur within the study area, but only as a winter visitor.

TABLE 4.9-3 (Continued)
SENSITIVE WILDLIFE SPECIES

Scientific Name	Common Name	Status[1] Federal/ State	NCCP/HCP Planning Species	NCCP/HCP Science Advisors Group	Primary Habitat Associations	Occurrence in Study Area
Sterna elegans	Elegant term	FSC, BCC/CSC	–	2	Open water of ocean and coastal zone.	Not expected.
Toxostoma redivivum	California thrasher	FSC/None	–	2	Coastal sage scrub, chaparral, and riparian.	Known to occur within the study area.
Thyromanes bewickii	Bewick's wren	None/None	–	2	Coastal sage scrub, chaparral, riparian, and woodland.	Known to occur within the study area.
Tyto alba	Barn owl	None/None	–	2, Umbrella Species	Grassland, agriculture, riparian, and woodland.	Known to occur within the study area.
Vireo bellii pusillus	Least Bell's vireo	FE, BCC/SE	*	3	Nests in southern willow scrub with dense cover within three to six feet of the ground; habitat includes willows, cottonwoods, baccharis, and wild blackberry.	Known to occur within Cañada Gobernadora, middle San Juan Creek (between the Ortega Highway bridge and Casper Wilderness Park), Chiquita Creek, and lower Cristianitos Creek.
Mammals						
Antrozous pallidus	Pallid bat	None/CSC	–	2	Coastal sage scrub, chaparral, and woodland.	Known to occur within Cañada Chiquita and Cristianitos Canyon. May occur throughout the study area within suitable habitat.
Chaetodipus fallax fallax	Northwestern San Diego pocket mouse	None/CSC	–	2	Coastal sage scrub, grassland, sage scrub-grassland ecotones, and sparse chaparral; rocky substrates, loams and sandy loams.	Suitable habitat for this species occurs within the southern portion of the study area, and it may occur within the southern portion of the study area.
Chaetodipus californicus femoralis	Dulzura California pocket mouse	None/CSC	–	2	Coastal sage scrub, chaparral, and riparian-scrub ecotone; more mesic areas.	Suitable habitat for this species occurs within the southern portion of the study area, and it may occur within the southern portion of the study area.
Corynorhinus townsendii townsendii	Townsend's western big-eared bat	FSC/CSC	–	2	Caves, crevices, buildings, woodland, and grassland.	May occur throughout the study area within suitable habitat.
Euderma maculatum	Spotted bat	FSC/CSC	–	2	Arid desert, grasslands, and mixed conifer forests.	May occur throughout the study area within suitable habitat.
Eumops perotis californicus	California mastiff bat	FSC/CSC	–	2	Cliff and rock, woodlands, scrub, grasslands, palm oasis, and urban areas.	Known to occur within the areas of San Juan Creek and Cristianitos Canyon. May occur throughout the study area within suitable habitat.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None/CSC	–	3	Arid habitats with open ground; grasslands, coastal sage scrub, agriculture, disturbed areas, and rangelands.	Although suitable habitat for this species is present throughout the study area, this species has not been observed within the study area.
Macrotus californicus	California leaf-nosed bat	None/CSC	–	2	Desert scrub habitats. Roost in abandoned mines and caves.	May occur within the study area.
Myotis ciliolabrum	Small-footed myotis	FSC/None	–	None	Chaparral and riparian. Roosts in cracks, crevices, caves, mines, under bark, in abandoned swallow nests and in buildings.	May occur throughout the study area within suitable habitat.
Myotis volans	Long-legged myotis	FSC/None	–	2	Woodland and riparian.	May occur throughout the study area within suitable habitat.
Myotis yumanensis	Yuma myotis	FSC/None	–	None	Water and wooded canyon bottoms. Roosts in caves and abandoned buildings.	Known to occur within the study area within suitable habitat.

TABLE 4.9-3 (Continued)
SENSITIVE WILDLIFE SPECIES

Scientific Name	Common Name	Status[1] Federal/ State	NCCP/HCP Planning Species	NCCP/HCP Science Advisors Group	Primary Habitat Associations	Occurrence in Study Area
Neotoma lepida intermedia	San Diego desert woodrat	None/CSC	–	1	Coastal sage scrub, chaparral, and pinyon-juniper woodland with rock outcrops, cactus thickets, dense undergrowth.	Known to occur throughout the study area within suitable habitat.
Nyctinomops femorosaccus	Pocketed free-tailed bat	None/CSC	–	None	Desert habitats. Roosts in rock crevices in cliffs.	Although not known to occur in study area, suitable habitat present.
Onychomys torridus ramona	Southern grasshopper mouse	FSC/CSC	–	3	Grassland and sparse coastal sage scrub.	Suitable habitat for this species occurs throughout the study area. This species may occur within the study area.
Perognathus longimembris pacificus	Pacific pocket mouse	FE/CSC	–	3	Grassland and coastal sage scrub with sandy soils; along immediate coast.	Not expect within the study area, due to this species range restriction to areas along the coast.
Taxidea taxus	American badger	None/None	–	Umbrella Species	Dry, open treeless areas, grasslands, and coastal sage scrub.	Known to occur throughout the study area within suitable habitat.

[1] The federal and state status of species primarily is based on the Special Animals List (January 2004), California Department of Fish and Game.

Federal Designations:
BCC Fish and Wildlife Service Bird of Conservation Concern
FC Federal Candidate Species (formerly Category 1 candidates)
FE Federally-listed Endangered
FSC Federal Species of Concern
FT Federally-listed Threatened
MNBMC Fish and Wildlife Service Migratory Nongame Birds of Management Concern
FPT Proposed for listing as Federally Threatened

State Designations:
CSC California Special Concern Species
FP California Department of Fish and Game Fully Protected Species
SE State-listed Endangered
ST State-listed Threatened

NCCP/HCP Science Advisors Categories:
1 Species whose conservation is minimally affected by the reserve planning process. Group 1 species have not been included if they (1) are not expected to occur due to the lack of suitable habitat; (2) may occur as migrants only to the study area, but are listed by the resource agencies because of impacts to nesting locations; or (3) have no status from either the USFWS or CDFG.
2 Species conserved most effectively at the habitat or landscape level.
3 Species requiring species-level conservation action.
Umbrella Species – Species that have large or broad habitat requirements that could serve other species.

NCCP/HCP Planning Guidelines:
Planning Species* = Species selected as conservation planning surrogates for identifying habitat areas that should be considered for protection.

Source: Dudek 2003, Modifications by BonTerra Consulting 2004.

TABLE 4.9-4
SENSITIVE PLANT SPECIES

Scientific Name	Common Name	Status[1] Federal/ State/CNPS	NCCP/HCP Planning Species	NCCP/HCP Advisors Group	Habitat Associations/Life Form/Blooming Period	Occurrence in Study Area/or General Distribution Locations Within the Southern Orange County Area
Abronia villosa var. *aurita*	Chaparral sand-verbena	None/None/ List 1B, 2-3-3	–	–	Chaparral, coastal sage scrub, sandy soils/annual herb/January-August.	No records in database. Known from Corona South quadrangle, but may be extirpated from Orange County.
Artemisia palmeri	San Diego sagewort	None/None/ List 4, 1-2-1	–	–	Chaparral, coastal sage scrub, riparian, sandy soils/shrub/May-September.	No records for Orange County.
Astragalus brauntonii	Braunton's milk-vetch	FE/None/ List 1B, 3-3-3	–	–	Closed-cone conifer forest, chaparral, coastal sage scrub, valley and foothill grassland, recent burns or disturbed areas/perennial herb/March-July.	No records in database. Known from Black Star Canyon and Corona South quadrangles.
Atriplex coulteri	Coulter's saltbush	None/None/ List 1B, 2-2-2	*	3	Coastal bluff scrub, coastal sage scrub, valley and foothill needlegrass grasslands, alkaline or clay soils/perennial herb/March-October.	Coulter's saltbush is known from three general locations in the study area totaling 3,086 individuals: Chiquita Canyon, upper Cristianitos Canyon and upper Gabino Canyon. Coulter's saltbush occurs in alkaline soils and is associated with southern tarplant in Chiquita Canyon.
Atriplex pacifica	South Coast saltscale	None/None/ List 1B, 3-2-2	–	3	Coastal bluff scrub, coastal sage scrub, alkali playas/annual herb/ March-October.	No records in database. Known from San Clemente, Newport Beach and Laguna Beach quadrangles.
Atriplex parishii	Parish's brittlescale	None/None /List 1B, 3-3-2	–	3	Alkali swales, sinks, depressions, and grasslands with heavy clay-alkali components/annual herb/June-October.	No records in database. Known from Newport Beach and Laguna Beach quadrangles.
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/None/ List 1B, 3-2-2	–	–	Coastal bluff scrub, coastal sage scrub, alkaline soils/annual herb/April-October.	No records in database. Known from Laguna Beach, Newport Beach, Tustin, and Yorba Linda quadrangles.
Berberis nevinii	Nevin's barberry	FE/SE/List 1B, 3-3-3	–	–	Chaparral, cismontane woodland, coastal sage scrub, riparian scrub, sandy or gravelly soils/shrub/March-April.	No records for Orange County.
Bergerocactus emoryi	Golden-spined cereus	None/None/ List 2, 2-2-1	–	–	Closed-cone conifer forest, chaparral, coastal sage scrub, sandy soils/shrub (stem succulent)/May-June.	No records for Orange County.
Brodiaea filifolia	Thread-leaved brodiaea	FT/SE/List 1B, 3-3-3	*	3	Coastal sage scrub, chaparral, grassland, vernal pools; heavy clay soils/perennial herb (bulbiferous)/ March-June.	Found in six general locations in the study area, excluding the translocated population at Forster Ranch: Chiquadora Ridge; Cristianitos Canyon; lower Gabino Canyon; Trampas Canyon; Talega ridgeline east of Northrup-Grumman; and just east of Trabuco Creek in the Arroyo Trabuco Golf Course project area. About 9,314 flowering stalks counted in about 30 discrete locations in the study area.
Brodiaea jolonensis	Mesa brodiaea	None/None/ None	–	–	Grassland, foothill woodland, clay soils/perennial herb/April-May.	Two locations in Cristianitos Canyon.

TABLE 4.9-4 (Continued)
SENSITIVE PLANT SPECIES

Scientific Name	Common Name	Status[1] Federal/ State/CNPS	NCCP/HCP Planning Species	NCCP/HCP Advisors Group	Habitat Associations/Life Form/Blooming Period	Occurrence in Study Area/or General Distribution Locations Within the Southern Orange County Area
Calochortus catalinae	Catalina mariposa lily	None/None/ List 4, 1-2-3	–	2	Coastal sage scrub, chaparral, Valley and foothill needlegrass grasslands in heavy soils/perennial herb (bulbiferous)/February-May.	Occurs on Chiquita Ridge, in Cañada Gobernadora, the northeast portion of the Talega development and the Saddleback Meadows area.
Calochortus plummerae	Plummer's mariposa lily	None/None/ List 1B, 2-2-3	–	–	Chaparral, cismontane woodland, coastal sage scrub , lower montane conifer forest, valley and foothill grassland, granitic soils/perennial herb (bulbiferous)/May-June.	No records in database. Known from Sitton Peak, Black Star Canyon, and Corona South quadrangles.
Calochortus[1] *weedii* var. *intermedius*	Intermediate mariposa lily	None/None/ List 1B, 2-2-3	*	2	Chaparral, coastal sage scrub, coastal sage scrub-grassland ecotone, purple needlegrass grasslands/perennial herb (bulbiferous)/May-July.	Weed's-Intermediate mariposa lily hybrids generally occurs in four main areas: Chiquita Canyon/Chiquadora Ridge, Cañada Gobernadora east of the creek/northern Central San Juan Creek sub-basin, Cristianitos Canyon/southern Trampas Canyon sub-basin, and La Paz Canyon. A few scattered locations also occur in the Foothill-Trabuco Specific Plan area on Saddleback Meadows. Except for the La Paz Canyon location, this species tends to occur in association with many-stemmed dudleya in the study area. There are about 144 locations in the study area with about 20,400 counted individuals.
Caulanthus simulans	Payson's jewel-flower	None/None /List 4, 1-2-3	–	–	Chaparral, coastal sage scrub, sandy and granitic soils/annual herb/March-June.	No records for Orange County.
Centromadia parryi spp. *australis*	Southern tarplant	None/None/ List 1B, 3-3-2	*	3	Alkali soils, sinks, depressions, and grasslands with heavy clay-alkali components/annual herb/May-November.	The largest population is in Chiquita Canyon and, including the Tesoro mitigation site, numbers more than 135,000 individuals. A large population numbering 10,000+ individuals occurs on the GERA site in Cañada Gobernadora.
Centromadia pungens spp. *laevis*	Smooth tarplant	None/None/ List 1B, 2-3-3	–	–	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland/annual herb/April-September.	No records for Orange County, but known from Alberhill, Lake Elsinore and Corona South quadrangles.
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	FC/SE/List 1B, 3-3-3	–	–	Coastal sage scrub, sandy soils/ annual herb/April-June.	No records in database. Known historically from Orange quadrangle, but likely extirpated in county.
Chorizanthe parryi var. *parryi*	Parry's spineflower	None/None/ List 3, ?-2-3	–	–	Chaparral, coastal sage scrub, sandy openings/annual herb/April-June.	No records for Orange County.
Chorizanthe procumbens	prostrate spineflower	None/None/ None	–	3	Chaparral, coastal sage scrub, pinyon-juniper woodland, valley needlegrass grassland; associated with weathered mesa soils and gabbroic clay/April-June.	No locations in database for RMV, but found along Cristianitos Road south of RMV property.

[1] Although this species was listed as an NCCP/HCP Planning Species, it is not treated as a Planning Species within the study area due to the hybridization of this species within the study area.

TABLE 4.9-4 (Continued)
SENSITIVE PLANT SPECIES

Scientific Name	Common Name	Status[1] Federal/ State/CNPS	NCCP/HCP Planning Species	NCCP/HCP Advisors Group	Habitat Associations/Life Form/Blooming Period	Occurrence in Study Area/or General Distribution Locations Within the Southern Orange County Area
Comarostaphylis diversifolia spp. *diversifolia*	Summer holly	None/None/ List 1B, 2-2-2	–	2	Chaparral/shrub (evergreen)/April-June.	No records in database. Known from Margarita Peak, Sitton Peak and San Juan Capistrano quadrangles.
Cordylanthus maritimus spp. *maritimus*	Salt marsh bird's-beak	FE/SE/List 1B, 2-2-2	–	–	Coastal dunes, coastal saltwater marsh and swamp/annual herb/May-October.	No records in database. Known from Newport Beach and Laguna Beach quadrangles.
Dichondra occidentalis	Western dichondra	None/None/ List 4, 1-2-1	–	2	Coastal sage scrub, chaparral, burned areas/perennial herb (rhizomatous)/ March-July.	Occurs in a 25-acre mapped area in the upper/middle portion of Gabino Canyon and several small populations in Cristianitos Canyon.
Dodecahema leptoceras	Slender-horned spineflower	FE/SE/List 1B, 3-3-3	–	–	Chaparral, coastal sage scrub (alluvial fan)/annual herb/April-June.	No records in database. Known from Lake Elsinore, Alberhill and El Toro quadrangles.
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	None/None/ List 1B, 2-3-2	–	3	Coastal bluff scrub, coastal sage scrub, Valley and foothill needlegrass grassland/perennial herb/April-June.	No records in database. Known from San Clemente and Dana Point quadrangles.
Dudleya cymosa spp. *ovatifolia*	Santa Monica Mountains dudleya	FT/None /List 1B, 3-2-3	–	–	Chaparral, coastal sage scrub, volcanic substrates/perennial herb/March-June.	No records in database. Known only from Santiago Peak quadrangle.
Dudleya multicaulis	Many-stemmed dudleya	None/None/ List 1B, 1-2-3	*	3	Coastal sage scrub, chaparral, Valley needlegrass grasslands; mesic barrens and cobbly clay soils/ [perennial herb/April-July.	Known from five main areas in the study area: Chiquita Ridge; Chiquadora Ridge; Cañada Gobernadora/Central San Juan east of Gobernadora Creek and north of ColorSpot Nursery; Trampas Canyon/Cristianitos Canyon extending south to the Talega development in the San Clemente Watershed; and upper Gabino and La Paz canyons. A smaller cluster occurs east of the Northrup-Grumman facilities on the mesa. There also is a single record for the Bell Canyon area on Starr Ranch (F. Roberts 1997) and locations in Caspers Wilderness Park not in the database, but these populations are considered to be small. The total counted individuals in the study area is about 47,200 in about 284 mapped locations.
Dudleya stolonifera	Laguna Beach dudleya	FT/ST/List 1B, 3-3-3	–	–	Chaparral, cismontane woodland, coastal sage scrub, valley and foothill grassland, rocky areas/perennial herb/May-July.	No records in database. Known from San Juan Capistrano, Newport Beach and Laguna Beach quadrangles.
Dudleya viscida	Sticky dudleya	None/None/ List 1B, 2-2-3	–	3	Coastal bluff scrub, coastal sage scrub, chaparral; on shaded steep rocky cliffs and canyon walls/perennial herb/May-June.	No records in database. Suitable habitat on Starr Ranch and Caspers Wilderness Park.

TABLE 4.9-4 (Continued)
SENSITIVE PLANT SPECIES

Scientific Name	Common Name	Status[1] Federal/ State/CNPS	NCCP/HCP Planning Species	NCCP/HCP Advisors Group	Habitat Associations/Life Form/Blooming Period	Occurrence in Study Area/or General Distribution Locations Within the Southern Orange County Area
Echinodorus berteroi	Upright burhead	None/None/ None	–	–	Ponds and ditches/annual herb/August.	One location known from Upper Cristianitos.
Eleocharis parvula	Small spikerush	None/None/ List 4, 1-1-1	–	–	Saltmarsh/perennial herb/June-September.	No records in database. Known from Orange County.
Eleocharis rostella	Beaked spikerush	None/None/ None	–	–	Alkaline marshes, sinks, springs/perennial herb/May-August.	Two locations totaling 1,501 individuals known from the Narrows area of Chiquita Canyon.
Euphorbia misera	Cliff spurge	None/None/ List 2, 2-2-1	–	3	Sea bluffs, coastal sage scrub/shrub/December-August.	No records in database. Known from Dana Point, San Juan Capistrano and Laguna Beach quadrangles.
Harpagonella palmeri	Palmer's grapplinghook	None/None/ List 4, 1-2-1	–	2	Open patches of coastal sage scrub, coastal sage scrub-grassland ecotone, purple needlegrass grassland/annual herb/March-May.	Occurs on Chiquita Ridge, east of Gobernadora Creek and in Cristianitos Canyon.
Holocarpha virgata ssp. *elongata*	Graceful tarplant	None/None/ List 4, 1-2-3	–	2	Coastal sage scrub, valley and foothill needlegrass grasslands, chaparral, and cismontane woodland/annual herb/July-November.	No records in database. Known from Orange County.
Hordeum intercedens	Vernal barley	None/None/ List 3, ?-2-2	–	–	Valley and foothills grasslands (saline flats and depressions), vernal pools/ annual herb/March-June.	Populations known from Cañada Gobernadora, Cristianitos Canyon, and the northeastern portion of the Talega development project area.
Isocoma menziesii var. *sedoides*	Decumbent goldenbush	None/None/ List 1B, 2-2-2	–	–	Exposed areas on coastal bluffs, coastal bluff scrub/shrub/April-November.	No records in database. Known from the Laguna Beach quadrangle.
Juncus acutus spp. *leopoldii*	Southwestern spiny rush	None/None/ List 4, 1-2-1	–	–	Coastal dunes, meadows and seeps (alkaline), saltwater marsh/perennial herb/May-June.	No records in database. Known from Orange County.
Lasthenia glabrata spp. *coulteri*	Coulter's goldfields	None/None/ List 1B, 2-3-2	–	–	Saltwater marsh and swamps, playas, vernal pools/annual herb/February-June.	No records in database. Known from Lake Elsinore, Newport Beach, Laguna Beach and Seal Beach quadrangles.
Lepechinia cardiophylla	Heart-leaved pitcher sage	None/None/ List 1B, 3-2-2	–	3	Chaparral above 1,000 feet, cismontane woodland, conifer forest/ shrub/April-November.	No records in database. Two populations known from Trabuco Peak in CNF. Known from Alberhill, Santiago Peak, Black Star Canyon and Corona South quadrangles.
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None/ List 1B, 3-2-2	–	–	Chaparral, coastal sage scrub/annual herb/January-July.	No records in database. Known from Santiago Peak, Newport Beach, Corona South, and Anaheim quadrangles.
Lilium humboldtii spp. *ocellatum*	Ocellated Humboldt lily	None/None/ List 4, 1-2-3	–	3	Oak woodland and stream courses in foothill-mountain transition zone/ perennial herb (bulbiferous)/March-July.	Suitable habitat on Starr Ranch, Caspers Wilderness Park and in the CNF.
Machaeranthera juncea	Rush-like bristleweed	None/None/ List 4, 1-1-1	–	–	Chaparral, coastal sage scrub/ perennial herb/June-October.	No records for Orange County.
Microseris douglasii var. *platycarpha*	Small-flowered microseris	None/None/ List 4, 1-2-2	–	–	Cismontane woodland, coastal sage scrub, valley and foothill grassland, clays/annual herb/March-May.	Populations known from Cañada Gobernadora and Cristianitos Canyon.

TABLE 4.9-4 (Continued)
SENSITIVE PLANT SPECIES

Scientific Name	Common Name	Status[1] Federal/ State/CNPS	NCCP/HCP Planning Species	NCCP/HCP Advisors Group	Habitat Associations/Life Form/Blooming Period	Occurrence in Study Area/or General Distribution Locations Within the Southern Orange County Area
Mimulus clevelandii	Cleveland's bush monkeyflower	None/None/ List 4, 1-2-2	–	–	Chaparral, lower montane conifer forest (often in disturbed areas)/ perennial herb/May-July.	No records in database. Known from Orange County.
Mimulus diffusus	Palomar monkeyflower	None/None/ List 4, 1-1-1	–	–	Chaparral, lower montane conifer forest/annual herb/April-June.	No records in database. Known from Orange County.
Monardella hypoleuca spp. *lanata*	Felt-leaved monardella	None/None/ List 1B, 2-2-2	–	–	Chaparral, cismontane woodland/ perennial herb/May-July.	No records in database. Known from Alberhill, Sitton Peak and Santiago Peak quadrangles.
Mondardella macrantha ssp. *hallii*	Hall's monardella	None/None/ List 1B, 2-1-3	–	–	Broad-leaved upland forest, chaparral, cismontane woodland, lower conifer forest, valley and foothill grassland/ perennial herb/June-August.	No records in database. Known from Santiago Peak quadrangle.
Mucronea californica	California spineflower	None/None/ List 4, 1-2-3	–	–	Chaparral, cismontane woodland, coastal dunes, coastal sage scrub, valley and foothill grassland, sandy soils/annual herb/March-August.	No records in database. Known from Orange County.
Myosurus minimus spp. *apus*	Little mousetail	FSC/None/ List 3, 2-3-2	–	–	Vernal pools (alkaline)/annual herb/March-June.	No records in database. Known from Lake Elsinore quadrangle.
Nama stenocarpum	Mud nama	None/None/ List 2, 3-2-1	*	–	Marsh and swamps, lake margins and riverbanks/annual-perennial herb/ January-July.	Known from vernal pool on Chiquita Ridge, and the margin of stockponds located between Trampas and Cristianitos canyons and west of an RMV residence south of Ortega Highway.
Navarretia fossalis	Spreading navarretia	FT/None/ List 1B, 2-3-2	–	–	Chenopod scrub, shallow freshwater marsh and swamps, vernal pools/ annual herb/April-June.	No records for Orange County.
Nolina cismontana	Chaparral beargrass	None/None/ List 1B, 3-2-3	*	3	Chaparral and coastal sage scrub; mostly associated with Cieneba sandy loam and Cieneba-Rock outcrop complex/shrub (evergreen)/May-July.	Occurs in two areas in study area: east of Live Oak Canyon Road and on the steep, south-facing slopes east of the Northrup-Grumman facility.
Ophioglossum californicum	California adder's-tongue	None/None/ List 4, 1-2-2	–	–	Chaparral, valley and foothill grassland, vernal pools (margins)/ perennial herb/December-May.	No records in database. Known from Orange County.
Orcuttia californica	California Orcutt grass	FE/SE/List 1B, 3-3-2	–	–	Vernal pools/annual herb/April-June.	No records for Orange County.
Pentachaeta aurea	Golden-rayed pentachaeta	None/None/ List 4, 1-2-2	–	–	Cismontane woodland, coastal sage scrub, lower montane conifer forest, valley and foothill grassland/annual herb/March-May.	No records in database. Known from Orange County.
Phacelia suaveolens ssp. *keckii*	Santiago Peak phacelia	None/None/ List 1B, 3-1-3	–	–	Closed-cone conifer forest, chaparral/ annual herb/May-June.	No records in database. Known from Santiago Peak and Corona South quadrangles.
Piperia cooperi	Chaparral rein orchid	None/None/ List 4, 1-2-2	–	–	Chaparral, cismontane woodland, valley and foothill grassland/annual herb/March-July.	One location know from Central San Juan subunit north of San Juan Creek.
Polygata cornuta var. *fishiae*	Fish's milkwort	None/None/ List 4, 1-1-2	–	–	Chaparral, cismontane woodland, riparian woodland/shrub/May-August.	Known only from Gabino Canyon.

TABLE 4.9-4 (Continued)
SENSITIVE PLANT SPECIES

Scientific Name	Common Name	Status[1] Federal/ State/CNPS	NCCP/HCP Planning Species	NCCP/HCP Advisors Group	Habitat Associations/Life Form/Blooming Period	Occurrence in Study Area/or General Distribution Locations Within the Southern Orange County Area
Romneya coulteri	Coulter's matilija poppy	None/None/ List 4, 1-2-3	–	2	Coastal sage scrub and chaparral, dry washes, canyons, and mesic slopes/perennial shrub/March-July.	No records in database, but one location known from upper Chiquita Canyon north of Oso Parkway.
Rorippa gambelii	Gambel's water cress	FE/ST/List 1B, 3-3-2	–	–	Marsh and swamps (freshwater and brackish)/perennial herb/April-June.	No records in database. Known from Seal Beach quadrangle.
Sagittaria sanfordii	Sanford's arrowhead	FSC/None/ List 1B, 2-2-3	–	–	Shallow freshwater marshes and swamps/perennial herb/May-August.	No records in database. Known from Newport Beach quadrangle.
Satureja chandleri	San Miguel savory	None/None/ List 1B, 2-2-2	–	3	Chaparral, oak woodlands, oak forest, shaded stream courses/perennial herb/March-July.	No records in database. Known from Upper Hot Spring Canyon in CNF and Alberhill, Sitton Peak and Cañada Gobernadora quadrangles.
Senecio aphanactis	Rayless ragwort	None/None/ List 2, 3-2-1	–	2	Coastal sage scrub, cismontane woodland, alkaline soils/annual herb/ January-April.	Known from Dana Point headlands.
Sidalcea neomexicana	Salt Spring checkerbloom	None/None/ List 2, 2-2-1	*	–	Chaparral, coastal sage scrub, lower montane conifer forest, Mojavean Desert scrub, seeps, playas, alkaline-mesic areas/perennial herb/March-June.	Known from two slope wetlands in Chiquita Canyon and one slope wetland in Cañada Gobernadora.
Suaeda esteroa	Estuary seablite	None/None/ List 1B, 2-2-2	–	–	Saltmarsh/perennial herb/July-October.	No records in database. Known from San Clemente, Newport Beach, and Seal Beach quadrangles.
Tetracoccus dioicus	Parry's tetracoccus	None/None/ List 1B, 3-2-2	–	3	Chaparral and coastal sage scrub on gabbroic soils/shrub (deciduous)/April-May.	No records in database. Known from Sitton Peak and Cañada Gobernadora quadrangles.
Verbesina dissita	Crownbeard	FT/ST/List 1B, 3-3-2	–	–	Maritime chaparral, coastal sage scrub/perennial herb/April-July.	Only three known locations near southern Laguna Beach.
Viguiera laciniata	San Diego County viguiera	None/None/ List 4, 1-2-1	–	–	Chaparral, coastal sage scrub/ shrub/February-June.	No records in database or Orange County. Known from northern San Diego County near San Clemete.

TABLE 4.9-4 (Continued)
SENSITIVE PLANT SPECIES

Scientific Name	Common Name	Status[1] Federal/ State/CNPS	NCCP/HCP Planning Species	NCCP/HCP Advisors Group	Habitat Associations/Life Form/Blooming Period	Occurrence in Study Area/or General Distribution Locations Within the Southern Orange County Area

[1] Status

Federal Designations:
FE Federally-listed Endangered
FT Federally-listed Threatened
FC Federal Candidate
FSC Federal Species of Concern

State Designations:
SE State-listed Endangered
ST State-listed Threatened

NCCP/HCP Science Advisors Categories:
1 Species whose conservation is minimally affected by the reserve planning process. Group 1 species have not been included if they (1) are not expected to occur due to the lack of suitable habitat; (2) may occur as migrants only to the study area, but are listed by the resource agencies because of impacts to nesting locations; or (3) have no status from either the USFWS or CDFG.
2 Species conserved most effectively at the habitat or landscape level.
3 Species requiring species-level conservation action.
Umbrella Species – Species that have large or broad habitat requirements that could serve other species.

NCCP/HCP Planning Guidelines:
Planning Species* = Species selected as conservation planning surrogates for identifying habitat areas that should be considered for protection.

CNPS (California Native Plant Society, Inventory of Rare and Endangered Plants v6.2, 10-13-03)

Lists
1A: Presumed Extinct in California
1B: Rare or Endangered in California and Elsewhere
2: Rare or Endangered in California, More Common Elsewhere
3: Need More Information
4: Plants of Limited Distribution

R-E-D code (*e.g.*, 3-3-3)
R (Rarity)
1- Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time.
2- Occurrence confined to several populations or to one extended population.
3- Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

E (Endangerment)
1- Not endangered
2- Endangered in a portion of its range
? Uncertainty about distribution or identify

D (Distribution)
1- More or less widespread outside California
2- Rare outside California
3- Endemic to California

Source: Dudek 2003, Modifications by BonTerra Consulting 2004.

Listed Species and NCCP/HCP Planning Species

As discussed in more detail in the Methodology Section (4.9.2), certain Planning Species, including populations of listed species within the study area, were evaluated with respect to their long-term ecological value. The following definitions are used to describe these populations:

- *Major populations* are those considered sufficiently large to be self-sustaining with a minimum of active or intensive management intervention or that at least support enough breeding individuals to contribute reliably to the overall metapopulation stability of the species.

- *Important populations* may not meet the relative size standards of *major populations*, but may nonetheless be important to the species' long-term survival. For example, a smaller population in a key habitat linkage may be important for breeding success and exchange of genetic material and thus would be considered to be an *important population*, even though it would not be considered a *major population*.

- *Key locations* are those locations that are deemed necessary for the conservation of the species in the subregion.

Major populations, *important populations*, and *key locations* for all Planning Species are discussed in detail and illustrated according to their subregion distribution in the Draft NCCP/HCP Planning Guidelines (Appendix G-2). The *major populations*, *important populations*, and *key locations* of listed/Planning Species with a potential to be significantly impacted by the proposed project are illustrated on Exhibits 4.9-2 and 4.9-9. All other *major populations*, *important populations*, and *key locations* for Planning Species are illustrated within the Draft NCCP/HCP Planning Guidelines at the sub-regional level.

To understand the distribution of *major populations*, *important populations*, and *key locations*, data for several species that have multiple locations have been summarized in table form.

Riverside Fairy Shrimp (*Streptocephalus woottoni*)

Riverside fairy shrimp is a federally-listed Endangered species and a NCCP/HCP Planning Species. It is restricted to deep seasonal vernal pools, vernal pool-like ephemeral ponds, stock ponds and other human modified depressions (Eng *et al.* 1990; USFWS 1993, USFWS 2001). Riverside fairy shrimp prefer warm-water pools that have low to moderate dissolved solids, are less predictable, and remained filled for extended periods of time (Eriksen and Belk 1999). Basins that support Riverside fairy shrimp are typically dry a portion of the year, but usually are filled by late fall, winter or spring rains, and may persist through May (USFWS 2001). All known vernal pool habitat lies within annual grasslands, which may be interspersed through chaparral or coastal sage scrub vegetation. In the study area, the Riverside fairy shrimp is known from two pools located along Radio Tower Road south of Ortega Highway. This area is considered an *important population* in a *key location*.

On May 30, 2001, the USFWS published a final rule designating 6,878 acres of land as critical habitat for the Riverside fairy shrimp in Los Angeles, Orange, Riverside, San Diego, and Ventura counties, California (USFWS May 30, 2001). Following the designation of critical habitat, several lawsuits were filed challenging various aspects of the designation. On October 30, 2002, critical habitat for the Riverside fairy shrimp was vacated by court order. A revised designation is pending. A proposed critical habitat designation was published on April 27, 2004 (USFWS April 27, 2004).

The May 30, 2001 critical habitat designation included Unit 2 Los Angeles Basin-Orange Critical Habitat Unit, Location G. Location G was located on Chiquita Ridge over a vernal pool occupied by Riverside fairy shrimp. The mapped critical habitat around the vernal pool overlays with RMV property on Chiquita Ridge. However, it should be noted that this pool lies within open space protected by the Ladera Ranch Conservation Easement and is subject to special management actions contained in the Ladera Open Space Management Plan, thus protection and management of this pool contributes to recovery of the Riverside fairy shrimp in the Subregion.

The proposed designation includes units 2f and 2g over RMV lands, specifically the vernal pools located on Chiquita Ridge and Radio Tower Road. As noted above, the Chiquita Ridge pool is already protected. The Radio Tower Road pools are identified in the NCCP/HCP Planning Guidelines as a *key location.*

TABLE 4.9-5
RIVERSIDE FAIRY SHRIMP LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Pools
N/A	Radio Tower Road		X	X	2
Source: Dudek 2004					

San Diego Fairy Shrimp (*Branchinecta sandiogonensis*)

San Diego fairy shrimp is a federally-listed Endangered species and an NCCP/HCP Planning Species. It occurs in small, shallow vernal pools ranging in depth from two to 12 inches and in water temperatures from 50 to 58 degrees F. Water temperature and chemistry are important factors in the species' distribution. Adults are usually observed in January through March when pools hold water from winter rains, although the breeding season may be extended in association with early winter or mid-spring rains (USFWS 2000). The San Diego fairy shrimp occurs in one location in the study area in three pools located along Radio Tower Road south of Ortega Highway. This area is considered an *important population* in a *key location*.

TABLE 4.9-6
SAN DIEGO FAIRY SHRIMP LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Pools
N/A	Radio Tower Road		X	X	3
Source: Dudek 2004					

On October 23, 2000 USFWS published a final rule designating 4,025 acres of land as critical habitat for the San Diego fairy shrimp in Orange and San Diego counties, California (65 FR 63438). Following the designation of critical habitat, several lawsuits were filed challenging

various aspects of the designation. On June 11, 2002, the U.S. District Court for the Central District of California granted the USFWS's request for a remand of the San Diego fairy shrimp critical habitat designation so that the USFWS could reconsider the economic impact associated with designating any particular area as critical habitat. The Court ordered the USFWS to complete a new proposed rule on or before April 11, 2003. In a subsequent order, the Court held that the critical habitat designated for the San Diego fairy shrimp should remain in place until such time as a new final regulation becomes effective. The USFWS subsequently published a revised proposed critical habitat designation on April 22, 2003 covering the vernal pools on Chiquita Ridge and Radio Tower Road, however as of this date this proposed rule has not been finalized therefore the October 23, 2000 Final Rule remains in effect.

Unit 1 of the October 23, 2000 critical habitat designation currently in effect designated critical habitat over Fairview Park in Costa Mesa, California. No critical habitat was designated on RMV lands.

Arroyo Toad (*Bufo californicus*)

Arroyo toad is a federally-listed Endangered species, an NCCP/HCP Planning Species, and a California Species of Special Concern. It is found in foothill canyons and inter-mountain valleys where rivers are bordered by low hills and the stream gradients are low (Miller and Miller 1936; Sweet 1992). The arroyo toad uses riparian environments for breeding and adjacent uplands for foraging and aestivation. Arroyo toads are known to either breed, forage, and/or aestivate in aquatic habitats, riparian, coastal sage scrub, oak, and chaparral habitats. The species is restricted to medium- to large-sized, slow-moving streams. According to the USFWS, streams supporting arroyo toads range from first to sixth order in the central part of the species' range (Orange, Riverside, and San Diego counties) (USFWS 1999).

Arroyo toad occurs in four general areas as listed in

Table 4.9-7. Within the study area, the arroyo toad is associated with riparian streamcourses with sandy benches along streams in both the San Juan Creek and San Mateo Creek watersheds, specifically San Juan Creek from about the mouth of Chiquita Canyon upstream to the study area eastern boundary and beyond to about Hot Springs Creek and in lower Bell Canyon. This population in the study area is part of the San Juan Creek *major population*, of which approximately the northernmost 1,600 feet of San Juan Creek within the study area is also part of the *key location* in San Juan Creek that extends into Caspers Wilderness Park. In the San Mateo Creek Watershed, the toad occurs in Talega, lower Gabino, and lower Cristianitos creeks. The Talega Creek population is a *major population* in a *key location*, and the lower Gabino and lower Cristianitos populations are *important populations* in a *key location*.

On February 7, 2001 USFWS published a final rule designating 182,360 acres of land as critical habitat for the arroyo toad in Monterey, Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego counties, California (USFWS February 7, 2001). Following the designation of critical habitat, several lawsuits were filed challenging various aspects of the designation. In response to these lawsuits, the critical habitat designation was vacated and the USFWS was instructed by the court to re-evaluate its previous position. A new critical habitat designation was published on April 28, 2004 (USFWS April 28, 2004) covering portions of RMV lands along San Juan, Critianitos, and Talega Creeks.

TABLE 4.9-7
ARROYO TOAD LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Locations
1	San Juan Creek (Mouth of Chiquita Canyon upstream to eastern study area boundary)	X		X	N/A[1]
3	Talega Creek	X		X	N/A
4	Lower Gabino Creek		X	X	N/A
4	Lower Cristianitos Creek		X	X	N/A
Source: Dudek 2004					

All documented arroyo toad breeding sites are protected and associated streamcourse habitat areas identified as *key locations* are identified for protection by the Proposed Project (in the case of the Talega Creek population, approximately half of the creek is within the boundaries of MCB Camp Pendleton and thus is within the control of the United States Department of Defense). In conjunction with protection of San Juan Creek provided through County and Forest Service ownership upstream of RMV lands, all streamcourse movement areas between *important* and *major populations* would be protected.

Lateral setbacks from arroyo toad breeding areas determined to be *major* and *important populations* have been provided and have been identified on the basis of either 1) the 80-foot contour line standard used in the court-vacated arroyo toad critical habitat designation and analyses of soils types on slopes adjoining arroyo toad breeding habitat or 2) in the case of the Gobernadora (PA 3) and East Ortega (PA 4) planning areas, a 300-foot setback from the expansive San Juan Creek floodplain. The criteria included in the arroyo toad critical habitat designation have been used because the designation addressed the most recent studies of arroyo toad movement along streamcourses and lateral movement from streamcourses into adjacent alluvial terraces and foraging/estivation areas. This is discussed further in Section 4.9.5

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Southwestern willow flycatcher is a federally- and state-listed Endangered species and an NCCP/HCP Planning Species. It is restricted to riparian woodlands along streams and rivers with mature, dense stands of willows, cottonwoods (*Populus* spp.), or smaller spring fed or boggy areas with willows or alders (*Alnus* spp.) (Sedgwick and Knopf 1992). The southwestern willow flycatcher is known from the GERA in Cañada Gobernadora in the study area as listed in Table 4.9-8. As the only area with multiple nesting records, this area is considered an *important population* in a *key location*.

TABLE 4.9-8
SOUTHWESTERN WILLOW FLYCATCHER LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Locations
1	Lower Cañada Gobernadora		X	X	6 locations in GERA
Source: Dudek 2004					

On July 22, 1997, the USFWS published a final critical habitat for this species. Approximately 100 river miles in Kern, Riverside, San Bernardino, and San Diego counties were designated for the southwestern willow flycatcher. The study area is not located in the designated critical habitat area for this species.

California Gnatcatcher (*Polioptila californica*)

The California gnatcatcher is a federally-listed Threatened species, a California Species of Special Concern, and a NCCP/HCP Planning Species. The gnatcatcher typically occurs in or near coastal sage scrub, which is a broad category of vegetation that includes the following vegetation communities as classified by Holland (1986): Venturan coastal sage scrub, Diegan coastal sage scrub, maritime succulent scrub, Riversidean sage scrub, Riversidean alluvial fan sage scrub, southern coastal bluff scrub, and coastal sage-chaparral scrub.

There are 243 gnatcatcher locations in the study area as listed in Table 4.9-9. Gnatcatchers in the study area are concentrated in two locations, Chiquita Canyon and Cañada Gobernadora, and in more scattered locations in Cristianitos, Trampas, lower Galino, and Talega canyons. The study area supports the southern portion of the California gnatcatcher *major population* in a *key location* in Lower and Middle Chiquita Canyon and along Chiquadora Ridge. The study area portion of this *major population* includes 188 of 404 gnatcatcher locations in the population. The study area also supports all or most of two *important populations* in *key locations* south of San Juan Creek. The Trampas Canyon *important population* supports seven gnatcatcher locations and is in a *key location* for north-south habitat connectivity. The Upper Cristianitos Canyon *important population* in the study area includes 12 of 13 gnatcatcher locations, with one location in the Donna O'Neill Land Conservancy. This *important population* also is in a *key location* for north-south habitat connectivity. In the East San Juan Capistrano *important population*, only one of 28 locations are in the study area, with the remainder located west of RMV. Thirty-five locations occur in the study area that are not associated with either a *major* or *important population*.

TABLE 4.9-9
COASTAL CALIFORNIA GNATCATCHER LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Locations
1	Chiquita Canyon/Cañada Gobernadora (includes below)	X		X	188 (216 not on RMV)
1a	Lower and Middle Chiquita Canyon	X		X	See above
1b	Chiquadora Ridge	X		X	See above
11	Upper Cristianitos Canyon/ Donna O'Neill Land Conservancy		X	X	12 (1 not on RMV)
9	Trampas Canyon		X	X	7
8	East San Juan Capistrano		X		1 (27 not on RMV)
N/A	Scattered				35
				Total	**243**

Source: Dudek 2004

On April 24, 2003, the USFWS published a proposed rule to designate 495,795 acres of land as critical habitat for the coastal California gnatcatcher. Until the final rule is published, the previous critical habitat designation (USFWS 2000) is in effect. These lands encompass portions of Ventura, Los Angeles, San Bernardino, Orange, Riverside, and San Diego counties in California. The study area is located within areas designated as critical habitat of both the 2000 critical habitat and the 2003 proposed critical habitat, although the 2003 proposed critical habitat covers a reduced area.

Least Bell's Vireo (*Vireo bellii pusillus*)

Least Bell's vireo is federally- and state-listed Endangered species and a NCCP/HCP Planning Species. It occupies a more restricted nesting habitat than the other subspecies of Bell's vireo, as summarized in USFWS (1986). Least Bell's vireos primarily occupy riverine riparian habitats that typically feature dense cover within approximately three to six feet of the ground and a dense, stratified canopy. It inhabits low, dense riparian growth along water or along dry parts of intermittent streams. In the coastal portions of southern California, the least Bell's vireo occurs in willows and other low, dense valley foothill riparian habitat and lower portions of canyons and along the western edge of the deserts in desert riparian habitat.

In the study area, surveys have documented nesting locations in Gobernadora Creek, middle San Juan Creek (between the Ortega Highway bridge and Casper Wilderness Park), Chiquita Creek, and lower Cristianitos Creek (Table 4.9-10). The cluster of about 12 to 15 breeding locations, the GERA is an *important population* in a *key location*.

TABLE 4.9-10
LEAST BELL'S VIREO LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Locations
2	Gobernadora Creek/GERA		X	X	12-15
N/A	Middle San Juan Creek				6
N/A	Chiquita Creek				4
N/A	Lower Cristianitos Creek				5
				Total	**27-30**
Source: Dudek 2004					

On February 2, 1994, the USFWS published a final critical habitat for the least Bell's vireo, designating approximately 37,560 acres of land in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego counties, California (USFWS 1994). The study area is not located in the designated critical habitat area for this species.

Thread-leaved Brodiaea (*Brodiaea filifolia*)

Thread-leaved brodiaea is a federally-listed Threatened, a state-listed Endangered, a CNPS List 1B, and a NCCP/HCP Planning Species. This bulbiferous perennial herb occurs in San Diego, Riverside, Los Angeles, San Bernardino, and Orange counties. Thread-leaved brodiaea typically occurs on clay-silt soils in vernal pools, coastal scrub, and valley foothill grasslands from 130 to 4,000 feet above msl. Many of these populations are currently threatened by proposed development projects, although several large populations are found in reserves or managed open space areas.

In Orange County, populations are known from Aliso-Woods Canyon Regional Park (several thousand), RMV (approximately 9,314 flowering stalks), Forster Ranch (approximately 5,000 flowering stalks associated with a restoration/relocation program), Prima Deshecha Landfill, and the Talega Development where one small population will be preserved in open space and a second population is planned for transplantation.

The study area populations occur in six general areas on RMV. A *major population* in a *key location* comprised of one large population of about 2,000 flowering stalks and four much smaller populations numbering 73, seven, three, and two flowering stalks, respectively, is located on Chiquadora Ridge and south of the wastewater treatment plant in lower Chiquita Canyon. A second *major population* in a *key location* comprised of approximately 6,100 flowering stalks in six discrete mapped areas occurs on the hill outcrop associated with the clay mine pits in the southern portions of Cristianitos and Gabino canyons. About 13 scattered locations comprising an *important population* occur in the Cristianitos sub-basin, with populations ranging from about one to 120 flowering stalks and totaling 400 stalks. One location of 250 flowering stalks comprising an *important population* occurs in the eastern portion of the Trampas Canyon. Four locations comprising an *important population* occur in the Talega sub-basin on the mesa east of Northrup Grumman near the boundary with the Gabino and Blind canyons sub-basin. These populations include three locations totaling about 63 flowering

stalks[5] and one larger population with 225 flowering stalks. Finally, a single location considered an *important population* with 183 flowering stalks occurs in the northwestern portion of the Gabino and Blind canyons sub-basin.

TABLE 4.9-11
THREAD-LEAVED BRODIAEA LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Locations	Total Number of Flowering Stalks
4	Chiquadora Ridge, Lower Chiquita	X		X	Five locations: 2,000, 73, 7, 3, and 2 flowering stalks	2,085
2	Southern portion of Cristianitos and Gabino Canyons	X		X	Six locations: 2,000, 2,000, 1,500, 440, 150, and 18 stalks	6,108
1	Cristianitos		X		13 small locations: ranging from 1 to 120 stalks	400
N/A	Trampas Canyon		X		One location	250
3	Talega sub-basin, boundary Gabino and Blind Canyons		X		Four locations: 21 flowering stalks at each of the three locations[1], and 225 flowering stalks at the larger population	288
N/A	Gabino and Blind Canyons		X		One location	183
	Total		**X**		**30**	**9,314**
Source: Dudek 2004						

Listed Species and Non-NCCP/HCP Planning Species

Swainson's Hawk (*Buteo swainsoni*)

Swainson's hawk is a federal Species of Concern and a state-listed Threatened species. This raptor is a very rare migrant along the coast of southern California (Garrett and Dunn 1981). The Swainson's hawk formerly bred along the coast in southern California, but breeding is now mostly limited to the Sacramento and San Joaquin valleys, extreme northeast California, and Mono and Inyo counties (England *et al.* 1997). Typical breeding habitat consists of open areas such as grasslands and agricultural fields with scattered groves of trees. Prey consists of small mammals and reptiles in early summer and large insects at other seasons (Kaufman 1996). This species may occur within the study area to forage during migration to and from South America.

American Peregrine Falcon (*Falco peregrinus anatum*)

The peregrine falcon is a state-listed Endangered species, due to recent population gains, has been recently de-listed as Endangered by the USFWS. No such delisting has been proposed

[5] The population sizes for two of the three locations in the Talega sub-basin totaling 63 flowering stalks were estimated based on a count of 21 stalks at one of the locations. These locations has been assigned population counts of "1'" based on uncounted anecdotal observations made in 1994 during gnatcatcher surveys by Dudek. When the sites were re-surveyed in 2003 only one of the locations was found. Rather than disregard the other two sites, the same population value of 21 was assigned to the other two sites.

by the state. The peregrine falcon is also a CDFG Fully Protected species. Peregrine falcons prey almost exclusively on birds and use a variety of habitats, particularly wetlands and coastal areas. This species prefers to nest in cliffs or high structures. Potentially suitable foraging and nesting habitat for this species occurs in the study area; however, no nesting occurrences have been observed within RMV and it is unlikely to currently nest onsite.

Braunton's Milk-vetch (*Astragalus brauntonii*)

Braunton's milk-vetch is a federally-listed Endangered species and a CNPS List 1B species. This perennial herb occurs in the Simi Hills of eastern Ventura and western Los Angeles counties, the Santa Monica Mountains and southern slopes of the San Gabriel Mountains in Los Angeles County, and the northernmost Santa Ana Mountains in Orange County, just west of the Riverside County boundary (CDFG 2003). Braunton's milk-vetch generally occurs in chaparral and in northern Orange County is associated with Tecate cypress woodland.

Soils appear to be key to the distribution of this species as described by Skinner (1991):

> *Historically found in gravelly clay soils overlaying granite sandstone, usually 50 to 2,000 feet in elevation, we now find Astragalus brauntonii usually associated with carbonate soils derived from scattered limestone lenses. Soil specificity undoubtedly helps explain the limited distribution of this plant.*

The 1999 Recovery Plan for Braunton's milk-vetch states that this species is restricted to carbonate or calcareous soils (USFWS 1999). It is a "fire following" species with a lifespan of only a few years (Skinner 1991). Its seeds germinate following fire or physical disturbance that scarifies the seed coat. Although this species is readily identified where it occurs, presence or absence cannot be determined during most years due to its fire-following life history. In rare cases, botanists have reported negative survey results for Braunton's milk-vetch prior to disturbance, and later detected it along access roads subsequent to the surveys (with the bulldozer work providing for scarification of seeds leading to germination). The nearest known locations of Braunton's milk-vetch are in Coal Canyon, approximately 15 to 20 miles north of the project site. There are no records of this species in the database and this species has never been observed during numerous botanical surveys conducted on RMV lands. Suitable soils do not occur within RMV as there are no granite sandstones overlain by carbonate or calcareous soils on RMV (Jenks, 2004). Braunton's milk-vetch would not occur in the study area due to lack of suitable substrates.

Nevin's Barberry (*Berberis nevinii*)

Nevin's Barberry is a federally-listed Endangered, state-listed Endangered, CNPS List 1B species. This species is an evergreen shrub that occurs in mixed chaparral and oak woodlands from northwestern Los Angeles County to northern San Diego County. Its populations are widely scattered and localized, generally occurring in either coarse alluvium along margins of ephemeral channels, or coarse soils in chaparral or woodlands on steep north-facing slopes (Mistretta 1989). Although it ranges from 965 to 2,700 feet above msl, most occurrences are below 2,000 feet above msl in arid interior valleys, where desert shrubland species mix with cismontane chaparral shrubs. There are no records of this species in Orange County and this species was not observed during surveys. Therefore, Nevin's barberry is not expected to occur in the study area.

San Fernando Valley Spineflower (*Chorizanthe parryi* var. *fernandina*)

San Fernando Valley spineflower is a federal Candidate for listing as Threatened or Endangered, state-listed Endangered, and a CNPS List 1B species. This annual herb was historically known from the San Fernando Valley, Newhall, Castaic, and Elizabeth Lake areas in Los Angeles and Ventura counties (Boyd 1999), but was presumed extinct until it was rediscovered at Ahmanson Ranch in Ventura County (Boyd 2001). The spinflower was re-discovered on Newhall Ranch in 2000 and 2001 (URS 2002). This species is likely extirpated from Orange County. It occurs in sandy soils along drainages and in coastal scrub from 490 to 4,000 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, San Fernando Valley spineflower is not expected to occur in the study area.

Salt Marsh Bird's-beak (*Cordylanthus maritimus* spp. *maritimus*)

Salt marsh bird's-beak is a federally-listed Endangered, state-listed Endangered, and CNPS List 1B species. This annual herb occurs from San Luis Obispo County south to San Diego County and Baja California, Mexico. This species occurs in coastal dunes, coastal salt marshes, and swamps from sea level to 100 feet above msl. There are no records of this species in the database and it was not observed during surveys. Therefore, salt marsh bird's-beak is not expected to occur in the study area.

Slender-horned Spineflower (*Dodecahema leptoceras*)

Slender-horned spineflower is a federally-listed Endangered, state-listed Endangered, and CNPS List 1B species. This low-growing annual species occurs in Los Angeles, Riverside, and San Bernardino counties. About three-quarters of its historical locations have been extirpated by land use modifications including flood control structures, development, vehicle and recreational uses, and sand and gravel mining. This species typically occurs in mature alluvial fan sage scrub in sandy to gravelly soil between about 655 and 2,500 feet above msl. It is generally found in small isolated areas lacking any evidence of surface disturbance. There are no records of this species in the database and this species was not observed during surveys. Therefore, slender-horned spineflower is not expected to occur in the study area.

Santa Monica Mountains Dudleya (*Dudleya cymosa* ssp. *ovatifolia*)

Santa Monica Mountains dudleya is a federally-listed Threatened and CNPS List 1B species. This perennial herb is known from less than 10 occurrences in Los Angeles and Orange counties (CNPS 2003). This species is found in volcanic substrates in chaparral and coastal scrub from approximately 490 to 5,500 feet above msl. The Orange County occurrence is from the CNF in the Santiago Peak quadrangle. There are no records of this species in the database and this species was not observed during surveys. Therefore, Santa Monica Mountains dudleya is not expected to occur in the study area.

Laguna Beach Dudleya (*Dudleya stolonifera*)

Laguna Beach dudleya is a federally-listed Threatened, state-listed Threatened, and CNPS List 1B species. This perennial herb occurs only in Orange County. It typically occurs in associations with rocky soils in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland vegetation types from 30 to 855 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, this species is not expected to occur in the study area.

Spreading Navarretia (*Navarretia fossalis*)

Spreading navarretia is a federally-listed Threatened species and a CNPS List 1B species. This spreading annual herb occurs in Los Angeles, Riverside, and San Diego counties, and in Baja California, Mexico. It also historically occurred in San Luis Obispo County. It occurs in vernal pools and depressions from 100 to 4,265 feet above msl. There are no records of this species from Orange County and this species was not observed during surveys. Therefore, spreading navarretia is not expected to occur in the study area.

California Orcutt Grass (*Orcuttia californica*)

California Orcutt grass is a federally-listed Endangered, state-listed Endangered, and a CNPS List 1B species. This annual herb occurs in Ventura, Los Angeles, San Diego, and Riverside counties, and in Baja California, Mexico. It occurs in vernal pools from 50 to 2,165 feet above msl. There are no records of this species in Orange County and this species was not observed during surveys. Therefore, California Orcutt grass is not expected to occur in the study area.

Gambel's Water Cress (*Rorippa gambelii*)

Gambel's water cress is a federally-listed Endangered, state-listed Threatened, and CNPS List 1B species. This perennial herb occurs in San Luis Obispo and San Diego counties and in Baja California, Mexico. It historically occurred in Los Angeles, Orange, San Bernardino and possibly San Diego counties. This species occurs just above the water line in freshwater or brackish marshes and swamps, at the margin of lakes, or along streams from 15 to 1,085 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, Gambel's water cress is not expected to occur in the study area.

Crownbeard (*Verbesina dissita*)

Crownbeard is a federally- and state-listed Threatened, and CNPS List 1B species. This perennial herb is known to occur in Orange County and Baja California, Mexico. It occurs in maritime chaparral and coastal scrub from 145 to 675 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, crownbeard is not expected to occur in the study area.

Non-listed Wildlife Species and NCCP/HCP Planning Species

Amphibians

Western Spadefoot (*Scaphiopus hammondii*)

Western spadefoot is a federal Species of Concern, a California Species of Special Concern, and an NCCP/HCP Planning Species. This species occurs in the Great Valley and bordering foothills, in the Coast Ranges from Monterey Bay south to Baja California, Mexico (Stebbins 2003). From the Santa Clara River valley in Los Angeles and Ventura counties southward, an estimated 80 percent of habitat for this species has been lost (Stebbins 2003). This species inhabits grassland, coastal sage scrub, and other habitats with open sandy, gravelly soils. The western spadefoot is primarily a species of the lowlands, frequenting washes, floodplains of rivers, alluvial fans, and alkali flats (Stebbins 2003). The western spadefoot breeds in quiet streams, vernal pools, and temporary ponds. This species is rarely seen outside of the breeding season. For reproduction and successful metamorphosis, western spadefoot require rain-filled pools that hold standing water for more than three weeks (Feaver 1971; Brown 1966, 1967). Riparian habitats with suitable water resources also may be used for reproduction

(Holland and Goodman 1998). Breeding pools must lack fish, bullfrogs, and crayfish in order for western spadefoot to successfully reproduce and metamorphose (Jennings and Hayes 1994).

Five *important populations* in south Orange County include vernal pools on Chiquita Ridge in Ladera Open Space (outside the study area), vernal pools on Radio Tower Road, San Juan Creek from the RMV Headquarters to the confluence with Verdugo Canyon, a stock pond in upper Cristianitos Canyon, and Lower Gabino Canyon.

TABLE 4.9-12
WESTERN SPADEFOOT TOAD LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Locations
N/A	Vernal pools on Radio Tower Road		X		NA
N/A	San Juan Creek from the RMV Headquarters to the confluence with Verdugo Canyon		X		NA
N/A	A stock pond in upper Cristianitos Canyon		X		NA
N/A	Lower Gabino Canyon		X		NA
				Total	**NA**
Source: Dudek 2004					

Reptiles

Southwestern Pond Turtle (*Emys* [*Clemmys*] *marmorata pallida*)

Southwestern pond turtle is a federal Species of Concern, a California Species of Special Concern, and a NCCP/HCP Planning Species. This subspecies occurs from approximately the San Francisco Bay area south through the Coast Ranges to northern Baja California, Mexico (Stebbins 2003). The southwestern pond turtle is estimated to be in decline throughout 75 to 80 percent of its range (Stebbins 2003). The current range is similar to the historic range, but populations have become fragmented by agriculture and urban development. The southwestern pond turtle occurs primarily in freshwater rivers, streams, lakes, ponds, vernal pools, and seasonal wetlands requiring water depths in excess of six feet and basking sites such as logs, banks, or other suitable areas above water level. In addition to loss of habitat, this species is also threatened by grazing, non-native species, and disease (Jennings and Hayes 1994).

Known populations of southwestern pond turtle are located in San Juan Creek, in a stock pond and adjacent grassland habitat in upper Cristianitos Canyon, in grassland just west of Jerome's Lake in upper Gabino Canyon, and at a stock pond within the nursery north of Ortega Highway. Because the pond turtle is relatively rare in the planning area, all occupied sites except the location next to Colorspot Nursery are considered *important populations* in *key locations*.

Orange-throated Whiptail (*Cnemidophorus* [*Aspidoscelis*] *hyperythrus beldingi*)

Orange-throated whiptail is a California Species of Special Concern and a NCCP/HCP Planning Species. The two former subspecies of the orange-throated whiptail, (*C. c. hyperythrus* and *C. c. beldingi*) have recently been eliminated in current scientific literature, such as Stebbins (2003), based on current scientific studies on this species. This species occurs below 2,000 feet above msl in the western Peninsular Ranges from Orange and San Bernardino counties south to Baja California, Mexico (Stebbins 2003). Approximately 75 percent of the former range has been lost to development and remaining populations are highly fragmented (Stebbins 2003). The orange-throated whiptail occurs in washes, and in open areas of sage scrub and chaparral with gravelly soils, often with rocks. The orange-throated whiptail prefers the well-drained friable soil on slopes with a southern exposure that are barren or only sparsely covered with vegetation.

This species is known to occur throughout the study area within suitable habitat. The orange-throated whiptail occurrences are widely scattered, but there appears to be three clusters of occurrences that may be considered *important populations* in *key locations*.

TABLE 4.9-13
ORANGE THROATED WHIPTAIL LOCATIONS IN THE STUDY AREA

Draft NCCP/ HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Occurrences
N/A	Along the ridge between Chiquita Canyon and Wagon Wheel Canyon south of Oso Parkway		X	X	A cluster of 58
N/A	Along Chiquadora Ridge		X	X	A cluster of 22
N/A	Gobernadora/Central San Juan Creek sub-basins north and east of the Colorspot Nursery		X	X	A cluster of 35
				Total	**115**
Source: Dudek 2004					

San Diego Horned Lizard (*Phrynosoma coronatum blainvillii*)

San Diego horned lizard is a California Species of Special Concern and an NCCP/HCP Planning Species. The two former subspecies of the coast horned lizard, (*P. c. blainvillei* and *P. c. frontale*) have recently been eliminated in current scientific literature, such as Stebbins (2003), based on current scientific studies on this species. The coast horned lizard occurs throughout much of California, west of the desert and Cascade-Sierra highlands south to Baja California, Mexico (Stebbins 2003). However, many of the populations in lowland areas have been reduced or eliminated due to urbanization and agricultural expansion (Stebbins 2003). It is a small, spiny, somewhat rounded lizard that occurs in scrubland, grassland, coniferous forests, and broadleaf woodland vegetation types. The coast horned lizard prefers open areas for basking and loose, friable soil for burrowing (Stebbins 2003). Three factors have contributed to its decline: loss of habitat, over collecting, and the introduction of exotic ants. In some places, especially adjacent to urban areas, the introduced ants have displaced the native species upon which the lizard feeds (Hix 1990). In addition to loss of habitat, this species is

also threatened by fires, off-road vehicles, grazing, and pets, especially domestic cats (Jennings and Hayes 1994).

The San Diego horned lizard is known to occur in lower Arroyo Trabuco, the northern portion of the Upper Chiquita Canyon Conservation Area, the "Narrows" area of Chiquita Canyon, the ridgeline separating Chiquita Canyon and Wagon Wheel Canyon, the southern portion of Chiquita Ridge, Chiquadora Ridge south and southeast of the wastewater treatment plant, upper Cristianitos Canyon, the confluence of Cristianitos and Gabino creeks, La Paz Creek, upper Blind Canyon, and upper Gabino Canyon. This species is expected elsewhere throughout the study area within suitable habitat. Although there is wide scattering of San Diego horned lizard occurrences, there appear to be two clusters of occurrences that may be considered *important populations* in *key locations*:

TABLE 4.9-14
SAN DIEGO HORNED LIZARD LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Occurrences
N/A	Along the ridge between Chiquita Canyon and Wagon Wheel Canyon south of Oso Parkway		X	X	A cluster of 16
N/A	Upper Cristianitos and southern Trampas Canyon sub-basin located between Cristianitos Road and Cristianitos Creek		X	X	A cluster of 14
				Total	**30**
Source: Dudek 2004					

Birds

Cooper's Hawk (*Accipiter cooperii*)

Cooper's hawk is a California Species of Special Concern and a NCCP/HCP Planning Species. Both resident and migratory populations exist in Orange County. Wintering Cooper's hawks are often seen in wooded urban areas and native woodland vegetation types. Preferred nesting habitats are oak and riparian woodlands dominated by sycamores and willows. Cooper's hawks in the region prey on small birds and rodents that live in woodland, and occasionally scrub and chaparral vegetation types. The study area provides suitable foraging and nesting habitat.

Tricolored Blackbird (*Agelaius tricolor*)

Tricolored blackbird is a federal Species of Concern, a California Species of Special Concern, and an NCCP/HCP Planning Species. These colonially nesting birds prefer to breed in marsh vegetation of bulrushes and cattails and have also been recorded nesting in willows, blackberries, and mustard (Beedy *et al.* 1991). During winter months, they are often found foraging in wet pastures, agricultural fields, and seasonal wetlands. Tricolored blackbirds are nomadic, wandering during the nonbreeding season and occupying colony sites intermittently (Unitt 1984). Although southern Orange County does not support the large colonies reported elsewhere in western Riverside County and the Central Valley, breeding colonies of tricolored

blackbirds consistently have been observed in these various locations since about 1989: upper Chiquita Canyon above the "Narrows" and in lower Chiquita just below the "Narrows;" lower Cañada Gobernadora in both south Coto de Caza and in grasslands on RMV; and grasslands south of Ortega Highway. Other locations for the tricolored blackbird observed in the past include the "CalMat" colony along San Juan Creek east of the intersection of Cristianitos Road and Ortega Highway, the "Silica Products" colony in Trampas Canyon, and the "Riverside Cement" colony just north of Gabino Canyon, and east of lower Arroyo Trabuco Creek between Avery and Crown Valley parkways. This species may forage throughout the study area within suitable habitat. The breeding colonies in lower Gobernadora in ponds in south Coto de Caza have persisted over the past decade and are considered to support an *important population* in a *key location* for this species.

Grasshopper Sparrow (*Ammodramus savannarum*)

Grasshopper sparrow is an NCCP/HCP Planning Species and an uncommon and very local summer resident along the coastal slope of southern California (Garrett and Dunn 1981). This is an inconspicuous bird of grasslands, with an insect-like song, that is declining throughout North America due to loss of habitat and inhibition of fire (Vickery 1996). In the southwestern part of its breeding range, this sparrow prefers more lush areas with some shrub cover in arid grasslands (Vickery 1996). This secretive species is difficult to detect during the fall and winter seasons, but Garrett and Dunn (1981) suggest that it is overlooked during the winter season and is probably more regular than the small number of records indicate.

This species is known to occur throughout the study area within suitable habitat. The study area supports one *major population* and two *important populations* of the grasshopper sparrow that account for more than 90 percent of the locations in the subregion. Because these three populations account for more than 90 percent of the locations, all three are considered *key locations*.

TABLE 4.9-15
GRASSHOPPER SPARROW LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Locations
N/A	Middle and lower Chiquita Canyon (i.e., south of Oso Parkway), Chiquadora Ridge and Gobernadora	X		X	approximately 380
N/A	Grasslands in the Radio Tower Road area and extending south through the grasslands of Prima Deshecha to Avenida Pico	X		X	approximately150
N/A	The grasslands within Cristianitos Canyon and lower Gabino and Blind canyons		X	X	approximately 148
				Total	**approximately 678**

Source: Dudek 2004

Golden Eagle (*Aquila chrysaetos*)

Golden eagle is a California Species of Special Concern and Fully Protected species. This raptor is an uncommon year-round resident in southern California (Garrett and Dunn 1981). The golden eagle prefers open habitats such as grasslands, rangelands, and agricultural fields. It typically nests on rocky cliff ledges or trees, but also rarely on the ground (Kaufman 1996, Baicich and Harrison 1998). This large raptor preys primarily on small to medium-sized mammals, but will take on occasion larger mammals such as foxes and young deer (Kaufman 1996). Suitable foraging habitat for this species occurs within the study area; however, it is unlikely that this species nests within the study area.

Coastal Cactus Wren (*Campylorhynchus brunneicapillus*)

Coastal cactus wren is a California Species of Special Concern and an NCCP/HCP Planning Species. This wren is a very local resident along the coast of southern California from San Diego County north to Ventura County (Garrett and Dunn 1981). The coastal population of cactus wrens appears to be isolated from interior populations, with the exception of one population. Rea and Weaver (1990) proposed that the cactus wrens from San Diego and southern Orange counties (including the study area) form a distinct subspecies, the San Diego cactus wren (*C. b. sandiegensis*); however, the taxonomic status of cactus wrens in the southwestern US is still considered uncertain (Proudfoot *et al.* 2000).[6] The coastal cactus wren inhabits coastal sage scrub and alluvial sage scrub habitats that have sufficient amounts prickly pear cactus and/or cholla. This species is known to occur throughout the study area within suitable habitat. Within the context of the coastal populations of the cactus wren, the population in the NCCP/HCP planning area constitutes a *major population* comprising about 523 locations in the study area. Because of its widespread distribution in the study area, it was not appropriate to identify specific portions of the population as *key locations* in the subregion; however, these are outlined in the Draft NCCP/HCP Planning Guidelines.

Yellow Warbler (*Dendroica petechia*)

Yellow warbler is a California Species of Special Concern and an NCCP/HCP Planning Species. The yellow warbler (*D. p. brewsteri*) is the subspecies that breeds in southern California (Dunn and Garrett 1997); most yellow warblers are migrants. This subspecies occurs in coastal areas from northwestern Washington south to western Baja California, Mexico (Dunn and Garrett 1997). In southern California, yellow warblers breed locally in riparian woodlands but during migration they can forage in a variety of different habitat types. This species is threatened by loss of habitat and nest parasitism by brown-headed cowbirds (Remsen 1978).

This species is known to occur within Cristianitos Creek, San Juan Creek, Cañada Gobernadora, and Cañada Chiquita. Three *important population* areas for the yellow warbler occur in the study area.

[6] CDFG uses *C. b. sandiegonsis* for designation as Species of Special Concern and lists only the San Diego and Orange County populations.

TABLE 4.9-16
YELLOW WARBLER LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Locations
N/A	GERA		X		supports at least five locations, with a sixth just south of the dirt road below GERA in lower Gobernadora Creek
N/A	Central San Juan Creek near the confluence with Chiquita Creek		X		2
N/A	Central San Juan Creek downstream of the confluence with Bell Creek		X		4
				Total	**approximately 12**
Source: Dudek 2004					

White-tailed Kite (*Elanus leucurus*)

White-tailed kite is a federal Species of Concern, a California Fully Protected species, and an NCCP/HCP Planning Species. This species is an uncommon to locally fairly common resident in coastal southern California, and a rare visitor and local nester on the western edge of the deserts (Garrett and Dunn 1981). Kites nest primarily in oaks, willows, and sycamores, and forage in grassland and scrub vegetation types. White-tailed kites show strong site fidelity to nest groves and trees. Suitable foraging and nesting habitat for this species is present in the study area. This species is known to occur within San Juan Creek, Cañada Gobernadora, Gabino Canyon, and the Donna O'Neill Land Conservancy and is expected to forage throughout RMV.

Merlin (*Falco columbarius*)

Merlin is a California Species of Special Concern and an NCCP/HCP Planning Species. In California, the merlin prefers vast open space areas such as estuaries, grasslands, and deserts where it hunts primarily on small birds (Kaufman 1996). In Orange County, merlins are uncommon winter migrants. This species has declined sharply throughout its range, and thus as a winter visitor in California (Remsen 1978), due to pesticides; however that threat has presumably been removed. The legal practice of falconry likely continues to be a threat. The study area provides suitable foraging habitat for this species, but the merlin does not breed in the project region. The merlin is known to occur for foraging in the study area, but is not expected for nesting in the study area. Chiquita Canyon is considered a *key foraging location* for the merlin in the subregion.

Yellow-breasted Chat (*Icteria virens*)

Yellow-breasted chat is a California Species of Special Concern and an NCCP/HCP Planning Species. This species occurs as an uncommon and local summer resident in southern California along the coast and in the deserts (Garrett and Dunn 1981). This large warbler was once a fairly common summer resident in riparian woodlands throughout California, but is now much reduced in numbers, especially in southern California (Remsen 1978). For nesting, this species requires dense, brushy tangles near water and riparian woodlands supporting a thick

understory. This species is threatened by loss of habitat and possibly nest parasitism by the brown-headed cowbird (Remsen 1978).

Yellow-breasted chats have been observed within Cañada Chiquita, Cañada Gobernadora, San Juan Creek, Cristianitos Creek, Blind Canyon, and Gabino Canyon. Four *important population* areas for the yellow-breasted chat occur in the planning area.

TABLE 4.9-17
YELLOW-BREASTED CHAT LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Documented Nesting Sites
N/A	GERA		X		approximately 20
N/A	Central San Juan Creek from the confluence with Chiquita Creek downstream to the Ortega Highway bridge		X		approximately 9
N/A	Central San Juan Creek south of the confluence of Bell Creek		X		approximately 17
N/A	Lower Cristianitos between the confluences of Gabino and Talega creeks		X		approximately 11
				Total	**approximately 57**
Source: Dudek 2004					

Non-listed Wildlife and Non-NCCP/HCP Planning Species

Invertebrates

Harbison's Dun Skipper (*Euphyes vestris harbisoni*)

Harbison's dun skipper is not formally listed by the resource agencies but is considered a species of local concern. This is an uncommon and highly localized butterfly in southern California that typically occurs near wet areas such as a seep or spring (Emmel and Emmel 1973). Harbison's dun skipper is known from scattered locations in San Diego County and from one location, Silverado Canyon, in Orange County (Emmel and Emmel 1973, Orsak 1977). The larval food plant consist of San Diego sedge (*Carey spissa*), although this has not been documented for the southern California populations of the species (Orsak 1977). In Orange County, the flight period is believed to be from May into July and consists of only one brood (Orsak 1977). Although this species has not been observed within the study area, it potentially occurs within the study area due to the presence of *Carex spissa* which may support this species.

Fish

Partially Armored Threespine Stickleback (*Gasterosteus aculeatus microcephalus*)

Partially armored threespine stickleback is a native fish species of local concern that is fairly common north of Point Conception, but populations appear to be rapidly declining in the southern portions of the state. This species occurs in weedy permanent pools or backwaters, and in slow-moving water along the margins of the stream. It primarily occurs in cool and clear water with mud or sand substrates. Stephenson and Calcarone (1999) documents that recent records south of the Los Angeles Basin occur in the Santa Ana Mountains in Trabuco Creek around O'Neill Park, upper San Juan Creek near its confluence with Hot Spring and Cold Spring Canyons, and near the headwaters of Bell Canyon on Starr Ranch. Historically, native populations of this species have been documented in San Mateo Creek, the Santa Margarita River, and the San Luis Rey River. This species has also been widely introduced into streams throughout the state in association with trout plants, including portions of Pine Creek and the Sweetwater River in the Cleveland National Forest (Stephenson and Calcarone, 1999). This species is known to occur within the study area in San Juan Creek.

Arroyo Chub (*Gila orcutti*)

Arroyo chub is a federal Species of Concern and a California Species of Special Concern. This fish feeds on algae and prefers warm water temperatures and pool habitats with sand and mud bottoms. The chub is adapted to survive in widely fluctuating water temperatures and dissolved oxygen levels. The arroyo chub is now common at only three of its native locations: Santa Margarita and De Luz creeks in San Diego County; Trabuco and San Juan creeks in Orange County; and Malibu Creek in Los Angeles County (Swift *et al.* 1993). The chub has also been introduced into several rivers and streams in southern California. This species is known to occur within San Juan Creek and lower Cañada Gobernadora within the study area.

Amphibians

Arboreal Salamander *(Aneides lugubris)*

Although the arboreal salamander is not considered sensitive by state or federal resource agencies; it is considered locally uncommon in southern California. This species of local concern uses dead trees and rocks for cover within woodland communities. It occurs from sea level to approximately 5,000 feet above msl (Stebbins 2003). Arboreal salamanders have been observed within the study area and are expected to occur within suitable habitat throughout RMV.

Western Newt (*Taricha torosa torosa*)

Western newt is a California Species of Special Concern. This newt occurs in the mountain ranges along the coast of California from Mendocino County south to San Diego County (Stebbins 2003, Zeiner *et al.* 1988). It occurs in terrestrial habitats including grasslands, chaparral, coastal sage scrub, and woodlands but requires aquatic habitats such as ponds, reservoirs, and slow-moving streams for breeding (Zeiner *et al.* 1988, Jennings and Hayes 1994). This is a conspicuous salamander that can be active during the day in addition to night. Its skin secretions make it toxic to many potential predators. Although not observed within the study area, this species may be present within suitable habitat types.

Reptiles

Silvery Legless Lizard (*Anniella pulchra pulchra)*

Silvery legless lizard is a federal Species of Concern and a California Species of Special Concern. The silvery legless lizard occurs in the Coast, Transverse, and Peninsular ranges from Contra Costa County south to Baja California, Mexico (Stebbins 2003). It is a small, secretive lizard that spends most of its life beneath the soil, under stones, logs, debris, or in leaf litter. The silvery legless lizard requires areas with loose, sandy soil, moisture, warmth and plant cover. It occurs in chaparral, pine-oak woodland, beach, and riparian vegetation types at elevations ranging from sea level to about 5,100 feet above msl (Stebbins 2003). This species is naturally rare since it specializes in substrates with a high sand content, but is also threatened by grazing, off-road vehicle activity, sand mining, beach erosion, excessive recreational use of coastal dunes, and the introduction of exotic plants (Jennings and Hayes 1994). This species is expected to occur within the study area within suitable habitat specially along San Juan Creek (Science Advisors 1997).

Coastal (California) Glossy Snake (*Arizona elegans occidentalis*)

Coastal glossy snake has no official status by state or federal resource agencies; however, it is considered locally uncommon in southwestern California. This species of local concern inhabits open, sandy, or rocky areas within scrub, grassland, chaparral, and woodland communities. Coastal glossy snakes have been recorded from the upland areas adjacent to San Juan Creek within the study area. This species is expected to occur elsewhere within the study area in suitable habitat.

Rosy Boa (*Charina trivirgata*)

Rosy boa is a federal Species of Concern. The rosy boa is a rather secretive snake that is found from the deserts to the coast, but it is generally uncommon throughout its southern California range. The coastal subspecies (*C. t. roseofusca*) occurs in the San Gabriel, San Bernardino, and Peninsular ranges from Los Angeles County south to Baja California, Mexico (Stebbins 2003). The rosy boa typically inhabits rocky, chaparral covered slopes and canyons up to about 6,790 feet above msl. Population declines in this subspecies are attributable to habitat loss (Fisher and Case 1997) and over-collecting because of its significant value in the pet trade (Stephenson and Calcarone 1999). The rosy boa is also vulnerable to habitat fragmentation by asphalt roads because this species often lays on roads at night for heat (Fisher 2000). The rosy boa is now quite rare in much of its historic range. Although not observed within the study area, this species is expected to occur within RMV in areas supporting suitable habitat.

Coastal Western Whiptail (*Cnemidophorus* [*Aspidoscelis*] *tigris multiscutatus*)

Coastal western whiptail is not formally designated as sensitive by the resource agencies. The subspecies occurs from Ventura County south to Baja California, Mexico (Stebbins 2003). It is a moderately large, slender lizard typically found in open scrub, chaparral, and woodland vegetation types in semi-arid areas or where vegetation is sparse. It occurs in areas where the ground is firm soil, sandy, or rocky (Stebbins 2003). This species is threatened by loss of habitat and possibly road-kills (Fisher 2000). This species is known to occur throughout the study area within suitable habitat.

San Diego Banded Gecko (*Coleonyx variegatus abbotti*)

The San Diego banded gecko has no official status by state or federal resource agencies; however, it is considered locally uncommon in southwestern California. It is a small, nocturnal lizard with soft skin and granular scales. The San Diego banded gecko ranges along the coast of southern California from Los Angeles County south to mid-Baja California, Mexico (Dixon 1970) from sea level to approximately 5,000 feet above msl (Stebbins 2003). This species prefers chaparral, coastal sage scrub, desert scrub, and areas with granite outcrops. Although this species is not known to occur within the study area, it may be present within suitable habitat.

Northern Red-diamond Rattlesnake (*Crotalus ruber ruber*)

Northern red-diamond rattlesnake is a California Species of Special Concern. This species ranges from approximately Orange and San Bernardino counties south to Baja California, Mexico from sea level to about 5,000 feet above msl (Stebbins 2003). It inhabits open scrub, chaparral, woodland, and grassland vegetation types. This species is threatened by development and human disturbance (Jennings and Hayes 1994). This species is known to occur throughout the study area within suitable habitat.

San Diego Ringneck Snake (*Diadophis punctatus similis*)

San Diego ringneck snake is not formally designated as sensitive by the resource agencies. The most recent scientific literature, Stebbins (2003), has eliminated subspecies designations, including southern California subspecies *D. p. modestus* and *D.p. simils*. The ringneck snake is widespread in California west of the Sierra-Cascade crest, absent only from the Central Valley and the deserts. It occurs at elevations from sea level to 7,200 feet above msl (Stebbins 2003). The ringneck snake inhabits scrub, chaparral, grassland, and woodland vegetation types. This species is difficult to detect due to its secretive behavior. This species is threatened by loss of habitat. This species is known to occur throughout the study area within suitable habitat.

Coronado Island Skink (*Eumeces skiltonianus interparietalis*)

Coronado Island skink is a California Species of Special Concern. It is one of four subspecies of the western skink and inhabits open, rocky habitats within scrub, chaparral, and grassland vegetation types. There are differing accounts for the range of this subspecies. Stebbins (1985) includes lower southern California, approximately from Orange County south along the coast into northern Baja California, Mexico, in this subspecies range. Tanner (1988) states that the Coronado Island skink is restricted to the mountains of extreme southern San Diego County and northern Baja California, Mexico, with small populations on Coronado Island and Todos Santos Island. However, Tanner's range map for the species includes Orange County within the area of intergradation between the Coronado Island skink and Skilton skink (*Eumeces skiltonianus skiltonianus*). Stebbins (2003) shows that the Coronado Island skink has been combined with Skilton's skink. The Coronado Island skink has been observed within the study area.

San Diego Mountain Kingsnake (*Lampropeltis zonata*)

The San Diego population of the San Diego mountain kingsnake is a California Species of Special Concern. This species is known to occur within coniferous forest, oak-pine and riparian woodlands, chaparral, and scrub. This species appears to prefer rocky areas, but also is found beneath logs and under bark. Although not observed within the study area, this species may still occur within the study area.

Coast Patch-nosed Snake (*Salvadora hexalepis virgultea*)

Coast patch-nosed snake is a California Species of Special Concern. The coast patch-nosed snake ranges along the coast of California from San Luis Obispo County south into Baja California, Mexico. It occurs from sea level to about 7,000 feet above msl (Stebbins 2003). It inhabits open sandy areas and rocky outcrops in scrub, chaparral, grassland, and woodland vegetation types. This species is threatened by development, grazing, and fire control (Jennings and Hayes 1994). Although only observed at one location with the study area in upper Cristianitos Canyon, this species is expected to occur throughout the study area within suitable habitat.

South Coast Garter Snake (*Thamnophis sirtalis* ssp.)

South Coast garter snake is a California Species of Special Concern. This snake occurs in southwestern California from the Santa Clara River Valley, Ventura County, to the San Pasqual in San Diego County (Jennings and Hayes 1994). Although poorly known, habitat for the South Coast garter snake appears to be marsh and upland habitats near permanent water sources with riparian vegetation (Jennings and Hayes 1994). Although not observed within the study area, this species may be present within suitable habitat.

Two-striped Garter Snake (*Thamnophis hammondii*)

Two-striped garter snake is a California Species of Special Concern. It is considered locally rare in southwestern California. It occurs primarily in wetlands and is found in freshwater marsh and riparian habitats with perennial water. Two-striped garter snake feeds on small fishes, frogs, and tadpoles. This species is known to occur in Gabino Canyon, San Juan Creek, Talega Canyon, Donna O'Neill Land Conservancy, Cañada Gobernadora, and Trampas Canyon. It may occur elsewhere throughout the study area within suitable habitat.

Birds

Sharp-shinned Hawk (*Accipiter striatus*)

Sharp-shinned hawk is a California Species of Special Concern. It is a relatively uncommon species throughout Orange County that prefers oak and riparian woodland vegetation types, but can also be found in virtually any habitat as it passes through the area during migration. Some individuals probably winter in the County. The primary breeding range for this species is high elevation forests in the western United States and boreal forests in Cañada and Alaska. This species is threatened by cumulative disturbances near nesting areas and stand-replacing fires (Stephenson and Calcarone 1999). Suitable foraging habitat for this species occurs in the study area, but no nesting habitat as this species breeds only sparingly in the mountains in southern California. This species has been observed and is expected throughout the study area.

Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)

Southern California rufous-crowned sparrow is a California Species of Special Concern. In coastal southern California, rufous-crowned sparrows are considered fairly common in scrub vegetation types and other habitats vegetated with grasses and widely-spaced low shrubs. They also prefer slopes with rock outcroppings. This subspecies is present throughout the year in southern California. This species is known to occur throughout the study area within suitable habitat.

Bell's Sage Sparrow (*Amphispiza belli belli*)

Bell's sage sparrow is a federal Species of Concern and a California Species of Special Concern. This coastal subspecies *A. b. bellii* is an uncommon to fairly common local resident in the interior foothills of coastal southern California. The Bell's sage sparrow breeds in low, dense chamise chaparral and in dry scrub vegetation types, often with stands of cactus (Garrett and Dunn 1981). This species is threatened by loss of habitat due to development and likely nest parasitism by the brown-headed cowbird (*Molothrus ater*) (Ehrlich *et al.* 1988). Although not observed within the study area, this species may occur throughout the study area within suitable habitat.

Short-eared Owl (*Asio flammeus)*

Short-eared owl is a California Species of Special Concern. This owl is an uncommon and local winter resident to coastal habitats of southern California (Garrett and Dunn 1981). This species is considered to be a rare fall transient and winter resident to areas with extensive grassland and marsh habitats, and less in agricultural habitats (Lehman 1994). This owl hunts diurnally and nocturnally in open habitats such as marshes, grassland, and tundra (Holt and Leasure 1993). Suitable habitat for this species occurs in the study area.

Long-eared Owl (*Asio otus*)

Long-eared owl is a California Species of Special Concern. This species is an uncommon resident in the deserts, and is quite rare coastally (Garrett and Dunn 1981). In southern California, this species nests in oak and willow woodlands and forages in scrub and grassland vegetation types. Long-eared owls have declined throughout California due to urban and agricultural development and appears to be sensitive to human presence near nest sites (Bloom 1999). This species nests and forages within suitable habitat in the study area.

Burrowing Owl (*Athene cunicularia*)

Burrowing owl is a federal Species of Concern and a California Species of Special Concern. The burrowing owl was recently proposed as a state Candidate for listing; however, listing was denied because the burrowing owl is more common in other portions of the state. This owl was once considered to be a common to locally abundant resident in California, but was already declining by the 1940s (Grinnell and Miller 1944). It is now a scarce year-round resident along the coast of southern California with some influx of birds from the north during the winter (Garrett and Dunn 1981). In southern California, burrowing owls breed and forage in grasslands and prefer flat to low rolling hills in treeless terrain. They are small owls that nest in burrows, typically in open habitats most often along banks and roadsides. This ground dwelling owl is active day and night and hunts over grasslands and other open habitats (Haug *et al.* 1993). This species is not believed to nest within the study area; however, it is known to occur in the region during the winter.

American Bittern (*Botarus lentiginosus*)

American bittern is a federal Species of Concern. This species is an uncommon winter visitor to the coast of southern California (Garrett and Dunn 1981). In Orange County, this species is an uncommon winter visitor to San Joaquin Marsh, Upper Newport Bay, and Seal Beach Naval Weapons Reserve, but is rare elsewhere (Hamilton and Willick 1996). This species is typically found in marsh habitats supporting dense cattails and rushes and, as a result, can be difficult to detect. This species has been observed within Cañada Chiquita and the freshwater marsh within Cañada Gobernadora provides suitable habitat for this species.

Ferruginous Hawk (*Buteo regalis*)

Ferruginous hawk is a federal Species of Concern and a California Species of Special Concern. This raptor only occurs as a winter resident in California (Bechard and Schmutz 1995). Along the coast of southern California, it is rare to uncommon during the winter season (Garrett and Dunn 1981). The ferruginous hawk occupies open, dry habitats such as grasslands, shrublands, rangelands, and, in winter, plowed agricultural fields. This relatively large raptor preys primarily on small to medium-sized mammals (Kaufman 1996). This species is known to occur within the study area during winter as a visitor for foraging; however, it does not nest in the region.

Red-shouldered Hawk (*Buteo lineatus*)

Red-shouldered hawk is not considered a special status species by the resource agencies. This raptor is a fairly common year-round resident in southern California west of the deserts (Garrett and Dunn 1981). In Orange County, it is a common year-round resident of oak and sycamore woodlands in the lowlands and foothills (Hamilton and Willick 1996). This species is known to nest throughout the study area within suitable habitat.

Costa's Hummingbird (*Calypte costae*)

Costa's hummingbird is a federal Species of Concern. This species is common in summer in southern California. It occurs in desert wash, edges of desert riparian and valley foothill riparian, coastal scrub, desert scrub, desert succulent shrub, lower-elevation chaparral, and palm oasis. This species in known to occur within the study area.

Lawrence's Goldfinch (*Carduelis lawrencei*)

Lawrence's goldfinch is a federal Species of Concern. This species is a late nester, waiting until plants and weeds have grown, bloomed, and gone to seed so the soft fresh seeds can be fed to the young. It breeds in central and southern California, west of Sierra Nevada and south into Baja California. Winters south and east to extreme western Texas. After breeding, they feed in flocks within suitable habitat, typically weed patches, chaparral, and open woodlands. This species in known to occur within the study area.

Lark Sparrow (*Chondestes grammacus*)

Lark sparrow is a federal Species of Concern. This species nests over much of western North America. They winter from central Texas through central Mexico. Wintering concentrations in the U.S. are north-central CA, south-central AZ, south-central TX, and the northern Great Basin. Grassland, prairie, savannah, cultivated areas, and fields with scattered trees and shrubs provide suitable habitat for this species. This species is known to occur within the study area in suitable habitat.

Northern Harrier (*Circus cyaneus*)

Northern harrier is a California Species of Special Concern. It is a regular winter migrant in marshes and fields throughout southern California, but is very scarce as a local breeder (Garrett and Dunn 1981). Breeding habitat includes prairie, savannah, slough, wet meadow, and marsh vegetation types. Northern harrier can be expected at any month of the year and can be seen foraging in grassland, scrub, and riparian vegetation types. While once a relatively common species during fall, winter, and spring in undeveloped areas of Orange County, the northern harrier population is now greatly reduced and localized in distribution. This species is

threatened by loss of habitat, pesticides (Ehrlich *et al.* 1988), and loss of suitable breeding habitat (Grinnell and Miller 1944). This species is known and expected to occur in the study area to forage and potentially occurs in the study area for nesting.

Pacific Slope Flycatcher (*Empidonax difficilis*)

The Pacific slope flycatcher is not listed a sensitive by the resource agencies. It prefers moist deciduous woodlands or slopes with chaparral and tall trees. It nests in tree cavities and utilizes snags as well as dead branches of live trees. The Pacific slope flycatcher mainly eats flying insects, though it will occasionally eat berries and seeds. This species is known to occur within the study area in suitable habitat.

California Horned Lark (*Eremophila alpestris actia*)

California horned lark is a California Species of Special Concern. This species is found along the coast of northern California, in the San Joaquin Valley, in the Coast Ranges south of San Francisco Bay, and in southern California west of the deserts. In southern California, this subspecies is a fairly common breeding resident in grasslands and other dry, open habitats. This species is known to occur throughout the study area within suitable habitat.

Prairie Falcon (*Falco mexicanus*)

Prairie falcon is a California Species of Special Concern. This raptor is an uncommon year-round resident in the interior of southern California (Garrett and Dunn 1981). The prairie falcon is an increasingly scarce winter resident and very rare summer resident along the coast of Southern California (Unitt 1984, Lehman 1994, Hamilton and Willick 1996). This falcon prefers dry open habitats such as grasslands, rangelands, and agricultural fields. This medium-sized raptor preys primarily on small birds and mammals (Kaufman 1996). Because of wintering and nesting habitat loss, few areas remain in Orange County where prairie falcons can be consistently observed; no nest sites have been documented in the county in over 50 years. Preferred foraging habitat in Orange County includes grasslands, scrub vegetation types, and estuaries. This species is known to forage in the study area as a winter visitor, but it is not expected to nest in the study area.

Least Bittern (*Ixobrychus exilis*)

Least bittern is a California Species of Special Concern. This species is a common summer visitor at the Salton Sea in eastern Riverside and Imperial counties, but rare to coastal southern California (Garrett and Dunn 1981). Away from the marshes at the Salton Sea and the lower Colorado River, this species is a very local breeder that is rare to uncommon and declining (Small 1994). The least bittern breeds in freshwater and brackish marshes with dense, tall growths of aquatic or semi-aquatic vegetation interspersed with clumps of woody vegetation and open water (Gibbs *et al.* 1992). This species has been observed within the study area. Cañada Gobernadora may provide suitable habitat for this species.

Loggerhead Shrike (*Lanius ludovicianus*)

Loggerhead shrike is a federal Species of Concern and a California Species of Special Concern. It was considered to be a fairly common year-round resident in southern California (Garrett and Dunn 1981), but has recently shown declines in its California population (Small 1994; Hamilton and Willick 1996). This species inhabits grasslands and other open habitats (Yosef 1996). They can often be found perched on fences and posts from which prey items (large insects, lizards, and even small birds and mammals) can be seen hanging from a sharp

object such as a barb-wired fence. This species is known to occur infrequently within the study area. Resident, migrant, and wintering populations of loggerhead shrikes are expected on RMV.

California Gull (*Larus californicus*)

The California gull is a California Species of Special Concern. This species is occurs gull at inland rivers, reservoirs, and natural lakes; coastal beaches, rocky shores, mudflats, and estuaries during winter migration. The landfills and open water bodies in the project region may provide habitat for this species. This species may occur as an infrequent winter visitor.

Osprey (*Pandion haliaetus*)

Osprey is a California Species of Special Concern. This species is a rare to uncommon non-breeding visitor to southern California that formerly nested on some of the Channel Islands off of southern California (Garrett and Dunn 1981). In Orange County, it is a rare but regular visitor to the coast and interior lakes and rivers (Hamilton and Willick 1996). There is an historic nesting for this large raptor in Orange County and a few recent nesting attempts, but none have been successful (Gallagher 1993). This species is known to occur along San Juan Creek and in the vicinity of the open water areas of the silica mining operation south of Ortega Highway.

American White Pelican (*Pelecanus erythrorhynchos*)

Although the American white pelican was removed as a federally-listed Threatened species in 1987, it is a California Species of Special Concern. This species is typically found on large, open bodies of water, especially freshwater marsh and large, shallow lakes. The American white pelican is a non-breeding visitor to Orange County. This species may occur as an infrequent fall/winter visitor.

Double-crested Cormorant (*Phalacrocorx auritus*)

Double-crested cormorant is a California Species of Special Concern. This species is common in winter along the coast of southern California, but is generally scarce inland (Garrett and Dunn 1981). There are very few breeding locations in California, with the Channel Islands, Farallon Island, and the northwest California coastline supporting the majority of breeding birds (Small 1994). This species is dependent on aquatic habitats for foraging opportunities where it dives for its food. It nests colonially either in trees, on cliffs, or on the ground on islands where predators are absent (Hatch and Weseloh 1999). This species is know to occur within the study area and is potentially present at the open water areas along San Juan Creek and the silica mine south of Ortega Highway.

Summer Tanager (*Piranga rubrai*)

Summer tanager is a California Species of Special Concern. This species is an uncommon breeder along the Colorado River and locally elsewhere in the deserts of southern California (Garrett and Dunn 1981). In Orange County, it is a rare migrant or winter visitor that is found most often during fall migration (Hamilton and Willick 1996). For breeding, it occurs in cottonwoods and willows, especially older, dense stands along rivers and streams. This species may occur within the study area as a rare migrant.

White-faced Ibis (*Plegadis chihi*)

White-faced ibis is a federal Species of Concern and a California Species of Special Concern. This species was formerly a locally common breeder in coastal southern California, but currently is a rare to uncommon visitor that rarely nests in this area (Garrett and Dunn 1981). This species was formerly considered to be a locally common breeder throughout California, but by the 1970s, it was not known to nest anywhere in California on a regular basis (Remsen 1978). This species is still a rare breeder throughout much of its California range, but has recently been increasing in the Central Valley (Small 1994). This species is a long-legged wading bird that is primarily found in freshwater marshes, but will forage in other habitats such as meadows, agricultural fields, and saltwater marsh (Ryder and Manry 1994). This species is expected to occur within the study area in suitable habitat as a rare visitor.

Purple Martin (*Progne subis*)

Purple martin is a California Species of Special Concern. This species is a rare and very local breeder in southern California (Garrett and Dunn 1981). This species formerly nested in Orange County such as at O'Neill Regional Park (Gallagher 1993, Hamilton and Willick 1996). Currently it is considered to be a rare migrant in Orange County (Hamilton and Willick 1996). This large swallow requires cavities in old sycamores or other tall trees for nesting. This species may occur within the study area as a rare migrant.

Allen's Hummingbird (*Selasphorus sasin*)

Allen's hummingbird is a federal Species of Concern. This species is a common summer resident and migrant along the California coast. In the region, Allen's hummingbird breeds primarily in riparian and urban habitats. Migrants occur in a variety of woodland and scrub habitats. This species in known to occur within the study area.

Red-breasted Sapsucker (*Sphyrapicus ruber*)

Red-breasted sapsucker is a federal Species of Concern. This species is an uncommon to locally fairly common winter visitor within the area. The red-breasted sapsucker breeds in coniferous forests and woodlands, in areas with a mix of deciduous trees, where they feed on extruded sap and entangled insects. This species is expected to occur within the study area.

California Thrasher (*Toxostoma redivivum*)

California thrasher is a federal Species of Concern. This endemic to coastal and foothill areas of California, occurs within coastal sage scrub and chaparral vegetation (Cody 1998). This species is a striking and conspicuous bird, with a long and dramatically decurved bill. The California thrashers feed primarily on fruits from late summer to winter. This species is known to occur within the study area in suitable habitat.

Bewick's Wren (*Thyromanes bewickii*)

The Bewick's wren is not considered sensitive by the resource agencies. This species ranges over much of the central and southern United States. It breeds from Canada south to Mexico and Gulf states, and winters south to the Gulf Coast. The Bewick's wren may be found in a variety of habitats including thickets, open woodlands and farmlands, brushy areas, fencerows, suburbs, stream edges, cactus and mesquite scrub, chaparral, gardens, and orchards. This species is known to occur within the study area in suitable habitat.

Barn Owl (*Tyto alba*)

Barn owl is not considered sensitive by the resource agencies. This species has nearly world-wide distribution, only absent from high latitudes. The barn owl is particularly numerous in California and the Southwest. This species nests in natural trees cavities and buildings, but also cavities in cliffs and cut banks, stacked hay bales, and in palm trees. This species is known to occur within the study area in suitable habitat.

Mammals

Pallid Bat (*Antrozus pallidus*)

Pallid bat is a California Species of Special Concern. This species occurs throughout California except for the high Sierra Nevada from Shasta to Kern counties and in the northwestern portion of the state (Zeiner *et al.* 1990). It most commonly occurs in mixed oak and grassland habitats. The foraging behavior of this large bat is unique in that it forages primarily on the ground where it takes large insects such as flightless beetles, crickets, scorpions, and grasshoppers (Whitaker 1980). This large bat roosts in rock crevices and in cavities of trees, especially oaks. The pallid bat is very sensitive to disturbance at its roosting sites (CDFG 2002). The study area provides suitable foraging habitat and roosting habitat. This species is known to occur within Cañada Chiquita and Cristianitos Canyon, and may occur elsewhere within the study area in suitable habitat.

Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*)

Northwestern San Diego pocket mouse is a California Species of Special Concern. The range of this subspecies is from southwest San Bernardino County south to northern Baja California, Mexico. This species occupies a variety of habitats including chaparral, coastal sage scrub, and grassland. Threats to this species include loss of habitat due to development. Suitable habitat for this species is present within the southern portion of the study area, where it may be present.

Dulzura California Pocket Mouse (*Chaetodipus californicus femoralis*)

Dulzura California pocket mouse is a California Species of Special Concern. This small mammal occurs in southwestern California mainly west of the deserts. It occurs in a variety of habitats including coastal sage scrub, chaparral, riparian scrub ecotone, and more mesic areas. Suitable habitat for this species occurs within the southern portion of the study area. The Dulzura California pocket mouse may occur within the southern portion of the study area.

Townsend's Western Big-eared Bat (*Corynorhinus townsendii townsendii*)

Townsend's western big-eared bat is a federal Species of Concern and a California Species of Special Concern. The western big-eared bat is one of two subspecies of the Townsend's big-eared bat that occurs throughout most of California (Williams 1986). The Townsend's big-eared bat, including both subspecies, is considered an uncommon year-round resident throughout much of California (Zeiner *et al.* 1990). The western big-eared bat subspecies occurs in the southern part of the state and occupies a variety of habitats including oak woodlands, arid deserts, grasslands, and high-elevation forests and meadows (Hall 1981). Known roosting sites in California include mine tunnels, limestone caves, lava tubes, buildings, and other man-made structures (Williams 1986). The roosts, especially larger breeding colonies, are especially susceptible to disturbance (Williams 1986). The study area provides suitable foraging and roosting habitat for this species. Therefore, the Townsend's western big-eared bat may occur in the study area.

Spotted Bat (*Euderma maculatum*)

Spotted bat is a federal Species of Concern and a California Species of Special Concern. It is a rare species that is very striking in appearance but poorly known. This species may be considered one of North America's rarest mammals (CDFG 1991). Although more widespread in the deserts of southern California, the range of the spotted bat includes parts of the coastal slope of the Transverse and Peninsular mountain ranges from Ventura to San Diego County. The spotted bat occurs in a range of habitats from arid desert and grasslands through mixed conifer forests (Zeiner *et al.* 1990). This species forages near open water and known roosting habitat for this species consists of rock crevices, which naturally limits their distribution. Threats to this species include loss of habitat due to development. The study area provides suitable foraging and roosting habitat for the spotted bat. Therefore, the spotted bat may occur in the study area.

California Mastiff Bat (*Eumops perotis californicus*)

California mastiff bat is a federal Species of Concern and a California Species of Special Concern. This species is a very wide-ranging and high-flying insectivore that typically forages in open areas with high cliffs. It roosts in small colonies in crevices on cliff faces. California mastiff bats occur in the southeastern San Joaquin Valley and Coastal Ranges from Monterey County southward through southern California, and from the coast eastward to the Colorado Desert (Zeiner *et al.* 1990). It is found in many open semi-arid to arid habitats including conifer and deciduous woodlands, coastal scrub, grasslands, palm oases, chaparral, desert scrub, and urban (Zeiner *et al.* 1990). Threats to this species include loss of habitat due to development, drainage of marshes, and conversion of land to agriculture (Williams 1986). This species is known to occur within the areas of San Juan Creek and Cristianitos Canyon. The California mastiff bat may occur throughout the study area within suitable habitat for foraging and roosting.

San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)

San Diego black-tailed jackrabbit is a California Species of Special Concern. The San Diego subspecies of the widespread black-tailed jackrabbit is restricted to the Pacific slope from Santa Barbara County south to northwestern Baja California, Mexico. This primarily nocturnal species prefers relatively open areas with sparse shrub cover. Threats to this species include loss of habitat to agriculture and development (Stephenson and Calcarone 1999). Although suitable habitat for this species is present in the study area, this species has not been observed on RMV. There is a low potential for this species to occur within the study area.

California Leaf-nosed Bat (*Macrotus californicus*)

The California leaf-nosed bat is a California Species of Special Concern. This maneuverable bat in flight is the only bat in the United States to have large ears and a nose leaf. It captures prey such as crickets, grasshoppers, beetles, and sphinx moths straight from the ground or foliage rather than in flight. This species of bat does not hibernate, nor does it migrate. They can be found to inhabit caves and abandoned mines in Sonoran and Mojave Desert scrub habitats in the Colorado River valley in southern California, Nevada, and Arizona, and throughout western Mexico.

Small-footed Myotis (*Myotis ciliolabrum*)

Small-footed myotis is a federal Species of Concern and occurs throughout much of the western United States, occupying a variety of habitats. In California, this bat occurs from Contra Costa County southward along the coast, on the east and west sides of the Sierra Nevada, and in the

Great Basin and desert habitats from Modoc to Kern and San Bernardino counties (Zeiner *et al.* 1990). This species feeds among trees or over brush, and roosts in cavities of cliffs, trees, or rocks and in caves or mineshafts. Threats to this species include human disturbance in caves and mines used for roosting. The study area provides suitable foraging and roosting habitat for this species. Therefore, the small-footed myotis may occur in the study area for foraging and roosting.

Long-legged Myotis (*Myotis volans*)

The long-legged myotis is a federal Species of Concern. This species is found from the Tongas National Forest in Alaska, south, through all of the western U.S. and into Baja, Mexico. Preferred habitat for this species includes wooded habitats from pinon-juniper to coniferous forests, usually at elevations of 4,000 to 9,000 feet. This species is known to have maternity roosts beneath bark and in other cavities of trees, but they also are found in rock crevices, cliffs, and buildings. Long-legged myotis forage over ponds, streams, water tanks, and in forest clearings, often on moths. Therefore, the long-legged myotis may occur in the study area for foraging and roosting.

Yuma Myotis (*Myotis yumanensis*)

Yuma myotis is a federal Species of Concern. This relatively small bat occurs statewide and is closely associated with water and wooded canyon bottoms throughout its range. Caves and old buildings are preferred roosting habitats, with roosts numbering up to 2,000 individuals. Threats to this species include loss of foraging habitat (riparian zones and open water) and human disturbance in caves and mines used for roosting. This species has also opportunistically used artificial ponds and Spanish tile roofs (Remington 2000). A recent status review has found that this species is relatively common and it may be removed from the special status list (Stephenson and Calcarone 1999). The study area provides suitable roosting and foraging habitat for the Yuma myotis. This species has been observed within the study area.

San Diego Desert Woodrat (*Neotoma lepida intermedia*)

San Diego desert woodrat is a California Species of Special Concern. This species occupies arid areas with sparse vegetation; especially those comprised of cactus and other thorny plants. The San Diego subspecies is restricted to the Pacific slope in a range that stretches from San Luis Obispo south to northwestern Baja California, Mexico. Threats to this species include the loss of habitat due to development. This species is known to occur throughout the study area within suitable habitat.

Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*)

Pocketed free-tailed bat is a California Species of Special Concern. This species is known to occur in areas with ponds, streams, or arid deserts that provide suitable foraging habitats for this species. This species roosts in rock crevices, caverns, or buildings. This species occurs primarily in pinyon-juniper woodlands, desert scrub, desert succulent scrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases. Within the study area or vicinity, cliffs may provide suitable roosting habitat and the variety of vegetation types in the area provide foraging opportunities for this species. This species may occur within the study area.

Southern Grasshopper Mouse (*Onychomys torridus ramona*)

Southern grasshopper mouse is a federal Species of Concern and a California Species of Special Concern. It is a territorial, predatory rodent of grassland and sparse scrub vegetation

types that prefers sandy soils and has been found to occur from Los Angeles County to northwestern Baja California, Mexico. Threats to this species include the loss of habitat due to development. Suitable habitat for this species is present in the study area. Therefore, the southern grasshopper mouse may occur in the study area but is likely to be rare.

American Badger (*Taxidea taxus*)

Although not formally considered a sensitive species, American badger is considered locally uncommon. This species occupies a wide variety of habitats and ranges throughout the state, except for the coastal redwood forests of the extreme northwest. In southern California, this species is most commonly associated with grasslands and other relatively open habitats with friable, uncultivated soils. This species is known to occur throughout the study area within suitable habitat.

Non-listed Plant Species and NCCP/HCP Planning Species

Coulter's Saltbush (*Atriplex coulteri*)

Coulter's saltbush is a CNPS List 1B species and an NCCP/HCP Planning Species. This perennial herb occurs from Santa Barbara County south to San Diego County from 10 to 1,500 feet above msl. It is generally associated with clay or alkaline soils in grassland, coastal sage scrub, and coastal bluff habitats. This species is similar to the introduced Australian saltbush, but has red stems. Coulter's saltbush is known from three general locations in the study area: Chiquita Canyon, upper Cristianitos Canyon, and upper Gabino Canyon. In Chiquita Canyon, Coulter's saltbush is associated with southern tarplant. There are 34 locations of Coulter's saltbush within the study area totaling approximately 3,000 individuals.

TABLE 4.9-18
COULTER'S SALTBUSH LOCATIONS IN THE STUDY AREA

Draft NCC/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Locations	Number of Individuals
1	Upper Gabino		X		1	100
2	Upper Cristianitos		X		2	15
3	Lower Chiquita		X		2	600
4	Middle Chiquita by Narrows	X		X	Numerous	Ranging form 10 to 600
5	Middle Chiquita by Treatment Facility		X	X	5	685
N/A	Side Canyon North/East of Narrows				2	16
N/A	Gobernadora/Chiquita Seep		X	X	1	approx. 20
				Total	**approximately 34**	**approximately 3,000**

Source: Dudek 2004

Intermediate Mariposa Lily (*Calochortus weedii* var. *intermedius*)

Intermediate mariposa lily is a CNPS List 1B species and an NCCP/HCP Planning Species[7]. This bulbiferous perennial herb occurs in Los Angeles, Riverside, and Orange counties from sea level to 2,000 feet above msl. It occurs in chaparral, coastal sage scrub, valley and foothill grassland vegetation types, as well as rocky outcrops. The varieties of *C. weedii* intergrades and hybridizes in this portion of the County, with the more common Weed's mariposa lily (*C. weedii weedii*). A north to south gradient is exhibited within the study area, with a stronger influence of *C. w. intermedius* in the foothill and coastal areas to the north and west of the study area and a stronger influence of *C. w. weedii* to the south and east towards Camp Pendleton and the Cleveland National Forest (Table 4.9-19) (GLA 2004). Weed's-Intermediate mariposa lily hybrids generally occur in four main areas within the study area: Chiquita Canyon/Chiquadora Ridge, Gobernadora east of the creek/northern Central San Juan Creek, Cristianitos Canyon/southern Trampas Canyon, and La Paz Canyon. A few scattered locations also occur in the Saddleback Meadows area, located northeast of the study area. Except for the La Paz Canyon location, this species tends to occur in association with many-stemmed dudleya. There are approximately 144 locations with 20,400 individuals representing individuals of *C. w. weedii*, *C. w. intermedius*, and hybrids between the two varieties. No *major populations* of intermediate mariposa lily occur within the study area because the populations do not contain pure strands of *C. w. intermedius* individuals, the populations do not connect with other populations to the east or south, and none of the populations are in *key locations* (GLA 2004).

TABLE 4.9-19
PERCENT OF EACH *C. WEEDII* SUBSPECIES WITHIN THE STUDY AREA

Population Name	Species in Percent (%)		
	Individuals with Floral Characteristics consistent with *C. w. weedii*	**Individuals with Intermediate Floral Characteristics between *C. w. weedii* and *C. w. intermedius***	**Individuals with Floral Characteristics consistent with *C. w. intermedius***
Gabino	51	42	7
Upper Gabino	40	51	9
Cristianitos (north of Northrup-Grumman)	30	45	25
Cristianitos Meadows	27	30	43
Trampas	20	50	30
Color Spot Nursery	6	84	10
Verdugo	4	71	25
Chiquadora Ridge	4	75	21
Upper Gobernadora	2	75	23
Source: GLA 2004			

Southern Tarplant (*Centromadia parryi* ssp. *australis)*

Southern tarplant is a CNPS List 1B species and an NCCP/HCP Planning Species. This annual herb is known to occur in Los Angeles, Orange, San Bernardino, and San Diego counties, and Baja California, Mexico. It occurs along the margins of marshes and estuaries, vernally mesic grasslands, and vernal pools from sea level to 1,400 feet above msl. The largest population of

[7] Although this species was listed as an NCCP/HCP Planning Species, it is not treated as a Planning Species within the study area due to the hybridization of this species within the study area.

southern tarplant within the study area occurs in Chiquita Canyon, and including the Tesoro mitigation site, contains more than 135,000 individuals. A large population is also located within GERA in Cañada Gobernadora and contains more than 10,000 individuals. There are 42 locations of southern tarplant within the study area totaling approximately 130,000 individuals.

TABLE 4.9-20
SOUTHERN TARPLANT LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Locations	Number of Individuals
1	Middle Chiquita Canyon by Narrows	X		X West of Creek	35	30,000 in largest location
2	Middle Chiquita Canyon by Treatment Facility		X	X	3	3,740
3	Tesoro High School Mitigation Site	X		X	1	11,000
N/A	Lower Chiquita Canyon	X			1	400
4	GERA	X		X	1	10,000
N/A	Gobernadora/Chiquita Seep		X	X	1	approximately 200
				Total	**42**	**approximately 130,000**
Source: Dudek 2004						

Many-stemmed Dudleya (*Dudleya multicaulis*)

Many-stemmed dudleya is a CNPS List 1B species and a NCCP/HCP Planning Species. This perennial herb is known to occur in Los Angeles, Orange, Riverside, San Diego, and San Bernardino counties. The largest populations occur in Orange County. This species occurs in chaparral, coastal sage scrub, and valley and foothill grassland vegetation types, often with clay soils, from sea level to 2,600 feet msl.

Many-stemmed dudleya is known from nine populations in five general areas on RMV: Chiquita Ridge, Chiquadora Ridge, Gobernadora/Central San Juan east of Gobernadora Creek and north of Color Spot Nursery, Trampas Canyon/Cristianitos Canyon, and upper Gabino and La Paz Canyons. A smaller cluster of locations occurs east of the Northrup-Grumman facilities on the mesa. There are 235 locations of many-stemmed dudleya within the study area, totaling approximately 55,736 individuals.

TABLE 4.9-21
MANY-STEMMED DUDLEYA LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Locations	Number of Individuals
5	Chiquita Ridge		X	X	18	1,349
4	Chiquadora Ridge	X		X	47	8,623
6	Lower Chiquita Canyon		X	X	41 discrete locations	6,686
N/A	Middle Chiquita Canyon				Scattered	Small
7	Cañada Gobernadora/ Central San Juan east of Gobernadora Creek and north of ColorSpot Nursery	X			61	5,678
2	Trampas Canyon/Cristianitos Canyon extending south to Talega (includes below)	X (includes below)			>54	approximately 19,200 (includes below)
2	Cristianitos outside Donna O'Neill Conservancy	X			14 locations including three locations with 1,100, 1,500, and 1,800 respectively; five locations ranging from 200 to 762; four locations range from 20-200	>10,300
2	Lower Gabino and Blind	X			Several small locations with one location of 400	approximately 400
1	Upper Gabino and La Paz canyons	X		X	Several locations ranging from 5-1,500 including eight locations with >100 individuals	approximately 3,500
3	East of Northrup-Grumman		X		9	anecdotal
				Total	**approximately 235**	**approximately 55,736**

Source: Dudek 2004

Mud Nama (*Nama stenocarpum*)

Mud nama is a CNPS List 2 species and an NCCP/HCP Planning Species. This herbaceous species occurs in Orange, Riverside, and San Diego counties, the Channel Islands, and Baja California, Mexico. It also historically occurred in Imperial and Los Angeles counties. It occurs in muddy embankments of ponds and lakes.

Mud nama occurs in a vernal pool on Chiquita Ridge and along the margins of stockponds located between Trampas and Cristianitos canyons and west of an RMV residence south of Ortega Highway. These locations are all considered *important populations* in *key locations*. There are three locations of mud nama within the study area totaling 9,850 individuals.

TABLE 4.9-22
MUD NAMA LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Locations	Total Number of Individuals
N/A	Chiquita Ridge (vernal pools)		X	X	1	Varies
N/A	West of a Ranch residence south of Ortega Highway (stock pond)		X	X	1	Varies
N/A	Between Cristianitos and Trampas canyons (stock pond)		X	X	1	Varies
				Total	**3**	**9,850**
Source: Dudek 2004						

Chaparral Beargrass (*Nolina cismontana*)

Chaparral beargrass is a CNPS List 1B species and an NCCP/HCP Planning Species. This evergreen shrub occurs in Los Angeles, Orange, San Diego, and Ventura counties. It is generally associated with sandstone or gabbro soils in chaparral and coastal scrub from 460 to 4,185 feet above msl.

Chaparral beargrass occurs in two areas within the study area: on the steep south-facing slopes east of the Northrup-Grumman facility and in the eastern portion of the Talega sub-basin. There are six locations of chaparral beargrass within the study area totaling six individuals. There are five locations in the eastern Talega sub-basin are an *important population* in a *key location*.

TABLE 4.9-23
CHAPARRAL BEARGRASS LOCATIONS IN THE STUDY AREA

Draft NCCP/HCP Planning Guidelines Map Location Number	General Location	Major Population	Important Population	Key Location	Number of Locations	Number of Individuals
N/A	East of Northrup-Grumman				1	1
N/A	Eastern portion of Talega sub-basin		X	X	5	5
				Total	**6**	**6**
Source: Dudek 2004						

Salt Spring Checkerbloom (*Sidalcea neomexicana*)

Salt spring checkerbloom is a CNPS List 2 species and an NCCP/HCP Planning Species. This perennial herb occurs from Santa Barbara County south through Orange County and inland to Riverside and San Bernardino counties. It also occurs throughout the southwestern states, mainland Mexico, and Baja California, Mexico. It is generally associated with alkaline or mesic soils in coastal scrub, chaparral, lower montane coniferous forests, Mojavean desert scrub, and playas from 50 to 5,020 feet above msl.

Salt spring checkerbloom occurs in two slope wetlands in Chiquita Canyon and one slope wetland in Cañada Gobernadora. There are three locations of Salt spring checkerbloom on RMV, totaling 1,503 individuals.

Non-listed Plant Species and Non-NCCP/HCP Planning Species

Chaparral Sand-verbena (*Abronia villosa* var. *aurita*)

Chaparral sand-verbena is a CNPS List 1B species. This annual herb primarily occurs on the coastal sides of southern California mountains in Riverside and San Diego counties from 265 to 5,250 feet above msl. It is reported as far west as Orange County, though these occurrences are presumed extirpated. Chaparral sand verbena generally occurs in sandy soils of river washes, alluvial benches, and in open places within shrublands and grasslands. There are no records of chaparral sand verbena in the database, and this species was not observed during surveys. Therefore, chaparral sand-verbena is not expected to occur in the study area.

San Diego Sagewort (*Artemisia palmeri*)

San Diego sagewort is a CNPS List 4 species. This deciduous shrub is known to occur in San Diego County and Baja California, Mexico from 50 to 3,000 feet above msl. It generally grows in sandy soils or mesic areas in chaparral, coastal sage scrub, riparian scrub, or riparian woodland. There are no records of San Diego sagewort in Orange County, and this species was not observed during surveys. Therefore, San Diego sagewort is not expected to occur in the study area.

South Coast Saltscale (*Atriplex pacifica*)

South Coast saltscale is a CNPS List 1B species. This annual herb is known from the immediate coast from Ventura County south to San Diego County, and in Baja California and Sonora, Mexico. It occurs in coastal bluff scrub, coastal scrub, and playas from sea level to 330 feet above msl. Many of the locations of this species have been extirpated, including locations in Orange County. There are no records of this species in the database and this species was not observed during surveys. Therefore, South Coast saltscale is not expected to occur in the study area.

Parish's Brittlescale (*Atriplex parishii*)

Parish's brittlescale is a CNPS List 1B species. This annual herb is historically known to occur in Los Angeles, Orange, San Bernardino, and San Diego counties. It is currently known to occur in Riverside County and Baja California, Mexico. It occurs in alkaline soils in chenopod scrub, playas, and vernal pools from 80 to 6,235 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, Parish's brittlescale is not expected to occur in the study area.

Davidson's Saltscale (*Atriplex serenana* var. *davidsonii*)

Davidson's saltscale is a CNPS List 1B species. This annual herb historically occurred from Ventura County south to San Diego County, and in Baja California, Mexico from 30 to 660 feet above msl. It primarily occurs in alkaline soils along coastal bluffs, along the interior margins of coastal salt marsh, or in alkali wetlands and playa habitats. There are no records of this species in the database and this species was not observed during surveys. Therefore, Davidson's saltscale is not expected to occur in the study area.

Golden-spined Cereus (*Bergerocactus emoryi*)

Golden-spined cereus is a CNPS List 2 species. This succulent shrub occurs in San Diego County, the Channel Islands, and Baja California, Mexico. It occurs in sandy soils in coniferous forests, chaparral, and coastal scrub from 10 to 1,300 feet above msl. There are no records of this species in Orange County and this species was not observed during surveys. Therefore, golden-spined cereus is not expected to occur in the study area.

Mesa Brodiaea (*Brodiaea jolonensis*)

Mesa brodiaea is not formally listed by the resource agencies or CNPS, but is considered a species of local concern. This perennial herb occurs from Monterey County south to San Diego County and on the Channel Islands. It occurs in clay soils in grassland and foothill woodland from sea level to 985 feet above msl. Mesa brodiaea occurs in two locations within the study area, totaling two individuals in Cristianitos Canyon.

Catalina Mariposa Lily (*Calochortus catalinae*)

Catalina mariposa lily is a CNPS List 4 species. This bulbiferous perennial herb occurs from Santa Barbara County south to San Diego County from sea level to 2,300 feet above msl. It occurs in heavy clay soils in native grasslands and openings in coastal sage scrub. This species occurs on Chiquita Ridge, in Cañada Gobernadora, the northeast portion of the Talega development, and the Saddleback Meadows area. There are 100 locations of Catalina mariposa lily within the study area totaling approximately 4,881 individuals.

Plummer's Mariposa Lily (*Calochortus plummerae*)

Plummer's mariposa lily is a CNPS List 1B species. This bulbiferous perennial herb occurs in Los Angeles, Riverside, Orange, San Bernardino, and Ventura counties from 330 to 5,570 feet above msl. It occurs in chaparral, coastal sage scrub, grassland, cismontane woodlands, and lower montane coniferous forests. There are no records of this species in the database and this species was not observed during surveys. Therefore, Plummer's mariposa lily is not expected to occur within the study area.

Payson's Jewel-flower (*Caulanthus simulans*)

Payson's jewel-flower is a CNPS List 4 species. This annual herb occurs in the eastern Peninsular Ranges of Riverside and San Diego counties. It typically occurs in pinyon woodlands and desert margin shrublands of the eastern Peninsular ranges from 295 to 7,220 feet above msl. The study area is outside the geographic range of this species. There are no records of this species in Orange County and this species was not observed during surveys. Therefore, Payson's jewel-flower is not expected to occur in the study area.

Smooth Tarplant (*Centromadia pungens* spp. *laevis*)

Smooth tarplant is a CNPS List 1B species. This annual herb occurs throughout the inland valley area of Riverside and San Bernardino counties, and historically occurred in San Diego County. It occurs primarily in damp alkaline areas in meadows and seeps, playas, riparian woodland, and valley and foothill grassland from sea level to 1,575 feet above msl. There are no records for this species in Orange County and this species was not observed during surveys. Therefore, smooth tarplant is not expected to occur in the study area.

Prostrate Spineflower (*Chroizanthe procumbens*)

Prostrate spineflower is not formally listed by the resource agencies, but is considered a species of local concern. This annual herb occurs in Ventura, Los Angeles, Orange, San Diego, San Bernardino, and Riverside counties and in Baja California, Mexico. It occurs in sandy openings in chamise chaparral and sage scrub, as well as, recently disturbed microhabitats such as road shoulders and openings within recently cleared chaparral. There are no records of this species in the database and it was not observed during surveys. Therefore, prostrate spineflower is not expected to occur.

Parry's Spineflower (*Chorizathe parryi* var. *parryi*)

Parry's spineflower is a CNPS List 3 species. This annual herb is known to occur in Los Angeles, San Bernardino, and Riverside counties, primarily in the alluvial fan areas along the San Gabriel and San Bernardino Mountains from 130 to 5,600 feet above msl. It occurs in openings of chaparral, sage scrub, alluvial fan sage scrub, and Juniper woodland primarily in thin, granitic soils or clay soils that reduce the cover of annual grasses. There are no records of this species in Orange County and this species was not observed during focused surveys. Therefore, Parry's spineflower is not expected to occur in the study area.

Summer Holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)

Summer holly is a CNPS List 1B. This evergreen shrub is known to occur in Orange, Riverside, and San Diego counties and in Baja California, Mexico. It is associated with maritime chaparral along the coast from 100 to 1,800 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, summer holly is not expected to occur in the study area.

Western Dichondra (*Dichondra occidentalis*)

Western dichondra is a CNPS List 4 species. This perennial herb occurs from Santa Barbara County south through San Diego County, the Channel Islands, and Baja California, Mexico. It occurs in chaparral, cismontane woodland, coastal scrub, and valley and foothill grasslands from 165 to 1,640 feet above msl. Western dichondra occurs in a 25-acre area in the upper/middle portions of Gabino Canyon and several small populations in Cristianitos Canyon. There are 4 locations of western dichondra within the study area, totaling approximately 40 acres.

Blochman's Dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*)

Blochman's dudleya is a CNPS List 1B species. This perennial herb occurs from San Luis Obispo County south to San Diego County and Baja California, Mexico. It occurs on open, rocky slopes, often associated with serpentine or clay-dominated soils, from 15 to 1,500 feet above msl. There are no records of this species in the database and this species was not

observed during surveys. Therefore, Blochman's dudleya is not expected to occur in the study area.

Sticky Dudleya (*Dudleya viscida*)

Sticky dudleya is a CNPS List 1B species. This perennial herb occurs in Orange, Riverside, and San Diego counties. It generally occurs on rocky outcrops within coastal sage scrub and chaparral from 30 to 1,805 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, sticky dudleya is not expected to occur in the study area.

Upright Burhead (*Echinodorus berteroi*)

Upright burhead is not formally listed by the resource agencies or CNPS, but is considered a species of local concern. This annual herb occurs from central California south through southwestern California, west of the Sierras. It occurs in ponds and ditches from sea level to 985 feet above msl. Upright burhead occurs in one location within the study area in upper Cristianitos, totaling one individual.

Small Spikerush (*Eleocharis parvula*)

Small spikerush is a CNPS List 4 species. This perennial herb is widespread throughout central and northern California but is limited to Orange County in southern California. It occurs in marshes and swamps from sea level to approximately 8,300 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, small spikerush is not expected to occur in the study area.

Beaked Spikerush (*Eleocharis rostellata*)

Beaked spikerush is not formally listed by the resource agencies or CNPS, but is considered a species of local concern. This perennial herb occurs around the San Francisco Bay area, southwestern California, east of the Sierra Nevada, and in the deserts. It occurs in alkaline marshes, sinks and spring from sea level to 6,565 feet above msl. It is an indicator of saline, calcareous soils. Beaked spikerush occurs in two locations within the study area in the "Narrows" area of Chiquita Canyon, totaling 1,501 individuals.

Cliff Spurge (*Euphorbia miseria*)

Cliff spurge is a CNPS List 2 species. This deciduous shrub occurs in Los Angeles, Orange, and San Diego counties, the Channel Islands, and in Baja California, Mexico. A historic location was also recorded in Riverside County, but this location was heavily damaged by frost. This species occurs in rocky soils in coastal scrub and coastal bluff scrub from 30 to 1,640 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, cliff spurge is not expected to occur in the study area.

Palmer's Grapplinghook (*Harpagonella palmeri)*

Palmer's grapplinghook is a CNPS List 4 species. This annual herb occurs from Los Angeles County to San Diego County in southern California, and eastward to Arizona and Sonora, Mexico. It occurs in clay soils on dry slopes and mesas in grassland, sage scrub, and chaparral habitats from 65 to 2,725 feet above msl. This species occurs on Chiquita Ridge, east of Gobernadora Creek, and in Cristianitos Canyon. There are 81 locations of Palmer's grapplinghook within the study area totaling 27,131 individuals.

Graceful Tarplant (*Holocarpha virgata* ssp. *elongata*)

Graceful tarplant is a CNPS List 4 species. This annual herb occurs in Orange, Riverside, and San Diego counties. It occurs is coastal scrub, valley and foothill grassland, cismontane woodland, and possibly chaparral from 195 to 3,610 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, graceful tarplant is not expected to occur in the study area.

Vernal Barley (*Hordeum intercedens*)

Vernal barley is a CNPS List 3 species. This annual herb occurs from San Francisco, Mono, and Kings County south to San Diego County, the Channel Islands, and Baja California, Mexico. This species is not easily distinguished from common non-native species of *Hordeum* and is therefore sometimes easily missed during focused botanical surveys. As botanical investigators have become more familiar with this species since the mid-1990s it has been identified in many locations. Currently on the mainland of southern California, it is know from scattered collections from Riverside, San Diego, and Orange counties. It occurs in a variety of habitats, ranging from saline flats, vernal pools and adjacent areas, grasslands associated with clay soils, and occasionally from coastal dunes, and coastal scrub. Elevations across the range of this species vary from 15 to 3,280 feet. Within the study area, vernal barley has been found in low densities throughout the grasslands associated with clay soils in the Cristianitos and Gabino watersheds (Bomkamp 2003), as well as in the Donna O'Neill Conservancy (Roberts and Bramlet 2004). Population counts for this species are difficult due to its distribution and low densities in the grassland areas. Population estimates have been provided for six locations, totaling 11,921 individuals. An additional 5,817 individuals are preserved within the Donna O'Neill Conservancy and an estimated tens of thousands in grassland areas in the Cristianitos and Gabino watersheds.

Decumbent Goldenbush (*Isocoma menziesii* var. *decumbens*)[8]

Decumbent goldenbush is a CNPS List 1B species. This shrub occurs in Orange, Los Angeles, and San Diego counties, and Baja California, Mexico. It occurs in sandy, often disturbed areas, in chaparral and coastal scrub from approximately 30 to 445 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, decumbent goldenbush is not expected to occur in the study area.

Southwestern Spiny Rush (*Juncus acutus* spp. *leopoldii*)

Southwestern spiny rush is a CNPS List 4 species. This spiny perennial herb occurs in coastal counties from San Luis Obispo County south to San Diego County, and Baja California, Mexico. It also possibly occurs in Imperial County and Arizona. It occurs in coastal salt marshes, mesic coastal dunes, and interior alkali marsh from 10 to 2,955 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, southwestern spiny rush is not expected to occur in the study area.

[8] Taxonomic work is necessary to adequately assess the coastal goldenbushes; currently there still seems to be disagreement on this genus with differing concepts as to varieties or subspecies (May 1994 Craig H. Reiser).

Coulter's Goldfields (*Lasthenia glabrata* ssp*. coulteri*)

Coulter's goldfields is a CNPS List 1B species. This annual herb is known to occur in Orange, Riverside, Santa Barbara, San Diego, San Luis Obispo, and Ventura counties, Santa Rosa Island, and in Baja California, Mexico. It historically occurred in Kern, Los Angeles, and San Bernardino counties. This species is associated with low-lying alkali habitats along the coast and in inland valleys. It occurs in coastal salt marsh, playas, and vernal pools from sea level to 4,000 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, Coulter's goldfields is not expected to occur in the study area.

Heart-leaved Pitcher Sage (*Lepechinia cardiophylla*)

Heart-leaved pitcher sage is a CNPS List 1B. This shrub is known from fewer than ten occurrences in California in Orange, Riverside, and San Diego counties. It also occurs in Baja California, Mexico. It is associated with closed-cone coniferous forest, chaparral, and cismontane woodland from approximately 1,820 to 4,495 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, heart-leaved pitcher sage is not expected to occur in the study area.

Robinson's Pepper-grass (*Lepidium virginicum* var. *robinsonii*)

Robinson's peppergrass is a CNPS List 1B species. This annual herb occurs in western California, from Santa Cruz County south to Baja California, Mexico and inland to western Riverside and San Bernardino counties. It also occurs on the Channel Islands. This species typically occurs in chaparral and coastal sage scrub from sea level to 1,640 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, Robinson's pepper-grass is not expected to occur in the study area.

Ocellated Humboldt Lily (*Lilium humboldtii* spp. *ocellatum*)

The ocellated Humboldt lily is a CNPS List 4. This bulbiferous perennial herb occurs from San Luis Obispo County south through San Diego County inland to San Bernardino and Riverside counties. It also occurs on the Channel Islands. It is found in openings in chaparral, coastal scrub, cismontane woodlands, lower montane conifer forests, and riparian woodland from 95 to 5,910 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, ocellated Humboldt lily is not expected to occur in the study area.

Rush-like Bristleweed (*Machaeranthera juncea*)

Rush-like bristleweed is a CNPS List 4 species. This perennial herb occurs in San Diego County, Arizona, and Baja California and Sonora, Mexico. It occurs in chaparral and coastal scrub from 780 to 3,280 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, rush-like bristleweed is not expected to occur in the study area.

Small-flowered Microseris (*Microseris douglasii* var. *platycarpha*)

Small-flowered microseris is a CNPS List 4 species. This annual herb occurs from Los Angeles County south to San Diego County, the Channel Islands, and Baja California, Mexico. It occurs in clay soils in valley and foothill grasslands, cismontane woodland, coastal scrub, and vernal pools from 50 to 3,510 feet above msl. Small-flowered microseris occurs in Cañada

Gobernadora and Cristianitos Canyon. There are 20 locations of small-flowered microseris on RMV totaling 28,775 individuals.

Cleveland's Bush Monkeyflower (*Mimulus clevelandii*)

Cleveland's bush monkeyflower is a CNPS List 4 species. This perennial herb occurs in Orange, Riverside, and San Diego counties, and Baja California, Mexico. It occurs in openings, often disturbed areas, of chaparral and lower montane coniferous forest from 3,000 to 6,560 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, Cleveland's bush monkeyflower is not expected to occur in the study area.

Palomar Monkeyflower (*Mimulus diffusus*)

Palomar monkeyflower is a CNPS List 4 species. This annual herb occurs in Orange, Riverside, and San Diego counties, and Baja California, Mexico. Palomar monkeyflower is a species of the foothills and mountains from 4,000 to 6,000 feet above msl. It grows in sandy or gravelly soil in chaparral and lower montane coniferous forest, and may be found in sandy washes and disturbed areas near roads and trails. There are no records of this species in the database and this species was not observed during surveys. Therefore, Palomar monkeyflower is not expected to occur in the study area.

Felt-leaved Monardella (*Monardella hypoleuca* ssp. *lanata*)

Felt-leaved monardella is a CNPS List 1B species. This perennial herb occurs in Orange and San Diego counties, and in Baja California, Mexico. It occurs in chaparral and cismontane woodland from 980 to 3,905 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, felt-leaved monardella is not expected to occur in the study area.

Hall's Monardella (*Monardella macrantha* ssp. *hallii*)

Hall's monardella is a CNPS List 1B species. This perennial hern occurs in Orange, Riverside, San Bernardino, and San Diego counties. It occurs in broadleaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and grasslands from approximately 2,395 to 7,200 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, Hall's monardella is not expected to occur in the study area.

California Spineflower (*Mucronea californica*)

California spineflower is a CNPS List 4 species. This annual herb occurs from San Luis Obispo County south to San Diego County, and inland to San Bernardino and Kern counties. It occurs in sandy soils in chaparral, cismontane woodland, coastal dunes, coastal scrub, and grasslands below 4,600 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, California spineflower is not expected to occur in the study area.

Little Mousetail (*Myosurus minimus* ssp. *apus*)

Little mousetail is a federal Species of Concern and a CNPS List 3 species. This annual herb occurs in Tulare, Kern, San Bernardino, Riverside and San Diego counties and in Baja California, Mexico. It also occurs in the Bay Area of northern California, and Oregon. It

generally occurs in alkaline soils of vernal pools, and grasslands from 65 to 2,100 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, little mousetail is not expected to occur in the study area.

California Adder's-tongue (*Ophioglossum californicum*)

California adder's-tongue is a CNPS List 4 species. This perennial herb occurs in Orange and San Diego counties, and in Baja California, Mexico and historically occurred in San Bernardino County. It also occurs in central California and in Monterey County. It occurs in mesic areas in chaparral, grasslands, and along the margins of vernal pools from 195 to 985 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, California adder's-tongue is not expected to occur in the study area.

Golden-rayed Pentachaeta (*Pentachaeta aurea*)

Golden-rayed pentachaeta is a CNPS List 4 species. This annual herb occurs in Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties, and Baja California, Mexico. It occurs in cismontane woodland, lower montane coniferous forests, coastal scrub, and grasslands from 260 to 6,070 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, golden-rayed pentachaeta is not expected to occur in the study area.

Santiago Peak Phacelia (*Phacelia suaveolens* ssp*. keckii*)

Santiago Peak phacelia is a CNPS List 1B species. This annual herb occurs in Orange and Riverside counties. It occurs in chaparral and closed-cone coniferous forests from 2,000 to 5,250 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, Santiago Peak phacelia is not expected to occur in the study area.

Chaparral Rein Orchid (*Piperia cooperi*)

Chaparral rein orchid is a CNPS List 4 species. This perennial herb occurs in Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties. It is also known from Santa Catalina Island, and Baja California and Sonora, Mexico. It occurs in chaparral, cismontane woodland, and grasslands from 50 to 5,200 feet above msl. There is one record of the species in the Central San Juan subunit of the Central San Juan and Trampas Canyon sub-basin.

Fish's Milkwort (*Polygata cornuta* var. *fishiae*)

Fish's milkwort is a CNPS List 4 species. This inconspicuous, evergreen shrub occurs in southwestern California from Santa Barbara County south to San Diego County, inland to western Riverside County and in Baja California, Mexico. It occurs in chaparral, cismontane woodland, and riparian woodland from 320 to 3,610 feet above msl. Fish's milkwort occurs in Gabino Canyon. There is one location of Fish's milkwort within the study area, totaling five individuals.

Coulter's Matilija Poppy (*Romneya coulteri*)

Coulter's matilija poppy is a CNPS List 4 species. This shrub is known to occur in Los Angeles, Riverside, Orange, and San Diego counties. It is a rhizomatous perennial herbaceous shrub that often forms dense clonal clumps in coastal sage scrub and chaparral from 65 to 3,940 feet

above msl. Although there are no records of this species in the database, one location of Coulter's matilija poppy is known from upper Chiquita Canyon north of Oso Parkway outside the study area. This species may occur in scattered locations within the study area.

Sanford's Arrowhead (*Sagittaria sanfordii*)

Sanford's arrowhead is a federal Species of Concern and a CNPS List 1B species. This perennial herb historically occurred in Orange and San Diego counties, but is now known from central and northern California. It occurs in shallow freshwater of marshes and swamps from sea level to 2,000 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, Sanford's arrowhead is not expected to occur in the study area.

San Miguel Savory (*Satureja chandleri*)

San Miguel savory is a CNPS List 1B species. This perennial herb occurs in Orange, Riverside, and San Diego counties and in Baja California, Mexico. It is generally associated with rocky, gabbroic, or metavolcanic soils in chaparral, cismontane woodland, coastal scrub, riparian woodland, and grasslands from 390 to 3,530 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, San Miguel savory is not expected to occur in the study area.

Rayless Ragwort (*Senecio aphanactis*)

Rayless ragwort is a CNPS List 2 species. This annual herb is known from scattered locations in western California, from the San Francisco Bay area south through the coast and Central Valley, into Baja California, Mexico. In southern California it occurs from Santa Barbara County south through San Diego County and inland to Riverside County. This species typically occurs in alkaline or clay soils in vernal pools, grassland playas, woodlands, coastal scrub and chaparral from 50 to 2,625 feet above msl. This species was not observed during surveys. Therefore, rayless ragwort is not expected to occur in the study area. There is no record for this species in Orange County on the Data Point headlands.

Estuary Seablite (*Suaeda esteroa*)

Estuary seablite is a CNPS List 1B species. This perennial herb occurs from Santa Barbara County south through San Diego County and in Baja California, Mexico. It occurs in coastal salt marsh habitat from sea level to 20 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, estuary seablite is not expected to occur in the study area.

Parry's Tetracoccus (*Tetracoccus dioicus*)

Parry's tetracoccus is a CNPS List 1B species. This deciduous shrub occurs in Orange, Riverside, and San Diego counties and Baja California, Mexico. It occurs in chaparral and coastal scrub from 540 to 3,280 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, Parry's tetracoccus is not expected to occur in the study area.

San Diego County Viguiera (*Viguiera laciniata*)

San Diego County viguiera is a CNPS List 4 species. This shrub occurs in Orange and San Diego counties and in Baja California and Sonora, Mexico. It occurs in chaparral and coastal

scrub from 195 to 2,460 feet above msl. There are no records of this species in the database and this species was not observed during surveys. Therefore, San Diego County viguiera is not expected to occur in the study area.

Special Status Habitats

Sensitive Vegetation Communities

In addition to providing an inventory of sensitive plant and wildlife species, the CNDDB also provides an inventory of vegetation communities that are considered sensitive by the state and federal resource agencies, academic institutions, and various conservation groups (such as CNPS). Sensitive vegetation types within the study area are shown on Exhibit 4.9-1. All of the vegetation communities below are considered a high priority for preservation due to their rarity and/or potential to support sensitive plant and/or wildlife species.

Native Grassland

Native grasslands have declined by approximately 99 percent in their historic range in California (Noss and Peters 1995). Native grasslands are composed mainly of drought-resistant perennial bunchgrasses, such as needlegrasses, wild rye, melic grass, and deergrass. In the mid-nineteenth century, heavy grazing by cattle and sheep caused native perennials to be replaced by fast-growing annual grasses, which are able to take advantage of spring rains and produce seeds before the dry heat of summer. The native perennial grasses, which are more palatable to livestock than the annuals, were damaged by grazing and trampling. Non-native weedy species, such as wild oats and soft chess have largely replaced native grasslands (USGS 2004). Native grasslands have also been lost to development and conversion to agriculture. There are approximately 1,100 acres of native grassland in the study area.

Coastal Sage Scrub

Coastal sage scrub has declined by approximately 70 to 90 percent in its historic range in California (Noss and Peters 1995). It has largely been lost to land use changes in southern California basins and foothills. Coastal sage scrub supports many sensitive plant and wildlife species. The ecological function in southern California's remaining coastal sage scrub is threatened by habitat fragmentation, invasive non-native species, livestock grazing, off-highway vehicles, altered fire regime, and perhaps air pollution (O'Leary 1995). There are 7,682 acres of coastal sage scrub in the study area.

Riparian, Freshwater Marsh, Open Water, Watercourses

Most natural riparian vegetation in southern California has been lost or degraded by land use conversions to agricultural, urban, and recreational uses; channelization for flood control; sand and gravel mining; ground water pumping; water impoundments; and various other changes. Faber *et al.* (1989) estimated that as much as 95 to 97 percent of historic riparian habitats have been lost. Riparian vegetation occurs along perennial or intermittent drainages that typically are subject to seasonal flooding. Riparian habitats are biologically productive and diverse, and are the exclusive habitat of several sensitive wildlife species. There are approximately 1,920.3 acres of riparian communities in the study area.

Marshes are defined as wetlands frequently or continually inundated with water, characterized by emergent soft-stemmed vegetation adapted to saturated soil conditions. They frequently occur along streams in poorly drained depressions, and in the shallow water along the boundaries of lakes, ponds, and rivers. Marshes recharge groundwater supplies and moderate

streamflow by providing water to streams. As water moves slowly through a marsh, sediment and other pollutants settle to the substrate, or floor of the marsh. Freshwater marshes have suffered major acreage losses to human development. Excessive deposits of nutrients and sediment from construction and farming have degraded some freshwater marshes (EPA 2004). There are approximately 25.2 acres of freshwater marsh communities in the study area.

Open water and watercourses are interspersed with riparian and marsh vegetation communities. Together, these vegetation communities provide important foraging and breeding habitat for both common and sensitive species. There are approximately 135.7 of open water and 13.2 acres of watercourses in the study area.

State and federal jurisdictional delineations of the study area have been conducted by Glenn Lukos and Associates (GLA 2004) (Appendix G-1). It should be noted that the delineation did not include the entire study area, but was focused on the development planning areas and the potential impacts associated with infrastructure that connect the development areas. The delineation determined that the study area contains 184.87 acres that are within the jurisdiction of the USACE, of which 77.87 acres are considered jurisdictional wetland. The delineation also determined that the study area contains 398.14 acres within the jurisdiction of the CDFG, of which 368.40 consist of vegetated riparian habitat. An additional 91.70 acres have been evaluated in the field, including 55.88 acres of vegetated riparian habitat, for which RMV and CDFG have not reached concurrence relative to their jurisdictional status (i.e., unresolved features). GLA believes these features do not meet the definition of a streambed or lake under the Fish and Game Code at the time of project implementation (GLA 2004).

Vernal Pools

Vernal pools have declined by approximately 90 percent of their historic range in California (Noss and Peters 1995). Vernal pools are small depressions with hardpan floors that fill with water during winter rains and evaporate through the spring. In southern California, these pools are often scattered within grasslands. Vernal pools support specialized invertebrate and vegetation communities and are veritable islands of unique vegetation. Of the 101 plants found in vernal pools in one study (Holland and Jain 1977), 70 percent were native annuals, and only seven percent were introduced (non-native) annuals; 55 plants were endemic to California, and another 14 were near-endemics. The soil and water of vernal pools are very alkaline, and the pH of the water increases as it evaporates in the spring. As the pools dry, annual plants bloom in concentric rings determined by their proximity to the standing water (USGS 2004). There are approximately 19.9 acres of vernal pools in the study area.

Woodland and Forest

Oak woodlands and forests provide food, cover, and nesting or denning habitat for many wildlife species. Oaks are the most evident plants, but the woodlands and forests are made up of diverse assemblages of understory shrubs, vines, herbs, grasses, and parasites (e.g., mistletoe [*Phoradendron* spp.]). Standing dead trees and fallen logs provide essential habitat elements. Acorns, other fruits, leaves, insects, seeds, mushrooms, and other fungi all provide food for wildlife. Oak woodlands and forests provide thermal cover for large mammals including deer, and escape cover for many other animals. Oak canopies and foliage provide perching roosting, and nesting sites for many bird species. Cavities in the limbs or trunks of oak trees are used as nesting and denning sites by birds and mammals. Dead oak trees provide nest sites for woodpeckers, which build nesting cavities, and secondary cavity nesters, which use old woodpecker nests. Woodpeckers and many secondary cavity nesters feed largely on insects, perhaps preventing large-scale insect outbreaks from killing off forest stands. Barrett (1980) lists at least 20 mammal species of this region that use oaks for food, cover, or both. Verner

(1980) identified 110 birds that use oak habitats in California during the breeding season. There are approximately 275.9 acres of woodland and 311.9 acres of forest in the study area.

Wildlife Movement

A fundamental concept and central tenet of conservation biology theory is that habitat fragmentation and isolation leads to extinction of local populations as a result of two processes: (1) reduction in total habitat area which reduces effective population sizes; and (2) insularization of local populations which effects dispersal and immigration rates (Wilcox and Murphy 1985; Wilcove *et al.*1986). Wilcox and Murphy further point out that immigration may be impeded by conversion of natural habitat between occupied or potential habitat patches, thus increasing the probability of extinction. It is this latter point that is the crux of the habitat linkage problem. That is, isolation of habitat patches accompanied by intervening inhospitable land cover (e.g., urban development, roadways, etc.) is thought to increase the probability of permanent extinction of local populations. Because of complex community-level interactions (e.g., mutualistic species, habitat guilds, keystone species), the loss of one or a few species from a habitat patch as a direct result of habitat fragmentation (primary extinctions) also may result in multiple "secondary" extinctions within the habitat patch (Wilcox and Murphy 1986).

The study area is partially urbanized and partially open space. In urbanized areas, there are varying opportunities for wildlife movement, ranging from highly constrained settings such as Mission Viejo where wildlife movement may be restricted to a man-made culvert, to more expansive areas, such as the Arroyo Trabuco, that afford live-in "habitat" for some species while conveying movement between surrounding development for a broader suite of species. Areas presently in open space generally facilitate wildlife movement in multiple directions and provide "live-in habitat" for many species, but show constrained movement (e.g., along narrow vectors) where the open space is contiguous with already urbanized areas. The identification of the most important movement wildlife corridors and habitat linkages, as defined below, which will continue to support effective movement in a future environment that supports development depends on animal behavior, habitat affinities, and local geography.

For broad wildlife movement areas that presently allow for unconstrained movement, future development scenarios will restrict movement patterns to some extent. To weigh the merits of alternative development configurations/reserve designs, there is a need to preliminarily identify wildlife movement opportunities that are likely important to retain for ecosystem function. Identification of the areas most important for retaining effective wildlife movement in a future environment with development requires consideration of available wildlife movement data, existing species distributions, habitat affinities, animal behavior, and local geography. To provide guidance for the planning process, these factors were considered to identify the areas discussed below that are considered important for maintaining wildlife movement functions under any reserve alternative. A conceptual limitation to identifying habitat linkages and wildlife corridors in an unconstrained landscape is that the actual effects of urbanization on altering wildlife behavior cannot be perfectly anticipated. However, it is assumed that mobile wildlife (e.g., mountain lion, mule deer, bobcat) will adapt their habitat use and movement patterns to some extent to future development patterns.

Areas considered to be important form maintaining wildlife movement functions based on the best available information are described in this subsection. Furthermore, a distinction is drawn between habitat linkages and wildlife corridors as follows:

> **Habitat linkages:** Following Soule and Terborgh's (1999) use of the term "landscape linkage," habitat linkages are areas of natural habitat that function to join two larger blocks of habitat. They serve as connections between habitat blocks and help reduce

the adverse effects of habitat fragmentation by providing a potential route for gene flow and long-term dispersal. Habitat linkages may serve both as "live-in" habitat and avenues of gene flow for small animals such as reptiles, amphibians, and rodents. Habitat linkages also provide for the transit of larger species, but as contrasted with wildlife corridors, as defined below, also may be "live-in" habitat for larger species (i.e., support breeding sites, frequent use areas, etc.). Habitat linkages also may be represented by continuous habitat or by closely spaced habitat "islands" that function as stepping stones for dispersal and movement (especially for birds and flying insects).

Wildlife corridors: As defined here, wildlife corridors tend to be linear features that connect large blocks of habitat and provide avenues for frequent movement, dispersal, or migration of larger animals. Because of their narrow configuration, wildlife corridors generally serve a more limited function than habitat linkages and primarily are used for transit of larger species rather than as live-in habitat for a broader suite of species. Wildlife corridors may also contain "choke-points" (e.g., hourglass or funnel shapes) or man-made structures such as culverts and flood control channels that wildlife quickly move through.

Habitat linkages and wildlife corridors facilitate the dispersal by smaller, less mobile species and frequent movement (e.g., daily, weekly, etc.) by large mammal species such as mountain lion, mule deer, coyote, and bobcat. The species identified only highlight a much broader suite of species served by the habitat linkages and corridors. Accordingly, the species identified should not be interpreted as the only species that benefit from the linkages and corridors. It can be reasonably assumed that habitat linkages and corridors that function for large mammals (except coyote) also function for many other species.

Except where only habitat linkages or corridors currently exist, the following discussion identifies habitat linkage and corridor functions within the general wildlife movement areas that appear to be important to be retained within the study area boundaries and to habitat areas outside of the study area. Identification of these linkage and corridor functions are based on field studies of wildlife movement in the study area (Beier and Barrett 1993; Dudek 1995; MBA 1996; Padley 1992), input from the Science Advisors and the wildlife agencies, and the consultant team's review and analysis of the species, vegetation, and physiographic information for the subregion.

The Beier and Barrett (1993) report in particular documented travel routes by a least ten radio-tagged mountain lions between Arroyo Trabuco and Wagon Wheel Canyon at the existing habitat linkage between the Las Flores and Ladera Ranch developments and across middle Chiquita Canyon. From Wagon Wheel Canyon, mountain lions move down Sulphur Canyon, across the Gobernadora valley floor and into Caspers Wilderness Park via at least two drainages: "North" and "South" Gunsight Canyons (as defined by MBA 1996). There are two more northern drainages that also provide potential movement corridors for mountain lions, although the Beier and Barrett study did not document use of these canyons and MBA (1996) also noted in their discussion that mountain lions are known to use both North and South Gunsight from earlier observations, but concluded that North Gunsight may be more important because it is closer to the mouth of Sulphur Canyon and thus less distance for lions to travel. The more northern canyons may provide alternate movement routes for mountain lions and are more direct routes for lions moving between Sulphur Canyon and Caspers Wilderness Parks.

Beier and Barrett (1993) and MBA (1996) also identify travel routes in the San Mateo Watershed along Gabina, La Paz, Blind, Cristianitos, and Talega canyons. Camera stations placed by MBA (1996) in Cristianitos Canyon west of the Northrop Grumman facility and at the confluence of Blind and Gabino canyons recorded three mountain lions each. This general area is an important area for mountain lions moving between the Donna O'Neill Land Conservancy

and habitat areas to the east with the San Mateo Watershed (i.e., RMV, Cleveland National Forest and Camp Pendleton). Beier and Barrett (1993) describe this area as "an unobstructed landscape" but that with "urban growth there will be at most two routes, namely Gabino-Blind Canyon and upper Christianitos [sic] Creek." (pg. 37)

Radio-telemetry data on mule deer by Padley (1992) reveal spatial habitat use patterns similar to mountain lions in the study area, which would be expected since mule deer are the primary prey for mountain lions. Padley's one per week location protocol does not allow for a detailed description of movement patterns (i.e., weekly point locations), but does reveal use areas. Mule deer in the study area occur within relatively localized and stable use areas in virtually all suitable habitat (mule deer in the study area are not migratory), although Padley suggests that some range shifts are related to mountain lion movements. Mule deer tend to use relatively open or mosaics of habitats adjacent to grasslands throughout the study area and likely would avoid only the densely vegetated areas of chaparral.

Habitat linkages and wildlife corridors in the study area are described below. These linkages and corridors are shown on Exhibit 4.9-8. It should be noted that the labels of each linkage correspond to the labels in the Draft NCCP Guidelines. The linkages described below are either entirely within the study area or directly connected to adjacent habitat areas. Linkages wholly outside the study area and not affected by development in RMV are not included in this discussion, but are described in the Draft NCCP/HCP Planning Guidelines and are illustrated on Figure 3-1 of the guidelines.

- The area (B) between the Las Flores and Ladera Ranch developments connecting Arroyo Trabuco and Chiquita Ridge provides an existing habitat linkage for species such as California gnatcatcher and a wildlife corridor for large mammals (Beier and Barrett 1993).

- The combined Chiquita Ridge and Creek area (C) provides a north-south wildlife habitat linkage from San Juan Creek to the "horseshoe" of habitat surrounding the northern end of Coto de Caza. This linkage is important for species such as California gnatcatcher and cactus wren and also for movement and dispersal of large mammals (Beier and Barrett 1993; Dudek 1995; MBA 1996; Padley 1992; NCCP/HCP Science Advisors 1997).

- The "Narrows" area (D) separating middle and lower Chiquita Canyon consists of oak/riparian and coastal sage scrub habitats, and relatively little dry land farming. This area provides an east-west habitat linkage between Chiquita Ridge and Chiquadora Ridge and Sulphur Canyon for both large mammals and small, mobile species such as the gnatcatcher (Beier and Barrett 1993; MBA 1996; Padley 1992).

- A mosaic of coastal sage scrub and grassland in lower Chiquita Canyon (E), such as the area adjacent to the wastewater treatment plant, provides an east-west movement corridor for California gnatcatcher dispersal, as well as for dispersal and movement of large mammals.

- Chiquadora Ridge and adjacent Gobernadora Creek (G) provide a north-south habitat linkage for California gnatcatcher and cactus wren to San Juan Creek, as well for movement and dispersal by large mammals (Beier and Barrett 1993; MBA 1996; Padley 1992; NCCP/HCP Science Advisors 1997).

- Sulphur Canyon (H) provides a north-south and east-west habitat linkage for large mammals between Chiquita Canyon and Wagon Wheel Canyon and Cañada

Gobernadora that allows wildlife to move east to Bell Canyon and Caspers Wilderness Park. It also provides a north-south connection for smaller species such as California gnatcatcher and cactus wren (Beier and Barrett 1993; MBA 1996; Padley 1992; NCCP/HCP Science Advisors 1997).

- Cañada Gobernadora between Coto de Caza and the mouth of Sulphur Canyon (I) provides an east-west habitat linkage for large mammals between Chiquita Canyon and Wagon Wheel Canyon to the west and Bell Canyon and Caspers Wilderness Park to the east (Beier and Barrett 1993; MBA 1996).

- San Juan Creek (J) functions as a central nexus for north-south and east-west wildlife movement in the central part of the planning area. It connects Chiquita Ridge and Chiquita Canyon with the Central San Juan Creek and Trampas Canyon sub-basin to allow dispersal and movement to the south via Cristianitos Canyon. It also serves east-west wildlife movement and dispersal from Chiquita Canyon upstream to the Cleveland National Forest, and major tributaries such as Cañada Gobernadora, Bell Canyon, and Verdugo Canyon (Beier and Barrett 1993; MBA 1996, Dudek 1995; Padley 1992; NCCP/HCP Science Advisors 1997). It should be noted that under existing conditions, large wildlife species (coyote, mule deer, bobcat, and possibly mountain lion) moving between San Juan Creek and Trampas Canyon and the Radio Tower Road area either use existing corrugated steel and concrete box culverts under Ortega Highway (Dudek 1995) or must cross the highway directly.

- Habitat west of the silica mine in Trampas Canyon (K) currently provides dispersal opportunities for California gnatcatchers and other species between Chiquita Ridge and gnatcatcher populations in San Juan Capistrano and San Clemente, as well as eastward dispersal between Trampas Canyon and the Talega development to Donna O'Neill Land Conservancy, Cristianitos Canyon, and Marine Corps Base (MCB) Camp Pendleton.

- Verdugo Canyon (L) provides an east-west habitat linkage for large mammals between San Juan Creek and the Cleveland National Forest (Beier and Barrett 1993; Padley 1992).

- Upland coastal sage scrub and chaparral habitats adjacent to Verdugo Canyon (M) may provide north-south movement opportunities for the cactus wren and other species, although it is likely that these species also disperse along San Juan Creek.

- Local gnatcatcher populations in the San Mateo Watershed are relatively small, compared with the remainder of the study area, and are concentrated along the Cristianitos Creek corridor and overlooking lower Talega Creek. Although there is the potential for gnatcatcher dispersal through coastal sage scrub patches throughout the San Mateo Watershed, an important habitat linkage for gnatcatchers within this watershed appears to be Cristianitos Canyon (N), which links San Juan Creek with local populations in lower Gabino Creek and MCB Camp Pendleton along lower Cristianitos/San Mateo Creek.

- Gabino Canyon (O) provides a north-south habitat linkage between the study area and the Cleveland National Forest for large mammals (Beier and Barrett 1993; MBA 1996; Padley 1992; NCCP/HCP Science Advisors 1997) and may support dispersal by the cactus wren and other species.

- La Paz Canyon (P) provides a north-south habitat linkage between the study area and the Cleveland National Forest for large mammals (Beier and Barrett 1993; Padley 1992) and possibly a habitat linkage for dispersal by the cactus wren and other species.

- Talega Canyon (Q) provides for east-west and north-south movement between the study area and MCB Camp Pendleton for large mammals (Beier and Barrett 1993; Padley 1992), cactus wren, and other species.

4.9.4 PROJECT IMPACTS

DISCUSSION OUTLINE

Given the significance and complexity of issues involving biological resources, the following is a topical outline intended to provide the reader with an overview of the topics reviewed in the Project Impacts Section;

A. Thresholds of Significance

- Significance Criteria
- The role of the NCCP Guidelines and Watershed Planning Principles in applying the CEQA Guidelines Criteria to the southern Orange County sub regional conservation planning context

B. Overview of the Application of the NCCP Guidelines and Watershed Planning Principles in Relation to Impacts Analysis

- Use of the NCCP/HCP and SAMP/MSAA Sub-Basin Guidelines and Principles in Impact Assessment
- NCCP Guidelines Species Accounts
- Wildlife and Habitat Connectivity Policy Guidance
- Sitting and Design of Roads and Infrastructure Policy Guidance
- Potential Long-Term Indirect Impacts Policy Guidance

C. Review of Proposed Project Consistency with Sub-Basin Guidelines and Principles

- Consistency with NCCP Sub-Basin Guidelines
- Consistency with SAMP Basin Principles
- Planning Species Consistency Review
- Infrastructure Consistency Review – Circulation System and Other Infrastructure
- Summary of Sub-Basin Consistency Analysis

D. Summary of Potentially Significant Impacts

- Vegetation Communities
- Listed Planning Species
- Other Listed Species
- Unlisted Planning Species
- Other Sensitive Species

THRESHOLDS OF SIGNIFICANCE

<u>CEQA Guidelines Appendix G and NCCP/SAMP Policy Guidelines – Significance Criteria</u>

According to the CEQA Guidelines, the analysis of environmental impact shall: (1) “focus on the significant environmental effects of the proposed project”; (2) review any “significant effects which cannot be avoided” if the proposed project is implemented; (3) review feasible mitigation measures proposed to minimize significant adverse impacts and; (4) describe significant impacts “which can be mitigated but not reduced to a level of insignificance.”

For a typical CEQA document, a lead agency may rely on significance thresholds based on Appendix G of the state CEQA Guidelines or may have an adopted set of local thresholds, although it is not required to do so (CEQA Guidelines §15064.7). In the case of this EIR, the County has identified significance thresholds for Biological Resources that are based on a combination of the six significance thresholds set forth in Appendix G and the two sets of detailed guidelines and planning principles resulting from the coordinated NCCP/HCP and SAMP/MSAA planning processes. The detailed guidelines and principles, although currently in draft form, represent the latest available biological information on the study area. Each sub-basin within the study area has distinctive terrains, hydrologic and habitat attributes, and associated species that warrant consideration at a sub-basin level. Therefore, the project would be considered to have a significant impact on biological resources if it would result in a:

- Substantial adverse effect, either directly or through habitat modifications, on any species state- or federally-listed as Threatened or Endangered.

- Substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate for listing, sensitive, rare, or otherwise special status plant or animal species in local or regional plans, policies, or regulations, or by the CDFG or USFWS.

- Conflict with any approved or adopted local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

- Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS.

- Substantial adverse effect on State or Federally-protected wetlands as defined by Section 1600 of the California Fish and Game Code or Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means.

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

- Conflict with applicable Draft Southern Subregion NCCP/HCP Planning Guidelines.

- Conflict with applicable Draft San Juan Creek Watershed/Western San Mateo Creek SAMP/MSAA Watershed Planning Principles.

NCCP Guidelines and Watershed Planning Principles – Significance Criteria

Given the scale of the study area and the relationship of the Proposed Project to the coordinated planning process, the determination of the significance of potential biological impacts is necessarily related to the conservation planning principles established for the subregion within which the Proposed Project is located. The first six thresholds of significance criteria enumerated immediately above reflect the CEQA Guidelines. The last two sets of criteria reference Guidelines and Planning Principles formulated through the coordinated planning process. As in the case of the Central and Coastal NCCP/HCP, the determination of levels of significance of potential impacts for areas employing subregional conservation planning principles must necessarily be placed within the context of guidelines and principles directed toward large-scale natural communities and watershed-scale resources.

Each of the first six thresholds of significance criteria (i.e., the CEQA Guidelines Appendix G Significance Criteria) is reflected and addressed in the NCCP/HCP Planning Guidelines and the SAMP/MSAA Watershed Planning Principles: (1) listed species and other sensitive species (the first two CEQA Appendix G Guidelines) are comprehensively addressed by the NCCP/HCP Planning Guidelines and SAMP Watershed Planning Principles; (2) the NCCP/HCP and SAMP/MSAA sub-basin guidelines and principles and species accounts derive from the coordinated planning process and are directed at protecting geographic specific biological resources; (3) wetlands and riparian habitats are addressed comprehensively in both sets of guidelines and principles; (4) wildlife movement is also comprehensively addressed through general principles and geographically specific guidelines; and (5) woodlands habitats are one of the major vegetation communities addressed in the NCCP Guidelines.

Thus, all of the CEQA Guidelines Appendix G thresholds of significance criteria are addressed in the NCCP Guidelines and Watershed Planning Principles and, most importantly, the substantive considerations involved in the CEQA Guidelines are addressed at both a landscape planning level (i.e., the draft NCCP General Policies, the SRP/Science Advisors tenets of reserve design, the SAMP tenets and the Baseline Conditions Watershed Planning Principles) and on a geographic-specific basis (i.e., the NCCP sub-basin guidelines, the SAMP sub-basin planning principles and the Species Accounts).

The following excerpts from the NCCP Guidelines examine the purposes of the Guidelines and the manner in which they were formulated to provide guidance for protecting, managing, and enhancing resources for the conservation planning area within which the Proposed Project is located, including the geographic specific emphasis of the sub-basin guidelines:

> "The Planning Guidelines for the Southern NCCP/HCP . . . are intended to provide an objective and common set of planning considerations and recommendations for use by the resource and regulatory agencies and the program participants in selecting and evaluating reserve program, restoration and management alternatives for the Southern NCCP/HCP. The Southern NCCP/HCP Guidelines were prepared by the NCCP/SAMP Working Group. These guidelines represent a synthesis of the following source materials:
>
> - The NCCP Conservation Guidelines, including the seven Tenets of Reserve Design, prepared by the [NCCP] Scientific Review Panel appointed by the CDFG (1993)
>
> - The Principles of Reserve Design and Adaptive Management Principles for the Southern Subregion prepared by the Science Advisors convened by the Nature Conservancy to assist in the preparation of the Southern NCCP (Science Advisors 1998); and
>
> - Southern Subregion databases
>
> Using the broader NCCP Tenets as a framework and starting point, the Southern
>
> NCCP/HCP Guidelines ***provide guidance for decision-makers that is keyed to local biologic, hydrologic, and geomorphic conditions*** [emphasis added] These guidelines address resources at both the landscape and more detailed hydrologic/geomorphic sub-basin levels. For each sub-basin planning unit, the Guidelines identify the important biological resources and key hydrologic/geomorphic processes. Protection recommendations also are included, providing an objective and common set of planning

considerations and recommendations for use in selecting and evaluating Habitat Reserve design, restoration, and adaptive management alternatives.

. . . .

The participants in the SAMP/MSAA process have also developed tenets and principles for the identification and evaluation of alternatives. The USACE and CDFG set forth eight SAMP/MSAA Tenets characterized as overall program goals intended to facilitate the identification of alternatives that meet the project purpose and need. As part of the NCCP/SAMP Working Group, the participants also jointly collaborated on a set of Watershed and Sub-basin Planning Principles ('Watershed Planning Principles' . . .) The Watershed Planning Principles are intended to function in a similar manner as the NCCP Science Advisors reserve design principles. Reserve Design Tenet 7 was added by the Science Advisors in recognition of the role that hydrologic and sediment processes play in shaping the landscapes of the planning area. This tenet helps to integrate the NCCP/HCP and SAMP/MSAA processes and serves as a link between this set of guidelines and the tenets and principles of the SAMP/MSAA.

The Watershed Planning Principles and the Southern NCCP/HCP Guidelines . . . are applied at the sub-basin scale as a response to the distinct characteristics (geomorphic, hydrologic and biologic) of each of the sub-basins [emphasis added]. Both the watershed Planning Principles and the Southern NCCP Guidelines are the same sub-basin units/boundaries as the basis for addressing site-specific resource protection and management. . . . ."

Source: http://pdsd.oc.ca.gov/soccpp/index.htm

APPLICATION OF THE NCCP GUIDELINES AND WATERSHED PLANNING PRINCIPLES TO IMPACT ASSESSMENT

Avoidance/Minimization of Potentially Significant Impacts on Biological Resources (Including Related Hydrologic and Geomorphic Resources) – Sub-Basin Scale of Analysis

As reviewed above, the NCCP/HCP Planning Guidelines and SAMP/MSAA Watershed Planning Principles address the protection of important resources – biologic and related hydrologic/geomorphic resources – at a geographic specific scale in the NCCP Sub-Basin Guidelines and Watershed Sub-Basin Planning Principles. Important resources found within each sub-basin are addressed as "Planning Considerations" ("Existing Conditions and Biological Resources" under the NCCP Sub-Basin Guidelines and "WES General Assessment and Conclusions" and "Planning Considerations – Significant Terrains and Hydrologic Features" under the Watershed Sub-Basin Planning Principles) and then specific protection recommendations are set forth for those particular resources found within each sub-basin (three categories of "Planning Recommendations" as set forth under the NCCP Sub-Basin Guidelines – (1) "Protection Recommendations," (2) "Management Recommendations," and (3) "Restoration Recommendations; as well as a set of "Planning Recommendations" under the Watershed Sub-Basin Planning Principles). In this way, significant habitat resources/natural vegetation communities are addressed comprehensively on a geographic specific basis in order to meet CEQA "plan to ground" impact assessment requirements.

As an example of the manner in which the NCCP Guidelines protection recommendations provide the basis for assessing the significance of potential impacts, the following guideline defines specific areas that need to be protected in order to assure biological connectivity:

> "Maintain east-west biological connectivity by protecting habitat linkages and wildlife corridors between Arroyo Trabuco, Chiquita Canyon, and Gobernadora Canyon. Biological connectivity should be maintained between Chiquita, Gobernadora, and Arroyo Trabuco by protecting habitat linkages at minimum of three locations within the sub-basin: (1) via rim-to-rim preservation of Sulphur Canyon (approximately 2,000 to 2,500 feet wide); (2) at the 'Narrows' where the canyon is only 700-800 feet wide (approximately 3,000 feet south of Tesoro High School) and connectors to Sulphur Canyon; and (3) in contigious patches of coastal sage scrub through the major canyon north and east of the wastewater treatment plant."

To the extent that the Proposed Project and the Alternatives avoid impacting the three geographically defined habitat linkages, the Proposed Project and Alternatives would avoid impacting significant biological connectivity resources. If the Proposed Project and/or any of the Alternatives would impact one or more of the three defined habitat linkages, that impact would be considered a significant impact requiring furthur consideration of avoidance/minimization actions or mitigation. In this way, the Protection Recommendations in the NCCP sub-basin Guidelines identify specific significant resources and define the manner in which protection should occur (generally through specified avoidance or minimization). Management Recommendations provide guidance for actions that could be taken to enhance resource values over the long term, particularly with regard to the long term Adaptive Management Program reviewed in the Mitigation Section. Restoration Recommendations define desirable habitat restoration opportunities on a geographic-specific basis. If the Proposed Project avoids impacting potential habitat restorations sites, then the Proposed Project avoids causing a significant impact. However, if the Proposed Project or Alternatives would impact a potential restoration site and thereby limit or preclude a future restoration action, the impact would be considered significant.

Potential impacts on species that have been selected as NCCP/SAMP "Planning Species" (see discussion below regarding Species Accounts for NCCP/SAMP "Planning Species") are addressed in the same way. Thus, the NCCP Sub-Basin Guidelines and Watershed Sub-Basin Planning Principles provide comprehensive, geographic-specific criteria for determining whether the Proposed Project can avoid or minimize significant impacts on biological and related resources.

As each sub-basin Protection Recommendation is reviewed in the following subsection of this Project Impacts assessment, a determination is made as to whether the Proposed Project is "Consistent," "Could be Consistent," or "Not Consistent." Findings of "Consistent" reflect a determination that a potentially significant impact has been avoided. Any finding of "Could be Consistent," is a determination that there is a potentially significant impact that could be avoided with additional specified avoidance/minimization measures that appear to be potentially feasible. A "Not Consistent" finding is a determination that the Proposed Project is in conflict with a particular sub-basin Protection Recommendation and that further avoidance/minimization measures would likely conflict with the Project Purposes. Thus, the difference between a "Could be Consistent" finding and a "Not Consistent" finding is that additional minimization measures can be identified for "Could be Consistent" findings that would achieve "avoidance" or "minimization" of impacts to below a level of significance whereas a "Not Consistent" finding reflects a determination that there are no further minimization measures that appear to be potentially feasible. All "Could be Consistent" findings are further reviewed under the Mitigation Section to determine whether the specified avoidance/minimization measures are feasible and can be determined to constitute further mitigation to help reduce potential impacts to below a level of significance.

Overall potentially significant impacts to sensitive species that would be caused by the project as proposed are summarized at the end of this Impacts Section. However, the significance of impacts remaining following mitigation is assessed in the Mitigation Chapter, both with respect to sensitive species whose habitat needs are provided for through the Conservation Strategy and any species that may require specific mitigation measures.

Assessment of Potential Impacts on Species – Role of the Species Accounts for NCCP/SAMP "Planning Species" in Defining Criteria for Assessing the Significance of Potential Impacts

According to the NCCP Guidelines, certain species have been selected to "serve as the conservation planning surrogates for identifying habitat areas that should be considered for inclusion in the Habitat Reserve" (NCCP Guidelines General Policy 2). These species have been termed "Planning Species." The selected Planning Species comprise the listed species found within the subregion (one state-listed species, the Swainson's hawk may occur, but is a rare migrant to the coast of California and a second state listed species the peregrine falcon, has no known nesting occurrences on RMV lands – see Existing Setting section), as well as a wide range of other plant and animal species, including all CNPS sensitive plant species known from the planning area. Thus, it is important to assess potential impacts on Planning Species both in terms of their importance as sensitive species and in terms of their importance as conservation planning surrogates for considering lands to be included in a habitat reserve on RMV lands.

For the above reasons, the NCCP Guidelines have attempted to define significance criteria for populations and locations of Planning Species. The NCCP Guidelines describe the elements of the analyses that were used to determine the significance of Planning Species populations in particular locations:

> "In order to prepare and implement sub-basin guidelines for NCCP/HCP Planning Species, it is necessary to gain an understanding of each of the species' regional and subregional distribution, specific habitat affinities (including edaphic requirements), and the life history characteristic of each species. In this context, the following issues need to be addressed:
>
> - The species' regional and subregional distribution;
> - The relative importance of the Southern Subregion for the continued survival or recovery of the species;
> - Key and important habitat characteristics of the species;
> - Key and important life history characteristics . . .; and
> - Response to management (including enhancement and restoration).
>
> With the above information, major populations and important populations of the Planning Species will be identified. *Major populations* are those considered sufficiently large to be self-sustaining with a minimum of active or intensive management intervention or that at least support enough breeding individuals to contribute reliably to the overall metapopulation stability of the species. *Important populations* may not meet the relative size standards of *major populations*, but may nonetheless be important to the species' long-term survival. For example, a smaller population in a key habitat linkage may be important for breeding success and exchange of genetic material and thus would be

> considered to be an *important population*, even tough it would not be considered a *major population*.
>
> To facilitate reserve design, *key locations* will be defined for some Planning Species. For planning purposes, *key locations* are ***those locations that are deemed necessary for the conservation of the species in the subregion*** (emphasis added). For example, populations of a species that are concentrated in a single or few locations would be *key locations*. *Key locations* may not be identifiable for some species that are widely scattered and lack population concentrations. *Major populations*, or some portion thereof, may be *key locations*, but not all major populations, or portions thereof, are necessarily *key locations*. With respect to *important populations*, most *important populations* would also be in *key locations*. An *important population* may not be a *key location* where, for example, more than one *important population* can fulfill a desired reserve design and species sustainability function (e.g. connectivity). The identification of a *key location* within a *major* or *important population* ***defines that portion of the population that is necessary for conservation of the species in the subregion***. (emphasis added). ***Portions of major or important populations that are not identified as key locations may be impacted consistent with the conservation of the species within the subregion*** (emphasis added)"
>
> (NCCP Guidelines – General Policy 2)

Consistent with NCCP Guidelines General Policy 2, Appendix G-2 "provides species accounts and key habitat components for listed and other selected "Planning Species" in the planning area . . . ." (Section 4 of the NCCP Guidelines). As indicated in the discussion above under General Policy 2, *key locations* are identified for most of the Planning Species. For the species that are widely scattered and lack population concentrations, key habitat components are identified. The NCCP Guidelines "species accounts" and key habitat components analyses for the Planning Species define *key locations* "that are deemed necessary for the conservation of the species in the subregion". In so doing, the Guidelines also identify "important populations that are not identified as key locations" and thus "may be impacted consistent with the conservation of the species within the subregion." The *key locations*/key habitat components write-ups define "significance criteria" for conservation planning in the subregion. The *key locations*/key habitat components write-ups have been carried over into the NCCP Sub-Basin Guidelines and Watershed Sub-Basin Planning Principles. Hence, the consistency review of these two sets of Sub-basin Guidelines and Principles provides geographic-specific criteria for determining the significance of potential impacts both within particular areas and on an overall basis.

Potential Impacts to Wildlife and Habitat Connectivity – Role of NCCP Guidelines General Policy 3 and the NCCP Sub-basin Guidelines in Establishing Criteria for Assessing Potential Impacts to Wildlife and Habitat Connectivity

The protection of wildlife and habitat connectivity is a major subregional conservation-planning goal. General Policy 3 of the NCCP Guidelines provides:

> "Assure wildlife and habitat connectivity within the subregion and to other subregions. Site and design new development to assure wildlife and habitat connectivity between major and important populations in key locations, within the subregion and between those populations and major populations in other contiguous subregions."

The supporting policy text for NCCP Guidelines General Policy 3 provides as follows:

> "For broad wildlife movement areas that presently allow for unconstrained movement, future development scenarios will restrict movement patterns to some extent. To weigh the merits of alternative development configurations/reserve designs, there is a need to preliminarily identify wildlife movement opportunities that are likely important to retain for ecosystem function. Identification of the areas most important for retaining effective wildlife movement in a future environment with development requires consideration of available wildlife movement data, existing species distributions, habitat affinities, animal behavior and local geography. To provide guidance for the planning process, these factors were considered to identify the areas discussed in the Existing Setting section that are considered important for maintaining wildlife movement functions under any reserve alternative.
>
> To the extent feasible, important broad wildlife movement areas will be retained In the Habitat Reserve. Where conservation of an entire wildlife movement area within the Habitat Reserve is not feasible a reduced or more constrained habitat linkage or wildlife corridor would still be conserved and managed. In addition, the function of habitat linkages will be conserved and managed to facilitate wildlife movement in multiple directions. The linkages will be managed to provide live-in habitat for a variety of species such that the overall function of the wildlife movement area is maintained.

In order to provide guidance for the planning process, important areas for maintaining wildlife movement functions under any reserve designs are described in the Existing Setting section. For purposes of General Policy 3, a distinction is drawn between habitat linkages and wildlife corridors as described in the Existing Setting section.

Reflecting the geographic-specific nature of habitat linkages and wildlife corridors, the areas identified in Existing Setting Section (also see Exhibit 4.9-8) are specifically addressed by policies set forth in the applicable sections of the NCCP Sub-Basin Guidelines. As a result, the consistency review of the NCCP Sub-Basin Guidelines below will examine the extent to which the Proposed Project protects or impacts each of the habitat linkages and wildlife corridors located in whole or in part within the study area.

Potential Impacts of Roads and Other Infrastructure on Biologic, Hydrologic and Geomorphic Resources – the Role of NCCP Guidelines General Policy 4 in Establishing Criteria for Assessing Resource Impacts Potentially Caused by the Siting and Design of Roads and Other Infrastructure

General Policy 4 of the NCCP Guidelines provides policies for avoiding and minimizing the potential impacts of roads and infrastructure on habitat, habitat linkages and movement corridors as follows:

> General Policy 4: Roads and infrastructure should be located outside the Habitat Reserve to the maximum extent feasible. The siting and design of roads and infrastructure should provide for protection of habitat linkages and movement corridors.

The supporting text in the NCCP Guidelines for General Policy 4 provides the following prescriptions for avoiding and minimizing potential impacts on biological resources:

- To the maximum extent feasible, roads and infrastructure should be located outside the Habitat Reserve.
- Roads that are necessary to serve approved land and water uses located inside or outside the Habitat Reserve shall be designed and sited to minimize impacts on

designated Identified Species, to accommodate wildlife movement to the maximum extent feasible, and to minimize impacts to habitat and associated species. Where roads are necessary [under approved plans] they will be designed consistent with safety, roadway design criteria that are appropriate for the setting and desired roadway function. Roadway design shall include bridges and/or culverts large enough to accommodate fish and wildlife movement and, where appropriate and feasible, wildlife over crossings. In addition, bridges and culverts should maintain appropriate sediment movement for existing streams. As appropriate, fencing, grading and plant cover will be provided to serve wildlife crossings consistent with conservation principles and the adaptive management program. Where feasible and safe, lighting along roadways within the Habitat Reserve should be avoided. Where roadway lighting within the Habitat Reserve is necessary for public safety reasons, it should be low-sodium or similar low intensity lighting that is directed away or shielded from the Habitat Reserve.

- Other infrastructure facilities (e.g. pipelines, transmission lines, etc.) that are necessary to serve approved uses or regional needs also shall be sited and designed to accommodate wildlife movement and, to the extent feasible, to minimize impacts to habitats and designated Identified Species located inside and outside the Habitat Reserve. To the extent feasible, infrastructure facilities within the Habitat Reserve should be located within or immediately adjacent to existing roadways or other developed landscapes."

Potential impacts of circulation system elements, along with potential avoidance and minimization measures addressing the above policy prescriptions, are reviewed in this Section under the heading "Circulation Systems Consistency Analysis" (this analysis is undertaken using a "without SOCTIIP" scenario; a "with SOCTIIP scenario is reviewed under the Cumulative Impacts section). Potential impacts of other infrastructure is also reviewed in this Section.

Potential Long-Term Indirect Impacts on Biological Resources – the Role of NCCP Guidelines General Policy 5 in Establishing Criteria for the Assessment of Potential Indirect Impacts Caused by the Proposed Project

Potential long-term indirect impacts resulting from future development within the study area are addressed by General Policy 5 of the NCCP Guidelines as follows:

"General Policy 5: Long-Term indirect impacts to the Habitat Reserve an other areas being preserved for species protection shall be managed through creation of an urban/wildlands interface zone separating the Habitat Reserve and the non-reserve/urban areas. Management within the interface zone would:

- Create fuel management zones combining irrigated and non-irrigated native plantings separating the Habitat Reserve from adjacent urban uses.

- To the extent that fuel management zones are comprised of native habitats and can support Identified Species and other species, or be enhanced or managed to support Identified Species and other species, this should be encouraged.

- Fuel management zones and practices will be set forth in a "fuel management plan" as part of the NCCP/HCP and aquatic resources protection program.

- Prohibit plants identified by the California Exotic Pest Plant Council as an invasive risk in Southern California from development and fuel management zones adjoining the Habitat Reserve.

- Manage pesticide and herbicide use and fertilizer application techniques in landscaped areas including golf courses, located adjacent to the Habitat Reserve pr preserved wetlands and provide comprehensive water quality treatment, which may include, but not be limited to, the use of natural treatment systems prior to discharge or urban runoff into the Habitat Reserve;

- Shield and/or direct lighting away from habitat areas through the use of low-sodium or similar intensity lights, light shields, native shrubs, berms and other shielding methods; and

- Provide barriers, fencing, signs, walls etc., to manage and direct access by the public and domestic animals (e.g. pets) to protect sensitive habitat and species.

Potential long-term indirect impacts and the application of the above avoidance and minimization measures are reviewed in this section. Potential short-term indirect impacts on hydrologic and geomorphic resources and potential long-term water quality indirect impacts are also reviewed in the Water Resources section.

PROPOSED PROJECT CONSISTENCY WITH SUB-BASIN PLANNING GUIDELINES AND PRINCIPLES

As previously noted, based on the NCCP/HCP Reserve Design Principles and SAMP Tenets prepared by the USACE, the NCCP/SAMP Working Group developed the Draft NCCP/HCP Planning Guidelines and Watershed Planning Principles. These guidelines and principles provide guidance for decision-makers that are keyed to local biologic, hydrologic, and geomorphic conditions.

For reference purposes, a list of sub-basins and sub-units addressed by the guidelines and principles is provided below.

San Juan Creek Watershed

- Chiquita Sub-basin
- Cañada Gobernadora Sub-basin
- Wagon Wheel Sub-basin
- Central San Juan & Trampas Canyon Sub-basin
- Trampas Canyon Subunit
- Verdugo Sub-basin

San Mateo Watershed

- Cristianitos Sub-basin
- Gabino and Blind Sub-basin
  - Upper Gabino Subunit
  - Middle Gabino Canyon Subunit
  - Lower Gabino Subunit including Blind Subunit
- La Paz Sub-basin
- Talega Sub-basin

Other Planning Area (located below the Donna O'Neill Conservancy)

Due to the wide-range of sub-basin planning considerations and recommendations set forth in the Draft NCCP Guidelines and Draft Watershed Principles, it is important to understand how the specific sub-basin Guidelines and Principles apply to the Proposed Project. A matrix approach has been selected as the most effective and "user-friendly" means of presenting a consistency analysis of the Proposed Project with the sub-basin Guidelines and Principles. Appendix G-5 presents a matrix that provides "NCCP/HCP Planning Guidelines Consistency Findings." Specific recommendations are set forth for each sub-basin, followed by a "consistency analysis" for the Proposed Project. Appendix G-6 presents a matrix that provides the "Watershed and Sub-Basin Planning Principles Consistency Findings" using the identical approach described for the Draft NCCP Guidelines. Because these matrices are extremely detailed, tabular summaries for the two matrices are presented in *Table 4.9-24* for the Draft NCCP Guidelines, *Table 4.9-25* for the Draft Watershed Principles, *Table 4.9-26* for the Planning Species in relation to the Planning Guidelines, and *Table 4.9-27* for the Planning Species in relation to the Watershed Principles. These summary tables are accompanied in the text by narrative summaries of the findings. *Table 4.9-29* provides an overall conservation summary for the Planning Species in terms of locations, suitable habitat, *major* and *important populations* and *key locations* for the Proposed Project. The concluding section provides a series of analyses of Circulation System Consistency for each sub-basin for the Proposed Project and a consistency analysis for other infrastructure proposed as part of the Proposed Project. A summary of the significant and potentially significant impacts of the proposed project relative to the consistency analysis discussed below on the planning guidelines, planning principles, and proposed circulation system, is provided at the conclusion of the section.

As noted previously, In the analysis of the Proposed Project for consistency with the Planning Guidelines and Principles, four consistency finding categories were used:

1. "Consistent" means that the Proposed Project would be fully consistent with the sub-basin recommendation or principle and would require no modification of the Proposed Project. For purposes of a CEQA significance threshold, a finding of consistency would not be identified as a significant impact.
2. "Could be Consistent" means that the Proposed Project is not fully consistent with the sub-basin recommendation but could be consistent if avoidance and/or minimization measures are feasible and are implemented. For purposes of a CEQA significance threshold, a finding of "could be consistent" may be identified as a potentially significant impact. Additional avoidance and minimization measures would need to be identified to reduce the identified impact to a level less than significant.
3. "Not Consistent" means that the Proposed Project would not be consistent with one or more substantive provisions of a particular sub-basin recommendation or principle and that further avoidance measures would conflict with the Proposed Project purpose. For purposes of a CEQA significance threshold, a finding of "not consistent" may be identified as a significant impact. Mitigation would need to be identified to reduce the identified impact to a level less than significant.
4. "Not Applicable" means that the sub-basin recommendation or principle would not be relevant to, or necessary in, the sub-basin.

Consistency Analysis

In describing the application of the NCCP Reserve Design Tenets to the analysis of alternatives, the NCCP Science Advisors noted that "reserve design Principles are not absolutes and "… it may be impracticable or unrealistic to expect that every design Principle will be completely fulfilled throughout the subregion" (Science Advisors, May 1997). The following is a summary of

the consistency analysis set forth in *Appendices G-2* and *G-3* and numerically summarized in Tables 4.9-24 and 4.9-25. The total number and percent of consistent determinations are noted for the Proposed Project. The number of conflicts (i.e., findings of "Not Consistent") and potential conflicts (i.e., "Could be Consistent" for which modifications to the Proposed Project would have to be made in order for the Proposed Project to become consistent) are also stated, both in number and percentages. The analysis then draws a conclusion as to the most significant conflicts for the Proposed Project and makes a statement of the degree (high, medium, or low) of overall consistency. A high degree of consistency has relatively few absolute conflicts and few potential conflicts whereas the opposite would be true for a low degree of consistency. For a medium degree of consistency, the number of absolute conflicts provides additional insight into the overall performance of the Proposed Project.

NCCP/HCP Planning Guidelines Consistency Analysis

The Proposed Project is 73 percent (109/150 total) consistent with the Planning Guidelines. Modifications to the Proposed Project would be necessary to be consistent with the following 23 (15 percent) Guidelines: 8, 12, 14, 27, 82, 83, 84, 88, 90, 91, 92, 93, 105, 107, 110, 123, 125, 130, 139, 141, 148 and 149. The Proposed Project would conflict with 18 (12 percent) of the Guidelines (7, 29, 30, 39, 54, 68, 79, 85, 86, 96, 97, 109, 126, 124, 128 and 134). See Table 4.9-24.

For the "Could be Consistent" findings, the Proposed Project would have to be modified in several instances to achieve consistency with the Planning Guidelines listed above. The types of modifications necessary to achieve consistency with these Guidelines are as follows:

a) adjust the eastern boundary of PA 2 to avoid two thread-leaved brodiaea populations;

b) develop a golf course design in PA 2 and adjust the alignments of the water and sewer lines which minimizes impacts to southern tarplant and Coulter's saltbush;

c) include culverts or similar type facility and associated fencing in the design of Cristianitos Road in the Chiquita sub-basin and the east-facing slope of Chiquadora Ridge to facilitate ground-dwelling wildlife movement;

d) formulate a golf course design in PA 6 that would protect southwestern pond turtle habitat associated with a stockpond, avoid impacts to alkali wetlands in upper Cristianitos, avoid 10 of 13 small thread-leaved brodiaea locations, avoid the *major population/key location* of many-stemmed dudleya, and protect the western population of Coulter's saltbush in the Cristianitos sub-basin;

e) set back development in PA 7 from Cristianitos Creek a minimum of 200 feet, avoid three scattered locations of thread-leaved brodiaea, the *major population/key location* of thread-leaved brodiaea, and five California gnatcatcher locations, and minimize impacts to native grasslands

f) develop a golf course design in PA 9 which would avoid southwestern pond turtle habitat associated with Jerome's Lake and minimize impacts to Coulter's saltbush

g) site estate lots in PA 9 to avoid 6 locations of many-stemmed dudleya;

h) site estate development in PA 8 to avoid four thread-leaved brodiaea locations and three many-stemmed dudleya locations; and

i) design and construct Cristianitos Road over Cristianitos Creek and lower Gabino Creek in a manner that minimizes impacts to arroyo toad habitat.

Generally, golf courses are a flexible land use that can be designed to avoid and minimize impacts to specific resources. Development (residential/commercial) bubbles on the other hand are less flexible in that the loss of developed acreage in favor of a specific resource can affect the economic feasibility of the development bubble, which, in turn, can affect the overall economic feasibility of the Proposed Project.

For the "Not Consistent" findings, the Proposed Project generally conflicts with the Planning Guidelines in four ways: (1) impacts to grassland habitats; (2) impacts to raptor foraging habitat, (3) impacts to specific species and habitat types; and (4) impacts to wildlife movement. The Proposed Project would conserve 2,739 acres or 54 percent of grassland habitat. Conservation of historic raptor nest locations is approximately73 percent and conservation of foraging habitat varies from 54 percent for grassland to 82/64 percent for riparian/woodland) (foraging habitat for Cooper's hawk). Although the Proposed Project fails to achieve the 80 percent gnatcatcher location conservation threshold recommended by Guideline 39 for the eastern slopes of Chiquadora Ridge (the Proposed Project achieves a 68 percent conservation), overall, in combination with already conserved open space, the Proposed Project protects 87 percent of locations and 88 percent of coastal sage scrub within the *major population/key location* in Chiquita/Wagon Wheel sub-basins and the Chiquadora Ridge portion of the Gobernadora sub-basin (as illustrated in Exhibit 4.9-13), and is therefore consistent with Guideline 17. Across the entire RMV Open Space, the Proposed Project conserves 76 percent of coastal sage scrub and 74 percent of gnatcatcher locations (5,806 acres and 179 locations respectively). Although the Proposed Project impacts two slope wetlands north of the Chiquita Treatment Plant, slope wetlands below the treatment plant are protected. Impacts to wildlife movement may occur at linkage "I" where the planning Guidelines recommend a 2,500-foot protected area along the southern boundary of Coto de Caza. The Proposed Project proposes a 1,000-foot protected area and limited low-density estate housing extending another 2,500 feet south of the protected area. Although the Proposed Project is not consistent with the Guideline 29 for this linkage, the estate area will provide some additional movement habitat in this area and should not pose a significant hindrance to wildlife movement through the area.

Overall, the Proposed Project achieves a medium (73 percent) degree of consistency with the NCCP sub-basin protection, management, and restoration recommendations.

TABLE 4.9-24
TABULAR SUMMARY OF PROPOSED PROJECT CONSISTENCY FINDINGS FOR NCCP/HCP PLANNING GUIDELINES

Sub-Basin	Consistency/Significance	Number of Guidelines	Percent of Guidelines
Chiquita	Consistent/Not Significant	18	82
	Could Be Consistent/Potentially Significant	3	14
	Not Consistent/Significant	1	5
Gobernadora	Consistent/Not Significant	16	80
	Could Be Consistent/Potentially Significant	1	5
	Not Consistent/Significant	3	15
Central San Juan & Trampas	Consistent/Not Significant	21	91
	Could Be Consistent/Potentially Significant	0	0
	Not Consistent/Significant	2	9
Verdugo	Consistent/Not Significant	4	80
	Could Be Consistent/Potentially Significant	0	0
	Not Consistent/Significant	1	20
Total – San Juan Creek	***Consistent/Not Significant***	***59***	***84***
	Could Be Consistent/Potentially Significant	***4***	***6***
	Not Consistent/Significant	***7***	***10***
Cristianitos	Consistent/Not Significant	7	37
	Could Be Consistent/Potentially Significant	8	42
	Not Consistent/Significant	4	21
Gabino and Blind Canyons	Consistent/Not Significant	20	63
	Could Be Consistent/Potentially Significant	7	22
	Not Consistent/Significant	5	16
La Paz	Consistent/Not Significant	4	67
	Could Be Consistent/Potentially Significant	2	33
	Not Consistent/Significant	0	0
Talega	Consistent/Not Significant	6	75
	Could Be Consistent/Potentially Significant	2	26
	Not Consistent/Significant	0	0
Other	Consistent/Not Significant	7	78
	Could Be Consistent/Potentially Significant	0	0
	Not Consistent/Significant	2	22
Total – San Mateo Creek	***Consistent/Not Significant***	***44***	***59***
	Could Be Consistent/Potentially Significant	***19***	***26***
	Not Consistent/Significant	***11***	***15***
Planning Area-Wide	**Consistent/Not Significant**	**6**	**100**
	Could Be Consistent/Potentially Significant	**0**	**0**
	Not Consistent/Significant	**0**	**0**
Total	***Consistent/Not Significant***	***109***	***73***
	Could Be Consistent/Potentially Significant	***23***	***15***
	Not Consistent/Significant	***18***	***12***
Source: Dudek 2004			

Watershed Planning Principles Consistency Analysis

The Proposed Project is 80 percent (33/41 total) consistent with the Planning Principles. Modifications to the Proposed Project would be necessary to achieve consistency with Principles 28, 35, and 36. The Proposed Project would conflict with five (12 percent) of the

Principles (8, 10, 25, 30, and 40). See Table 4.9-25. For the "Could be Consistent" findings, modifications to the Proposed Project would be required for three Principles: avoiding the alkali wetlands in Upper Cristianitos (Principle 28), and construction of a collector road and associated bridge over Gabino Creek that avoids significant riparian habitat and arroyo toad habitat, as well as consideration of a paved fire evacuation road along Gabino Canyon to protect stream geomorphology, hydrology, and sediment transport processes (Principles 35 and 36). As noted above, golf courses are generally a flexible land use that can accommodate avoidance and minimization measures for specific resources, therefore creating a golf course design that avoids the alkali wetlands in Upper Cristianitos is feasible. The collector and fire evacuation roads are discussed in more detail below in the circulation consistency analysis.

TABLE 4.9-25
TABULAR SUMMARY OF PROPOSED PROJECT CONSISTENCY FINDINGS FOR WATERSHED PLANNING PRINCIPLES

Sub-Basin	Consistency/Significance	Number of Guidelines	Percent of Guidelines
Chiquita	Consistent/Not Significant	7	88
	Could be Consistent/Potentially Significant	0	0
	Not Consistent/Significant	1	12
Gobernadora	Consistent/Not Significant	7	88
	Could be Consistent/Potentially Significant	0	0
	Not Consistent/Significant	1	12
Central San Juan & Trampas	Consistent/Not Significant	4	100
	Could be Consistent/Potentially Significant	0	0
	Not Consistent/Significant	0	0
Verdugo	Consistent/Not Significant	3	100
	Could be Consistent/Potentially Significant	0	0
	Not Consistent/Significant	0	0
Total – San Juan Creek	***Consistent/Not Significant***	***21***	***91***
	Could be Consistent/Potentially Significant	***0***	***0***
	Not Consistent/Significant	***2***	***9***
Cristianitos	Consistent/Not Significant	3	60
	Could be Consistent/Potentially Significant	1	20
	Not Consistent/Significant	1	20
Gabino and Blind Canyons	Consistent/Not Significant	5	63
	Could be Consistent/Potentially Significant	2	25
	Not Consistent/Significant	1	12
La Paz	Consistent/Not Significant	2	100
	Could be Consistent/Potentially Significant	0	0
	Not Consistent/Significant	0	0
Talega	Consistent/Not Significant	2	67
	Could be Consistent/Potentially Significant	0	0
	Not Consistent/Significant	1	33
Total – San Mateo Creek	***Consistent/Not Significant***	***12***	***67***
	Could be Consistent/Potentially Significant	***3***	***17***
	Not Consistent/Significant	***3***	***17***
TOTAL	***Consistent/Not Significant***	***33***	***80***
	Could be Consistent/Potentially Significant	***3***	***7***
	Not Consistent/Significant	***5***	***12***
Source: Dudek 2004			

For the "Not Consistent" findings, the Proposed Project conflicts with Principles related to coastal sage scrub and native grassland restoration in Cristianitos and Gabino canyons (Principles 25 and 30, respectively) and Principle 8 regarding impacts to slope wetlands in the Chiquita sub-basin above the treatment plant. Coastal sage scrub and native grassland restoration opportunities identified in Cristianitos and Gabino canyons would primarily be impacted by golf course land uses (23 out of 244 acres). As previously noted, however, golf courses are a flexible land use which can accommodate restoration of native habitats in and around the golf course (similar to the integration of natural habitats into the design of the newly constructed Arroyo Trabuco Golf Course). This potential conflict with the Principles is therefore not significant in terms of overall protected open space.

Overall, the Proposed Project achieves a high 80 percent degree of consistency with the Watershed Planning Principles.

Planning Species Consistency Analysis

NCCP/HCP Guidelines

The Proposed Project has high overall consistency with the Planning Guidelines for the 27 of the 28 Planning Species analyzed. The average Planning Species consistency for the Proposed Project is 81 percent, with another 11 percent of the Guidelines "could be consistent." Most of the "could be consistent" findings are related to project design features that could be implemented to avoid impacts to Planning Species and achieve consistency with the Guidelines. On average, the Proposed Projects is not consistent with only eight percent of the Guidelines (see Table 4.9-26). Table 4.9-28 provides an overall conservation summary for the Planning Species in terms of locations, suitable habitat, major and important populations, and key locations for the Proposed Project.

As shown in Table 4.9-26 the consistency percentages under the Proposed Project for 27 Planning Species range from a low of 20 percent for Coulter's saltbush (this species' protection relies heavily on project design avoidance features in the golf courses and water and sewer alignments in middle Chiquita, upper Cristianitos and upper Gabino canyons) to 100 percent for least Bell's vireo, southwestern willow flycatcher, Riverside and San Diego fairy shrimp, golden eagle, yellow warbler, yellow breasted chat, chaparral beargrass, and salt spring checkerbloom.

The three listed species that did not achieve 100 percent consistency under the Proposed Project Alternative are the arroyo toad, California gnatcatcher, and thread-leaved brodiaea. The Proposed Project is 95 percent consistent for the arroyo toad. It "could be consistent" for the toad for Guideline 141, which recommends siting and construction of estate lots in upper La Paz Canyon according to policies that ensure that the generation and transport of coarse sediments to downstream areas are protected. Given that only four estate lots are planned for upper La Paz Canyon, this Guideline should be feasible and the Proposed Project would then be 100 percent consistent with the Guidelines for the arroyo toad.

TABLE 4.9-26
PLANNING SPECIES CONSISTENCY ANALYSIS SUMMARY FOR NCCP/HCP PLANNING GUIDELINES

Planning Species	Consistent/Not Significant	Could be Consistent/Potentially Significant	Not Consistent/ Significant
Arroyo Toad	19	1	0
	95%	5%	10%
California Gnatcatcher	18	2	2
	82%	9%	9%
Least Bell's Vireo	18	0	0
	100%	0%	0%
SW Willow Flycatcher	5	0	0
	100%	0%	0%
Riverside Fairy Shrimp	2	0	0
	100%	0%	0%
San Diego Fairy Shrimp	2	0	0
	100%	0%	0%
Thread-leaved Brodiaea	9	5	1
	60%	33%	7%
Cactus Wren	17	2	4
	70%	13%	17%
Cooper's Hawk	21	1	4
	81%	4%	15%
Golden Eagle	1	0	0
	100%	0%	0%
Grasshopper Sparrow	14	3	9
	54%	12%	35%
Merlin	9	1	6
	56%	6%	37%
Tricolored Blackbird	10	3	5
	56%	17%	28%
White-tailed Kite	25	2	9
	69%	6%	25%
Yellow Warbler	18	0	0
	100%	0%	0%
Yellow-breasted Chat	21	0	0
	100%	0%	0%
Western Spadefoot Toad	20	2	1
	87%	9%	4%
Orange-throated Whiptail	22	2	2
	85%	8%	8%
San Diego Horned Lizard	23	3	2
	82%	11%	7%
Southwestern Pond Turtle	8	3	1
	67%	25%	8%
Mountain Lion	17	2	1
	85%	10%	5%
Mule Deer	18	2	2
	82%	9%	9%
Chaparral Beargrass	1	0	0
	100%	0%	0%
Coulter's Saltbush	1	4	0
	20%	80%	0%
Many-stemmed Dudleya	19	5	2
	73%	19%	8%
Mud Nama	0	0	1
	0%	0%	100%
Salt Spring Checkerbloom	3	0	0
	100%	0%	0%
Southern Tarplant	5	1	0
	83%	17%	0%
Average Consistency	**81%**	**11%**	**8%**

The average excludes mud nama because the Proposed Project and all alternatives (as discussed in the alternatives section) are 0 percent consistent for this species.

Source: Dudek 2004

For the gnatcatcher, the Proposed Project is 82 percent consistent, nine percent "could be consistent", and nine percent not consistent. The two "could be consistent" findings both relate to project design features in the Cristianitos development area. Guideline 88 recommends avoiding impacts to the north-south habitat linkage along Cristianitos Creek by providing an average setback from the creek of 500 feet, with a 200-foot minimum. Guideline 123 could be achieved by avoiding all five California gnatcatcher locations in the development area. Both Guidelines can feasibly be achieved. The two Guidelines not met for the California gnatcatcher are Guideline 39 which recommends 80 percent conservation of coastal sage scrub and California gnatcatcher locations on Chiquadora Ridge and Guideline 68 which recommends maintaining the upland east-west habitat linkage south of the artificial lake in Trampas Canyon. Although Guideline 39 is not met, overall, in combination with already conserved open space, the recommended threshold of at least 80 percent conservation of coastal sage scrub and gnatcatcher locations is achieved in the Chiquita/Wagon Wheel canyons sub-basin *major population/key location*. Guideline 68 is not met; however, a narrow strip of habitat would remain between the Trampas Canyon development area and the Talega development to the south. This linkage probably is adequate for avian movement and smaller wildlife, but likely is constrained for larger species such as bobcat. This linkage probably is not crucial for overall function of the protected open space for the bobcat because other east-west corridors such as San Juan Creek will remain intact.

For the thread-leaved brodiaea the Proposed Project is 60 percent consistent, 33 percent "could be consistent" and seven percent not consistent. The "could be consistent" findings relate to project design features in the lower Chiquita and Cristianitos development areas. Guideline 8 recommends avoiding two of the four populations of thread-leaved brodiaea in lower Chiquita Canyon in addition to the large population on Chiquadora Ridge. Guidelines 90 and 130 recommend avoiding the three locations totaling 4,500 flowering stalks in lower Cristianitos and Gabino canyons. Guideline 91 recommends avoiding at least 10 of the 13 scattered locations in Cristianitos Canyon. Finally, Guideline 148 recommends avoiding the four scattered thread-leaved brodiaea locations east of the Northrop-Grumman facility.

For the non-listed Planning Species, the Proposed Project generally has medium to high consistency across the major species-habitat associations (Table 4.9-26). As examples, for coastal sage scrub species, the Proposed Project is 70 percent consistent for the cactus wren, 85 percent consistent for the orange-throated whiptail, and 82 percent consistent for the San Diego horned lizard. For grassland species, the Proposed Project is 54 percent consistent for the grasshopper sparrow and 56 percent consistent for the merlin. For riparian/woodland species, the Proposed Project is 81 percent consistent for the Cooper's hawk, 69 percent consistent for the white-tailed kite, and 100 percent consistent for the yellow warbler and the yellow breasted chat. For planning area-wide species, the Proposed Project is 100 percent consistent for the golden eagle, 85 percent consistent for the mountain lion, and 82 percent consistent for the mule deer. Finally, for non-listed plants the Proposed Project generally has high consistency, with chaparral beargrass at 100 percent consistent, many-stemmed dudleya at 73 percent consistent, salt spring checkerbloom at 100 percent, and southern tarplant at 83 percent consistent. As noted above, the Proposed Project is 20 percent consistent and 80 percent "could be consistent" for Coulter's saltbush. The Proposed Project could meet the Guidelines for the "could be consistent" if populations are avoided through golf course design features and water and sewer alignments in middle Chiquita, upper Cristianitos, and upper Gabino canyons. As discussed above, modifications to golf courses to avoid sensitive resources are quite feasible. The Proposed Project Alternative overall would provide high protection for Planning Species.

Watershed Planning Principles

The Proposed Project is highly consistent with the Watershed Principles for the ten Planning Species for which they are directly relevant (i.e., aquatic/riparian species) (See Table 4.9-27). Overall, the Proposed Project is 76 percent consistent with the Watershed Principles, 14 percent not consistent, and 10 percent "could be consistent." The consistency findings are tightly distributed with a range of 67 percent consistent for the southwestern pond turtle to 88 percent consistent for the tricolored blackbird.

The Proposed Project is 79 percent consistent for the arroyo toad, and seven percent "could be consistent." The single "could be consistent" is Principle 36 which recommends protecting populations in lower Gabino Creek by maintaining hydrologic and sediment delivery processes and episodic flow events. The Proposed Project could be consistent with this Principle by designing and constructing a substantial bridge span over the creek that avoids toad habitat.

TABLE 4.9-27
PLANNING SPECIES CONSISTENCY ANALYSIS SUMMARY
FOR THE WATERSHED PLANNING PRINCIPLES

Planning Species	Consistent/Not Significant	Could be Consistent/Potentially Significant	Not Consistent/ Significant
Arroyo Toad	11	1	2
	79%	7%	14%
Least Bell's Vireo	11	2	2
	73%	13%	13%
Southwestern Willow Flycatcher	5	0	1
	83%	0%	17%
Cooper's Hawk	12	2	2
	75%	13%	13%
Tricolored Blackbird	7	0	1
	88%	0%	13%
White-tailed Kite	12	2	2
	75%	13%	13%
Yellow Warbler	11	2	2
	73%	13%	13%
Yellow-breasted Chat	11	2	2
	73%	13%	13%
Western Spadefoot Toad	11	2	2
	73%	13%	13%
Southwestern Pond Turtle	6	1	2
	67%	11%	22%
Average Consistency	**76%**	**10%**	**14%**
Source: Dudek 2004			

The Proposed Project is not consistent with Principles 25 and 30. Principle 25 recommends protecting the Cristianitos headwaters area through native grassland restoration to reduce the generation of fine sediments. The Proposed Project proposes a golf course in areas targeted for grassland restoration and thus likely would not allow full implementation of this Principle, although the golf course could be designed to achieve partial consistency with this Principle. Principle 30 recommends protecting the Gabino headwaters through restoring existing gullies using a combination of slope stabilization, grazing management, and native grassland and/or scrub revegetation. The Proposed Project proposes golf course in upper Gabino that would

preclude restoring coastal sage scrub and native grassland in two targeted areas and potentially limiting restoration in a third area.

The Proposed Project is 73 percent consistent for the least Bell's vireo, 13 percent not consistent, and 13 percent "could be consistent." For the southwestern willow flycatcher, the Proposed Project is 83 percent consistent and 17 percent not consistent. The Proposed Project also is not consistent for the vireo with Principle 25, as described above for the arroyo toad. The Proposed Project could be consistent for the vireo with Principles 35 and 36. Principle 35 recommends protecting significant riparian habitat in lower Gabino Creek and Principle 36 recommends maintaining hydrologic and sediment delivery processes and episodic flow events in this portion of the creek. Construction of a collector road and bridge across Gabino Creek would have to avoid significant riparian habitat and allow for natural hydrologic and sediment transport processes to be consistent with this Principle.

For the non-listed Planning Species, the Proposed Project is not consistent with Principle 10, as described above for the vireo and flycatcher, for the Cooper's hawk, tricolored blackbird, white-tailed kite, yellow warbler, and yellow-breasted chat. In addition, the Proposed Project is not consistent with Principle 25, as described above for the arroyo toad, for Cooper's hawk, white-tailed kite, yellow warbler, yellow-breasted chat, spadefoot toad, and southwestern pond turtle. Finally, the Proposed Project is not consistent for Principle 30, as described above the arroyo toad, for the spadefoot toad and pond turtle.

The Proposed Project could be consistent with Principles 35 and 36, as described above for the vireo, for the Cooper's hawk, white-tailed kite, yellow warbler, and yellow-breasted chat. The Proposed Project also could be consistent with Principle 36 for the spadefoot toad and with Principle 28, which recommends protecting the alkali wetlands in the middle portion of the Cristianitos sub-basin, for the spadefoot toad and southwestern pond turtle. The Proposed Project could be consistent with Principle 28 by incorporating design features into the golf course to avoid wetland habitat.

Overall the Proposed Project has medium to high consistency with the Watershed Principles (76 percent), and would have high consistency (86 percent) if the "could be consistent" Principles were met.

Infrastructure Consistency Analysis

<u>Circulation Systems Consistency Analysis</u>

The Proposed Project includes an overall circulation system described in Section 3.4. In order to portray the potential impacts of the proposed circulation system, this section will analyze the consistency of the proposed circulation system with the sub-basin guidelines/principles. "Connectivity" considerations are based on the Draft NCCP/HCP Planning Guidelines (General Policy 3) which states:

> "Assure wildlife and habitat connectivity within the subregion and to other subregions. Site and design new development to assure wildlife and habitat connectivity between *major* and *important populations* in *key locations*, within the subregion and between those populations and *major populations* in other contiguous subregions."

TABLE 4.9-28
PLANNING SPECIES CONSISTENCY ANALYSIS OF THE RMV OPEN SPACE

Planning Species	RMV
Arroyo Toad	100% of breeding locations comprising *major* and *important populations* in *key locations* in San Juan Creek, Bell Canyon, lower Gabino Creek, lower Cristianitos Creek and Talega Creek would be conserved, as well as the majority of adjacent upland habitats. In the San Mateo Creek Watershed the minimum elevation differential between development and breeding locations would be 80 ft. Along San Juan Creek, development would be offset by at least 300 feet south of the floodplain and an average of about 300 feet north of the floodplain.
Coastal California Gnatcatcher	179 locations (74%) and 5,806 acres (75%) of suitable habitat would be conserved on RMV, including 150 of 188 locations (80%) and 1,057 acres of 1,322 acres of coastal sage scrub (80%) within the *major population/key location* in the Chiquita Canyon and Wagon Wheel sub-basins and Chiquadora Ridge portion of the Gobernadora sub-basin. For *important populations/key locations* within RMV, 1 of 1 location of the East San Juan Capistrano occurring on RMV and 6 of 7 locations (86%) of the Trampas Canyon *important population/key location* would be protected. Impacts to 12 locations in the Upper Cristianitos *important population* would be minimized through project design features. Assuming minimization of impacts to locations in Upper Cristianitos, approximately 169 of 208 locations (81%) within *major* and *important populations* on RMV would be conserved under B-4.
Least Bell's Vireo	29 of 30 breeding locations (97%) and approximately 466 acres (88%) of southern willow scrub/arroyo willow riparian forest would be conserved on RMV. The single *important population* on RMV in GERA would be conserved.
Southwestern Wllow Flycatcher	6 of 6 breeding locations and approximately 466 acres (88%) of southern willow scrub/arroyo willow riparian forest would be conserved on RMV. The single identified *important population* on RMV in GERA would be conserved.
Riverside Fairy Shrimp	The vernal pool complexes supporting Riverside fairy shrimp along Radio Tower Road, including their contributing hydrological sources, would be conserved on RMV. The easternmost pools would be avoided through project design.
San Diego Fairy Shrimp	The vernal pool complexes supporting San Diego fairy shrimp along Radio Tower Road, including their contributing hydrological sources, would be conserved on RMV. The easternmost pools would be avoided through project design.
Thread-leaved Brodiaea	8,632 flowering stalks (93%) and 18 of 30 locations (50%) would be conserved on RMV, including the location with 2,000 flowering stalks in the *major population/key location* on Chiquadora Ridge. Site-specific avoidance of the *major* and *important population/key location* in Cristianitos and Lower Gabino canyons through project design features would be implemented. Approximately 46 flowering stalks (11%) and 5 locations (38%) in the *important population* in Cristianitos Canyon would be conserved. The Middle Gabino and Trampas Canyon *important populations* would be conserved. Four locations totaling 288 flowering stalks in the Talega *important population* could be avoid through siting of estate lots.
Cactus Wren	316 locations (60%) and 5,806 acres (75%) of suitable habitat would be conserved on RMV. Habitat connectivity would be maintained, including: north-south connections along Chiquita and Chiquadora ridges; along the San Juan Creek floodplain; north-south connections through the Trampas sub-basin and southern portion of Chiquita sub-basins, leading to the Donna O'Neill Land Conservancy and Cristianitos Canyon; and throughout the remainder of the RMV portion of the San Mateo Creek Watershed.
Cooper's Hawk	19 historic nest locations (83%) and 1,958 acres (78%) of suitable habitat (riparian, woodlands and forest) would be conserved on RMV. No major/important populations identified, but breeding and foraging habitat within the major drainages on RMV would be conserved, including Talega, Cristianitos, Gabino, La Paz, San Juan, Chiquita, Gobernadora, and Verdugo.
Golden Eagle	Approximately 3,903 acres (51%) of grassland and agricultural foraging habitat would be conserved on RMV. Golden eagles, which nest in the CNF, would be expected to continue to occasionally forage, as they do currently, in Upper Chiquita Canyon, Upper Gabino Canyon and Cristianitos Canyon.
Grasshopper Sparrow	350 locations (60%) and 2,739 acres (54%) of grassland would be conserved on RMV. Approximately 59% of the *major population/key location* in the Chiquita sub-basin/Chiquadora Ridge area, 96% of the *important population/key location* within RMV on the Radio Tower Road mesa, and 42% of the *important population/key location* within RMV in Cristianitos and Lower Gabino would be conserved.

TABLE 4.9-28 (Continued)
PLANNING SPECIES CONSISTENCY ANALYSIS OF THE RMV OPEN SPACE AND ALREADY PROTECTED OPEN SPACE

Planning Species	RMV
Merlin	Approximately 3,903 acres (51%) of grassland and agricultural foraging habitat would be conserved. Key foraging habitat in Upper Chiquita Canyon would be conserved on RMV. Potential foraging habitat in Upper Gabino Canyon and in the Radio Tower Road mesa area also would be conserved. Key foraging habitat in Lower and Middle Chiquita and Cristianitos canyons would be developed.
Tricolored Blackbird	Same as Planning Area.
White-tailed Kite	13 historic nest locations (93%) and 1,958 acres (78%) of riparian and woodland habitats would be conserved on RMV. In particular, nesting and foraging habitat would be conserved in GERA, Central San Juan Creek, Lower Cristianitos Creek, Middle and Lower Gabino Canyon, La Paz Canyon, and Talega Canyon.
Yellow Warbler	17 locations (100%) and 1,581 acres (84%) of riparian habitat would be conserved on RMV. All three of the *important populations* on RMV would be conserved. Scattered locations in Lower Gobernadora and Chiquita canyons also would be conserved.
Yellow-breasted Chat	66 locations (88%) and 1,581 acres (84%) of riparian habitat would be conserved on RMV. All four of the *important populations* on RMV would be conserved. Scattered locations in Middle Chiquita, Verdugo, Lower Gabino and La Paz canyons also would be conserved.
Western Spadefoot Toad	13 locations (87%) and all of three *important populations* on RMV (Radio Tower Road, Upper Cristianitos, and Lower Gabino Creek) would be conserved, assuming that golf course design in Upper Cristianitos would avoid the stockpond and adjacent upland habitat. A portion of the fourth *important population* along San Juan Creek would be conserved. All conserved breeding locations would have at least a 650-ft upland buffer zone from proposed development to support all life stages.
Orange-throated Whiptail	107 locations (73%) and 9,289 acres (77%) of coastal sage scrub, chaparral and woodland would be conserved on RMV. All 18 locations in the *important population/key location* on Chiquadora Ridge and 48 of 53 locations (90%) of the *important population/key location* on the Chiquita Canyon/Wagon Wheel Canyon ridgeline would be conserved. In the Gobernadora/San Juan Creek *important population/key location* 16 of 47 locations (34%) would be conserved.
San Diego Horned Lizard	26 locations (60%) and 8,912 acres (78%) of coastal sage scrub and chaparral would be conserved on RMV. The large majority (93%) of the *important population/key location* on the Chiquita Canyon/Wagon Wheel Canyon ridgeline would be conserved. The *important population/key location* in Upper Cristianitos is located in the Cristianitos Meadows development area. Impacts to this population would be minimized to the extent feasible.
Southwestern Pond Turtle	6 of 8 locations would be conserved, including *important populations/key locations* in riparian and aquatic habitats along San Juan Creek, the stockpond and other wetlands in Upper Cristianitos, and Jerome's Lake in Upper Gabino in Upper Cristianitos and potentially in Upper Gabino at Jerome's Lake. Proposed golf courses in these two areas would preserve or create water features that would provide suitable habitat. Locations in San Juan Creek and the adjacent floodplain providing nesting/estivation habitat would also be conserved. Setbacks of at least 328 ft. from breeding ponds containing suitable upland habitat with southern exposures would provide for nesting and overwintering sites. Habitat connectivity between the San Juan Creek and San Mateo Creek watersheds would be maintained to allow dispersal.
Mountain Lion	The proposed development pattern would provide for a large habitat block consisting of Verdugo Canyon, Upper and Middle Gabino Canyon, La Paz Canyon, and the eastern portion of Talega Canyon providing a link from Camp Pendleton through to Caspers Wilderness Park and the CNF. The proposed golf course and estates in Upper Gabino Canyon may locally affect behavior, but with the extensive open space overall in B-4 and CNF, the overall impact is not significant. Other areas of RMV under B-4 providing for mountain lion movement would be Chiquita Ridge, Sulphur Canyon, and San Juan Creek
Mule Deer	The proposed development pattern would provide for a large habitat block consisting of Verdugo Canyon, Upper and Middle Gabino Canyon, La Paz Canyon, and the eastern portion of Talega Canyon providing a link from Camp Pendleton through to Caspers Wilderness Park and the CNF. The proposed golf course and estates in Upper Gabino Canyon may somewhat affect the mule deer's use of the area and bring them into greater contact with humans (e.g., vehicle collisions), but this impact would not be significant because of the deer's tolerance for human presence. Other areas of RMV under B-4 providing for mule deer "live-in"/movement habitat would be Chiquita Ridge, Sulphur Canyon, San Juan Creek, and Trampas Canyon.

TABLE 4.9-28 (Continued)
PLANNING SPECIES CONSISTENCY ANALYSIS OF THE RMV OPEN SPACE AND ALREADY PROTECTED OPEN SPACE

Planning Species	RMV
Chaparral Beargrass	The Talega sub-basin *important population/key location* would be conserved.
Coulter's Saltbush	2,690 individuals (87%) and 27 locations (77%) would be conserved. The *major population/key location* in Chiquita Canyon could be conserved through avoidance and minimization of impacts of the proposed golf course west of Chiquita Creek. The *important population/key location* north the treatment plant in Chiquita Canyon would be conserved. The *important population* in Lower Chiquita would be conserved and the *important populations* in Upper Cristianitos and Upper Gabino canyons could be conserved through incorporating golf course avoidance and minimization features.
Many-stemmed Dudleya	33,000 individuals (70%) and 175 locations (57%) would be conserved on RMV. Of the *major populations/key locations*, 96% of individuals and 92% of locations of the Chiquadora Ridge population, 97% of individuals and 69% of locations of the Upper Gabino/La Paz Canyon population, and 4% of individuals and 8% of locations of the Gobernadora population would be conserved. Approximately 90% of individuals and 69% of locations of the Cristianitos Canyon *major population/key location* could be conserved through golf course design features. Of the *important populations/key locations*, 100% of the Chiquita Ridge population/locations, 89% of the individuals and 85% of the locations in the Upper Gobernadora population, and 16% of the individuals and 30% of the locations of the Lower Chiquita Canyon population would be conserved. In the East Talega *important population*, 89% of the individuals and 93% of the locations would be conserved.
Mud Nama	1 of 3 populations totaling 350 individuals (3%) along Radio Tower Road would be conserved on RMV. The two largest populations of 7,500 and 2,000 individuals each are located in the eastern portion of the Trampas Canyon development area.
Salt Spring Checkerbloom	The two *important populations* in the slope wetlands in Lower Chiquita Canyon would be conserved. The small population in the slope wetland in Gobernadora would be impacted.
Southern Tarplant	112,000+ individuals (77%) and 33 locations (78%) would be conserved. The *major populations/key locations* in Lower Chiquita Canyon (the Tesoro mitigation site) and Gobernadora (GERA) would be conserved. Impacts to the *major population/key location* and *important population* north of the treatment plant in Chiquita Canyon could be avoided and minimized through golf course design features.
Source: Dudek 2004	

The accompanying "Habitat Linkages and Wildlife Corridors Map" from the Draft NCCP/HCP Planning Guidelines was also considered and incorporated explicitly into the Planning Guidelines sub-basin Protection Recommendations. These "connectivity" considerations provide criteria for reviewing potential impacts of the proposed circulation system. Those portions of the proposed circulation system located *outside* the planning areas are reviewed for consistency with the specific Guidelines and Principles applicable to each sub-basin. For the portions of the circulation systems located *within* the planning areas, these impacts are within the developed footprint and the potential impacts are analyzed for consistency in Appendices G-2 and G-3 as part of the Proposed Project consistency analysis.

It should be noted that the circulation system reviewed in this Section is the "without" SOCTIIP network as it represents the worst-case Project related impacts. A "with" SOCTIIP network will be reviewed as part of the cumulative impacts section.

The review of the proposed circulation system reflects two different assumptions: (1) changes (i.e., additions or deletions) to the MPAH and; (2) the circulation elements shown on the existing MPAH (with the exception of the SOCTIIP for the reasons previously noted). These sets of circulation system assumptions will be employed for each sub-basin consistency review in this Section.

San Juan Creek Watershed

Chiquita Sub-Basin

The Proposed Project proposes three major changes to the existing MPAH in the Chiquita sub-basin: (1) the deletion of the Crown Valley Parkway extension through Chiquita Canyon and Sulphur Canyon; (2) a change in the designation of existing Ortega Highway from a state highway to a local/recreational access road, (3) construction of New Ortega highway north of San Juan Creek including a bridge over Chiquita Creek, and (4) construction of Cristianitos Road in the sub-basin. These MPAH changes would have the following consistency implications:

- The deletion of the Crown Valley Parkway extension from the MPAH would be consistent with the Planning Guidelines and Principles because it would eliminate a major new impervious surface in Chiquita Canyon, avoid impacts on California gnatcatcher sites otherwise protected by the Proposed Project, protect major Habitat Linkage/Wildlife Corridor "D" at the "Narrows", and would protect the major Habitat Linkage/Wildlife Corridor "H" in Sulphur Canyon ("D" and "H" would both be substantially impacted by the Crown Valley Parkway extension).

- The proposed change in the classification of existing Ortega Highway from a state highway to a local/recreational access road would reduce the volume of traffic and therefore vehicle impacts on wildlife species and would allow for better control of access, benefiting wildlife movement south of San Juan Creek (Habitat Linkage/ Wildlife Corridor "J") and potentially furthering recovery efforts for the arroyo toad. This change in designation for existing Ortega Highway would be consistent with the sub-basin recommendations.

- Construction of New Ortega Highway north of San Juan Creek would necessitate a bridge crossing over Chiquita Creek, estimated to be approximately 120 feet in width, 290 feet in length and 20 feet high based on preliminary design concepts that would minimize the creek and generally avoid the valley floor in contrast with the Crown Valley Parkway extension. Construction of a bridge over Chiquita Creek (Chiquita Bridge) could provide for the continued function of Habitat Linkage/Wildlife Movement "C" provided that minimization measures are incorporated into the bridge design. With these measures, construction of New Ortega Highway in the Chiquita sub-basin could be consistent with the sub-basin recommendations.

- Cristianos Road in the Chiquita sub-basin will avoid impacting Sulphur Canyon (Habitat Linkage/Wildlife Movement Corridor "H") and this would be consistent with the Sulphur Canyon restoration recommendations.

Gobernadora Sub-Basin

The Proposed Project proposes construction of Cristianitos Road, a north-south road proposed to extend from Avenida Pico through Planning Area 3 (in the Gobernadora sub-basin) and into Planning Area 2 (in the Chiquita sub-basin). The Proposed Project also proposed changing classification of existing Ortega Highway from a state highway to a local/recreational access road and construction of New Ortega Highway north of San Juan Creek. These MPAH changes would have the following consistency implications:

- Cristianitos Road would necessitate a bridge over Gobernadora Creek in the upper part of the sub-basin within the study areas (Gobernadora Bridge I) to Planning Area 2. Gobernadora Bridge I would be approximately 80 feet in width, 1,395 feet in length, and 53 feet high based on preliminary design concepts, which could provide for the continued functioning of Habitat Linkage/Movement Corridor G and could allow for the creek meander restoration program recommended by the NCCP/HCP Planning Principles, if minimization measures are incorporated into the bridge design. Thus, Cristianitos Road could be consistent with the sub-basin recommendations. The road has been aligned to avoid impacting Sulphur Canyon (Habitat Linkage/Wildlife Movement "H") and thus would be consistent with the Sulphur Canyon restoration recommendations.

- The proposed change in the classification of existing Ortega Highway from a state highway to a local/recreational access road would reduce the volume of traffic and therefore vehicle impacts on animal species and would allow for better control of access, benefiting wildlife movement south of San Juan Creek (Habitat Linkage/ Wildlife Corridor "J") and potentially furthering recovery efforts for the arroyo toad. This change in designation for existing Ortega Highway would be consistent with the sub-basin recommendations.

- Construction of New Ortega Highway north of San Juan Creek would necessitate a bridge crossing over Gobernadora Creek (Gobernadora Bridge II), estimated to be approximately 120 feet in width, 220 feet in length, and 42 feet high based on preliminary design concepts that would avoid the creek. Construction of Gobernadora Bridge could provide for the continued function of Habitat Linkage/ Wildlife Movement "G" provided that minimization measures are incorporated into the bridge design. With the implementation of these design concepts, the construction of New Ortega Highway in the Gobernadora sub-basin could be consistent with the sub-basin recommendations.

Trampas Sub-Basin and Central San Juan Sub-Basin

The Proposed Project proposes construction of Cristianitos Road, a north-south road proposed to extend from Avenida Pico, pass adjacent to Planning Area 5 before crossing San Juan Creek to Planning Area 3. The Proposed Project also proposed changing classification of existing Ortega Highway from a state highway to a local/ recreational access road and construction of New Ortega Highway north of San Juan Creek. These MPAH changes would have the following consistency implications:

- Cristianitos Road would bridge San Juan Creek (San Juan Creek Bridge I) and could provide for the continued function of Habitat Linkage/Wildlife Movement "J") provided that minimization measures are incorporated into the bridge design. Preliminary design concepts estimate San Juan Creek Bridge I would be approximately 80 feet wide, 547 feet long, and 83 feet high. With the implementation of these design concepts, the construction of Cristianitos Road in the Trampas and Central San Juan sub-basin could be consistent with the sub-basin recommendations.

- Temporary impacts to the creek would result from construction of the bridge. Measures to reduce impacts to arroyo toad breeding habitat would be implemented during construction of the bridge, such as toad exclusion fencing, minimal to no construction activity during the breeding season, sediment control measures and biological monitoring. Restoration of the construction area upon completion of the bridge would occur (i.e., restoration of the temporary impact area). Permanent

impacts to the creek and associated slopes would likely include the placement of bridge piers and potentially bridge abutments and shading impacts.

- The Proposed Project circulation system proposes changing Ortega Highway from a State Highway to a local recreational access road. Reduction of traffic on Ortega Highway would reduce vehicle-animal collisions, benefiting wildlife movement south of San Juan Creek (Habitat Linkage/Wildlife Movement "J") and potentially furthering recovery of the arroyo toad in San Juan Creek. This change in designation for existing Ortega Highway would be consistent with the sub-basin recommendations. The CTC and Caltrans have sole discretion over the status of Ortega Highway, thus realization of the benefits of reducing traffic on Ortega Highway is dependant on CTC and Caltrans support of the proposed action.

- Construction of New Ortega Highway north of San Juan Creek would necessitate a bridge crossing over San Juan Creek (San Juan Creek Bridge II), from Planning Area 3 to Planning Area 4. San Juan Creek Bridge II is estimated to be approximately 100 feet in width, 509 feet in length, and 56 feet high based on preliminary design concepts that would avoid direct impacts on the creek. Construction of Gobernadora Bridge could provide for the continued function of Habitat Linkage/Wildlife Movement "G" provided that minimization measures are incorporated into the bridge design. With these measures, construction of New Ortega Highway in the Trampas and Central San Juan sub-basin could be consistent with the sub-basin recommendations.

Verdugo Sub-Basin

The Proposed Project proposes to upgrade an existing gravel Ranch road to a rural collector road (Verdugo Road) through the portion of the sub-basin to the south of Verdugo Canyon to serve the golf course and associated development in Planning Area 9 (upper Gabino Canyon). Upgrading the existing Ranch road is not anticipated to result in substantial impacts to riparian habitat and thus the collector road would be consistent with the sub-basin recommendations. Access to individual estate lots in Verdugo sub-basin would be from existing unimproved Ranch access roads. A waiver from County subdivision access requirements will be necessary for this type of access. Consistency with the sub-basin recommendations is dependent upon receipt of this waiver.

San Mateo Creek Watershed

Cristianitos Sub-Basin

The Proposed Project proposes construction of Cristianitos Road, a north-south road proposed to extend from Avenida Pico through the Cristianitos sub-basin. This facility would avoid the headwater area consistent with the recommendation for this area. All but a small portion of the area proposed for native grassland enhancement where the creek branches would be avoided; as a two lane collector road rather than an arterial (in the Cristianitos sub-basin), the amount of area removed from native grassland enhancement is relatively small in the context of the overall native grassland restoration plan recommended in the NCCP/HCP Planning Guidelines and thus would be consistent with recommendation. East of the creek, the collector would be set back a minimum of 200 feet from Cristianitos Creek thus facilitating continued use of Habitat Linkage/ Wildlife Movement "N". Cristianitos Road would avoid direct impacts to the alkali wetlands/creek riparian areas because the creek would be culverted and opportunities

for stream stabilization would be preserved, if hydrologic minimization measures are incorporated into the culvert design. With these measures, the construction of Cristianitos Road through the Cristianitos sub-basin could be consistent with the sub-basin recommendations.

Gabino and Blind Canyons Sub-Basin

The circulation system for the Proposed Project presents two sets of issues. First, the Proposed Project proposes construction of Cristianitos Road, a north-south road proposed to extend from Avenida Pico through the Gabino and Blind sub-basins. Construction of Cristianitos Road will require construction of a bridge over lower Gabino Creek and placement of a culvert in Blind Canyon. This MPAH change would have the following consistency implications:

- Construction of a bridge over Gabino Creek (Gabino Bridge) will provide for the continued functioning of Habitat Linkage/Wildlife Movement "O" provided that minimization measures are incorporated into the bridge design for Gabino Bridge. Preliminary design concepts for the Gabino Bridge indicate the structure would be approximately 55 feet wide, 818 feet long, and 120 feet high. The construction of Cristianitos Road through the Gabino sub-basin could be consistent with the sub-basin recommendations. Temporary impacts to Gabino Creek would result from construction of the bridge. Measures to reduce impacts to arroyo toad breeding habitat would be implemented during construction of the bridge, such as toad exclusion fencing, minimal to no construction activity during the breeding season, sediment control measures and biological monitoring. Restoration of the construction area upon completion of the bridge would occur (i.e., restoration of the temporary impact area). Permanent impacts to the creek and associated slopes would likely include the placement of bridge piers and potentially bridge abutments and shading impacts.

- Placement of a culvert in Blind Canyon will result in permanent impacts that would be minimized through implementation of minimization measures during design of the culvert. The construction of Cristianitos Road through the Blind sub-basin could be consistent with the sub-basin recommendations.

The second issue is that an all-weather wildfire evacuation road might be required for the limited development proposed in upper Gabino. Should such a facility be required, the existing ranch access road from upper Gabino to existing Cristianitos Road could serve as an evacuation route. Minor improvements to the surface of the road, i.e., changing from hard packed dirt to an all weather surface and creation of periodic turnouts to allow two-way traffic would not result in significant impacts to resources in Gabino sub-basin and would not result in any impacts to resources in Blind Canyon and thus would be consistent with the sub-basin recommendations.

La Paz Sub-Basin

The Proposed Project provides for four estate lots within the upper portion of La Paz Canyon. Access to these lots would be from Ortega Highway to upgraded Verdugo Road through the Verdugo sub-basin to development in Planning Area 9 and from there via existing Ranch access roads. Access to the specific lots from existing Ranch roads is anticipated to be consistent with the sub-basin recommendations because no new roads would be constructed within the sub-basin. The surface of existing Ranch roads

may be improved from existing hard-packed dirt to an all-weather surface. These actions would not cause conflicts with the sub-basin recommendations.

Talega Sub-Basin

The Proposed Project proposes the construction of Cristianitos Road, a north-south road extending from Avenida Pico. Cristianitos Road would be constructed largely outside the Talega sub-basin, a small portion of the road would be constructed within the northwest corner of the sub-basin. This construction would not affect dry season and stormwater flows, and thus would not cause any potential conflict with the sub-basin recommendations.

Other Planning Area

The Proposed Project proposes construction of Cristianitos Road, a north-south road extending from Avenida Pico northward which would require construction of a bridge over Cristianitos Creek (Cristianitos Bridge) of approximately 80 feet in width, 499 feet in length, and 65 feet high. Within the Other Planning Area, Cristianitos Road is proposed as a two-lane collector. Temporary impacts to Cristianitos Creek resulting from construction of the bridge would occur, as would permanent impacts associated with the placement of piers in Cristianitos Creek to support the bridge structure. North-south wildlife movement (Habitat Linkage/Wildlife Movement "N") along Cristianitos Creek over the long term would be unaffected by the bridge provided the bridge design incorporate minimization measures. The construction of Cristianitos Road through the other planning area could be consistent with the sub-basin recommendations. Measures to reduce impacts to arroyo toad breeding habitat would be implemented during construction of the bridge, such as toad exclusion fencing, minimal to no construction activity during the breeding season, sediment control measures, and biological monitoring. Existing hydrology would be maintained with construction of the bridge. A more detailed review of these impacts is provided under the analysis of impacts to sensitive species, especially the arroyo toad.

Other Infrastructure Consistency Analysis

The proposed non-road infrastructure facilities for the Proposed Project include several facilities that would be constructed in the proposed RMV Open Space. The direct permanent and temporary impacts on vegetation communities and sensitive species are discussed in this Section. This discussion focuses on non-road infrastructure that may be inconsistent with General Policy 4 of the Draft Southern NCCP/HCP Planning Guidelines, which states that:

> "Roads and infrastructure should be located outside the Habitat Reserve to the maximum extent feasible. The siting and design of roads and infrastructure should provide for protection of habitat linkages and movement corridors."

Several ground tanks would be constructed in proposed Open Space, including a tank along the ridgeline between Chiquita and Wagon Wheel canyons; two tanks in upper Gabino Canyon; and a tank south of Trampas Canyon (PA 5). The proposed tank and associated pipeline along the ridgeline between Chiquita and Wagon Wheel Canyons may affect the function of habitat linkage G, which extends south through Sulphur Canyon and connects to linkages G and I. This tank site is located in the central part of the habitat linkage. The proposed tank south of Trampas Canyon may affect linkage K connecting San Juan Capistrano with the Donna O'Neill Land Conservancy. This linkage is already constrained and the construction of a water tank along the ridgeline would further constrain its function. Both of these tanks sites thus appear to

be inconsistent with protection of these habitat linkages. The two tanks in upper Gabino would be consistent with the protection of habitat linkages because substantial open space would still be available for wildlife use in this area.

Several lift stations (approximately 1.5 acres each in size) are sited in the proposed Open Space, but all are sited in areas that are unlikely to additionally affect the function of the Open Space area as wildlife habitat because they generally are immediately adjacent to proposed development, proposed roads, or the proposed tank sites previously analyzed.

Permanent access routes necessary to maintain proposed domestic and non-domestic water and sewer lines would be 20 feet wide. Where possible, the water and sewer lines were sited adjacent and parallel to proposed roads so that significant additional impacts to the Habitat Reserve would not occur. Two locations of proposed water and sewer lines directly cross important habitat linkages: (1) an east-west line crossing Chiquita Ridge (linkage C); and (2) an east-west line crossing Chiquadora Ridge (linkage G). Although there would be some direct permanent habitat loss for construction of these access roads, the overall function of the habitat linkages should not be significantly affected. These 20-ft wide access roads will be dirt roads supporting only occasional traffic. These access roads will not be an impediment to the vast majority of the wildlife using the areas.

Summary of Sub-basin Consistency Analysis

Based on the consistency analysis discussed above for the planning guidelines, planning principles, and proposed infrastructure, the Proposed Project could have the following potentially significant or significant impacts prior to implementation of additional avoidance, minimization, and mitigation measures;

<u>NCCP Planning Guidelines Consistency Analysis – “Could be Consistent” Findings</u>

Impact 4.9-1: Implementation of the Proposed Project may result in impacts to four small thread-leaved brodiaea populations that contribute to protection of a *major population* in the Chiquita sub-basin. Implementation of project design modifications to avoid two of four small thread-leaved brodiaea locations would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 8).

Impact 4.9-2: Implementation of the Proposed Project may result in impacts to the *key location* and *major population* of southern tarplant in the Chiquita sub-basin. Implementation of project design modifications to minimize impacts to the *key location* and *major population* would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 12).

Impact 4.9-3: Implementation of the Proposed Project may result in impacts to the *key location* and *major population* of Coulter’s saltbush in the Chiquita sub-basin. Implementation of project design modifications to minimize impacts to the *key location* and *major population* would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 14).

Impact 4.9-4: Implementation of the Proposed Project may result in impacts to the habitat linkage along the east facing slopes of Chiquadora Ridge between San Juan Creek and Sulphur Canyon from construction of Cristianitos Road in the Gobernadora sub-basin. Implementation of project design modifications to facilitate movement of ground-dwelling wildlife (i.e., a culvert and possibly fencing) would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 27).

Impact 4.9-5: Implementation of the Proposed Project may result in impacts to a stockpond supporting southwestern pond turtle in the Cristianitos sub-basin. Implementation of project design modifications to minimize impacts to breeding and nesting/estivation habitat would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 82).

Impact 4.9-6: Implementation of the Proposed Project may result in impacts to a stockpond supporting western spadefoot toad in the Cristianitos sub-basin. Implementation of project design modifications to minimize impacts to breeding and nesting/estivation habitat would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 83).

Impact 4.9-7: Implementation of the Proposed Project may result in impacts to alkali wetlands in the Cristianitos sub-basin. Implementation of project design modifications to minimize impacts to alkali wetlands would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 84).

Impact 4.9-8: Implementation of the Proposed Project may result in impacts to the north-south habitat linkage along Cristianitos Creek in the Cristianitos sub-basin. Implementation of project design modifications to facilitate movement of ground-dwelling wildlife (i.e., a minimum 200-foot setback) would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 88).

Impact 4.9-9: Implementation of the Proposed Project may result in impacts to three thread-leaved brodiaea locations that contribute to protection of a *major population* in the Cristianitos sub-basin. Implementation of project design modifications to avoid all three thread-leaved brodiaea locations would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 90).

Impact 4.9-10: Implementation of the Proposed Project may result in impacts to nine of 13 thread-leaved brodiaea locations that contribute to protection of *important populations in key locations* in the Cristianitos sub-basin. Implementation of project design modifications to avoid 10 of the 13 thread-leaved brodiaea locations would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 91).

Impact 4.9-11: Implementation of the Proposed Project may result in impacts to a *major population* of many-stemmed dudleya in the Cristianitos sub-basin. Implementation of project design modifications to avoid the *major population* would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 92).

Impact 4.9-12: Implementation of the Proposed Project may result in impacts to one *important population* of Coulter's saltbush in the Cristianitos sub-basin. Implementation of project design modifications to avoid this *important population* would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 93).

Impact 4.9-13: Implementation of the Proposed Project may result in impacts to Jerome's Lake, which supports southwestern pond turtle in the Upper Gabino subunit. Implementation of project design modifications to minimize impacts to nesting/estivation habitat would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 105).

Impact 4.9-14: Implementation of the Proposed Project may result in impacts to six known discrete locations of many-stemmed dudleya that are part of the *major population* in a *key*

location in the Upper Gabino subunit. Implementation of project design modifications to avoid all six locations would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 105).

Impact 4.9-15: Implementation of the Proposed Project may result in impacts to the *important population* of Coulter's saltbush in the Upper Gabino subunit. Implementation of project design modifications to avoid this *important population* would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 108).

Impact 4.9-16: Implementation of the Proposed Project may result in impacts to the California gnatcatcher locations in the Lower Gabino subunit. Implementation of project design modifications to avoid all five locations would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 123).

Impact 4.9-17: Implementation of the Proposed Project may result in impacts to native grasslands in the Lower Gabino subunit. Implementation of project design modifications to avoid and minimize impacts to native grasslands and restore native grasslands where feasible would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 125).

Impact 4.9-18: Implementation of the Proposed Project may result in impacts to three locations of thread-leaved brodiaea that are the *major population* in a *key location* in the Lower Gabino subunit and Cristianitos sub-basin. Implementation of project design modifications to avoid all three locations would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 130).

Impact 4.9-19: Implementation of the Proposed Project may result in impacts to two known locations of many-stemmed dudleya in the La Paz sub-basin. Implementation of project design modifications to avoid both locations would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 139).

Impact 4.9-20: Implementation of the Proposed Project may result in impacts to arroyo toad populations in Lower Gabino Creek. Implementation of project design features to ensure that the generation and transport of coarse sediments to downstream areas continues would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 141).

Impact 4.9-21: Implementation of the Proposed Project may result in impacts to four known locations of thread-leaved brodiaea that constitute an *important population* in the Talega sub-basin. Implementation of project design modifications to avoid all four locations would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 148).

Impact 4.9-22: Implementation of the Proposed Project may result in impacts to three out of eight known locations of many-stemmed dudleya in the Talega sub-basin. Implementation of project design modifications to avoid these three locations would be necessary to reduce the identified impact to a level of less than significant (Planning Guideline 149).

<u>NCCP Planning Guidelines Consistency Analysis – "Not Consistent" Findings</u>

Impact 4.9-23: The Proposed Project would result in impacts to two slope wetlands located in the Chiquita Sub-basin (Planning Guideline 7)

Impact 4.9-24: The Proposed Project would not protect a 2,000 to 2,500-foot wide area along the southern boundary of Coto de Caza in the Gobernadora sub-basin to provide a functional east-west wildlife movement from Sulphur Canyon to Bell Canyon. The Proposed Project provides for a 1,000-foot area (Planning Guideline 29).

Impact 4.9-25: The Proposed Project would not minimize impacts to native grasslands in the Gobernadora sub-basin (Planning Guideline 30).

Impact 4.9-26: The Proposed Project would not protect at least 80 percent of coastal sage scrub and gnatcatcher sites along the eastern slopes of Chiquadora Ridge in the Chiquita sub-basin. However, the Proposed Project would protect 55 percent of existing coastal sage scrub and 63 percent of gnatcatcher locations contributing to the overall goal of protecting at least 80 percent of the major population of gnatcatcher extending from Chiquita Canyon across to Gobernadora Creek. Connectivity of protected coastal sage scrub along Chiquadora Ridge from San Juan Creek to Sulphur Canyon would be maintained (Planning Guideline 39).

Impact 4.9-27: The Proposed Project would impact foraging habitat for raptors in Chiquita, Gobernadora and Trampas sub-basins. Breeding habitat in San Juan Creek and adjacent major tributaries (e.g., Chiquita, Gobernadora) would be protected and impacts to adjacent foraging habitat in the Chiquita sub-basin would be reduced through avoidance of the major alluvial side canyons (Planning Guideline 54).

Impact 4.9-28: The Proposed Project would constrain the east-west portion of habitat linkage K south of Trampas Dam (Planning Guideline 68).

Impact 4.9-29: The Proposed Project would impact grasslands habitat at the mouth of Verdugo Canyon. Wetland/riparian habitat would be avoided (Planning Guideline 79).

Impact 4.9-30: The Proposed Project would impact grasslands habitat in the Cristianitos sub-basin (Planning Guideline 85).

Impact 4.9-31: The Proposed Project would impact raptor grassland forging habitat in the Cristianitos sub-basin. Riparian breeding habitat associated with Cristianitos Creek would be avoided (Planning Guideline 86).

Impact 4.9-32: The development pattern proposed under the Proposed Project would conflict with some areas targeted for restoration in upper Cristianitos. Partial implementation of the coastal sage scrub/native grassland restoration recommendations would occur (Planning Guideline 96).

Impact 4.9-33: The development pattern proposed under the Proposed Project would conflict with some areas targeted for restoration in upper Cristianitos. Partial implementation of the coastal sage scrub/native grassland restoration and plant translocation recommendations would occur in the Cristianitos sub-basin. Full implementation of the translocation recommendation for the Trampas sub-basin could occur (Planning Guideline 97).

Impact 4.9-34: The development pattern proposed under the Proposed Project would conflict with some areas targeted for restoration in the Upper Gabino subunit. Partial implementation of the coastal sage scrub/native grassland restoration recommendations would occur (Planning Guideline 96).

Impact 4.9-35: The Proposed Project would impact 42 percent of cactus wren locations in the Lower Gabino subunit (Planning Guideline 124).

Impact 4.9-36: The Proposed Project would impact raptor breeding habitat in Blind Canyon, particularly grasslands. Raptor breeding habitat in the Lower Gabino subunit would be protected (Planning Guideline 126).

Impact 4.9-37: The Proposed Project would impact 67 percent of many stemmed dudleya locations in the Lower Gabino subunit. However, 81 percent of individuals would be protected (Planning Guideline 128).

Impact 4.9-38: The development pattern proposed under the Proposed Project would conflict with the areas targeted for native grassland restoration in Blind Canyon portion of the Lower Gabino subunit (Planning Guideline 134).

Impact 4.9-39: The Proposed Project would impact 84 percent of grasslands habitat in the other Planning Area (Planning Guideline 151).

Impact 4.9-40: The Proposed Project would impact raptor grassland forging habitat in the Other Planning Area. Riparian breeding habitat associated with lower Cristianitos Creek would be avoided (Planning Guideline 155).

<u>Watershed Planning Principle Consistency Analysis "Could be Consistent" Findings</u>

Impact 4.9-41: Implementation of the Proposed Project may result in impacts to alkali wetlands in the Cristianitos sub-basin. Implementation of project design modifications to minimize impacts to alkali wetlands would be necessary to reduce the identified impact to a level of less than significant (Planning Principle 83).

Impact 4.9-42: Implementation of the Proposed Project may result in impacts to alkali wetlands in the Cristianitos sub-basin. Implementation of project design modifications to minimize impacts to alkali wetlands would be necessary to reduce the identified impact to a level of less than significant (Planning Principle 85).

Impact 4.9-43: Implementation of the Proposed Project may result in impacts to arroyo toad populations in Lower Gabino Creek. Implementation of project design features to minimize impacts to arroyo toad populations, including implementation of a Water Quality Management Plan and construction impact minimization measures would be necessary to reduce the identified impact to a level of less than significant (Planning Principle 36).

<u>Watershed Planning Principle Consistency Analysis "Not Consistent" Findings</u>

Impact 4.9-44: The Proposed Project would result in impacts to two slope wetlands located in the Chiquita sub-basin (Planning Principle 8).

Impact 4.9-45: The Proposed Project would result development to the edge of the valley floor in a few locations and in the alluvial side canyons of the Gobernadora sub-basin. Development is located primarily on Class C and D soils and development is generally setback from the creek (except for a few locations as noted previously) (Planning Principle 10).

Impact 4.9-46: The development pattern proposed under the Proposed Project would conflict with some areas targeted for restoration in upper Cristianitos. Partial implementation of the coastal sage scrub/native grassland restoration recommendations would occur (Planning Principle 25).

Impact 4.9-47: The development pattern proposed under the Proposed Project would conflict with some areas targeted for restoration in the Gabino sub-basin. Partial implementation of the coastal sage scrub/native grassland restoration recommendations would occur (Planning Principle 30).

Impact 4.9-48: The Proposed Project would result in limited impacts to steeper slopes in Blind Canyon and areas south of the existing Northrop Grumman facilities (Planning Principle 40).

Unlisted Planning Species Consistency Analysis – Could be Consistent Findings

Impact 4.9-49: The Proposed Project has the potential to result in a significant impact on suitable habitat for the southwestern pond turtle.

Impact 4.9-50 The Proposed Project has the potential to result in a significant impact on suitable habitat types for the orange-throated whiptail.

Impact 4.9-51: The Proposed Project has the potential to result in a significant impact on suitable habitat types for the San Diego horned lizard.

Impact 4.9-52: The Proposed Project has the potential to significantly impact the Cooper's hawk.

Impact 4.9-53: The Proposed Project has the potential to result in a significant impact on suitable habitat types for the tricolored blackbird.

Impact 4.9-54: The Proposed Project has the potential to result in a significant impact on suitable habitat for the cactus wren.

Impact 4.9-55: The Proposed Project has the potential to significantly impact the white-tailed kite.

Impact 4.9-56: The Proposed Project has the potential to significantly impact the yellow-breasted chat.

Impact 4.9-57: The Proposed Project would result in potentially significant impacts to locations of the Coulter's saltbush.

Infrastructure Consistency Analysis

Circulation Systems Consistency Analysis "Could be Consistent" Findings

Impact 4.9-58: Implementation of the proposed circulation system, specifically construction of Cristianitos Road and New Ortega Highway, may result in impacts to habitat linkages/wildlife movement corridors "C", "G", "J", "N", and "O". Implementation of minimization measures during the design of bridges over these linkages/corridors would be necessary to reduce the identified impact to a level of less than significant (General Policy 3.3).

Impact 4.9-59: Implementation of the proposed circulation system, specifically construction of Cristianitos Road over upper Cristianitos Creek and Blind Canyon may result in impacts to wildlife movement through Habitat Linkage/Wildlife Movement "N" and Blind Canyon. Implementation of minimization measures during the design of the culverts would be necessary to reduce the identified impact to a level of less than significant (General Policy 3.3).

Other Infrastructure Consistency Analysis "Could be Consistent" Findings

Impact 4.9-60: Implementation of other infrastructure, specifically construction of a ground tank along the ridgeline between Chiquita and Wagon Wheel canyons and a tank south of Trampas Canyon (PA 5) would constraint habitat linkage G and K. Implementation of minimization measures during design of these facilities would be necessary to reduce the identified impact to a level of less than significant (General Policy 4).

SUMMARY OF PROJECT IMPACTS RESULTING FROM PROPOSED PROJECT

The following is a summary of impacts to: a) vegetation communities and common wildlife species, b) listed species–Planning and Non-planning Species, c) unlisted Planning Species, and d) other sensitive species prior to the application of avoidance and mitigation measures that could reduce the identified impact. This impact summary is based on an assessment of potentially significant impacts caused by the Project as proposed prior to the application of potential avoidance and mitigation measures identified in the immediately preceding consistency reviews that could reduce the identified impact. The review of the feasibility of potential further avoidance and minimization measures is reviewed in Mitigation Section 4.9.5 (avoidance and minimization are classified as "mitigation measures" in the CEQA Guidelines definition) where along with the review of necessary and feasible mitigation is in Section 4.9.5. Impact summaries for planning species include: (1) the important/major population and key location criteria from the Species Accounts and sub-basin guidelines and principles consistency reviews; and (2) overall quantitative information. Impact summaries for non-planning species (both listed and non-listed) present quantitative information. Where impacts are determined to be significant or determined not to be potentially significant, the factual basis and rationale for reaching the significance conclusion are presented.

The following section describes the anticipated acres of habitat types and species locations and/or occupied habitat that would be impacted as a result of implementation of the Proposed Project. The determination of impacts is based on a GIS analysis of maps depicting the Proposed Project limits of disturbance and maps of biological resources in the study area. All construction activities, including staging and equipment areas, are assumed to be contained within the impact area. Both direct and indirect effects on biological resource have been evaluated. Direct effects are those that involve the initial loss of biological resources due to grading and construction. Where in infrastructure is located outside of a development area footprint, direct and indirect impacts from these infrastructure facilities have also been evaluated.

Summary of Impacts on Vegetation Communities and Common Wildlife Species

Table 4.9-29 summarizes the Proposed Project impacts to the vegetation communities within the study area. The impact calculations have been identified by Proposed Development Areas, permanent infrastructure, and temporary infrastructure. Project impacts to biological resources are illustrated on Exhibits 4.9-11 through 4.9-21.

Discussion of Grasslands

Grasslands are scattered throughout the lower elevations of the study area, with the largest, contiguous concentration in the southern portion of the study area. Areas supporting large patches of grassland include the Radio Tower Road mesa, Trampas Canyon, Cristianitos Canyon, the Northrop Grumman lease area, and upper Gabino Canyon. A total of 5,040 acres of grasslands, including both annual and native grasslands, occur in the study area.

Major areas of native grassland include Cristianitos Canyon (approximately 405 acres) and upper Gabino Canyon (276 acres), with smaller areas of native grassland in Blind Canyon (102 acres) and middle and lower Chiquita Canyon (76 acres). There are likely to be several smaller patches of unmapped native grassland scattered throughout the study area, but individual patches are unlikely to be more than a few tens of acres in size. The cumulative total of these unmapped areas is likely to be no more than a hundred acres. There are approximately 1,100 acres of native grassland mapped for the study area.

TABLE 4.9-29
IMPACTS TO VEGETATION COMMUNITIES/LAND COVERS IN THE STUDY AREA

Vegetation/Land Cover	Proposed Project			
	Proposed Development Area (acres)	Permanent Infrastructure in RMV Open Space (acres)	Total Permanent Impacts (acres)	Temporary Infrastructure Impacts in RMV Open Space (acres)
Grassland	2302.3	111.3	2,413.6	41.3
Coastal Sage Scrub	1876.8	148.0	2,024.8	50.6
Riparian	*	*	*	*
Open Water	66.1	6.5	72.6	2.3
Freshwater Marsh	*	*	*	*
Watercourses	*	*	*	*
Vernal Pools	0	0	0	0
Woodland	90.6	5.2	95.8	2.4
Forest	119.9	7.2	127.1	1.2
Chaparral	686.6	25.2	711.8	10.6
Cliff & Rock	4.1	0	4.1	0
Subtotal-Natural Habitats	**5146.4**	**303.4**	**5,449.8**	**108.5**
Developed	370.7	52.2	422.9	11.2
Disturbed	323.2	25.6	348.8	10.4
Agriculture	1427.7	103.7	1,531.4	25.7
Subtotal-Non-habitat Land Covers	**2121.6**	**181.6**	**2,303.2**	**47.8**
Total	***7268***	***485.0***	***7,752.9***	***156.2***

*Impacts on Riparian, Freshwater Marsh, and Watercourses are determined by the impact on USACE and CDFG jurisdictional areas.

Source: Dudek, June 2004.

Project Impacts

Impact 4.9-61: *The Proposed Project would significantly impact 2,413.6 acres of grassland, including 505.1 acres of native grassland. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 41.3 acres of grassland, including 5.2 acres of native grassland.*

The Proposed Project would result in impacts on 2,413.6 acres (48 percent) of grasslands on RMV. Of the grasslands impacted, 505.1 acres (21 percent) are native grasslands and 1,908.5 acres (79 percent) are annual grasslands. Although annual grasslands are considered to have relatively low biological value when compared to native vegetation communities, they do provide habitat for grassland species and foraging raptors. Impacts on annual grasslands would be considered potentially significant due to the substantial amount that would be impacted.

Native grasslands are considered a sensitive vegetation community due to their limited distribution and their potential to support sensitive plant species. All impacts on native grassland would be considered significant.

Discussion of Coastal Sage Scrub

Coastal sage scrub is well distributed throughout the study area. At elevations typically below 800 feet in the Chiquita Canyon and Cañada Gobernadora areas north of San Juan Creek, the coastal sage scrub is interspersed with annual grasslands and agricultural areas (primarily barley fields used for summer cattle forage). The coastal sage scrub south of San Juan Creek in the Radio Tower Road mesa area west of Trampas Canyon is interspersed with annual grasslands. The coastal sage scrub in the eastern portion of the study area in the Trampas, Verdugo, Gabino, La Paz, and Talega canyon areas typically occurs at elevations of 400 feet to 1,200 feet, on steeper slopes, and interspersed with chaparral. There are 7,682 acres of coastal sage scrub in the study area.

Project Impacts

Impact 4.9-62: *The Proposed Project would significantly impact 2,024.8 acres of coastal sage scrub. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 50.6 acres of coastal sage scrub.*

The Proposed Project would result in permanent impacts on 2,024.8 acres (26 percent) and temporary impacts on 50.6 acres of coastal sage scrub on RMV. Coastal sage scrub is considered a sensitive plant community due to its limited distribution and its potential to support sensitive plant and wildlife species. All impacts on coastal sage scrub would be considered significant.

Discussion of Riparian and Wetland (Jurisdictional Areas)

State and federal jurisdictional delineations of the study area have been conducted by Glenn Lukos and Associates (GLA 2004) (Appendix G-1). It should be noted that the delineation did not include the entire study area, but was focused on the development planning areas and their potential impacts associated with major arterials that connect the development areas. The delineation determined that the development planning areas contain 184.87 acres that are within the jurisdiction of the USACE, of which 77.87 acres are considered jurisdictional wetland. The delineation also determined that the development planning areas contain 398.14 acres within the jurisdiction of the CDFG, of which 368.40 consist of vegetated riparian habitat, applying a functional definition of “riparian.” An additional 91.70 acres have been evaluated in the field, including 55.88 acres of vegetated riparian habitat, for which RMV and CDFG have not reached concurrence relative to their jurisdictional status (i.e., unresolved features). These unresolved features are located within Trampas Canyon (Planning Area 5) and consist of the ONIS artificial tailings facility and other mining related facilities. GLA believes these features do not meet the definition of a streambed or lake under the Fish and Game Code at the time of project implementation (GLA 2004).

Project Impacts

Impact 4.9-63: *The Proposed Project would significantly impact 89.51 acres of USACE jurisdiction and 195.55 acres of CDFG jurisdiction including both permanent and temporary impacts.*

Due to the regulatory framework of the SAMP/MSAA, impacts on riparian and wetland vegetation communities have been evaluated based on impacts on areas under the jurisdiction of the USACE and CDFG. Jurisdictional areas typically include all vegetation types listed above, with exception of isolated waters such as vernal pools and slope wetlands. As reviewed in the GLA report, the delineation of wetlands and riparian habitats employed functional definitions approved by the regulatory agencies.

The Proposed Project would impact a total of 62.23 acres under the jurisdiction of the USACE, including 21.33 acres that meet the definition of wetlands and 40.9 acres of waters of the U.S (see Table 4.9-30). Construction and maintenance of infrastructure would permanently impact a further 8.44 acres of wetlands and 8.41 of waters of the U.S. In addition, temporarily construction and maintenance of infrastructure facilities within the RMV Open Space would impact 10.43 acres under the jurisdiction of the USACE.

The Proposed Project would impact a total of 138.85 acres under the jurisdiction of the CDFG, including 120.16 acres of riparian and 18.69 acres of un-vegetated areas. Construction of infrastructure would permanently impact a further 32.61 acres of riparian and 2.56 of un-vegetated areas. In addition, temporary construction of infrastructure facilities within the RMV Open Space would impact 21.53 acres under the jurisdiction of the CDFG. As noted above, there are also 91.65 acres for which the CDFG jurisdiction has not yet been resolved.

Impact on USACE and/or CDFG jurisdictional areas would be considered significant because the proposed project would result in a substantial effect on these resources.

TABLE 4.9-30
PROJECT IMPACTS ON USACE AND CDFG JURISDICTION AREAS

Proposed Development Area (acres)			Permanent Infrastructure in RMV Open Space (acres			Total Permanent Impacts (acres)			Temporary Infrastructure Impacts in RMV Open Space (acres)		
***USACE*[1]**											
Wetlands	**Waters**	**Total**	**Wetlands**	**Waters**	**Total**	**Wetlands**	**Waters**	**Total**	**Wetlands**	**Waters**	**Total**
21.33	40.9	62.23	8.44	8.41	16.85	29.77	49.31	79.08	6.25	4.18	10.43
***CDFG*[2]**											
Riparian	**Un-vegetated**	**Total**	**Riparian**	**Un-vegetated**	**Total**	**Riparian**	**Un-vegetated**	**Total**	**Riparian**	**Un-vegetated**	**Total**
120.16	18.69	138.85	32.61	2.56	39.17	152.77	21.25	174.02	18.49	3.05	21.53

[1] Please note that impacts numbers for other infrastructure (not roads) are in part based upon WES delineation data and likely over-estimate the total impacts. For the purposes of this impact analysis for other infrastructure, the jurisdictional status of the WES polygons were based on the "ACOE-CDFG" and "Riparian" fields in the WES shapefile provided by Dudek and Associates. In order to provide the most conservative estimate of impacts, all Corps polygons characterized by hydrophytic communities were designated as wetland.

[2] Please note that the CDFG totals may change after CDFG makes determinations regarding several unresolved features currently totaling 91.65 acres of impact.

Source: Dudek 2004

Discussion of Woodland and Forest

Coast live oak woodland occurs in several locations in the study area. Several east-west trending drainages east of Gobernadora Creek support relatively large stands of oak woodlands. Coast live oak woodland also occurs along Chiquadora Ridge, in Lower Chiquita Canyon, along the mainstem of Trampas Canyon, in Lower Gabino and Blind canyons, and in the lower portion of La Paz Canyon. Coast live oak forest primarily occurs in Trampas Canyon,

Lower Chiquita Canyon, southern Cañada Gobernadora east of the creek, Lower Gabino Canyon, and Blind Canyon.

Project Impacts

Impact 4.9-64: *The Proposed Project would significantly impact 95.8 acres of woodlands and 127.1 acres of forests. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 2.4 acres of woodland and 1.2 acres of forests.*

The Proposed Project would result in impacts on 95.8 acres (35 percent) of woodlands and 127.1 acres (41 percent) of forests on RMV. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 2.4 acres of woodland and 1.2 acres of forests. Woodlands and forests are considered sensitive vegetation communities due to their limited distribution and because they provide high quality wildlife habitat. All impacts on woodlands and forests would be considered significant.

Discussion of Chaparral

The majority of chaparral in the study area is located in the San Mateo Creek Watershed, particularly in the Gabino Canyon, La Paz Canyon, and in the eastern portion of the Talega Canyon. Within the San Juan Creek Watershed, chaparral occurs in the eastern portions of Cañada Gobernadora, Bell Canyon, and the steep slopes adjacent to San Juan Creek. Smaller, scattered patches of chaparral are interspersed with coastal sage scrub in the Chiquita Canyon area and along Chiquadora Ridge.

Project Impacts

The Proposed Project would result in impacts on 711.8 acres (19 percent) of chaparral on RMV. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 10.6 acres of chaparral. Chaparral is a high quality vegetation community, but is considered relatively common in the project region. Impacts on chaparral vegetation would be considered adverse, but less than significant, due to the limited amount of vegetation impacted relative to the amount of chaparral conserved.

Discussion of Cliff and Rock

Cliff and rock are only known from one location in the study area in the western portion of Trampas Canyon.

Project Impacts

Impact 4.9-65: *The Proposed Project would significantly impact 4.1 acres of cliff and rock.*

The Proposed Project would result in impacts on 4.1 acres (66 percent) of cliff and rock on RMV. Cliff and rock is a native community that is considered relatively uncommon in the project region. Impacts on cliff and rock would be considered significant.

Discussion of Non-habitat Land Covers

Non-habitat land covers including developed, disturbed, and agricultural areas are primarily located at the Northrop-Grumman facility north of Talega Canyon, in areas previously mined east of Cristianitos Canyon, at the silica mine south of Ortega Highway, within facilities along

San Juan Creek, nursery and orchard areas north of Ortega Highway, and the water treatment facility in Chiquita Canyon. Roadways and areas that are part of the active agricultural activities on RMV are also included within this category. Of these non-habitat land covers, agriculture does provide some habitat value for wildlife primarily as raptor foraging habitat.

Project Impacts

The Proposed Project would result in impacts on 1,531.4 acres (60 percent) of agricultural areas on RMV. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 25.7 acres of agricultural areas. Although agriculture is considered of relatively low biological value when compared to native vegetation communities, it does provide habitat for grassland species and foraging raptors. Impacts on agriculture would be considered adverse, but less than significant due to the relatively low biological value of this community.

The Proposed Project would also impact 422.9 acres (79 percent) of developed and 348.8 acres (70 percent) of disturbed land covers. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 11.7 acres of developed and 10.4 acres of disturbed land covers. These land covers provide little to no habitat value to native wildlife species. Therefore, impacts on these land covers would be considered less than significant.

Common Wildlife Species

To assess general impacts on wildlife, the total impact on plant communities that provide habitat for wildlife was evaluated. Exhibit 4.9-1 illustrates the plant communities. Construction of the Proposed Project would result in a loss of 6,062.2 acres of native and 1,531.4 acres of non-natural habitats (i.e., agriculture) that provide nesting, foraging, and denning opportunities for a variety of wildlife species. Removing or altering habitats within the study area would result in the loss of small mammals, reptiles, amphibians, and other wildlife of slow mobility that live within the Proposed Project's direct impact area. More mobile wildlife species now using the habitat within the Proposed Project area would be forced to move into remaining areas of open space, consequently increasing competition for available resources in those areas. This situation would result in losing individuals of the wildlife population that cannot successfully compete. This direct impact would be considered significant because it would substantially reduce the wildlife populations in the study area.

Summary of Impacts on Sensitive Species

Tables 4.9-4 and 4.9-5 show sensitive wildlife and plant species with potential to occur in the study area. Only those species with the potential to occur in the study area are discussed in the impact evaluation. Species not expected to occur would not be impacted, and therefore, no mitigation would be required.

As noted in the introduction to this section, impacts to species are reviewed prior to application of avoidance and minimization measures and where feasible and necessary, mitigation measures which are discussed in Section 4.9.5. The sensitive species known or expected to occur within the study area are discussed according to those listed as (1) state- or federally-listed as Threatened or Endangered Species and NCCP/HCP Planning Species, (2) other state- or federally-listed as Threatened or Endangered species, (3) unlisted NCCP/HCP Planning Species, (4) other sensitive wildlife species, and (5) other sensitive plant species. All impacts are considered potentially significant unless indicated otherwise.

State- or Federally-listed Threatened or Endangered that are NCCP/HCP Planning Species

Under a literal reading of the CEQA Appendix "G" Guidelines, any direct impacts to listed species or their habitats are considered as significant. Under the draft NCCP Guidelines General Policy 3 criteria, the conservation of a listed species is determined by the ability of the Proposed Project and its associated Open Space to comply with *key location* criteria set forth in the Draft NCCP/HCP Planning Guidelines (as well as other guidelines such as wildlife and habitat connectivity and long-term adaptive management); thus the protection of *key locations* is considered "essential to the conservation of the species." Impacts to individuals are minimized (i.e., the most important habitat essential ot the conservation of the species is avoided) if the Open Space associated with the Proposed Project protects the *key locations* as specified in the Planning Guidelines.

Discussion of the Thread-leaved Brodiaea

The study area populations occur in six general areas on RMV. A *major population* in a *key location* comprised of one large population of about 2,000 flowering stalks and four much smaller populations numbering 73, 7, 3, and 2 flowering stalks, respectively, is located on Chiquadora Ridge and south of the wastewater treatment plant in lower Chiquita Canyon. A second *major population* in a *key location* comprised of approximately 6,100 flowering stalks in six discrete mapped areas occurs on the hill outcrop associated with the clay mine pits in the southern portions of Cristianitos and Gabino canyons. About 13 scattered locations comprising an *important population* occur in the Cristianitos sub-basin, with populations ranging from about one to 120 flowering stalks and totaling 400 stalks. One location of 250 flowering stalks comprising an *important* population occurs in the eastern portion of the Trampas Canyon sub-basin. Four locations comprising an *important population* occur in the Talega sub-basin on the mesa east of Northrop Grumman near the boundary with the Gabino and Blind canyons sub-basin. These populations include three locations totaling about 63 flowering stalks and one larger population with 225 flowering stalks. Finally, a single location considered an *important population* with 183 flowering stalks occurs in the northwestern portion of the Gabino and Blind canyons sub-basin.

Project Impacts

Impact 4.9-66: *The Proposed Project will significantly impact 21 locations of thread-leaved brodiaea, totaling 6,792 flowering stalks.*

The Proposed Project will result in impacts to 21 locations of brodiaea, totaling 6,392 flowering stalks. As noted above, the RMV populations occur in six general locations.

One large population of about 2,000 flowering stalks and four much smaller populations (less than 75 flowering stalks in the largest population) is located on Chiquadora Ridge and south of the wastewater treatment plant in lower Chiquita Canyon. The large population of about 2,000 flowering stalks and one of the small populations numbering 3 stalks would be protected by the Proposed Project. The other three small locations totaling 82 flowering stalks would be impacted.

Approximately 6,100 flowering stalks in six discrete locations occur on the hill outcrop associated with the clay mine pits in the southern portions of Cristianitos and Gabino canyons. Of the 6,100 flowering stalks in this area, 5,500 stalks occur in three populations of 2,000, 2000, and 1,500 stalks, respectively. The other three occur in populations of 440, 150 and 18 stalks.

The Proposed Project would impact all six of these populations in the southern portions of Cristianitos and Gabino canyons.

About 13 additional scattered locations occur in the Cristianitos sub-basin and southern portion of Gabino Canyon, with populations ranging from about one to120 flowering stalks and totaling 400 stalks. The Proposed Project would impact nine of these scattered small populations totaling about 356 stalks.

Four locations occur in the Talega sub-basin on the mesa east of Northrop Grumman near the boundary with the Gabino and Blind canyons sub-basin. These populations include three locations totaling about 63 flowering stalks and one larger population with 225 flowering stalks. The Proposed Project would impact two of these locations totaling about 246 flowering stalks.

Finally, the locations with 183 flowering stalks in the northwestern portion of the Gabino and Blind canyons sub-basin and 250 flowering stalks in the Trampas Canyon subunit would not be impacted by the Proposed Project.

A total of 21 locations including approximately 6,792 individuals would be impacted by the proposed project.

Discussion of the San Diego Fairy Shrimp

The San Diego fairy shrimp occurs in one location in the study area in three pools located along Radio Tower Road south of Ortega Highway. This area is considered an *important population* in a *key location*.

Project Impacts

Impact 4.9-67: *Grading for the Proposed Project would result in a significant impact on one vernal pool supporting the San Diego fairy shrimp.*

The Proposed Project has the potential to impact one vernal pool supporting the San Diego fairy shrimp.

Discussion of the Riverside Fairy Shrimp

In the study area, the Riverside fairy shrimp is known from two pools located along Radio Tower Road south of Ortega Highway. This area is considered an *important population* in a *key location*.

Project Impacts

Impact 4.9-68: *The Proposed Project would result in a significant impact on one vernal pool supporting the Riverside fairy shrimp.*

Grading for the Proposed Project has the potential to impact one vernal pool supporting the Riverside fairy shrimp.

Discussion of the Arroyo Toad

Within the study area, the arroyo toad is associated with riparian streamcourses in San Juan, Talega, Gabino, and Cristianitos creeks. The San Juan Creek population is a *major population*, of which approximately the northernmost 1,600 feet of San Juan Creek within the study area is

also part of the *key location* in San Juan Creek that extends into Caspers Wilderness Park. The arroyo toad also occurs in Talega, lower Gabino, and lower Cristianitos creeks in the San Mateo Creek Watershed. The Talega Creek population is a *major population* in a *key location*, and the lower Gabino and lower Cristianitos populations are *important populations* in a *key location*.

Project Impacts

Impact 4.9-69: *The Proposed Project would result in significant impacts on suitable habitat types for arroyo toad.*

Construction of the circulation system to support the Proposed Project may result in both temporary and permanent impacts to three of the four populations. The Proposed Project proposes the construction of Cristianitos Road, requiring a bridge crossing of lower Cristianitos Creek, a bridge crossing of Gabino Creek, and finally, a bridge crossing of San Juan Creek. Construction of New Ortega Highway will also require construction of a bridge over San Juan Creek between Planning Areas 3 and 4. Temporary impacts to lower Cristianitos Creek, lower Gabino Creek, and San Juan Creek would result from construction of the bridge crossings.

Permanent impacts to lower Cristianitos Creek, lower Gabino Creek and San Juan Creek would likely include the placement of bridge piers and potentially bridge abutments and shading impacts. The bridge abutments would be constructed outside of the active creek channel on adjacent historic terraces. Arroyo toads are known to use both the active creek channel and adjacent historic terraces during their life cycle. Therefore, construction of the abutments would constitute a significant impact to arroyo toad habitat. Permanent impacts resulting from the placement of piers in the creek bottoms will also occur. The placement of piers is considered significant impacts due to the permanent loss of suitable habitat for the arroyo toad. Based on these conceptual designs, shading impacts to San Juan, Cristianitos and Gabino creeks would not occur as all the proposed structures are 50 feet or higher. Sufficient light would reach below the bridge structures to promote growth of typical riparian species, such as mule fat and willows.

Potential indirect effects from the Proposed Project include hydrologic conditions of concern such as changes in rates of erosion or sedimentation and the generation of pollutants of concern such as heavy metals.

<u>Discussion of the Southwestern Willow Flycatcher</u>

The southwestern willow flycatcher is known from the GERA in Cañada Gobernadora in the study area. As the only area with multiple nesting records, this area is considered an *important population* in a *key location*.

Project Impacts

The Proposed Project has no effect on habitat known to be occupied by the southwestern willow flycatcher.

<u>Discussion of the California Gnatcatcher</u>

There are 243 gnatcatcher locations in the study area concentrated in two locations, Chiquita Canyon and Cañada Gobernadora, and in more scattered locations in Cristianitos and Trampas canyons. The study area supports the southern portion of the California gnatcatcher *major population* in a *key location* in Lower and Middle Chiquita Canyon and along Chiquadora Ridge. The study area portion of this *major population* includes 188 of 404 gnatcatcher locations in the population. The study area also supports all or most of two *important populations* in *key*

locations south of San Juan Creek. The Trampas Canyon *important population* supports seven gnatcatcher locations and is in a *key location* for north-south habitat connectivity. The Upper Cristianitos Canyon *important population* in the study area includes 12 of 13 gnatcatcher locations, with one location in the Donna O'Neill Land Conservancy. This *important population* also is in a *key location* for north-south habitat connectivity. In the East San Juan Capistrano *important population*, only one of 28 locations are in the study area, with the remainder located west of RMV. Thirty-five locations occur in the study area that are not associated with either a *major* or *important population*.

Project Impacts

Impact 4.9-70: *The Proposed Project would result in significant impacts on suitable habitat and locations for the California gnatcatcher.*

Implementation of the land uses associated with the Proposed Project will result in impacts to 72 locations of California gnatcatchers and 2,024.8 acres of coastal sage scrub. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 50.6 acres of coastal sage scrub and one gnatcatcher location. These impacts are considered significant. As noted above, the NCCP/HCP has defined *major populations*, *important populations,* and *key locations* for the Southern Subregion. The study area supports the southern portion of the California gnatcatcher *major population* in a *key location* in Lower and Middle Chiquita Canyon and along Chiquadora Ridge. The study area portion of this *major population* includes 188 of 404 gnatcatcher locations in the population. The proposed project would impact 45 gnatcatcher locations within the RMV portion of this *major population*. The study area also supports all or most of two *important populations* in *key locations* south of San Juan Creek. The Trampas Canyon *important population* supports seven gnatcatcher locations and is in a *key location* for north-south habitat connectivity. The Proposed Project will result in impacts to one location within this *important population*.

An additional 35 gnatcatcher locations in the study area fall outside the identified *major* and *important populations.* Of these, the Proposed Project will impact 25 locations, with most of these impacts occurring in Planning Area 3.

<u>Discussion of the Least Bell's Vireo</u>

In the study area, surveys have documented nesting locations of the least Bell's vireo in Gobernadora Creek, middle San Juan Creek (between the Ortega Highway bridge and Caspers Wilderness Park), Chiquita Creek, and lower Cristianitos Creek. With a cluster of about 12 to 15 breeding locations, the GERA is an *important population* in a *key location*.

Project Impacts

Impact 4.9-71: *The Proposed Project has the potential to significantly impact the least Bell's vireo.*

The Proposed Project will impacts 2 out of the 30 known locations of the least Bell's vireo within the study area.

State- or Federally-listed Threatened or Endangered that are Not NCCP/HCP Planning Species

Discussion of the Swainson's Hawk

Suitable winter foraging habitat for the Swainson's hawk is present within the study area including approximately 5,040.9 acres of grassland and 2,554.8 acres of agriculture. Nesting habitat is not relevant in the study area because this species does not nest in southern California. The Swainson's hawk is expected to forage in the study area as a rare migrant.

Project Impacts

Impact 4.9-72: *The Proposed Project would potentially result in significant impacts on suitable habitat for the* Swainson's hawk*.*

The loss of 2,413.6 acres of grassland and 1,531.4 acres of agricultural areas providing foraging habitat would contribute to the ongoing regional and local loss of foraging habitat for the Swainson's hawk. Because of the substantial amount of habitat impacted, the loss of habitat for the Swainson's hawk is considered significant.

Discussion of the American Peregrine Falcon

Potentially suitable foraging and nesting habitat for this species occurs in the study area; however, no nesting occurrences have been observed within RMV. The American peregrine falcon may occur in the study area for foraging and potentially for nesting.

Project Impacts

The loss of foraging habitat (primarily wetland areas) would contribute to the ongoing regional and local loss of foraging habitat for the American peregrine falcon. Because a relatively substantial amount of similar foraging habitat is available in the region and within the RMV Open Space area, the loss of habitat in the study area is not likely to adversely affect the American peregrine falcon. Therefore, there would be no substantial effect on foraging habitat for this species.

Unlisted NCCP/HCP Planning Species

Discussion of the Western Spadefoot Toad

Four *important populations* in the study area include vernal pools on Radio Tower Road, San Juan Creek from the RMV Headquarters to the confluence with Verdugo Canyon, a stock pond in upper Cristianitos Canyon, and Lower Gabino Canyon.

Project Impacts

Impact 4.9-73: *The Proposed Project would potentially result in significant impacts on suitable habitat for the western spadefoot toad.*

The Proposed Project would impact a total of seven out of the 15 known locations of spadefoot toads on RMV. Three of the 15 known locations would be impacted: two locations in PA 1 and one in PA 4. Implementation of the Proposed Project also has the potential to impact three vernal pools supporting the western spadefoot along Radio Tower Road and a stockpond supporting the spadefoot in Upper Cristianitos.

Discussion of the Southwestern Pond Turtle

Known populations of southwestern pond turtle within the study area are located in San Juan Creek, in a stock pond and adjacent grassland habitat in upper Cristianitos Canyon, in grassland just west of Jerome's Lake in upper Gabino Canyon, and at a stock pond within the nursery north of Ortega Highway. Because the pond turtle is relatively rare in the planning area, all occupied sites except the location next to Color Spot Nursery are considered *important populations* in *key locations*.

Project Impacts

Impact 4.9-74: *The Proposed Project has the potential to result in a significant impact on suitable habitat for the southwestern pond turtle.*

Implementation of the Proposed Project may result in significant impacts to a stockpond supporting southwestern pond turtle in the Cristianitos sub-basin and at Jerome's Lake in Upper Gabino. The Proposed Project would also impact the two locations of the southwestern pond turtle next to the Color Spot Nursery. Because these locations are already degraded by nursery operations, the impacts to these two sites are not considered significant.

Discussion of the Orange-throated Whiptail

The orange-throated whiptail is known to occur throughout the study area within suitable habitat. The orange-throated whiptail occurrences are widely scattered, but there appear to be three clusters of occurrences that may be considered *important populations* in *key locations:* along the ridge between Chiquita Canyon and Wagon Wheel Canyon; south of Oso Parkway Along Chiquadora Ridge; and in Gobernadora/Central San Juan Creek sub-basins north and east of the Color Spot Nursery.

Project Impacts

Impact 4.9-75: *The Proposed Project would result in a potentially significant impact on suitable habitat types for the orange-throated whiptail.*

The proposed project will directly impact 45 known locations of the orange-throated whiptail and 2,959.5 acres of coastal sage scrub, chaparral, and woodland. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 64.8 acres of habitat and an additional two locations of the orange-throated whiptail.

Discussion of the San Diego Horned Lizard

Occurrences the San Diego horned lizard are widely scattered throughout the study area; however, there appear to be two clusters of occurrences that may be considered *important populations* in *key locations*: Along the ridge between Chiquita Canyon and Wagon Wheel Canyon south of Oso Parkway; and Upper Cristianitos and southern Trampas Canyon sub-basin located between Cristianitos Road and Cristianitos Creek.

Project Impacts

Impact 4.9-76: *The Proposed Project would result in a potentially significant impact on suitable habitat types for the San Diego horned lizard.*

The proposed project will directly impact 17 known locations of the San Diego horned lizard and approximately 2,736.6 acres of coastal sage scrub and chaparral.

Discussion of the Cooper's Hawk

Approximately 2,507 acres of potentially suitable foraging and nesting habitat for the Cooper's hawk occurs in the study area. In addition, 23 nest sites have been recorded for this species within the study area. No major and/or important populations have been identified for the Cooper's hawk within the study area.

Impact 4.9-77: *The Proposed Project would result in a potentially significant impact on the Cooper's hawk.*

Project Impacts

The loss of a substantial amount of foraging/nesting habitat (approximately 627 acres) and four historic nesting locations would contribute to the ongoing regional and local loss of habitat for the Cooper's hawk.

Discussion of the Tricolored Blackbird

Breeding colonies of tricolored blackbirds consistently have been observed within the study area in upper and lower Chiquita Canyon; and south of Ortega Highway. Other locations within the study area for the tricolored blackbird observed in the past include along San Juan Creek, Trampas Canyon, and just north of Gabino Canyon. This species may forage throughout the study area within suitable habitat and are consistently observed in Canada Gobernadora south of a breeding site in Coto de Caza. There are no current breeding colonies within the study area that are considered to support an *important population* in a *key location* for this species

Project Impacts

Impact 4.9-78: *The Proposed Project would result in potentially significant impacts on suitable habitat types for the tricolored blackbird.*

Potential breeding/foraging areas for the tricolored blackbird that would be affected by implementation of the Proposed Project are the development within the "Narrows" area of Chiquita Canyon, the "Riverside Cement" colony in Lower Cristianitos and Lower Gabino canyons, and at the mouth of Verdugo Canyon.

Discussion of the Grasshopper Sparrow

This species is known to occur throughout the study area within suitable grassland habitat totaling about 5,041 acres. The planning area appears to support one *major population* and two *important populations* of the grasshopper sparrow that accounts for more than 90 percent of the locations in the subregion. Because these three populations account for more than 90 percent of the locations, all three are considered *key locations*.

Project Impacts

Impact 4.9-79: *The Proposed Project would result in significant impacts on the grasshopper sparrow through habitat loss.*

The proposed project will directly impact 253 known locations of the grasshopper sparrow and 2,413.5 acres of grassland. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact two locations and 41.3 acres of grassland.

Discussion of the Coastal Cactus Wren

The study area supports 523 known locations within the study area within suitable habitat. Within the context of the coastal populations of the cactus wren, the population in the NCCP/HCP planning area constitutes a *major population*. Because of its widespread distribution in the planning area, however, it was not appropriate to identify specific portions of the population as *key locations* in the subregion.

Project Impacts

Impact 4.9-80: *The Proposed Project would result in potentially significant impacts on suitable habitat for the cactus wren.*

The proposed project will directly impact 220 known cactus wren locations (42 percent) and approximately 2,024.8 acres of suitable habitat.

Discussion of the White-tailed Kite

Potentially suitable foraging and nesting habitat for the white-tailed kite occurs in the study area. This species is known to occur within San Juan Creek, Cañada Gobernadora, Gabino Canyon, and the Donna O'Neill Land Conservancy and is expected to forage and nest in suitable habitat throughout RMV. Because nest sites are scattered throughout the study area, no major and/or important populations have been identified for this species within the study area.

Project Impacts

Impact 4.9-81: *The Proposed Project would result in potentially significant impacts on suitable habitat for the white-tailed kite.*

The loss of one nest site, four historic nesting locations, and a substantial amount (approximately 627 acres) of potential foraging and nesting habitat would contribute to the ongoing regional and local loss of habitat for the white-tailed kite.

Discussion of the Merlin

The study area provides suitable foraging habitat for this species, but the merlin does not breed in the project region. The merlin is known to occur for foraging in the study area, but is not expected to nest in the study area. Chiquita Canyon is considered a *key foraging location* for the merlin in the subregion.

Project Impacts

Impact 4.9-82: *The Proposed Project would result in significant impacts on the merlin through habitat loss.*

Key foraging habitat in Lower and Middle Chiquita and Cristianitos canyons would be developed as a result of project implementation. The loss of a substantial amount (approximately

3,945 acres [52 percent]) of foraging habitat would contribute to the ongoing regional and local loss of foraging habitat for the merlin.

Discussion of the Yellow-breasted Chat

Yellow-breasted chats have been observed within Cañada Chiquita, Cañada Gobernadora, San Juan Creek, Cristianitos Creek, Blind Canyon, and Gabino Canyon. Four *important population* areas for the yellow-breasted chat occur in the study area.

Project Impacts

Impact 4.9-83: *The Proposed Project has the potential to significantly impact the yellow-breasted chat.*

The proposed project will directly impact 14 known locations of the yellow-breasted chat and 405 acres of potential riparian habitat for this species. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 20 acres of riparian habitat.

Discussion of the Coulter's Saltbush

Coulter's saltbush is known from three general locations in the study area: Chiquita Canyon, upper Cristianitos Canyon, and upper Gabino Canyon. There are approximately 34 locations of Coulter's saltbush on RMV totaling approximately 3,000 individuals. The locations in middle Chiquita by the Narrows are considered *major populations* in *key locations.* The locations in upper Gabino, upper Cristianitos, lower Chiquita, middle Chiquita by the treatment facility, and Gobernadora/Chiquita seep are considered *important populations.*

Project Impacts

Impact 4.9-84: *The Proposed Project would result in potentially significant impacts on Coulter's saltbush.*

Twenty-five locations including approximately 478 individuals of Coulter's saltbush would be impacted by the proposed project. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact nine locations and 51 individuals.

Discussion of the Southern Tarplant

The largest population of southern tarplant on RMV occurs in Chiquita Canyon, and including the Tesoro mitigation site, contains more than 146,000 individuals. A large population is also located within GERA in Cañada Gobernadora and contains more than 10,000 individuals. There are 42 locations of southern tarplant on RMV totaling approximately 130,000 individuals. The locations of southern tarplant in middle Chiquita by the "Narrows", Tesoro High School mitigation site, and GERA are all considered *major populations* in *key locations.* The location in lower Chiquita Canyon is considered a *major population.* The locations in middle Chiquita Canyon by the treatment facility, and Gobernadora/Chiquita seep are considered *important populations* in *key locations.*

Project Impacts

Impact 4.9-85: *The Proposed Project would result in significant impacts on southern tarplant.*

A total of 29 locations including 41,055 individuals of southern tarplant would be impacted by the proposed project. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 18 locations and 3,068 individuals.

Discussion of the Many-stemmed Dudleya

Many-stemmed dudleya is known from five general areas on RMV: Chiquita Ridge, Chiquadora Ridge, Gobernadora/Central San Juan east of Gobernadora Creek and north of Color Spot Nursery, Trampas Canyon/Cristianitos Canyon, and upper Gabino and La Paz Canyons. A smaller cluster of locations occurs east of the Northrop-Grumman facilities on the mesa. There are about 284 locations of many-stemmed dudleya on RMV, totaling approximately 47,192 individuals. The locations in Chiquadora Ridge and upper Gabino and La Paz Canyon are considered *major populations* in *key locations.* The locations in Canada Gobernadora/Central San Juan east of Gobernadora Creek and north of Color Spot Nursery, Trampas Canyon/Cristianitos Canyon extending south to Talega, upper Gabino and Blind canyons are considered *major populations.* The locations in Chiquita Ridge and lower Chiquita Canyon are considered *important populations* in *key locations.* The location east of Northrop-Grumman is considered an *important population.*

Project Impacts

Impact 4.9-86: *The Proposed Project would result in significant impacts on many-stemmed dudlea.*

A total of 195 locations including approximately 26,799 individuals of many-stemmed dudleya would be impacted by the proposed project.

Discussion of the Mud Nama

Mud nama occurs in a vernal pool on Chiquita Ridge and along the margins of stockponds located between Trampas and Cristianitos canyons and west of an RMV residence south of Ortega Highway. These locations are all considered *important populations* in *key locations*. There are three locations of mud nama on RMV totaling 9,850 individuals.

Project Impacts

Impact 4.9-87: *The Proposed Project would result in significant impacts on mud nama.*

A total of two locations, containing a substantial number of this species (9,500 individuals) would be impacted by the proposed project.

Discussion of the Chaparral Beargrass

Chaparral beargrass occurs in two areas on RMV: on the steep south-facing slopes east of the Northrop-Grumman facility and in the eastern portion of the Talega sub-basin. There are six locations of chaparral beargrass on RMV totaling six individuals. There are five locations in the eastern Talega sub-basin are an *important population* in a *key location*.

Project Impacts

One location including one individual of chaparral beargrass would be impacted by the proposed project. This impact would be considered less than significant due to the limited number of individuals impacted relative to the number of individuals conserved.

Discussion of the Salt Spring Checkerbloom

Salt Spring checkerbloom occurs in two slope wetlands in Chiquita Canyon and one slope wetland in Cañada Gobernadora. Two Chiquita slope wetlands support 1,200 and 300 individuals, respectively, while the Gobernadora slope wetland only supports three plants.

Project Impacts

One location including three individuals of Salt Spring checkerbloom in Gobernadora Canyon would be impacted by the proposed project. This impact would be considered less than significant due to the limited number of individuals impacted relative to the number of individuals conserved.

Discussion of the Golden Eagle, Mountain Lion and Mule Deer

The golden eagle, mountain lion, and mule deer are known to occur throughout the study area within suitable habitat.

Project Impacts

The proposed project will directly impact a total of approximately 5,779 acres (30 percent) of grassland, scrub, chaparral, riparian, and woodland communities that provide potential habitat for golden eagle, mountain lion, and mule deer. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 130 acres of habitat for these species. These impacts to suitable habitat for these species are considered less than significant due to the amount of habitat loss relative to the availability of habitat for these species in the region and the habitat areas that will be conserved and managed as part of the AMP for the Proposed Project.

Other Special Status Wildlife Species

Discussion of the Harbison's Dun Skipper

Although no data points exist for Harbison's dun skipper, it potentially occurs within the study area due to the presence of *Carex spissa*.

Project Impacts

The Proposed Project would impact approximately 8.9 acres (35 percent) of the freshwater marsh within the study, where the host plant for this species is known to occur. Based upon the limited amount of potential habitat impacted relative to the amount of potential habitat (approximately 16.3 acres) that will be conserved and managed as part of the Proposed Project open space and AMP, the potential impact on Harbison's dun skipper is considered less than significant.

Discussion of the Partially Armored Threespine Stickleback and Arroyo Chub

The partially armored threespine stickleback is known to occur within San Juan Creek while the arroyo chub is known to occur within San Juan Creek and lower Cañada Gobernadora within the study area.

Project Impacts

Impact 4.9-88: *The Proposed Project would result in potentially significant impacts on the partially armored threespine stickleback and arroyo chub.*

Within the Proposed Project area, San Juan Creek and Cañada Gobernadora would either be altered or diverted to accommodate grading and construction (temporary impacts) from the circulation system of the Proposed Project and indirect impacts associated with implementation of the Proposed Project. Construction along or across waterways could potentially impact the quality of the natural habitats supporting native fish populations. Factors that could potentially impact these upland stream areas include: (a) the blockage or diversion of water flow into Cañada Gobernadora and San Juan Creek, (c) increased siltation from grading, and (c) the degradation of water quality by the disturbance of anaerobic (low oxygen) sediments.

<u>Discussion of the Arboreal Salamander, Western Newt, Silvery Legless Lizard, Coastal Glossy Snake, Rosy Boa, Coastal Western Whiptail, San Diego Banded Gecko, Northern Red-Diamond Rattlesnake, San Diego Ringneck Snake, Coronado Island Skink, San Diego Mountain Kingsnake, Coast Patch-Nosed Snake, South Coast Garter Snake, and Two-Striped Garter Snake</u>

The arboreal salamander, western newt, silvery legless lizard, coastal glossy snake, rosy boa, coastal western whiptail, San Diego banded gecko, northern red-diamond rattlesnake, San Diego ringneck snake, Coronado Island skink, San Diego mountain kingsnake, coast patch-nosed snake, south coast garter snake, and two-striped garter snake are either known to occur or potentially occur throughout the study area within suitable habitat.

Project Impacts

The proposed project will directly impact a total of approximately 5,777 acres (30 percent) of grassland, scrub, chaparral, riparian, and woodland communities that provide potential habitat for arboreal salamander, western newt, silvery legless lizard, coastal glossy snake, rosy boa, coastal western whiptail, San Diego banded gecko, northern red-diamond rattlesnake, San Diego ringneck snake, Coronado Island skink, San Diego mountain kingsnake, coast patch-nosed snake, south coast garter snake, and two-striped garter snake. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 126 acres of habitat for these species. These impacts to known locations and suitable habitat for these species are considered less than significant due to the amount of habitat loss relative to the availability of habitat for these species in the region and the amount of potential habitat that will be conserved and managed as part of the Proposed Project open space and AMP.

<u>Discussion of Raptors that Forage within the Study Area –Sharp-Shinned Hawk, Short-Eared Owl, Short-Eared Owl, Ferruginous Hawk, and Prairie Falcon</u>

Suitable foraging habitat, including grasslands and agricultural areas, for the sharp-shinned hawk, short-eared owl, short-eared owl, ferruginous hawk, and prairie falcon is present within the study area. These species are not expected to nest in the study area because there is either no suitable nesting habitat or these species do not nest in the area.

Project Impacts

Impact 4.9-89: *The Proposed Project would result in significant impacts on the sharp-shinned hawk, short-eared owl, short-eared owl, ferruginous hawk, and prairie falcon.*

The loss of a substantial amount foraging habitat (approximately 3,946 acres [52 percent] within the study area) would contribute to the ongoing regional and local loss of foraging habitat for the sharp-shinned hawk, short-eared owl, short-eared owl, ferruginous hawk, and prairie falcon.

Discussion of Other Raptors that Nest or Potentially Nest within the Study Area - Long-Eared Owl, Red-Shouldered Hawk, Northern Harrier, and Barn Owl

Suitable foraging and nesting habitat for the long-eared owl, red-shouldered hawk, northern harrier, and barn owl occurs in the study area.

Project Impacts

Impact 4.9-90: *The Proposed Project would result in significant impacts on the long-eared owl, red-shouldered hawk, northern harrier, and barn owl.*

The loss of 4,572 acres (45 percent) of foraging and suitable nesting habitat and three historic nest locations (12 percent) of the red-shouldered hawk, I nest location (25 percent) of the long-eared owl, and 12 historic nest locations (48 percent) of the barn owl would contribute to the ongoing regional and local loss of habitat for the long-eared owl, red-shouldered hawk, northern harrier, and barn owl. Because of the substantial amount of habitat impacted, the loss of habitat for the long-eared owl, red-shouldered hawk, northern harrier, and barn owl is considered significant.

Discussion of the Southern California Rufous-Crowned Sparrow, Bell's Sage Sparrow, Costa's Hummingbird, Lawrence's Goldfinch, Lark Sparrow, Pacific-Slope Flycatcher, California Horned Lark, Loggerhead Shrike, Allen's Hummingbird, California Thrasher, and Bewick's Wren

The Southern California rufous-crowned sparrow, Bell's sage sparrow, Costa's hummingbird, Lawrence's goldfinch, lark sparrow, pacific-slope flycatcher, California horned lark, loggerhead shrike, Allen's hummingbird, California thrasher, and Bewick's wren are either known to occur or potentially occur throughout the study area within suitable habitat.

Project Impacts

The proposed project will directly impact a total of 5,777 acres (30 percent) of grassland, scrub, chaparral, riparian, and woodland communities that provide potential habitat for the Southern California rufous-crowned sparrow, Bell's sage sparrow, Costa's hummingbird, Lawrence's goldfinch, lark sparrow, Pacific-slope flycatcher, California horned lark, loggerhead shrike, Allen's hummingbird, California thrasher, and Bewick's wren. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 126 acres of habitat for these species. The impacts to known locations and suitable habitat for these species are considered less than significant because the loss of habitat would not substantially reduce populations of these species in the region or throughout their distribution in Southern California. In addition, the Proposed Project would conserve and manage a substantial amount of habitat for these species as part of the open space and AMP programs.

Discussion of the American Bittern, Least Bittern, California Gull, Osprey, American White Pelican, Double-Crested Cormorant, Summer Tanager, White-Faced Ibis, Purple Martin, and Red-Breasted Sapsucker

The American bittern, least bittern, California gull, osprey, American white pelican, double-crested cormorant, summer tanager, white-faced ibis, purple martin, and red-breasted

sapsucker are either known to occur or potentially occur throughout the study area within suitable habitat.

Project Impacts

The Proposed Project will directly impact a total of 709 acres (26 percent) of marsh, watercourses, open water, riparian, and woodland communities that provide potential habitat for the American bittern, least bittern, California gull, osprey, American white pelican, double-crested cormorant, summer tanager, white-faced ibis, purple martin, and red-breasted sapsucker. The impacts to known locations and suitable habitat for these species are considered less than significant due to the amount of habitat loss relative to the availability of habitat for these species in the region and the amount of potential habitat that will be conserved and managed as part of the Proposed Project open space and AMP.

Discussion of the Pallid Bat, Townsend's Western Big-Eared Bat, Spotted Bat, California Mastiff Bat, California Leaf-Nosed Bat, Small-Footed Myotis, Long-Legged Myotis, Yuma Myotis, and Pocketed Free-Tailed Bat

The pallid bat, Townsend's western big-eared bat, spotted bat, California mastiff bat, California leaf-nosed bat, small-footed myotis, long-legged myotis, yuma myotis, and pocketed free-tailed bat are either known to occur or potentially occur throughout the study area within suitable habitat.

Project Impacts

The proposed project will directly impact a total of 7,308 acres (34 percent) of grassland, agriculture, scrub, chaparral, riparian, and woodland communities that provide potential habitat for the pallid bat, Townsend's western big-eared bat, spotted bat, California mastiff bat, California leaf-nosed bat, small-footed myotis, long-legged myotis, yuma myotis, and pocketed free-tailed bat. The impacts to known locations and suitable habitat for these species are considered less than significant due to the amount of habitat loss relative to the availability of habitat for these species in the region and the amount of potential habitat that will be conserved and managed as part of the Proposed Project open space and AMP.

Discussion of the Northwestern San Diego Pocket Mouse, Dulzura California Pocket Mouse, San Diego Black-tailed Jackrabbit, San Diego Desert Woodrat, Southern Grasshopper Mouse, and American Badger

The northwestern San Diego pocket mouse, Dulzura California pocket mouse, San Diego black-tailed jackrabbit, San Diego desert woodrat, southern grasshopper mouse, and American badger are either known to occur or potentially occur throughout the study area within suitable habitat.

Project Impacts

The proposed project will directly impact a total of 7,308 acres (34 percent) of grassland, agriculture, coastal sage scrub, chaparral, riparian, and woodland communities that provide potential habitat for the northwestern San Diego pocket mouse, Dulzura California pocket mouse, San Diego black-tailed jackrabbit, San Diego desert woodrat, southern grasshopper mouse, and American badger. The impacts to known locations and suitable habitat for these species are considered less than significant due to the amount of habitat loss relative to the availability of habitat for these species in the region and the amount of potential habitat that will be conserved and managed as part of the Proposed Project open space and AMP.

Discussion of the Beaked Spikerush

Beaked spikerush occurs in two locations on RMV in the “Narrows” area of Chiquita Canyon, totaling 1,501 individuals.

Project Impacts

The Proposed Project would impact one location of one mapped beaked spikerush on RMV. This impact would occur from implementation of the construction and maintenance of infrastructure facilities. This single impact is not considered significant.

Discussion of the Palmer's Grapplinghook

This species occurs on Chiquita Ridge, east of Gobernadora Creek, and in Cristianitos Canyon. There are 81 locations of Palmer’s grapplinghook on RMV totaling 27,131 individuals.

Project Impacts

Impact 4.9-91: *The Proposed Project would result in significant impacts on Palmer’s grapplinghook.*

A substantial number of Palmer’s grapplinghook (including 69 locations [85 percent] and 22,306 individuals [82 percent] would be impacted by the proposed project. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact one location and eight individuals of this species.

Discussion of the Mesa Brodiaea

Mesa brodiaea occurs in two locations on RMV, totaling two individuals in Cristianitos Canyon.

Project Impacts

One location including one individual of mesa brodiaea would be impacted by the proposed project. The impact on one mesa brodiaea would be considered less than significant due to the limited number of individuals impacted.

Discussion of the Catalina Mariposa Lily

This species occurs on Chiquita Ridge, in Cañada Gobernadora, the northeast portion of the Talega development, and the Saddleback Meadows area. There are 100 locations of Catalina mariposa lily on RMV totaling approximately 4,881 individuals.

Project Impacts

Impact 4.9-92: *The Proposed Project would result in significant impacts on Catalina mariposa lily.*

A substantial number of Catalina mariposa lily (including 64 locations [64 percent] supporting approximately 3,425 individuals [70 percent]) would be impacted by the proposed project. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 2 locations and five individuals of this species.

Discussion of the Western Dichondra

Western dichondra occurs in a 25-acre area in the upper/middle portions of Gabino Canyon and several small populations in Cristianitos Canyon. There are four locations of western dichondra on RMV, totaling approximately 40 acres.

Project Impacts

A total of four locations including approximately 7.5 acres of western dichondra would be impacted by the proposed project. This impact would be considered less than significant because this species is relatively common.

Discussion of the Upright Burhead

Upright burhead occurs in one location on RMV in upper Cristianitos, totaling one individual.

Project Impacts

The one location of upright burhead on RMV would not be impacted by the proposed project. Therefore, there would be no impact on this species.

Discussion of the Vernal Barley

On RMV, vernal barley is has been found in low densities throughout the grasslands associated with clay soils in the Cristianitos and Gabino watersheds, as well as in the Donna O'Neill Conservancy (Roberts and Bramlet, 2004). Population counts for this species are difficult due to its distribution and low densities in the grassland areas. Population estimates have been provided for six locations, totaling 11,921 individuals with an additional 5,817 preserved within the Donna O'Neill Conservancy and an estimated tens of thousands in grassland areas in the Cristianitos and Gabino watersheds.

Project Impacts

Impact 4.9-93: *The Proposed Project would result in potentially significant impacts on vernal barley.*

A substantial number of vernal barley (including six locations supporting 11,921 individuals) would be impacted by the proposed project.

Discussion of the Small-flowered Microseris

Small-flowered microseris occurs in Cañada Gobernadora and Cristianitos Canyon. There are 20 locations of small-flowered microseris on RMV totaling 28,775 individuals.

Project Impacts

Impact 4.9-94: *The Proposed Project would result in potentially significant impacts on small-flowered microseris.*

A substantial number of small-flowered microseris (including 18 locations supporting 20,933 individuals) would be impacted by the proposed project.

Discussion of the Chaparral Rein Orchid

There is one record of chaparral rein orchid in the Central San Juan subunit of the Central San Juan and Trampas Canyon sub-basin.

Project Impacts

The Proposed Project would impact one location supporting six individual of chaparral rein orchid. The impact on chaparral rein orchid would be considered less than significant because the loss of six individuals would not represent a substantial decline to this species which is known to occur from Ventura County south into Mexico.

Discussion of the Fish's Milkwort

There is one location of Fish's milkwort on RMV, totaling five individuals.

Project Impacts

The one location of Fish's milkwort on RMV would not be impacted by the proposed project.

Habitat Linkages and Wildlife Movement Corridors

Impact 4.9-95: *The Proposed Project would result in potentially significant impacts on habitat linkages and wildlife movement corridors.*

Impacts to habitat linkages/wildlife movement corridors are addressed under the prior Infrastructure Consistency Analysis. Potentially significant impacts to habitat linkages/wildlife movement corridors C, G, J, N, O, and K (see impacts 4.9-58, 4.9-59, and 4.9-60) were identified.

Indirect Impacts Resulting from the Proposed Project

Short-term Indirect Impacts

Noise Impacts

Impact 4.9-96: *The Proposed Project would result in potentially significant noise impacts on the wildlife population within the vicinity of the planning areas and circulation system.*

Noise levels in the study area would increase substantially over present levels during construction of the Proposed Project. During construction, temporary noise impacts have the potential to disrupt foraging, nesting, roosting, and denning activities for a variety of wildlife species. These impacts are considered adverse, but not significant for most wildlife species, because the proposed project would not impact a substantial population of unlisted wildlife species in the region. However, nesting raptors and other sensitive bird species would potentially incur temporary short-term impacts from construction noise if present in the vicinity of the proposed project, and may be temporarily displaced due to these disturbances. This short-term impact is potentially significant.

Construction Impacts

Grading activities would disturb soils and result in the accumulation of dust on the surface of the leaves of trees, shrubs, and herbs. Grading activities would also result in an accumulation of trash and debris. Grading activities may result in the accidental disturbance of native vegetation.

Impact 4.9-97: *The Proposed Project would result in potentially significant construction-related impacts on the wildlife population within the vicinity of the planning areas and circulation system including increased dust, trash accumulation, and accidental disturbances of native vegetation.*

Long-term Indirect Effects

Noise

Noise would also increase over present levels with implementation of the proposed project. The chronic (i.e., permanent) noise increase would be considered adverse but less than significant because there is a substantial amount of similar habitat remaining in the Proposed Project Open Space. Therefore, no mitigation would be required.

Invasive Exotic Species

Impact 4.9-98: *The Proposed Project would result in potentially significant impacts from invasive exotic species.*

The proposed project will include landscaping adjacent to the proposed development. The landscaping has the potential to include planting ornamental species that are known to be particularly invasive (e.g., Japanese honeysuckle [*Lonicera japonica*], fan palm [*Washingtonia* spp.], Peruvian pepper tree [*Schinus molle*], pampas grass [*Cortaderia jubata*], etc.). Seeds from invasive species may escape to natural areas and degrade the native vegetation. This impact would be considered potentially significant.

In addition, the Proposed Project has the potential to increase the existing population of invasive invertebrate/vertebrate species on site or introduce new invasive species to previously undisturbed areas. Three invasive invertebrate species are known to occur within the study area including Argentine ant (*Linepithema humile*), red imported fire ant (*Solenopsis invicta*), and crayfish (*Procambrus* spp.). These species pose direct and indirect threats to native species at the urban-natural interface, including direct predation of native vertebrates and competition/displacement of important invertebrate prey of native species. Populations of vertebrate species including introduced fishes, bullfrog, brown-headed cowbird, European starling, opossums, and feral mesopredators such as cats and dogs also have the potential to become problematic within the natural open space areas adjacent to the Proposed Project. These species can be a significant factor in the decline of native wildlife populations in the study area.

Water Quality

Impact 4.9-99: *The Proposed Project would result in potentially significant impacts from pollutants entering native habitats.*

Additional impacts to the biological resources in the study area could occur as a result of changes in water quality resulting from Proposed Project implementation. The runoff from the development areas and associated arterials containing pesticides, herbicides, petroleum products, and other residues and the improper disposal of petroleum and chemical products

from construction equipment have the potential to adversely affect the water quality within the study area, in turn, affect populations of aquatic species. Of particular concern in regards to pollutants, is the affect pollutants, borne by runoff, may have on listed species within close proximity to the development areas/roadways that live in wet environments (creeks) or require wet environments for an important part of their life cycle (reproduction). Pollutants would potentially affect various sensitive fish, amphibian, and reptiles within the study area. Pollutants released into habitat occupied by aquatic species could be degraded to a point where the water quality could impair these species ability to successfully forage and hatch and raise viable young. These impacts area considered potentially significant. However, the WQMP will provide provisions for the implementation of the Best Management Practices, which would reduce the potential for significant impacts resulting from pollutants entering native habitats.

Implementation of Water Resources mitigation measures outlined in Section 4.5 will avoid potentially significant impacts from pollutants; therefore, no mitigation would be required.

Night Lighting

Impact 4.9-100: *The Proposed Project would result in potentially significant impacts from night lighting.*

Lighting of the Proposed Project could result in an indirect effect on the behavioral patterns of nocturnal and crepuscular (i.e., active at dawn and dusk) wildlife adjacent to these areas. Of greatest concern is the effect on small ground-dwelling animals that use the darkness to hide from predators, and the effect on owls, which are specialized night foragers relying on the darkness for cover. These impacts would be considered potentially significant since the study area is primarily undeveloped.

Human Activity

Impact 4.9-101: *The Proposed Project would result in potentially significant impacts from human activity.*

The increase in human activity would increase the disturbance of natural open space adjacent to the proposed project. Human disturbance could disrupt normal foraging and breeding behavior of wildlife remaining in the area adjacent to the development, diminishing the value of the habitat. Wildlife stressed by noise may vacate the natural open space adjacent to the development, leaving only wildlife tolerant of human activity. This increased disturbance is called an “edge effect”. This impact would be potentially significant since it could result in degradation of habitat.

4.9.5 MITIGATION PROGRAM

DISCUSSION OUTLINE

As in the case of the Impacts Section, given the significance and complexity of issues involving biological resources, the following is a topical outline intended to provide the reader with an overview of the topics reviewed in this Mitigation Program Section:

A. CEQA Guidelines Definition of "Mitigation"

- Definition
- Terminology used in this section

B. Conservation Strategy – Mitigation of Impacts to Maintain Net Habitat Value

- The four elements of a Conservation Strategy
- Key elements of the Conservation Strategy for the Proposed Project:

    (1) commitment of protected open space without the need for public funding
    (2) provision for wildlife and habitat connectivity
    (3) formulation of and funding for the implementation of a long-term Adaptive Management Program

C. Recommended Avoidance/Minimization Measures Based on the Sub-Basin Consistency Analyses

- Avoidance/Minimization Measures: NCCP/HCP Sub-Basin Guidelines ("Could be Consistent" Recommendations)
- Avoidance/Minimization Measures: Watershed Principles Sub-Basin Consistency Analysis ("Could be Consistent" Recommendations)
- Avoidance/Minimization Measures: Circulation System and Other Infrastructure Consistency Analysis ("Could be Consistent" Recommendations)
- Analysis of Species for which the "Could be Consistent" Avoidance/ Minimization "Measures Reduce Potential Impacts to Below a Level of Significance

D. Mitigation of Impacts Provided by the Proposed Conservation Strategy

- Overview
- Summary of Proposed Project Open Space/Habitat Protection System
- Consistency of the Proposed Project (with the "Could be Consistent" measures) with the Subregional Conservation Planning Program Landscape Scale Guidelines

    (1) SRP/Science Advisors Tenets of Reserve Design – Consistency Review
    (2) SAMP Tenets – Consistency Review
    (3) Baseline Conditions Watershed Planning Principles – Consistency Review

- Mitigation Provided by the Adaptive Management Program

  (1) The Three Primary Goals of the Adaptive Management Program
  (2) Contributions of the Adaptive Management Program to the Recovery of Listed Species
  (3) Appendix G-7 – more extended discussion of the mitigation contributions of the Adaptive Management Program is set forth in Appendix G-7

- Assessment of the Extent to Which Proposed Minimization/Avoidance and Mitigation Measures Reduce Impacts to Below a Level of Significance

  (1) Minimization/Avoidance and Mitigation Measures for Potential Direct Impacts to the Five Major Vegetation Communities
  (2) Minimization/Avoidance and Mitigation Measures for Potential Direct Impacts to Listed NCCP/HCP Planning Species and to Other Listed Species
  (3) Minimization/Avoidance and Mitigation Measures for Potential Direct Impacts to Unlisted NCCP/HCP Planning Species and Other Sensitive Species
  (4) Mitigation for Potential Impacts Resulting from Conflicts with the NCCP Sub-Basin Guidelines ("Not Consistent" Findings)
  (5) Mitigation for Potential Impacts Resulting from Conflicts with the Watershed Sub-Basin Planning Principles ("Not Consistent" Findings)
  (6) Summary of Mitigation Measures for Potential Impacts to Habitat Linkages and Wildlife Movement Corridors
  (7) Overall Conclusions Regarding Net Habitat Value

E. Mitigation for Potentially Significant Indirect Effects

  (1) Short-term Effects
  (2) Long-term Effects

F. Critical Habitat Designations (final and proposed) – Impacts and Mitigation Analysis in Relation to the Proposed Conservation Strategy Measures

G. Potential Downstream Cumulative Impacts on Aquatic/Riparian Resources – Impacts and Mitigation Analysis in Relation to the Proposed Conservation Strategy Measures

H. Remaining Significant Impacts following the Application of Feasible Avoidance/Minimization and Mitigation Measures.

CEQA GUIDELINES DEFINITION OF "MITIGATION" AND TERMINOLOGY USED IN THIS SECTION

The CEQA Guidelines define mitigation as including:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action.
(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
(c) Rectifying the impacts by repairing, rehabilitating, or restoring the impacted environment.

(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
(e) Compensating for the impact by replacing or providing substitute resources or environments.

In this section, the following three terms will be used to represent the different aspects of "mitigation" identified in the above five subsections of the CEQA Guidelines: (1) the term "avoidance of impacts" is used to identify actions pursuant to subsection "(a)" above intended to avoid "the impact altogether by not taking a certain action or parts of an action;" (2) the term "minimization of impacts" is intended to identify actions pursuant to subsection "(b)" above intended to minimize impacts "by limiting the degree or magnitude of the action and its implementation;" and (3) the term "mitigation of impacts" is intended to identify actions proposed to address any impacts remaining following the application of feasible avoidance and minimization measures pursuant to subsections "(c)," "(d)" and "(e)" above.

CONSERVATION STRATEGY—MITIGATION OF IMPACTS TO MAINTAIN NET HABITAT VALUE

Consistent with the significance criteria established by the County of Orange, the prior section addressing potential impacts has utilized the baseline environmental data previously gathered and the framework for environmental analysis that has been established pursuant to the NCCP/HCP and SAMP/MSAA processes to date (i.e., the geographically-oriented sub-basin consistency analyses employing the NCCP/HCP Guidelines and Watershed Planning Principles) in order to identify potential impacts. In the same fashion, and consistent with the "thresholds of significance" discussion in the Impacts Section, this section addresses "mitigation" and "levels of significance" of remaining impacts following mitigation.

Notwithstanding that the GPA/ZC would be processed before completion of any NCCP/HCP or SAMP/MSAA, the proposed project and the process that have been utilized to develop and evaluate the proposed project and the other alternatives: (1) provides a plan for development and a framework for conservation that will help to achieve the major benefits originally envisioned by those planning Programs for the Ranch Plan area, and (2) provides a conservation plan that would be complementary to any such programs that are completed in the future.

The RMV lands constitute the vast majority of private lands available for consideration for potential inclusion in a future subregional habitat reserve system. This section carries forward the sub-basin consistency review from the Impacts Section by analyzing further avoidance/minimization actions identified as potentially feasible ("Could be Consistent" determinations) in order to present a complete assessment of potential impacts that can be feasibly avoided/minimized. With an understanding of the consistency of the Proposed Project's development plan and Open Space Protection System (RMV Open Space) with the subregional guidelines and principles, this section will examine proposed mitigation within the environmental analysis framework established by the following landscape scale conservation planning principles:

(1) the SRP/Science Advisors Tenets of Reserve Design;

(2) the SAMP Tenets; and

(3) the Baseline Conditions Watershed Planning Principles.

It should also be noted that the Proposed Project is comparable in size to subareas under the Multiple Species Conservation Plan such as Otay Ranch and to the Central Reserve and the Coastal Reserve in the County of Orange Central and Coastal NCCP/HCP. Given the fact that the lands encompassed by the Proposed Project constitute the vast majority of private property landholdings available for conservation planning within the sub region and the use of subregional conservation planning guidelines in both the formulation and environmental review of the Proposed Project, the CEQA concept of mitigation of impacts for a program undertaken on a subregional scale necessarily reflects and must be applied in relation to subregional conservation planning goals. The overall subregional conservation planning goals are articulated in the following excerpts from the Draft NCCP/HCP Planning Guidelines:

> "The goal of the Southern NCCP/HCP is to fashion a habitat conservation planning and implementation program that addresses coastal sage scrub and other natural habitats on an ecosystem basis at a subregional level, pursuant to the State of California NCCP coastal sage scrub program and within the framework of the 1993 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 sub region, and 3) provide for no net loss of habitat value from the present, taking into account management an enhancement. No net loss of habitat value means no net reduction in the ability of the sub region to maintain viable populations of target species over the long-term.*
>
> "To achieve the above goals, the NCCP Conservation Guidelines set forth seven tenets of reserve design [i.e., the NCCP Scientific Review Panel Conservation Guidelines tenets of reserve design] . . . .
>
> ". . . . a 'Conservation Strategy' has been formulated to achieve the goals and objectives of the state and federal ESAs. Four planning elements comprise this 'Conservation Strategy' and serve as programmatic vehicles for carrying out the statewide NCCP Tenets of Reserve Design at the subregional level:
>
> - *Creation of a Habitat Reserve System*: This programmatic element focuses on the creation of a subregional Habitat Reserve System capable of protecting and maintaining populations of "planning Species" over the long term, including land areas necessary for the dispersal of planning species and the ability to maintain genetic flow within and between areas. The Habitat Reserve System has three components:
>
> > - <u>Habitat Reserve</u>: The central component of the Habitat Reserve System is the assemblage, over time, of a large-scale Habitat Reserve that is capable of being managed adaptively. The Habitat Reserve includes current public lands and lands identified for future dedication/acquisition. The Habitat Reserve is intended to relate functionally to federal lands such as the Cleveland National Forest and the San Mateo Wilderness.
> > - <u>Existing Use Areas</u>: These areas provide species protection and/or connectivity benefits even though they may not be managed as part of the Habitat Reserve.
> > - <u>Special Linkage Areas</u>: Some types of open space uses (e.g. passive park area, golf courses) can provide connectivity or wildfire protection

functions important for one or more planning species. Examples are passive recreational use areas preliminarily identified for within the proposed Rancho Mission Viejo Regional Park south of San Juan Creek and golf course uses within avian or mammal movement areas. . . .

- *Regulatory Coverage for Identified Species:* Species intended to be protected and managed by the Habitat Reserve System and AMP are designated as Identified Species. The extent of any authorized take of Identified Species is set forth in the IA.

- *Adaptive Management:* This programmatic element focuses on the creation of the technical and institutional capability for undertaking management actions necessary or helpful to sustain populations over the long term, while adapting management actions to new information and changing habitat conditions. . . . .

- *Implementation Agreement and Funding*: The IA 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 the terms of the approved IA and FESA, CESA and the NCCP Act….".

"The combination of a properly formulated Habitat Reserve and a comprehensive Adaptive Management Plan "AMP" 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 sub region 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 AMP will allow for the mitigation of impacts of proposed incidental take such that the *net habitat value* of the sub region for Identified Species will be maintained on a long-term basis." http://pdsd.oc.ca.gov/ soccpp/index.htm

The purpose of the Conservation Strategy of the Proposed Project is to address the elements of the NCCP/HCP strategy that assure the long-term protection of habitat values within the five major vegetation communities supporting the Draft NCCP/HCP Planning Guidelines Planning Species. These five major vegetation communities, (coastal sage scrub, chaparral, grasslands, wetlands/riparian, and woodlands) encompass the major habitat types found on RMV lands and analyzed in the impacts section. The Conservation Strategy for the Proposed Project strategy is comprised of (1) the formulation of protected open space on RMV lands which could form the basis of a future Habitat Reserve in any future NCCP/HCP and SAMP/MSAA, (2) the provision of habitat connectivity (through the protection of Habitat Linkages and Wildlife Movement Corridors identified in the draft NCCP/HCP Planning Guidelines), and (3) the formulation of and provisions for the funding of a long-term AMP. By assuring the long-term protection of habitat values of the Planning Species through the three major elements of the proposed Conservation Strategy, the Proposed Project intends to mitigate impacts that cannot be avoided or minimized to below a level of significance and thereby reduce such impacts to below a level of significance. By setting aside significant open space (RMV Open Space) and formulating an AMP consistent with the Draft NCCP/HCP Planning Guidelines and Watershed Principles, it is a further goal of the Proposed Project to protect and manage habitat for a wide range of sensitive species (in addition to the Planning Species) in a manner that will mitigate, entirely or in

significant part, impacts of the Proposed Project on such species. In that way, the Proposed Project would address CEQA mitigation requirements for impacts to sensitive species and associated habitats that cannot be feasibly avoided or minimized. The Proposed Project will thus provide for a self-contained habitat protection and long-term AMP that is not dependent on a future larger scale subregional NCCP/HCP and/or SAMP/MSAA while at the same time providing a conservation plan that would be complementary to future NCCP/HCP and SAMP/MSAA planning per the revised NOP.

The remaining components of the Conservation Strategy that will be addressed in the future are state and federal regulatory coverage for Identified Species as part of the HCP program and the preparation and signing of an Implementation Agreement.

The following two PDFs have been proposed to carry out the implementation of the elements of the NCCP/HCP Conservation Strategy discussed above that are directed toward preserving long-term *net habitat value* of the major vegetation communities and associated sensitive species on RMV lands:

The following policy from the Draft NCCP/HCP Planning Guidelines addresses "net habitat value" and is intended to be addressed by this PDF and PDF 9-2. The extent to which this PDF and PDF 9-2 address this policy and thereby mitigate impacts to species and habitats is reviewed below:

> General Policy 1: Maintain *net habitat value* over the long term, site and design new development to conserve and manage *major habitat types* and *major* and *important populations* in *key locations* through the following policies:
>
> - Create a Habitat Reserve that includes all *major habitat types* currently existing within the planning area in a manner that conserves blocks of habitat that constitute a diverse representation of the exitsing range of physical and environmental conditions within the sub region. *Major habitat types* are the generalized natural vegetation communities and include coastal sage scrub, chaparral, grassland, riparian streamcourses, woodland, forest, lakes and reservoirs, freshwater march, vernal pools, and rock and cliff.
> - Create a Habitat Reserve that protects habitat supporting listed and selected planning species (see discussion in General Policy 2).
> - Create a Habitat Reserve that can be adaptively managed, by a single management entity, as recommended by the State's NCCP Conservation Guidelines and the NCCP Science Advisors

PDF 9-1: Creation of a Comprehensive Open Space Protection System (RMV Open Space)

The Proposed Project includes approximately 15,121 acres of open space. The landowner will enter into a two-part agreement with the County regarding the open space. The first part of the agreement shall address the approximately 11,455 acres of open space not located within a Development Sensitive Area (DSA, as defined in the Project Description). Phase I of the Open Space Agreement shall address the following:

- Method of preservation for this open space;

- Permitted uses within the open space. Permitted uses will include adaptive management and monitoring, grazing, and agriculture, public access and recreation, and maintenance of infrastructure facilities;

- Non-permitted uses within the open space;

- Phasing of open space preservation areas. Phasing of open space areas will be consistent with development phasing; and

- Funding mechanism for implementation of the Adaptive Management Program (AMP).

Phase 2 of the Open Space Agreement will address the 3,666 acres of open space DSAs. Phase 2 of the Open Space agreement shall address the following:

- The precise acreage of open space located within the DSAs;

- Permitted uses within the DSA open space. Permitted uses shall include adaptive management and monitoring, grazing and agriculture, public access and recreation, infrastructure facilities and maintenance of infrastructure facilities;

- Non-permitted uses within the DSA open space;

- Phasing of DSA open space preservation areas. Phasing of open space areas shall be consistent with development phasing; and

- Funding mechanism for implementation of the AMP.

PDF-2 Formulation and Funding of a Comprehensive Long-Term AMP

Appendix J contains the proposed RMV Open Space AMP applicable to the RMV Open Space to be dedicated for habitat protection purposes subject to certain ongoing ranching activities. The AMP establishes three broad land management goals as the foundation for the AMP for the RMV Open Space:

1. Ensure the persistence of a native-dominated vegetation mosaic in the RMV Open Space.

2. Restore or enhance the quality of degraded vegetation communities and other habitat types.

3. Maintain and restore biotic and abiotic natural processes, at all identified scales for the RMV Open Space.

Habitat types anticipated to be preserved within the RMV Open Space are set forth in Table 4.9-31 below and depicted in habitat blocks in Exhibit 4.9-22.

TABLE 4.9-31
SUMMARY OF CONSERVATION OF VEGETATION COMMUNITIES*/LAND COVERS IN THE STUDY AREA

Vegetation/Land Cover	Existing On RMV (Acres)	Open Space (acres)	Percent of Vegetation/Land Cover in Open Space
Grassland	5,040.9	2,627.3	52%
Coastal Sage Scrub	7682	5,657.2	74%
Riparian	1,920.3	1,507.4	78%
Open Water	135.7	63.1	46%
Freshwater Marsh	25.2	16.3	65%
Watercourses	13.2	13.2	100%
Vernal Pools	19.9	19.9	100%
Woodland	275.9	180.1	65%
Forest	311.9	184.8	59%
Chaparral	3,792.9	3,081.1	81%
Cliff & Rock	6.2	2.1	34%
Developed	534.7	111.8	21%
Disturbed	501.2	152.4	30%
Agriculture	2,554.8	1,023.4	40%
Total	***22,814.8***	***14,640.1***	***64%***

* Net open space acreage including infrastructure. Gross open space acreage is 15,121

Source: Dudek 2004

The AMP is comprised of four steps to ensure the persistence of a native-dominated vegetation mosaic in the RMV Open Space (Goal 1) consistent with the NCCP Guidelines: (1) preparation of conceptual stressor models and conceptual management plans for vegetation communities; (2) periodic assessment of the vegetation communities; (3) management of the vegetation communities; and (4) evaluation of the effect of the management action.

Habitat restoration is broadly defined as the process of intentionally altering a degraded area or creating new habitat to re-establish a defined pre-existing habitat or ecosystem. The goal of restoration is to generally emulate the structure, function, diversity, and dynamics of the habitat or ecosystem. Goal 2 will be achieved through implementation of several coordinated and integrated restoration plans and related management actions, including:

- Plant Species Translocation, Propagation and Management Plan (*Appendix J-1*);
- Habitat Restoration Plan (*Appendix J-2);*
- Invasive Species Control Plan (*Appendix J-3*);
- Grazing Management Plan (*Appendix J-4*); and
- Fire Management Plan (*Appendix J-5*).

Goal 3 will be achieved through the combination of applied restoration actions and management actions and prior baseline studies and comparative information assembled for other managed open space areas with a particular emphasis on maintenance and restoration of fire and hydrologic/erosional processes.

Funding of the RMV Open Space AMP

Successful implementation of the RMV Open Space Adaptive Management Program (the "AMP") will require the provision and management of stable, long-term funding resources that may be used to satisfy the AMP anticipated costs and expenses. Indeed, funding is an essential element of the AMP, and the applicant is desirous of establishing a financial support strategy that will adequately provide for the continuing needs of the AMP. Presently, the applicant anticipates that Program funding will be derived from a combination of the following sources:

- Fees Generated from Individual Assessment Programs
- Contributions for Incidental Impact Mitigation
- Grants, Payments and Other Funds Received from Government Agencies/Other Sources

The following sections present a more detailed discussion of each of the anticipated funding sources identified to date. The applicant may identify additional or replacement funding sources in the future.

Anticipated Funding Sources/Programs

Fees Generated from Individual Assessment Programs

The applicant envisions the establishment of two (2) assessment programs that are expected to generate sufficient, recurring revenue streams to adequately provide for the long-term maintenance, structure and administration of the RMV Open Space and its associated AMP; namely:

Transfer Fee Program

Upon the sale/transfer of any subdivided parcel (whether residential or commercial) within any planning area, a fee ("Transfer Fee") will be collected and remitted to the applicant's designated reserve owner/manager for the benefit of the RMV Open Space. The Transfer Fee will be recurring insofar as the initial and each subsequent conveyance of an individual, subdivided parcel will require payment of the fee. The recurring obligation will be established through the recordation of a fee agreement that binds and encumbers each individual parcel – not the individual transferees.

Annual Unit/Parcel Assessment

The applicant shall cause to be prepared a set of covenants, conditions, and restrictions ("CC&Rs") for each portion of the Ranch Plan area that becomes the subject of a Master Area Plan. Upon recordation, each set of CC&Rs will impose a perennial obligation on each Ranch Plan residential unit and commercial parcel requiring the payment of an annual fee to the owner/manager of the RMV Open Space.

Contributions for Incidental Impact Mitigation

Other entities may propose projects which may generate significant incidental habitat/species impacts within the RMV Open Space. To the extent that these projects are implemented, the habitat/species impacts associated with said project implementation may be mitigated via payment of fees directly to the owner/manager of the RMV Open Space.

Funds Received from Government Agencies/Other Sources

Several state/federal programs have been established that are designed and mandated to assist in the protection and preservation of species and habitat. Certain programs are designed to assist in the acquisition of private lands and conservation easements; other programs exist which may be used in the direct restoration, improvement, and management of protected species/habitats. The following government resources and programs have been identified that may provide additional funds to assist in the RMV Open Space funding strategy:

Proposition 40

In March 2002, California voters approved the California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act ("Prop 40") which, in relevant part, allocated $300 million in bond proceeds to the State Wildlife Conservation Board ("WCB") for use in acquiring and restoring wildlife habitat areas.

Proposition 50

As approved by California voters in November 2002, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act ("Prop 50") allocated an additional $940 million in bond proceeds to WCB for use in the acquisition, protection, and restoration of wetlands and watershed areas.

Other Bond Proceeds

Since 1980, California voters have approved the issuance of approximately $3.8 billion in general obligation bonds to provide funding for the purchase, protection and improvement of recreational areas (e.g., parks and beaches), cultural areas (such as historic buildings and museums) and natural areas (e.g., wilderness and open-space areas, trails, wildlife habitat and the coast). Said amount is in addition to the approximately $1.24 billion approved pursuant to Prop 40 and Prop 50.

Federal Programs

Federal programs that have that been established to assist in the protection and preservation of species and habitat include, but are not limited to; the Cooperative Conservation Initiative, Private Stewardship Grant Program and North American Wetlands Conservation Act.

In addition to government programs, several private and not-for-profit organizations have established programs that are designed to assist in the acquisition, preservation, and management of habitat areas. It is possible that one or more of these organizations may be willing to contribute funds and/or other resources in furtherance of the RMV Open Space and its associated AMP.

The applicant anticipates that the aggregate revenues generated from the above-described programs will be sufficient to cover all costs and expenses associated with the long-term implementation of the RMV Open Space AMP. Notwithstanding, the applicant shall, during the term of the AMP, continue to investigate and pursue alternative funding resources that may serve to supplement and enhance existing resources. The net result of the applicant's current and future funding efforts will allow for the generation of sufficient revenues to accomplish the preservation, management and protection goals established for the AMP.

AVOIDANCE/MINIMIZATION MEASURES – SUB-BASIN CONSISTENCY ANALYSIS

This section analyzes the potential to further reduce impacts by avoidance/minimization measures on species and resources that would be potentially impacted by the Proposed Project or identified pursuant to the (a) NCCP/HCP Sub-basin Consistency Analysis, (b) Watershed Sub-basin Consistency Analysis, (c) infrastructure consistency analysis, and (d) significance determination of feasibility of additional avoidance/minimization measures and significance of remaining impacts for certain unlisted Planning Species.

Additional Avoidance/Minimization Measures for Potentially Significant Impacts Identified Throughout the NCCP/HCP Planning Guidelines Consistency Analysis ("Could be Consistent" Findings)

Table 4.9-32 summarizes potentially significant impacts from the NCCP/HCP planning guidelines consistency analysis that are discussed in Section 4.9.4: As noted above, each "could be consistent" finding identified through the consistency analysis is a potentially significant impact under CEQA. For ease of reference, both the impact number from Section 4.9.4 and applicable NCCP/HCP sub-basin planning guideline are noted for each impact. For each such potentially significant impact, avoidance and minimization measures are discussed and a determination of level of significance is made after the application of feasible avoidance and minimization measures. As reviewed, potential impacts are reduced to below a level of significance.

TABLE 4.9-32
MINIMIZATION/AVOIDANCE MEASURES FOR POTENTIALLY SIGNIFICANT IMPACTS RESULTING FROM NCCP SUB-BASIN PLANNING GUIDELINES CONSISTENCY ANALYSIS – "COULD BE CONSISTENT" FINDINGS

Potentially Significant Impact	Minimization/Avoidance	Level of Significance After Minimization/Avoidance
Impact 4.9-1: Implementation of the Proposed Project may result in impacts to four small thread-leaved brodiaea populations that contribute to protection of a *major population* in the Chiquita sub-basin (Planning Guideline 8).	Measure 4.9-1: Prior to issuance of a grading permit for Planning Area 2, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that two of the four small thread- leaved brodiaea locations are protected.	Less than Significant
Impact 4.9-2: Implementation of the Proposed Project may result in impacts to the *key location* and *major population* of southern tarplant in the Chiquita sub-basin (Planning Guideline 12).	Measure 4.9-2: Prior to issuance of a grading permit for Planning Area 2, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the *key location* and *major population* of southern tarplant in the Chiquita sub-basin have been substantially avoided.	Less than Significant
Impact 4.9-3: Implementation of the Proposed Project may result in impacts to the *key location* and *major population* of Coulter's saltbush in the Chiquita sub-basin (Planning Guideline 14).	Measure 4.9-3: Prior to issuance of a grading permit for Planning Area 2, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the *key location* and *major population* of Coulter's saltbush in the Chiquita sub-basin have been substantially avoided.	Less than Significant
Impact 4.9-4: Implementation of the Proposed Project may result in impacts to the habitat linkage along the east facing slopes of Chiquadora Ridge between San Juan Creek and Sulphur Canyon from construction of Cristianitos Road in the Gobernadora sub-basin (Planning Guideline 27).	See Measure 4.9-23	Less than Significant
Impact 4.9-5: Implementation of the Proposed Project may result in impacts to a stockpond supporting southwestern pond turtle in the Cristianitos sub-basin (Planning Guideline 82).	Measure 4.9-4: Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the southwestern pond turtle breeding and estivation habitat associated with the stockpond in the Cristianitos sub-basin have been substantially avoided.	Less than Significant

TABLE 4.9-32 (Continued)
MINIMIZATION/AVOIDANCE MEASURES FOR POTENTIALLY SIGNIFICANT IMPACTS RESULTING FROM NCCP SUB-BASIN PLANNING GUIDELINES CONSISTENCY ANALYSIS – "COULD BE CONSISTENT" FINDINGS

Potentially Significant Impact	Minimization/Avoidance	Level of Significance After Minimization/Avoidance
Impact 4.9-6: Implementation of the Proposed Project may result in impacts to a stockpond supporting western spadefoot toad in the Cristianitos sub-basin (Planning Guideline 83).	Measure 4.9-5: Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the western spadefoot toad breeding and estivation habitat associated with the stockpond in the Cristianitos sub-basin have been substantially avoided.	Less than Significant
Impact 4.9-7: Implementation of the Proposed Project may result in impacts to alkali wetlands in the Cristianitos sub-basin (Planning Guideline 84).	Measure 4.9-6: Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the alkali wetlands in the Cristianitos sub-basin have been substantially avoided.	Less than Significant
Impact 4.9-8: Implementation of the Proposed Project may result in impacts to the north-south habitat linkage along Cristianitos Creek in the Cristianitos sub-basin (Planning Guideline 88)	Measure 4.9-7: Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that a minimum of a 200-foot setback (average 500 feet) from Cristianitos Creek has been incorporated into the project design.	Less than Significant
Impact 4.9-9: Implementation of the Proposed Project may result in impacts to three thread-leaved brodiaea locations that contribute to protection of a *major population* in the Cristianitos sub-basin (Planning Guideline 90).	Measure 4.9-8: Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that all three locations of thread-leaved brodiaea that contribute to protection of a *major population* in the Cristianitos sub-basin are protected.	Less than Significant
Impact 4.9-10: Implementation of the Proposed Project may result in impacts to thread-leaved brodiaea locations that contribute to protection of *important populations* in *key locations* in the Cristianitos sub-basin (Planning Guideline 91).	Measure 4.9-9: Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that all three locations of thread-leaved brodiaea that contribute to protection of an important population in *key locations* in the Cristianitos sub-basin are protected.	Less than Significant

TABLE 4.9-32 (Continued)
MINIMIZATION/AVOIDANCE MEASURES FOR POTENTIALLY SIGNIFICANT IMPACTS RESULTING FROM NCCP SUB-BASIN PLANNING GUIDELINES CONSISTENCY ANALYSIS – "COULD BE CONSISTENT" FINDINGS

Potentially Significant Impact	Minimization/Avoidance	Level of Significance After Minimization/Avoidance
Impact 4.9-11: Implementation of the Proposed Project may result in impacts to a *major population* of many-stemmed dudleya in the Cristianitos sub-basin (Planning Guideline 92).	Measure 4.9-10: Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the *major population* of many-stemmed dudleya in the Cristianitos sub-basin is protected.	Less than Significant
Impact 4.9-12: Implementation of the Proposed Project may result in impacts to one *important population* of Coulter's saltbush in the Cristianitos sub-basin (Planning Guideline 93).	Measure 4.9-11: Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the *important population* of Coulter's saltbush in the Cristianitos sub-basin is protected.	Less than Significant
Impact 4.9-13: Implementation of the Proposed Project may result in impacts to Jerome's Lake, which supports the southwestern pond turtle in the Upper Gabino subunit (Planning Guideline 105).	Measure 4.9-12: Prior to issuance of a grading permit for Planning Area 9, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the southwestern pond turtle breeding and estivation habitat associated with Jerome's Lake in the Gabino sub-basin have been substantially avoided.	Less than Significant
Impact 4.9-14: Implementation of the Proposed Project may result in impacts to six known discrete locations of many-stemmed dudleya that are part of the *major population* in a *key location* in the Upper Gabino subunit (Planning Guideline 105).	Measure 4.9-13: Prior to issuance of a grading permit for Planning Area 9, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the six known discrete locations of many-stemmed dudleya that are part of the *major population* in a *key location* in the Upper Gabino subunit are protected.	Less than Significant
Impact 4.9-15: Implementation of the Proposed Project may result in impacts to the *important population* of Coulter's saltbush in the Upper Gabino subunit (Planning Guideline 108).	Measure 4.9-14: Prior to issuance of a grading permit for Planning Area 9, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the *important population* of Coulter's saltbush in the Upper Gabino subunit is protected.	Less than Significant

TABLE 4.9-32 (Continued)
MINIMIZATION/AVOIDANCE MEASURES FOR POTENTIALLY SIGNIFICANT IMPACTS RESULTING FROM NCCP SUB-BASIN PLANNING GUIDELINES CONSISTENCY ANALYSIS – "COULD BE CONSISTENT" FINDINGS

Potentially Significant Impact	Minimization/Avoidance	Level of Significance After Minimization/Avoidance
Impact 4.9-16: Implementation of the Proposed Project may result in impacts to the California gnatcatcher locations in the Lower Gabino subunit (Planning Guideline 123).	Measure 4.9-15: Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that all five locations of California gnatcatcher locations in the Lower Gabino subunit are protected.	Less than Significant
Impact 4.9-17: Implementation of the Proposed Project may result in impacts to native grasslands in the Lower Gabino subunit (Planning Guideline 125).	Measure 4.9-16: Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to native grasslands in the Lower Gabino subunit are substantially avoided. Additionally, applicant shall further demonstrate to the County's Director of Planning Services Department or his/her designee compliance with the NCCP Habitat Restoration Program for native grasslands.	Less than Significant
Impact 4.9-18: Implementation of the Proposed Project may result in impacts to three locations of thread-leaved brodiaea that are the *major population* in a *key location* in the Lower Gabino subunit and Cristianitos sub-basin (Planning Guideline 130).	Measure 4.9-17: Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that all three locations of thread-leaved brodiaea that are the *major population* in a *key location* in the Lower Gabino subunit and Cristianitos sub-basin are protected.	Less than Significant
Impact 4.9-19: Implementation of the Proposed Project may result in impacts to two known locations of many-stemmed dudleya in the La Paz sub-basin (Planning Guideline 139).	Measure 4.9-18: Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the two known locations of many-stemmed dudleya in the La Paz sub-basin are protected.	Less than Significant

TABLE 4.9-32 (Continued)
MINIMIZATION/AVOIDANCE MEASURES FOR POTENTIALLY SIGNIFICANT IMPACTS RESULTING FROM NCCP SUB-BASIN PLANNING GUIDELINES CONSISTENCY ANALYSIS – "COULD BE CONSISTENT" FINDINGS

Potentially Significant Impact	Minimization/Avoidance	Level of Significance After Minimization/Avoidance
Impact 4.9-20: Implementation of the Proposed Project may result in impacts to arroyo toad populations in Lower Gabino Creek (Planning Guideline 141).	Measure 4.9-19: Prior to issuance of a grading permit for Planning Area 8, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the facilities specified in the Water Quality Management Plan to address pollutants of concern and conditions of concern are shown on the project plans.	Less than Significant
Impact 4.9-21: Implementation of the Proposed Project may result in impacts to four known locations of thread-leaved brodiaea that constitute an *important population* in the Talega sub-basin (Planning Guideline 148).	Measure 4.9-20: Prior to issuance of a grading permit for Planning Area 8, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the four known locations of thread-leaved brodiaea that constitute an *important population* in the Talega sub-basin are protected.	Less than Significant
Impact 4.9-22: Implementation of the Proposed Project may result in impacts to three out of eight known locations of many-stemmed dudleya in the Talega sub-basin (Planning Guideline 149).	Measure 4.9-21: Prior to issuance of a grading permit for Planning Area 8, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that eight known locations of many-stemmed dudleya in the Talega sub-basin are protected.	Less than Significant
Source: Dudek 2004		

Additional Avoidance/Minimization Measures for Potentially Significant Impacts Identified through the SAMP/MSAA Sub-basin Planning Principles Consistency Analysis ("Could be Consistent" Findings)

Table 4.9-33 summarizes potentially significant impacts from the SAMP/MSAA planning principles consistency analysis that are discussed in Section 4.9.4. As noted above, each "could be consistent" finding identified through the consistency analysis is a potentially significant impact under CEQA. For ease of reference, both the impact number from Section 4.9.4 and applicable SAMP/MSAA sub-basin planning principle are noted for each impact. For each such potentially significant impact, avoidance and minimization measures are discussed and a determination of level of significance is made after the application of avoidance and minimization measures. As reviewed, potential impacts are reduced to below a level of significance.

TABLE 4.9-33
MINIMIZATION/AVOIDANCE MEASURES FOR POTENTIALLY SIGNIFICANT IMPACTS RESULTING FROM SAMP/MSAA SUB-BASIN PLANNING PRINCIPLES CONSISTENCY ANALYSIS – "COULD BE CONSISTENT" FINDINGS

Potentially Significant Impact	Minimization/Avoidance Measure	Level of Significance After Minimization/ Avoidance
Impact 4.9-41: Implementation of the Proposed Project may result in impacts to alkali wetlands in the Cristianitos sub-basin (Planning Principle 83).	Measure 4.9-6: Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the alkali wetlands in the Cristianitos sub-basin have been substantially avoided.	Less than Significant
Impact 4.9-42: Implementation of the Proposed Project may result in impacts to alkali wetlands in the Cristianitos sub-basin (Planning Principle 85).	Measure 4.9-6: Prior to issuance of a grading permit for Planning Area 7, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that impacts to the alkali wetlands in the Cristianitos sub-basin have been substantially avoided.	Less than Significant
Impact 4.9-43: Implementation of the Proposed Project may result in impacts to arroyo toad populations in Lower Gabino Creek (Planning Principle 36).	Measure 4.9-19: Prior to issuance of a grading permit for Planning Area 8, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the facilities specified in the Water Quality Management Plan to address pollutants of concern and conditions of concern are shown on the project plans.	Less than Significant
Source: Dudek 2004		

Additional Avoidance/Minimization Measures for Certain Unlisted Planning Species that Reduce Potential Impacts to Below a Level of Significance

Table 4.9-34 summarizes avoidance/minimization measures that, in combination with avoidance achieved by the Proposed Project, would reduce potentially significant ("could be consistent" findings) impacts on these "unlisted Planning Species" to below a level of significance. In the case of the Coulter's saltbush, additional mitigation would be required to reduce impacts to below a level of significance.

TABLE 4.9-34
SUMMARY OF MINIMIZATION/AVOIDANCE FOR UNLISTED PLANNING SPECIES – "COULD BE CONSISTENT" FINDINGS

Potentially Significant Impact	Minimization/Avoidance	Level of Significance After Minimization/Avoidance
Impact 4.9-49: The Proposed Project has the potential to result in a significant impact on suitable habitat for the southwestern pond turtle.	A total of 6 of 8 locations would be conserved by the Proposed Project through implementation of PDF 9-1. *Important populations/key locations* in riparian and aquatic habitats along San Juan Creek. Locations in San Juan Creek and adjacent floodplain providing nesting habitat/ estivation habitat would be conserved. Setbacks of at least 320 feet from breeding ponds containing suitable habitat upland habitat with southern exposures would provide for nesting and overwintering habitat. Habitat connectivity between San Juan Creek and San Mateo Creek watersheds would be maintained to allow dispersal. Impacts to the stockpond and other wetlands in Upper Cristianitos, and Jerome's Lake in Upper Gabino would be avoided through implementation of site specific avoidance/minimization measures required by the NCCP Guidelines.	Less than Significant
Impact 4.9-50: The Proposed Project has the potential to result in a significant impact on suitable habitat types for the orange-throated whiptail.	The Proposed Project would conserve 102 locations (69%) and 9,103 acres (75%) of coastal sage scrub, chaparral and woodland habitats through implementation of PDF 9-1. Seventeen of the 18 locations (94%) in the *important population/key location* on Chiquadora Ridge and 50 of 59 (85%) of the *important population/key location* on the Chiquita Canyon/Wagon Wheel Canyon ridgeline would be conserved. In the Gobernadora/San Juan Creek *important population/key location* 16 of 47 locations (34%) would be conserved.	Less than Significant
Impact 4.9-51: The Proposed Project has the potential to result in a significant impact on suitable habitat types for the San Diego horned lizard.	The Proposed Project would conserve 26 (60%) of known locations and 8,736 (76%) of coastal sage scrub and chaparral habitats through implementation of PDF 9-1. The large majority of (93%) of the *important population/ key location* on the Chiquita Canyon/Wagon Wheel Canyon ridgeline would be conserved.	Less than Significant
Impact 4.9-52: The Proposed Project has the potential to significantly impact the Cooper's hawk.	A total of 19 historic nest locations (83%) and 1,800 acres (75%) of suitable habitat (riparian, woodlands and forest) would be conserved through implementation of PDF 9-1. Although no major and/or *important populations* have been identified for this species within the study area, breeding and foraging habitat within the major drainages would be conserved, including Talega, Cristianitos, Gabino, La Paz, San Juan, Chiquita, Gobernadora, and Verdugo canyons.	Less than Significant
Impact 4.9-53: The Proposed Project has the potential to result in a significant impact on suitable habitat types for the tricolored blackbird.	Approximately 50% of the historic nesting colony areas would be conserved through implementation of PDF 9-1. In particular, grassland habitat in the valley bottom of Lower Gobernadora on RMV property would be conserved to support a breeding population located in Coto de Caza. In combination with the existing breeding ponds in south Coto de Caza, this area supports an *important population/key location*. Potential breeding/foraging areas also would be conserved south of a ranch residence south of Ortega Highway. In addition the WQMP provides for the creation of created wetlands as natural treatment	Less than Significant

TABLE 4.9-34 (Continued)
SUMMARY OF MINIMIZATION/AVOIDANCE FOR UNLISTED PLANNING SPECIES - "COULD BE CONSISTENT" FINDINGS

Potentially Significant Impact	Minimization/Avoidance	Level of Significance After Minimization/Avoidance
	systems. The Project Applicant is not seeking formal mitigation credit for these facilities, however these areas may provide additional breeding habitat.	
Impact 4.9-54: The Proposed Project has the potential to result in a significant impact on suitable habitat for the cactus wren.	The Proposed Project would conserve 303 locations (58%) and 5,657 acres (74%) of suitable habitat through implementation of PDF 9-1. Habitat connectivity would be maintained, including: north-south connections along Chiquita and Chiquadora ridges; east-west connectivity between Arroyo Trabuco and Caspers Wilderness Park; along the San Juan Creek floodplain; north-south connections through the Trampas sub-basin and southern portion of Chiquita sub-basins, leading to the Donna O'Neill Land Conservancy and Cristianitos Canyon; and throughout the remainder of the San Mateo Creek Watershed.	Less than Significant
Impact 4.9-55: The Proposed Project has the potential to significantly impact the white-tailed kite.	A total of 13 historic nest locations (93%) and 1,880 acres (74%) of riparian, woodland, and forest habitats would be conserved through implementation of PDF 9-1. In particular, nesting and foraging habitat would be conserved in GERA, Central San Juan Creek, Lower Cristrianitos Creek, Middle and Lower Gabino Canyon, La Paz Canyon, and Talega Canyon.	Less than Significant
Impact 4.9-56: The Proposed Project has the potential to significantly impact the yellow-breasted chat.	The Proposed Project would conserve 61 locations (81%) and 1,515 acres (79%) of riparian habitat through implementation of PDF 9-1. All five of the *important populations* would be conserved. Scattered locations in upper San Juan Creek and Middle Chiquita, Bell, Verdugo, Lower Gabino and La Paz canyons also would be conserved.	Less than Significant
Impact 4.9-57: The Proposed Project would result in potentially significant impacts to locations of the Coulter's saltbush.	A total of 2,611 individuals (85%) and 16 locations (47%) would be conserved through implementation of PDF 9-1. The *major population/key location* in Chiquita Canyon would be conserved through avoidance and minimization of impacts of the proposed golf course west of Chiquita Creek. The *important population/key location* north the treatment plant in Chiquita Canyon would be conserved. The *important population* in Lower Chiquita would be conserved and the *important populations* in upper Cristianitos and upper Gabino canyons could be conserved through incorporating golf course avoidance and minimization features.	Significant
Source: Dudek 2004		

<u>Additional Avoidance/Minimization/Avoidance for Potentially Significant Impacts Identified through the Infrastructure Consistency Analysis ("Could be Consistent" Determinations)</u>

Table 4.9-35 summarizes potentially significant impacts from the infrastructure consistency analysis that are discussed in Section 4.9. As noted above, each "could be consistent" finding identified through the consistency analysis is a potentially significant impact under CEQA. For ease of reference, both the impact number from Section 4.9.4 and applicable NCCP/HCP sub-basin planning general policy are noted for each impact. For each such potentially significant

impact, avoidance and minimization measures are discussed and a determination of level of significance is made after the application of avoidance and minimization measures. As noted, potential impacts are reduced to below a level of significant.

TABLE 4.9-35
MINIMIZATION/AVOIDANCE MEASURES FOR POTENTIALLY SIGNIFICANT IMPACTS RESULTING FROM INFRASTRUCTURE CONSISTENCY ANALYSIS – "COULD BE CONSISTENT" FINDINGS

Potentially Significant Impact	Minimization/Avoidance	Level of Significance After Minimization/Avoidance
Impact 4.9-58: Implementation of the proposed circulation system, specifically construction of Cristianitos Road and New Ortega Highway, may result in impacts to habitat linkages/wildlife movement corridors "C', "G", "J", "N", and "O". Implementation of minimization measures during the design of bridges over these linkages/corridors would be necessary to reduce the identified impact to a level of less than significance (Draft NCCP/HCP Planning Guidelines General Policy 3.3).	Minimization/Avoidance Measure 4.9-22: Prior to issuance of a grading permit for construction of Cristianitos Road and New Ortega Highway, the applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the design for Cristianitos Road and New Ortega Highway includes the following features to facilitate wildlife movement: • The bridge shall have minimum height dimensions of 20 feet. • Chain link fencing of 10 feet in height shall be installed on the north and south approaches to the bridge for a distance of 100 feet to deter wildlife from accessing the roadway. • If required for public heath and safety, all lighting on the bridge shall be shielded to prevent spill-over effects.	Less than Significant
Impact 4.9-59: Implementation of the proposed circulation system, specifically construction of Cristianitos Road over upper Cristianitos Creek and Blind Canyon may result in impacts to wildlife movement through Habitat Linkage/Wildlife Movement "N" and Blind Canyon. Implementation of minimization measures during the design of the culverts would be necessary to reduce the identified impact to a level of less than significance (Draft NCCP/HCP Planning Guidelines General Policy (3.3).	Minimization/Avoidance Measure 4.9-23: Prior to issuance of a grading permit for construction of Cristianitos Road, the applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that the design for Cristianitos Road includes the following features to facilitate wildlife movement: • The culvert shall have minimum dimensions of 15 x 15 feet. • The bottom of the culvert shall be natural substrate. • Light shall be visible from one end of the culvert to the other. • Vegetation installed at either end of the culvert shall be native-low growing species to prevent predator-prey stalking. • Chain link fencing of 10 feet in height shall be installed on the north and south approaches to the bridge for a distance of 100 feet to deter wildlife from accessing the roadway. • If required for public heath and safety, all lighting on the road above the culvert shall be shielded to prevent spill-over effects.	Less than Significant

TABLE 4.9-35 (Continued)
MINIMIZATION/AVOIDANCE MEASURES FOR POTENTIALLY SIGNIFICANT IMPACTS RESULTING FROM INFRASTRUCTURE CONSISTENCY ANALYSIS – "COULD BE CONSISTENT" FINDINGS

Potentially Significant Impact	Minimization/Avoidance	Level of Significance After Minimization/Avoidance
Impact 4.9-60: Implementation of other infrastructure, specifically construction of a ground tank along the ridgeline between Chiquita and Wagon Wheel canyons and a tank south of Trampas Canyon (PA 5) would constraint habitat linkage G and K. Implementation of minimization measures during design of these facilities would be necessary to reduce the identified impact to a level of less than significant (General Policy 4).	Minimization/Avoidance Measure 4.9-24: Prior to design of the proposed ground tanks, project applicant shall coordinate with SMWD to review potential alternative locations for these tanks that would avoid impacts to linkages G and K, while still meeting SMWD siting criteria for ground tanks. If alternative sites cannot be identified, the following measure will apply: Minimization/Avoidance Measure 4.9-25: In conjunction with construction of these tanks, SMWD shall employ measures to reduce construction impacts, including fencing sensitive habitats and implementing of erosion control. Post construction all temporary disturbance areas shall be restored with native species. All manufactured slopes associated with the ground tanks shall be restored with native species. Lighting shall be restricted to necessary safety lighting and shall be shielded to reduce spill-over into native habitats.	If alternative sites are not identified, impacts to habitat linkages G and K would be significant and unavoidable.
Source: Dudek 2004		

MITIGATION PROVIDED BY THE PROPOSED RMV CONSERVATION STRATEGY

Overview of this Sub-Section

This section discusses the contributions of the Conservation Strategy, i.e., the proposed RMV Open Space and the accompanying AMP, to mitigate the significant impacts identified previously including impacts on Threatened and Endangered species and is organized as follows:

Consistency of the Proposed Project Open Space with Landscape Scale Conservation Planning Guidelines.

The first part of this analysis focuses on the consistency of the proposed RMV Open Space with landscape-scale conservation planning guidelines established by the NCCP/HCP and SAMP/MSAA programs:

(1) the SRP/Science Advisors Tenets of Reserve Design;

(2) the SAMP Tenets; and

(3) the Baseline Conditions Watershed Planning Principles.

The assessment of the consistency of the proposed RMV Open Space with these landscape-scale guidelines builds upon the subregional guidelines/principles consistency analyses in the Impacts Section and the further analysis of avoidance/minimization in the first part of this Mitigation Section. The extent of avoidance/minimization and the extent of impacts remaining following the application of avoidance/minimization are incorporated into the landscape-scale guidelines consistency analyses in this discussion as each of the landscape-scale guidelines is reviewed. In this manner, the broader landscape-scale analyses reflect the preceding geographic-specific assessments. The analysis of the extent to which the proposed RMV Open Space is consistent with these comprehensive landscape-scale guidelines provides the basis for determining the extent to which the RMV Open Space can contribute to maintaining net habitat value over the long-term.

Mitigation Contributions of the Adaptive Management Program with Respect to Maintaining and Enhancing Long-Term Habitat Values

The second part of this analysis summarizes the specific mitigation contributions that will be made by the proposed AMP in helping to maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. Appendix J presents specific policies, management recommendations, and restoration recommendations for maintaining and enhancing the long-term value of habitats contained within the five major, umbrella vegetation communities that encompass all but one of the NCCP/HCP habitat categories ("open water" is a separate and limited category). The contributions of specific management and restoration programs to long-term net habitat value are reviewed programmatically. A summary of protection and management actions that contribute to the recovery of listed species is also presented.

Assessment of the Extent to Which Proposed Avoidance/Minimization Measures and Mitigation Measures Reduce Impacts to Below a Level of Significance

The third part of this analysis reviews overall avoidance/minimization and mitigation, employing both the sub-basin consistency analyses and the assessment of the proposed RMV Conservation Strategy open space and adaptive management program elements contributions to long-term net habitat value, with respect to: (1) the five major vegetation communities, (2) listed Planning Species and non-Planning Species, (3) non-listed Planning Species, and (4) other sensitive species.

Summary of the Main Features of the RMV Open Space

Establishment of the RMV Open Space is key to maintaining net habitat value and for enhancing net habitat value over the long-term. Project Design Feature 9-1 describes the process by which the County of Orange and RMV will enter into an agreement regarding the approximately 15,121 acres of RMV Open Space. When fully implemented, the RMV Open Space would have the following design features:

- creation of a major block of habitat in Chiquita Canyon, connecting both with already protected habitat in Upper Chiquita Canyon and along the western ridge of the Canyon and with protected habitat along Chiquadora Ridge extending to San Juan Creek;

- preservation of the flat valley areas adjacent to Gobernadora Creek in order to allow for protection of existing habitat and future restoration of the creek meander;

- protection of connectivity from Arroyo Trabuco through Chiquita Canyon across through Sulphur Canyon through Gobernadora Canyon and across the upper portion of the Gobernadora Estates area to Bell Canyon;

- protection of a large block of habitat along the southern side of San Juan Creek;

- the protection of upper Cristianitos Canyon to assure connectivity between the San Juan watershed and the San Mateo watershed along both sides of Cristianitos Creek (including the Donna O'Neill Land Conservancy);

- protection of the vernal pools and slope wetlands near Radio Tower Road and the major habitat linkage to the west of Trampas Canyon;

- protection of habitat linkages through lower and middle Gabino Canyon through La Paz Canyon and portions of Camp Pendleton to the San Mateo Wilderness and through lower Cristianitos Canyon to downstream areas within Camp Pendleton;

- protection of linkages between upper Verdugo Canyon and upper Gabino Canyon and into the San Mateo Wilderness;

- protection of all major riparian streamcourse habitat areas (including minimization measures for required road crossings);

- dedication of 15,121 acres to be permanently set aside at no cost to the public as part of a phased dedication program keyed to implementation of the Ranch Plan; and

- inclusion of open space internal to planning areas 2, 3, 7 and 8, within DSA.

In addition, the following design features will be implemented:

- Habitat and wildlife movement areas within low-density estate areas in upper Gobernadora, (Planning Area 3), Cristianitos Estates (Planning Area 7), and Blind Canyon and Talega Estates (Planning Area 8) will be protected.

- Additional habitat protection areas would be located in two movement corridors above the treatment plant in Chiquita Canyon, along Chiquita Creek and within a riparian area in Planning Area 2.

- The 15,121 acres of open space shall include a 1,034-acre regional park along San Juan Creek that would extend across the entire width of the RMV property, with active uses north of San Juan Creek and passive uses south of San Juan Creek.

- Four golf courses would be designed to provide Special Linkage functions, including wildfire protection, along Chiquita Creek, Cristianitos Creek (Planning Area 6), Blind Mesa Canyon (Planning Area 8) and upper Gabino (O'Neill Ranch, Planning Area 9). These golf courses would provide the following Special Linkage functions:

    - Chiquita Creek: (1) wildfire protection for the *major population* of gnatcatchers in a manner comparable to the fire break functions performed by the Newport Coast golf course during the 1993 wildfires; (2) protection of wildlife movement opportunities by means of vegetated open space within one of the major wildlife movement/habitat

linkage corridors identified in the Draft NCCP/HCP Planning Guidelines (Habitat Linkage/Wildlife Movement "C")

- Cristianitos Creek: (1) wildfire protection for a *key location* of gnatcatchers and to help protect linkages with significant gnatcatcher populations to the south in Camp Pendleton and to the north within the planning area; (2) protection of wildlife movement opportunities by means of vegetated open space within one of the major wildlife movement/habitat linkage corridors identified in the Draft NCCP/HCP Planning Guidelines (Habitat Linkage/Wildlife Movement "N")

- Blind Canyon Mesa: (1) wildfire protection for habitat associated with a *key location* of arroyo toads; (2) protection of wildlife movement opportunities by means of vegetated open space.

- Upper Gabino Canyon (1) wildfire protection for habitat within the headwaters of Gabino Creek; (2)) protection of wildlife movement opportunities by means of vegetated open space within one of the major wildlife movement/habitat linkage corridors identified in. the Draft NCCP/HCP Planning Guidelines (Habitat Linkage/Wildlife Movement "O")

- Fuel Modification zones would be included within the future development areas and will incorporate the latest Orange County Fire Authority standards (potentially allowing for reduced fuel modification zones)

Use of the Landscape-Scale Guidelines in Assessing the Ability of the Proposed Conservation Strategy to Maintain "Net Habitat Value" for Natural Communities and Associated Species and Habitat Types – SRP/Science Advisors Tenets of Reserve Design, SAMP Tenets and Baseline Conditions Watershed Planning Principles

Each of the landscape-scale tenets and principles provide performance criteria by which to assess the extent to which the proposed RMV Open Space can contribute to maintaining net habitat value over the long-term. For example, they contain criteria for reserve design and for maintaining long-term geomorphic and hydrologic processes important to maintaining net habitat value within the sub region. These landscape-scale guidelines and policies provide the basis for assessing consistency with General Policies 1-4 of the NCCP Planning Guidelines:

- *General Policy 1*: Maintain net habitat value over the long term, site and design new development to conserve and manage major habitat types and major and *important populations* in *key locations*.
- *General Policy 2*: Identify habitat areas necessary for the conservation and management of NCCP/HCP Planning Species.
- *General Policy 3*: Assure wildlife and habitat connectivity within the sub region and to other subregions. Site and design new development to assure wildlife and habitat connectivity between major and *important populations* in *key locations*, within the sub region and between those populations and *major population*s in other contiguous subregions.
- *General Policy 4*: Roads and infrastructure should be located outside the Habitat Reserve to the maximum extent feasible. The siting and design of roads and infrastructure should provide for protection of habitat linkages and movement corridors.

SRP/Science Advisors Tenets of Reserve Design Consistency Review

As previously described in Section 4.9.4, the Proposed Project was evaluated for consistency with the Draft NCCP/HCP Planning Guidelines and Draft Watershed Principles. The sub-basin specific protection, restoration, and management recommendations were based on the broader Principles of Reserve Design (Science Advisors 1998) developed by the Southern NCCP Science Advisors. In addition to the Principles of Reserve Design, broader scale open space planning considerations have been guided by the seven Tenets of Reserve Design (CDFG 1993) included in the Conservation Guidelines formulated by the SRP. According to the Science Advisors:

> *It is important to note that the science advisors modified the original seven tenets for the purposes of planning for the southern sub region. The advisors combined "keep reserves close" and "link reserves with corridors" into one category, and added a new tenet: "maintain ecosystem processes."*
> (Science Advisors Report 1998, p. 4)

The new Science Advisors Tenet of Reserve Design ("maintain ecosystem processes") is addressed below primarily under Watershed Principles – Terrains/Hydrology. The fire management considerations are addressed in the Fire Management component of the AMP.

The Science Advisors also provided the following guidance:

> *. . . the science advisors recognize that it may be impractical or unrealistic to expect that every design principle will be completely fulfilled throughout the sub region. They also recognize that fulfillment of some principles may conflict with others. It is for this reason that the principles have been stated as "should" in most cases. [referring to the Science Advisors reserve design principles listed under the SRP/Science Advisors tenets of reserve design]*
> (Science Advisors Report 1998, p. 4)

This section reviews the contributions of the Proposed Project and, where applicable, contributions of already protected open space outside the study area but within the NCCP/HCP planning area (i.e., Southern Sub region excluding Cleveland National Forest) to achieving the broader SRP tenets and principles, and the broader SAMP tenets developed by the USACE, with input from CDFG as part of the SAMP/MSAA process.

Consistency with the SRP/Science Advisors Tenets of Reserve Design

To allow for a comparison between the Proposed Project and the alternatives to the Proposed Project, this consistency analysis with the SRP Tenets is without infrastructure. Impacts of the Proposed Project with infrastructure is addresses in the Impact Section on sensitive species and in Tables 4.9-48, 4.9-43, and 4.9-44 in this section.

As indicated below, the Proposed Project would be consistent or partially consistent with the following seven SRP Tenets.

SRP Tenet 1: Conserve Target Species throughout the Planning Area

The Draft NCCP/HCP Planning Guidelines present information regarding *key locations* of *major* and *important* populations of listed and other Planning Species used as conservation planning "surrogates". Section 4.9.4 evaluates the degree to which the Proposed Project conserves the *key locations* through implementation of avoidance and minimization measures including

dedication of the RMV Open Space and site-specific design mitigation measures. The contributions of the Proposed Project, in addition to those provided by open space already protected within the planning area, are reviewed in Table 4.9-36 Planning Species Consistency Analysis. For the listed Planning Species, the Proposed Project, in conjunction with other already protected open space areas within the planning area, has relatively high consistency with the NCCP/HCP Planning Guidelines (see Table 4.9-36). The Proposed Project also protects *key locations* for arroyo toad, California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher (see descriptions in Table 4.9-36). For the Riverside and San Diego fairy shrimp, impacts to the vernal pool supporting these species in the Trampas Canyon development area (PA 5) would need to be avoided through project design. Likewise, the *major population/key location* of thread-leaved brodiaea in the Cristianitos Canyon development area (PA 7), as well as the *important population* of brodiaea in the Northrop-Grumman development area (PA 8), would need to be avoided through project design.

TABLE 4.9-36
PLANNING SPECIES CONSISTENCY ANALYSIS OF THE RMV OPEN SPACE AND ALREADY PROTECTED OPEN SPACE

Planning Species	Planning Area Open Space	RMV Only Open Space
Arroyo Toad	100% of breeding locations comprising *major* and *important populations* in *key locations* in San Juan Creek, Bell Canyon, lower Gabino Creek, lower Cristianitos Creek, and Talega Creek would be conserved, as well as the majority of adjacent upland habitats. In the San Mateo Creek Watershed, the minimum elevation differential between development and breeding locations would be 80 feet. Along San Juan Creek, development would be offset by at least 300 feet south of the floodplain and an average of about 300 feet north of the floodplain.	Same as Planning Area.
Coastal California Gnatcatcher	584 locations (81%) and 16,817 acres (85%) of suitable habitat would be conserved, including 353 of 404 locations (87%) and 2,756 acres of 3,126 acres of coastal sage scrub (88%) within the *major population/key location* in the Chiquita Canyon and Wagon Wheel sub-basins and Chiquadora Ridge portion of the Gobernadora sub-basin. For *important populations* B-4 would include: 7 of 8 locations (87%) of the Avenida Pico *important population/key location*; 14 of 15 locations (93%) of the East Caspers Wilderness Park *important population* (one location is mapped in the Nichols Institute property); all 52 locations of the East Coto de Caza/Starr Ranch *important population/ key location*; 10 of 28 locations (39%) of the East San Juan Capistrano *important population/key location* (17 locations are mapped on the Whispering Hills development project area); 20 of 21 locations (95%) of the North San Clemente *important population/key location*; 6 of 7 locations (86%) of the Trampas Canyon *important population/key location*; 34 of 35 locations (97%) of the West San Juan Capistrano *important population/ key location*; and 28 of 41 locations (68%) of the Arroyo Trabuco *important population*. Impacts to locations in the Upper Cristianitos *important population* would be minimized through project design features. Assuming minimization of impacts to locations in Upper Cristianitos, approximately 540 of 644 locations (84%) within *major* and *important populations* would be in B-4. (The two *important populations* in the Foothill-Trabuco Specific Plan Area are in Existing Use areas and are considered conserved as no Incidental Take is authorized by this program.)	179 locations (74%) and 5,806 acres (75%) of suitable habitat would be conserved on RMV, including 150 of 188 locations (80%) and 1,057 acres of 1,322 acres of coastal sage scrub (80%) within the *major population/key location* in the Chiquita Canyon and Wagon Wheel sub-basins and Chiquadora Ridge portion of the Gobernadora sub-basin. For *important populations/key locations* within RMV, 1 of 1 location of the East San Juan Capistrano occurring on RMV and 6 of 7 locations (86%) of the Trampas Canyon *important population/key location* would be protected. Impacts to 12 locations in the Upper Cristianitos *important population* would be minimized through project design features. Assuming minimization of impacts to locations in Upper Cristianitos, approximately 169 of 208 locations (81%) within *major* and *important populations* on RMV would be conserved under B-4.

TABLE 4.9-36 (Continued)
PLANNING SPECIES CONSISTENCY ANALYSIS OF THE RMV OPEN SPACE AND ALREADY PROTECTED OPEN SPACE

Planning Species	Planning Area Open Space	RMV Only Open Space
Least Bell's Vireo	46 of 54 breeding locations (86%) and approximately 794 acres (72%) of southern willow scrub/arroyo willow riparian forest would be conserved. Both *important populations* in the planning area – in GERA and Arroyo Trabuco – would be conserved.	29 of 30 breeding locations (97%) and approximately 466 acres (88%) of southern willow scrub/arroyo willow riparian forest would be conserved on RMV. The single *important population* on RMV in GERA would be conserved.
Southwestern Willow Flycatcher	7 of 7 breeding locations and approximately 794 acres (72%) of southern willow scrub/ arroyo willow riparian forest would be conserved. The single identified *important population* in GERA would be conserved.	6 of 6 breeding locations and approximately 466 acres (88%) of southern willow scrub/arroyo willow riparian forest would be conserved on RMV. The single identified *important population* on RMV in GERA would be conserved.
Riverside Fairy Shrimp	The vernal pool complexes supporting Riverside fairy shrimp on Chiquita Ridge and along Radio Tower Road, including their contributing hydrological sources, would be conserved. The easternmost pools on Radio Tower Road would be avoided through project design. Vernal pools supporting the species on Saddleback Meadows are in the FTSP which is designated as Existing Use and would be dealt with in the permitting for that project.	The vernal pool complexes supporting Riverside fairy shrimp along Radio Tower Road, including their contributing hydrological sources, would be conserved on RMV. The easternmost pools would be avoided through project design.
San Diego Fairy Shrimp	The vernal pool complexes supporting San Diego fairy shrimp on Chiquita Ridge and along Radio Tower Road, including their contributing hydrological sources, would be conserved through project design to avoid the easternmost pools on Radio Tower Road.	The vernal pool complexes supporting San Diego fairy shrimp along Radio Tower Road, including their contributing hydrological sources, would be conserved on RMV. The easternmost pools would be avoided through project design.
Thread-leaved Brodiaea	8,936 (93%) flowering stalks and 21 of 34 locations (62%) would be conserved, including the location with 2,000 flowering stalks in the *major population/key location* on Chiquadora Ridge. Site-specific avoidance of the *major* and *important population/key location* in Cristianitos and Lower Gabino canyons through project design features would be implemented. Approximately 46 flowering stalks (11%) and 5 locations (38%) in the *important population* in Cristianitos Canyon would be conserved. The Middle Gabino, Trampas Canyon and Arroyo Trabuco *important populations* would be conserved. Four locations totaling 288 flowering stalks in the Talega *important population* could be avoid through siting of estate lots.	8,632 flowering stalks (93%) and 18 of 30 locations (50%) would be conserved on RMV, including the location with 2,000 flowering stalks in the *major population/key location* on Chiquadora Ridge. Site-specific avoidance of the *major* and *important population/key location* in Cristianitos and Lower Gabino canyons through project design features would be implemented. Approximately 46 flowering stalks (11%) and 5 locations (38%) in the *important population* in Cristianitos Canyon would be conserved. The Middle Gabino and Trampas Canyon *important populations* would be conserved. Four locations totaling 288 flowering stalks in the Talega *important population* could be avoid through siting of estate lots.
Cactus Wren	1,082 locations (81%) and 16,817 acres (85%) of suitable habitat would be conserved. Habitat connectivity would be maintained, including: north-south connections along Chiquita and Chiquadora ridges; east-west connectivity between Arroyo Trabuco and Caspers Wilderness	316 locations (60%) and 5,806 acres (75%) of suitable habitat would be conserved on RMV. Habitat connectivity would be maintained, including: north-south connections along Chiquita and Chiquadora ridges; along the San Juan Creek floodplain;

TABLE 4.9-36 (Continued)
PLANNING SPECIES CONSISTENCY ANALYSIS OF THE RMV OPEN SPACE AND ALREADY PROTECTED OPEN SPACE

Planning Species	Planning Area Open Space	RMV Only Open Space
	Park; along the San Juan Creek floodplain; north-south connections through the Trampas sub-basin and southern portion of Chiquita sub-basins, leading to the Donna O'Neill Land Conservancy and Cristianitos Canyon; and throughout the remainder of the San Mateo Creek Watershed.	north-south connections through the Trampas sub-basin and southern portion of Chiquita sub-basins, leading to the Donna O'Neill Land Conservancy and Cristianitos Canyon; and throughout the remainder of the RMV portion of the San Mateo Creek Watershed.
Cooper's Hawk	37 historic nest locations (84%) and 5,946 acres (85%) of suitable habitat (riparian, woodlands and forest) would be conserved. No *major/important populations* identified, but breeding and foraging habitat within the major drainages would be conserved, including Talega, Cristianitos, Gabino, La Paz, San Juan, Chiquita, Gobernadora, Verdugo, and Arroyo Trabuco.	19 historic nest locations (83%) and 1,958 acres (78%) of suitable habitat (riparian, woodlands and forest) would be conserved on RMV. No *major/important populations* identified, but breeding and foraging habitat within the major drainages on RMV would be conserved, including Talega, Cristianitos, Gabino, La Paz, San Juan, Chiquita, Gobernadora, and Verdugo.
Golden Eagle	Approximately 11,576 acres (62%) of grassland and agricultural foraging habitat would be conserved. Golden eagles, which nest in the CNF, would be expected to continue to occasionally forage, as they do currently, in Upper Chiquita Canyon, Upper Gabino Canyon and Cristianitos Canyon.	Approximately 3,903 acres (51%) of grassland and agricultural foraging habitat would be conserved on RMV. Golden eagles, which nest in the CNF, would be expected to continue to occasionally forage, as they do currently, in Upper Chiquita Canyon, Upper Gabino Canyon and Cristianitos Canyon.
Grasshopper Sparrow	445 locations (61%) and 9,516 acres (62%) of grassland would be conserved. Approximately 59% of the *major population/ key location* in the Chiquita sub-basin/ Chiquadora Ridge area, 84% of the *important population/key location* on the Radio Tower Road mesa, and 45% of the *important population/key location* in Cristianitos and Lower Gabino would be conserved.	350 locations (60%) and 2,739 acres (54%) of grassland would be conserved on RMV. Approximately 59% of the *major population/key location* in the Chiquita sub-basin/Chiquadora Ridge area, 96% of the *important population/ key location* within RMV on the Radio Tower Road mesa, and 42% of the *important population/key location* within RMV in Cristianitos and Lower Gabino would be conserved.
Merlin	Approximately 11,576 acres (62%) of grassland and agricultural foraging habitat would be conserved. Key foraging habitat in Upper Chiquita Canyon would be conserved. Potential foraging habitat in Upper Gabino Canyon and in the Radio Tower Road mesa area also would be conserved. Key foraging habitat in Lower and Middle Chiquita and Cristianitos canyons would be developed.	Approximately 3,903 acres (51%) of grassland and agricultural foraging habitat would be conserved. Key foraging habitat in Upper Chiquita Canyon would be conserved on RMV. Potential foraging habitat in Upper Gabino Canyon and in the Radio Tower Road mesa area also would be conserved. Key foraging habitat in Lower and Middle Chiquita and Cristianitos canyons would be developed.
Tricolored Blackbird	Approximately 50% of the historic nesting colony areas would be conserved. In particular, grassland habitat in the valley bottom of Lower Gobernadora on RMV property would be conserved to support a breeding population. In combination with the existing breeding ponds in south Coto de Caza, this area supports an *important*	Same as Planning Area.

TABLE 4.9-36 (Continued)
PLANNING SPECIES CONSISTENCY ANALYSIS OF THE RMV OPEN SPACE AND ALREADY PROTECTED OPEN SPACE

Planning Species	Planning Area Open Space	RMV Only Open Space
	population/key location. Potential breeding/ foraging areas also would be conserved south of a ranch residence south of Ortega Highway. Potential breeding/foraging areas that would be affected by development include the Narrows area of Chiquita Canyon, the "Riverside Cement" colony in Lower Cristianitos and Lower Gabino canyons, and at the mouth of Verdugo Canyon.	
White-tailed Kite	31 historic nest locations (86%) and 5,946 acres (85%) of riparian and woodland habitats would be conserved. In particular, nesting and foraging habitat would be conserved in GERA, Central San Juan Creek, Lower Cristrianitos Creek, Middle and Lower Gabino Canyon, La Paz Canyon, and Talega Canyon.	13 historic nest locations (93%) and 1,958 acres (78%) of riparian and woodland habitats would be conserved on RMV. In particular, nesting and foraging habitat would be conserved in GERA, Central San Juan Creek, Lower Cristrianitos Creek, Middle and Lower Gabino Canyon, La Paz Canyon, and Talega Canyon.
Yellow Warbler	26 locations (81%) and 4,384 acres (84%) of riparian habitat would be conserved. All four of the *important populations* would be conserved. Scattered locations in Bell, Lucas, Chiquita and Lower Gobernadora canyons also would be conserved.	17 locations (100%) and 1,581 acres (84%) of riparian habitat would be conserved on RMV. All three of the *important populations* on RMV would be conserved. Scattered locations in Lower Gobernadora and Chiquita canyons also would be conserved.
Yellow-breasted Chat	108 locations (84%) and 4,384 acres (84%) of riparian habitat would be conserved. All five of the *important populations* would be conserved. Scattered locations in upper San Juan Creek and Middle Chiquita, Bell, Verdugo, Lower Gabino and La Paz canyons also would be conserved.	66 locations (88%) and 1,581 acres (84%) of riparian habitat would be conserved on RMV. All four of the *important populations* on RMV would be conserved. Scattered locations in Middle Chiquita, Verdugo, Lower Gabino and La Paz canyons also would be conserved.
Western Spadefoot Toad	19 locations (86%) and all of four *important populations* (Chiquita Ridge, Radio Tower Road, Upper Cristianitos, Lower Gabino Creek) would be conserved, assuming that golf course design in Upper Cristianitos would avoid the stockpond and adjacent upland habitat. A portion of the fifth *important population* along San Juan Creek would be conserved. All conserved breeding locations would have at least a 650-ft upland buffer zone from proposed development to support all life stages.	13 locations (87%) and all of three *important populations* on RMV (Radio Tower Road, Upper Cristianitos, and Lower Gabino Creek) would be conserved, assuming that golf course design in Upper Cristianitos would avoid the stockpond and adjacent upland habitat. A portion of the fourth *important population* along San Juan Creek would be conserved. All conserved breeding locations would have at least a 650-ft upland buffer zone from proposed development to support all life stages.

TABLE 4.9-36 (Continued)
PLANNING SPECIES CONSISTENCY ANALYSIS OF THE RMV OPEN SPACE AND ALREADY PROTECTED OPEN SPACE

Planning Species	Planning Area Open Space	RMV Only Open Space
Orange-throated Whiptail	130 locations (76%) and 24,902 acres (86%) of coastal sage scrub, chaparral and woodland would be conserved. All 18 locations in the *important population/key location* on Chiquadora Ridge and 54 of 59 (91%) of the *important population/key location* on the Chiquita Canyon/Wagon Wheel Canyon ridgeline would be conserved. In the Gobernadora/San Juan Creek *important population/key location* 16 of 47 locations (34%) would be conserved.	107 locations (73%) and 9,289 acres (77%) of coastal sage scrub, chaparral and woodland would be conserved on RMV. All 18 locations in the *important population/key location* on Chiquadora Ridge and 48 of 53 locations (90%) of the *important population/key location* on the Chiquita Canyon/Wagon Wheel Canyon ridgeline would be conserved. In the Gobernadora/San Juan Creek *important population/key location* 16 of 47 locations (34%) would be conserved.
San Diego Horned Lizard	33 locations (66%) and 23,340 acres (86%) of coastal sage scrub and chaparral would be conserved. The large majority (93%) of the *important population/key location* on the Chiquita Canyon/Wagon Wheel Canyon ridgeline would be conserved. The *important population/key location* in Upper Cristianitos is located in the Cristianitos Meadows development area. Impacts to this population would be minimized to the extent feasible.	26 locations (60%) and 8,912 acres (78%) of coastal sage scrub and chaparral would be conserved on RMV. The large majority (93%) of the *important population/key location* on the Chiquita Canyon/Wagon Wheel Canyon ridgeline would be conserved. The *important population/key location* in Upper Cristianitos is located in the Cristianitos Meadows development area. Impacts to this population would be minimized to the extent feasible.
Southwestern Pond Turtle	6 of 8 locations would be conserved, including *important populations/key locations* in riparian and aquatic habitats along San Juan Creek, the stockpond and other wetlands in Upper Cristianitos, and Jerome's Lake in Upper Gabino. in Upper Cristianitos and potentially in Upper Gabino at Jerome's Lake. Proposed golf courses in these two areas would preserve or create water features that would provide suitable habitat. Locations in San Juan Creek and the adjacent floodplain providing nesting/ estivation habitat would also be conserved. Setbacks of at least 328 ft. from breeding ponds containing suitable upland habitat with southern exposures would provide for nesting and overwintering sites. Habitat connectivity between the San Juan Creek and San Mateo Creek watersheds would be maintained to allow dispersal.	Same as Planning Area.
Mountain Lion	The proposed development pattern would provide for a large habitat block consisting of Verdugo Canyon, Upper and Middle Gabino Canyon, La Paz Canyon, and the eastern portion of Talega Canyon providing a link from Camp Pendleton through to Caspers Wilderness Park and the CNF. The proposed golf course and estates in Upper Gabino Canyon may locally affect behavior, but with the extensive open space overall in B-4 and CNF, the overall impact is not significant. Other areas of B-4 providing for mountain lion movement would be	The proposed development pattern would provide for a large habitat block consisting of Verdugo Canyon, Upper and Middle Gabino Canyon, La Paz Canyon, and the eastern portion of Talega Canyon providing a link from Camp Pendleton through to Caspers Wilderness Park and the CNF. The proposed golf course and estates in Upper Gabino Canyon may locally affect behavior, but with the extensive open space overall in B-4 and CNF, the overall impact is not significant. Other

TABLE 4.9-36 (Continued)
PLANNING SPECIES CONSISTENCY ANALYSIS OF THE RMV OPEN SPACE AND ALREADY PROTECTED OPEN SPACE

Planning Species	Planning Area Open Space	RMV Only Open Space
	Arroyo Trabuco, the Foothill-Trabuco Specific Plan area, Chiquita Ridge, Sulphur Canyon, and San Juan Creek.	areas of RMV under B-4 providing for mountain lion movement would be Chiquita Ridge, Sulphur Canyon, and San Juan Creek
Mule Deer	The proposed development pattern would provide for a large habitat block consisting of Verdugo Canyon, Upper and Middle Gabino Canyon, La Paz Canyon, and the eastern portion of Talega Canyon providing a link from Camp Pendleton through to Caspers Wilderness Park and the CNF. The proposed golf course and estates in Upper Gabino Canyon may somewhat affect the mule deer's use of the area and bring them into greater contact with humans (e.g., vehicle collisions), but this impact would not be significant because of the deer's tolerance for human presence. Other areas of B-4 providing for mule deer "live-in"/movement habitat would be Arroyo Trabuco, the Foothill-Trabuco Specific Plan area, Chiquita Ridge, Sulphur Canyon, San Juan Creek, and Trampas Canyon.	The proposed development pattern would provide for a large habitat block consisting of Verdugo Canyon, Upper and Middle Gabino Canyon, La Paz Canyon, and the eastern portion of Talega Canyon providing a link from Camp Pendleton through to Caspers Wilderness Park and the CNF. The proposed golf course and estates in Upper Gabino Canyon may somewhat affect the mule deer's use of the area and bring them into greater contact with humans (e.g., vehicle collisions), but this impact would not be significant because of the deer's tolerance for human presence. Other areas of RMV under B-4 providing for mule deer "live-in"/movement habitat would be Chiquita Ridge, Sulphur Canyon, San Juan Creek, and Trampas Canyon.
Chaparral Beargrass	The Talega sub-basin *important population/ key location* would be conserved.	Same as Planning Area.
Coulter's Saltbush	2,690 individuals (87%) and 27 locations (77%) would be conserved. The *major population/key location* in Chiquita Canyon could be conserved through avoidance and minimization of impacts of the proposed golf course west of Chiquita Creek. The *important population/key location* north the treatment plant in Chiquita Canyon would be conserved. The *important population* in Lower Chiquita would be conserved and the *important populations* in Upper Cristianitos and Upper Gabino canyons could be conserved through incorporating golf course avoidance and minimization features.	Same as Planning Area.
Many-stemmed Dudleya	49,466 individuals (76%) and 289 locations (73%) would be conserved. Of the *major populations/key locations*, 96% of individuals and 92% of locations of the Chiquadora Ridge population, 97% of individuals and 69% of locations of the Upper Gabino/La Paz Canyon population, and 4% of individuals and 8% of locations of the Gobernadora population would be conserved. Approximately 90% of individuals and 69% of locations of the Cristianitos Canyon *major population/key location* on RMV could be conserved through golf course design features. Of the *important populations/key locations*, 100% of the Chiquita Ridge population/locations, 89% of the individuals and 85% of the	33,000 individuals (70%) and 175 locations (62%) would be conserved on RMV. Of the *major populations/key locations*, 96% of individuals and 92% of locations of the Chiquadora Ridge population, 97% of individuals and 69% of locations of the Upper Gabino/La Paz Canyon population, and 4% of individuals and 8% of locations of the Gobernadora population would be conserved. Approximately 90% of individuals and 69% of locations of the Cristianitos Canyon *major population/ key location* could be conserved through golf course design features. Of the *important populations/ key locations*, 100% of the Chiquita Ridge population/

TABLE 4.9-36 (Continued)
PLANNING SPECIES CONSISTENCY ANALYSIS OF THE
RMV OPEN SPACE AND ALREADY PROTECTED OPEN SPACE

Planning Species	Planning Area Open Space	RMV Only Open Space
	locations in the Upper Gobernadora population, and 16% of the individuals and 30% of the locations of the Lower Chiquita Canyon population would be conserved. In the East Talega *important population*, 89% of the individuals and 93% of the locations would be conserved.	locations, 89% of the individuals and 85% of the locations in the Upper Gobernadora population, and 16% of the individuals and 30% of the locations of the Lower Chiquita Canyon population would be conserved. In the East Talega *important population*, 89% of the individuals and 93% of the locations would be conserved.
Mud Nama	2 of 4 populations totaling 850 individuals (8%) on Chiquita Ridge and along Radio Tower Road would be conserved. The two largest populations of 7,500 and 2,000 individuals each are located in the eastern portion of the Trampas Canyon development area.	1 of 3 populations totaling 350 individuals (3%) along Radio Tower Road would be conserved on RMV. The two largest populations of 7,500 and 2,000 individuals each are located in the eastern portion of the Trampas Canyon development area.
Salt Spring Checkerbloom	The two *important populations* in the slope wetlands in Lower Chiquita Canyon would be conserved. The small population in the slope wetland in Gobernadora would be impacted.	Same as Planning Area.
Southern Tarplant	112,000+ individuals (77%) and 33 locations (78%) would be conserved. The *major populations/key locations* in Lower Chiquita Canyon (the Tesoro mitigation site) and Gobernadora (GERA) would be conserved. Impacts to the *major population/key location* and *important population* north of the treatment plant in Chiquita Canyon could be avoided and minimized through golf course design features.	Same as Planning Area.

Note: Calculations do not include infrastructure impacts.

Source: Dudek 2004

For the unlisted Planning Species, the Proposed Project, and the Proposed Project in conjunction with other already protected open space areas within the planning area generally has medium to high consistency with the NCCP/HCP Guidelines (see Table 4.9-36). *Major* and/or *important populations* were identified for grasshopper sparrow, tricolored blackbird, yellow warbler, yellow-breasted chat, western spadefoot toad, orange-throated whiptail, San Diego horned lizard, southwestern pond turtle, Coulter's saltbush, many-stemmed dudleya, salt spring checkerbloom, and southern tarplant. As summarized in Table 4.9-36, substantial impacts would occur to *key locations* of grasshopper sparrow and many-stemmed dudleya. For the grasshopper sparrow, 47 percent of the *major population/key location* in the Chiquita sub-basin/Chiquadora Ridge area and 63 percent of the *important population/key location* in Cristianitos/Lower Gabino Canyon would be impacted under the Proposed Project. The Proposed Project would not provide adequate protection for the grasshopper sparrow. For the many-stemmed dudleya, 96 percent of individuals and 92 percent of mapped locations in the Gobernadora *major population/key location* would be impacted. However, overall conservation of other *major/important populations* in *key locations* of dudleya, as described in Table 4.9-36, would be adequate for protection of this species in the planning area. Some impacts would occur to *key locations* of orange-throated whiptail and San Diego horned lizard, but these impacts would not significantly reduce the viability of these species in the planning area.

Impacts to *key locations* of Coulter's saltbush and southern tarplant would be avoided and minimized through project design features to conserve these species. *Important populations* of tricolored blackbird, yellow warbler, yellow-breasted chat, and salt spring checkerbloom would be 100 percent protected and four of five *important populations* of spadefoot toad would be protected.

Unlisted Planning Species for which *major/important populations* in *key locations* were not identified are cactus wren, Cooper's hawk, golden eagle, merlin, white-tailed kite, mountain lion, mule deer**,** and mud nama. For the cactus wren, Cooper's hawk, and white-tailed kite more than 80 percent of cactus wren locations and historic nest sites for the Cooper's hawk and kite, as well as more than 80 percent of suitable habitat for the three species, would be protected under the combined RMV Open Space and already protected open space. For the golden eagle and merlin, approximately 60 percent of foraging habitat would be protected and both species likely would persist in the sub region. Under the combined RMV Open Space and already protected open space, large blocks of habitat would be protected to provide foraging and movement area for the mountain lion and mule deer. The mud nama would not be adequately protected under the Proposed Project because 92 percent of the population would be impacted (this impact would occur under all alternatives because the Trampas Canyon development area [PA 5] impacts two locations totaling 7,500 and 2,000 individuals, respectively). In general, the RMV Open Space, in conjunction with previously committed open space areas, provides for the protection of the majority of Planning Species, including *major* and *important populations* in *key locations* where identified, and their habitats, with the exception of the grasshopper sparrow and mud nama as noted above.

SRP Tenet 2: Larger Reserves Are Better

The size of any protected open space is a function of both total area and configuration. Large blocks of habitat containing large populations of species indicative of habitat quality are superior to small blocks of habitat containing small populations (Science Advisors 1997). A large, but fragmented area of protected open space will function less effectively than a smaller, but intact protected open space area. A habitat block analysis was conducted for the RMV Open Space and already protected open space in the sub region. The analysis delineated intact habitat blocks, defined as contiguous areas at least 1,000 acres in size and at least 2,000 feet in width at its narrowest point. The exception is the Arroyo Trabuco, which narrows to less than 2,000 feet in several areas, but which generally is separated from adjacent development by its steep bluffs. For this analysis, existing and proposed roadways were not considered barriers to habitat connectivity and species movements.[1]

The RMV Open Space and the already protected open space in the sub region combine to comprise six major habitat blocks (Exhibit 4.9-22: the Caspers block [12,674 acres], the San Mateo block [5,687 acres], the Lower Chiquita block [4,184 acres], the Upper Chiquita block [3,057 acres], the Arroyo Trabuco block [1,832 acres], and the Donna O'Neill Conservancy block [1,455 acres]). These habitat blocks have a combined total of 28,891 acres and are summarized in Table 4.9-37. The Caspers and San Mateo habitat blocks are separated by estates, golf, and resort development in the Verdugo and upper Gabino sub-basins. However, substantial open space internal to O'Neill Ranch (Planning Area 9) and uninterrupted open

[1] The impact of roads on habitat contiguity and population dynamics is complex and species-specific. Many species readily cross roads and thus the populations on either side of the road would be considered a single, interacting population. Other species shy away from roads and thus are functionally isolated from individuals on the other side of the road. The Ortega Highway through Caspers and the Cleveland National Forest probably does not isolate most species, but it is a source of increased mortality for the individuals crossing the highway.

space to the east in the Cleveland National Forest and MCB Camp Pendleton serve to functionally link these two large habitat blocks in the San Juan and San Mateo watersheds comprising more than 18,300 acres.

SRP Tenet 3: Keep Reserve Areas Close/Link Reserves With Corridors

All the large habitat blocks described above are functionally interconnected within the combined RMV Open Space and already protected open space. The Upper Chiquita habitat block is connected to the Lower Chiquita block via east-west habitat linkages in the "Narrows" (Linkage D) and north of the treatment plant (Linkage E), as well as via San Juan Creek and along Chiquadora Ridge (Linkages G and J), and to the Caspers block via the habitat linkage south of Coto de Caza and north of the proposed Gobernadora Estates (Linkage I). The Lower Chiquita block is connected to the Arroyo Trabuco block via habitat between the Ladera and Las Flores developments (Linkage B) and to the Caspers and San Mateo blocks via San Juan Creek (Linkage J). The Donna O'Neill Conservancy block is connected to the San Mateo block via Gabino Creek (Linkage O). Although all habitat blocks are connected to at least one other habitat block, several potential linkage areas reflect some degree of conflict with the Draft NCCP/HCP Planning Guidelines:

a. the habitat linkage area across the upper portion of the Gobernadora planning area (PA 3) is approximately 1,000 feet wide rather than the 2,000 to 2,500 feet recommended;

b. the golf course within PA 6 is intended to serve a connectivity function for avian and terrestrial species but may not be sufficient due to proximity to the Cristianitos Canyon planning area (PA 7);

c. the dimension of the connectivity area east of Cristianitos Creek in the Cristianitos sub-basin has also been the subject of wildlife agencies comment, although the entire area to the west of the creek (Donna O'Neill Land Conservancy) has already been preserved for connectivity as well as habitat protection purposes and the development in Cristianitos Canyon is set back from Cristianitos Creek a minimum of 200 feet and an average of 500 feet;

d. the dimension of the connectivity area just above the mouth of Gobernadora Creek in the "ox-bow" area has been the subject of wildlife agencies comment; and

e. connectivity between upper Gabino and upper Verdugo canyons could be impeded to some extent by the golf course proposed for upper Gabino and the O'Neill Ranch estates in both upper Gabino and Verdugo canyons, although avian and small mammal movement would not be limited in any significant way.

SRP Tenet 4: Keep Habitat Contiguous

SRP Tenet 4 primarily refers to avoiding and minimizing fragmentation within habitat blocks and maintaining habitat continuity within habitat blocks. Habitat and land cover types within the six habitat blocks described above under Tenet 2 are presented in Table 4.9-37. As shown in Table 4.9-37, the vast majority of the six habitat blocks that would be protected as open space under the Proposed Project in combination with already protected open space are comprised of the five major vegetation communities: coastal sage scrub, chaparral, grassland, woodland and forest, and riparian, although the relative proportions of the vegetation communities vary among

the blocks. For example, grassland is the largest component of the Lower Chiquita habitat block while coastal sage scrub is by far the largest component of the Caspers block.

TABLE 4.9-37
MAJOR VEGETATION COMMUNITIES WITHIN HABITAT BLOCKS

Vegetation Community/Land Cover Type	Habitat Block Acres[1]										
	Arroyo Trabuco	Upper Chiquita		Lower Chiquita		Caspers		San Mateo		Donna O'Neill Conservancy	
	Total	Total	RMV	Total	RMV	Total	RMV	Total	RMV	Total	RMV
Coastal Sage Scrub	313	1,442	403	1,210	772	6,908	763	2,204	2,204	416	14
Chaparral	121	143	26	139	95	2,241	206	2,162	2,162	360	5
Grassland	514	247	30	2,052	906	1,257	61	464	464	332	61
Woodland & Forest	141	61	17	25	25	702	1	164	164	121	1
Riparian	613	209	66	278	242	1,431	22	672	672	194	38
Other Habitats/ Land Covers	30	785[2]	314	392[2]	336	8	0	6	6	2	0
Developed/Disturbed (% of Total in Block)	100 (5%)	170 (5%)	104 (11%)	88 (2%)	61 (2%)	127 (1%)	0 (0%)	15 (0.3%)	15 (0.3%)	30 (2%)	27 (18%)
Total in Block	**1,832**	**3,057**	**960**	**4,184**	**2,437**	**12,674**	**1,026**	**5,687**	**5,687**	**1,455**	**146**

[1] Acreages for open space do not include infrastructure impacts; therefore the table only provides relative contributions of the vegetation communities within the habitat blocks, not absolute values.
[2] Agriculture accounts for 754 acres of Other Habitats/Land Covers in Upper Chiquita and 343 acres in Lower Chiquita. Most of this agriculture is cultivated barley fields that provide habitat value similar to grassland for species such as grasshopper sparrow and foraging raptors.

Source: Dudek 2004.

The six habitat blocks exhibit relatively little internal habitat fragmentation (i.e., existing development or disturbance that disrupts the habitat contiguity of the blocks). As shown in Table 4.9-37, existing developed and disturbed land uses within the habitat blocks comprise relatively small percentages of the blocks, ranging from about five percent of the Arroyo Trabuco and Upper Chiquita blocks to one percent or less in the San Mateo and Caspers blocks. As would be expected from the existing pattern of urbanization in the planning area, internal fragmentation decreases from west to east, with the highest percentages of development and disturbed land uses in the Arroyo Trabuco and Upper Chiquita blocks and the lowest percentages in the Caspers and San Mateo blocks.

SRP Tenet 5: Reserves should be Biologically Diverse

The biological diversity of the combined RMV Open Space and already protected open space can be evaluated in terms of the protection of major vegetation communities and protection of planning species (as described above under Tenet 1). The extent to which the combined RMV Open Space and already protected open space protects the five major vegetation communities (coastal sage scrub, chaparral, grassland, woodland and forest, and riparian) and maintains the existing diversity is considered in four ways: (1) amount of vegetation protected; (2) the proportional relationship between the amount of a vegetation community protected and the amount of the community in the planning area; (3) the physiographic diversity of a protected vegetation community compared to existing conditions in the planning area, as measured by elevation gradient and distributions among watersheds; and (4) habitat connectivity (as described above under Tenet 3). Distance from coast also could be used as a measure of biological diversity, but it is highly correlated with elevation in the planning area (Pearson Correlation = 0.91; $p < 0.01$), and thus only elevation was used to evaluate diversity.

Table 4.9-38 shows the amount and percentage of the major vegetation communities protected in the combined RMV Open Space and already protected open space, overall and broken down by watersheds. Overall, combined RMV Open Space and already protected open space protects the large majority of the major vegetation communities. Protection ranges from a low of 63 percent for grassland to a high of 89 percent for chaparral. Other than grassland, the lowest overall conservation percentage of the major vegetation communities is 85 percent for coastal sage scrub.

The combined RMV Open Space and already protected open space also provides balanced protection of the major vegetation communities within the San Juan and San Mateo watersheds. As an example, for coastal sage scrub, 87 percent of the sage scrub in the San Juan Watershed is protected, compared to 82 percent in the San Mateo Watershed. Except for grassland, with 14 percent greater protection in the San Juan Watershed compared to the San Mateo Watershed, all differences between the two watersheds are less than eight percent, ranging from a differential of five percent for coastal sage scrub and woodland and forest, to eight percent for chaparral. Protection percentages for vegetation communities in San Clemente and Aliso Hydrological Areas, which are almost entirely outside of the RMV boundary, are consistently lower, ranging from a low of 60 percent for woodland and forest to 79 percent for chaparral. Protection is lower because these areas are already highly fragmented by existing urbanization. Another way of demonstrating the balance of protection of the major vegetation communities in the watersheds in the combined RMV Open Space and already protected open space is expressed in Table 4.9-38 as the "% Within Vegetation Community" for the planning area and the combined RMV Open Space and already protected open space. This analysis compares the relative protection within each vegetation community in relation to the watersheds. For example, within the planning area, 76 percent of the coastal sage scrub is in the San Juan Watershed, 19 percent is in the San Mateo Watershed, and 5 percent is in the San Clemente and Aliso hydrological areas. In comparison, in the combined RMV Open Space and already protected open space, 78 percent of the protected coastal sage scrub is in the San Juan Watershed, 19 percent in the San Mateo Watershed, and three percent in the other watersheds. Therefore, compared to the existing setting, in the combined RMV Open Space and already protected open space, two percent more of the coastal sage scrub is in the San Juan Watershed and two percent less is in the other watersheds, demonstrating a slight bias toward protecting coastal sage scrub in the San Juan Watershed. Grassland protection shows the largest bias among watersheds, with +5 percent representation in the San Juan Watershed and -3 percent in the San Mateo Watershed.

Table 4.9-39 compares the protection of the major vegetation communities in the combined RMV Open Space and already protected open space with their representation in the planning area as a whole. For example, coastal sage scrub accounts for 40 percent of the total acreage of the five major vegetation communities in the planning area and 43 percent of the total acreage in the combined RMV Open Space and already protected open space (i.e., coastal sage scrub is "over-represented" by three percent in the combined RMV Open Space and already protected open space in relation to its existing occurrence in the planning area). Likewise, grassland is "under-represented" in the combined RMV Open Space and already protected open space by six percent compared to the planning area. Although there is no established standard or threshold by which to compare the biological significance of a particular deviation from the existing conditions in the planning area, a maximum under-representation of 6 percent for grassland does not appear to be a significant deviation, especially in light of the dynamic nature of habitat successions between grassland, coastal sage scrub, and chaparral. A deviation of more than 10 percent may be cause for concern that the vegetation communities are not adequately represented in the combined RMV Open Space and already protected open space. Overall, the five major vegetation communities are adequately represented in the

combined RMV Open Space and already protected open space, with a maximum of six percent under-representation for grassland and maximum three percent over-representation for coastal sage scrub.

TABLE 4.9-38
PROTECTION OF MAJOR VEGETATION COMMUNITIES IN THE COMBINED RMV OPEN SPACE AND ALREADY PROTECTED OPEN SPACE AND THE PLANNING AREA

Vegetation Community	Planning Area		Combined RMV Open Space and Already Protected Open Space Acres		
	Planning Area Acres[1]	% of Vegetation Community	Acres (% of total)[1]	% within Vegetation Community	% Deviation from Existing Distribution
Coastal Sage Scrub	19,724		16,815 (85%)		
San Juan Creek	15,056	76%	13,113 (87%)	78%	+2%
San Mateo Creek	3,772	19%	3,110 (82%)	19%	0%
Other Watersheds[2]	896	5%	592 (66%)	3%	-2%
Chaparral	7,333		6,523 (89%)		
San Juan Creek	4,219	58%	3,652 (86%)	56%	-2%
San Mateo Creek	2,748	37%	2,582 (94%)	40%	+3%
Other Watersheds	366	5%	289 (79%)	4%	-1%
Grassland	14,979		9,511 (63%)		
San Juan Creek	8,215	55%	5,621 (68%)	59%	+5%
San Mateo Creek	3,093	21%	1,663 (54%)	18%	-3%
Other Watersheds	3,671	24%	2,227 (61%)	23%	-1%
Woodland and Forest	1,824		1,562 (86%)		
San Juan Creek	1,537	84%	1,312 (85%)	84%	0%
San Mateo Creek	257	14%	232 (90%)	15%	+1%
Other Watersheds	30	2%	18 (60%)	1%	-1%
Riparian	5,213		4,486 (86%)		
San Juan Creek	3,870	74%	3,338 (86%)	74%	0%
San Mateo Creek	1,024	20%	932 (91%)	21%	+1%
Other Watersheds	319	6%	216 (68%)	5%	-1%

[1] The acreages for open space do not include infrastructure impacts; therefore, the table provides relative distributions of the vegetation communities overall within the watersheds, not absolute areas.
[2] Other Watersheds include the San Clemente and Aliso Hydrological Areas

Source: Dudek 2004

The same comparison was applied to watersheds, with similar results. The maximum deviations from the planning area are grassland at three percent under-represented and coastal sage scrub at three percent over-represented in the San Juan Watershed. Overall, the combined RMV Open Space and already protected open space provides a balanced representation of the existing distribution of the major vegetation communities in the different watersheds.

TABLE 4.9-39
COMPARATIVE PROTECTION OF VEGETATION COMMUNITIES UNDER THE COMBINED RMV OPEN SPACE AND ALREADY PROTECTED OPEN SPACE

Vegetation Community	Planning Area		Combined RMV Open Space and Already Protected Open Space		
	Planning Area Acres[1]	% of Planning Area	Acres (% of total)[1]	% of Combined RMV Open Space and already protected open space	% Deviation from Planning Area Distribution
Coastal Sage Scrub	19,724	40%	16,815 (85%)	43%	+3%
San Juan Creek	15,056	31%	13,113 (87%)	34%	+3%
San Mateo Creek	3,772	8%	3,110 (82%)	8%	0%
Other Watersheds[2]	896	1%	592 (66%)	1%	0%
Chaparral	7,333	15%	6,523 (89%)	17%	+2%
San Juan Creek	4,219	9%	3,652 (86%)	9%	0%
San Mateo Creek	2,748	5%	2,582 (94%)	7%	+2%
Other Watersheds	366	1%	289 (79%)	1%	0%
Grassland	14,979	30%	9,511 (63%)	24%	-6%
San Juan Creek	8,215	17%	5,621 (68%)	14%	-3%
San Mateo Creek	3,093	6%	1,663 (54%)	4%	-2%
Other Watersheds	3,671	7%	2,227 (61%)	6%	-1%
Woodland and Forest	1,824	4%	1,562 (86%)	4%	0%
San Juan Creek	1,537	3%	1,312 (85%)	3%	0%
San Mateo Creek	257	1%	232 (90%)	1%	0%
Other Watersheds	30	<1%	18 (60%)	<1%	0%
Riparian	5,213	11%	4,486 (86%)	11%	0%
San Juan Creek	3,870	8%	3,338 (86%)	9%	+1%
San Mateo Creek	1,024	2%	932 (91%)	2%	0%
Other Watersheds	319	<1%	216 (68%)	<1%	0%

[1] The acreages for open space do not include infrastructure impacts; therefore, the table provides relative distributions of the vegetation communities overall within the watersheds, not absolute areas.
[2] Other Watersheds include the San Clemente and Aliso Hydrological Areas

Source: Dudek 2004

Table 4.9-40 compares the elevational distribution of the major vegetation communities in the planning area and the combined RMV Open Space and already protected open space. The table includes two sets of analyses: (1) the total protection percentages of each vegetation community in relation to elevation; and (2) the relative difference in protection of a vegetation community at an elevation range in relation to its occurrence in the planning area. For example, seven percent of the coastal sage scrub in the planning area occurs at less than 400 feet, whereas five percent of the coastal sage scrub in the combined RMV Open Space and already protected open space occurs at less than 400 feet (i.e., a deviation of -2 percent).

TABLE 4.9-40
ELEVATIONS OF VEGETATION COMMUNITIES PROTECTED BY THE COMBINED RMV OPEN SPACE AND ALREADY PROTECTED OPEN SPACE COMPARED TO PLANNING AREA

Vegetation Community	Elevation Range (ft.)	Planning Area		Combined RMV Open Space and Already Protected Open Space Acres		
		Planning Area Acres[1]	% Within Vegetation Community	Acres (% of Total)[1]	% Within Vegetation Community	% Deviation from Planning Area
Coastal Sage Scrub	0-400	1,414	7%	847 (60%)	5%	-2%
	401-800	9,825	50%	7,907 (80%)	47%	-3%
	801-1,200	6,562	33%	6,186 (94%)	37%	+4%
	>1,200	1,923	10%	1,875 (97%)	11%	+1%
Total		19,724		16,815 (85%)		
Chaparral	0-400	166	2%	110 (66%)	2%	0%
	401-800	4,640	63%	3,948 (85%)	60%	-3%
	801-1,200	2,010	27%	1,951 (97%)	30%	+3%
	>1,200	518	7%	514 (99%)	8%	+1%
Total		7,334		6,523 (89%)		
Grassland	0-400	4,005	27%	2,179 (54%)	23%	-4%
	401-800	8,121	54%	5,101 (63%)	54%	0%
	801-1,200	2,551	17%	1,944 (76%)	20%	+3%
	>1,200	299	2%	287 (96%)	3%	+1%
Total		14,976		9,511 (63%)		
Woodland and Forest	0-400	174	10%	133 (76%)	8%	-2%
	401-800	1,005	55%	821 (82%)	53%	-2%
	801-1,200	509	28%	473 (93%)	30%	+2%
	>1,200	135	7%	135 (100%)	9%	2%
Total		1,823		1,562 (86%)		
Riparian	0-400	1,289	25%	1,046 (81%)	24%	-1%
	401-800	3,088	59%	2,516 (81%)	58%	-1%
	801-1,200	730	14%	654 (89%)	15%	+1%
	>1,200	106	2%	104 (98%)	2%	0%
Total		5,213		4,320		

[1] The acreages for open space do not include infrastructure impacts; therefore, the table provides relative distributions of the vegetation communities in relation to elevation.

Source: Dudek 2004

For all the major vegetation communities, the protection percentages increase with elevation. This trend is the result of three factors: (1) protection levels are lowest at the lowest elevation range (< 400 feet) because of existing urbanization and habitat fragmentation; (2) existing large protected areas are at higher elevations (e.g., Caspers Wilderness Park); and (3) large proposed protected open space areas are concentrated on the main ridgelines such as Chiquita and Chiquadora and in the San Mateo Watershed in Gabino, La Paz, and Talega canyons. However, as with the watershed distributions, the elevational distributions of the vegetation communities in the combined RMV Open Space and already protected open space closely match the existing distribution in the planning area. A comparison of the "% Within Vegetation Community" columns for the planning area and combined RMV Open Space and already protected open space shows that the elevational distributions of the vegetation communities in the combined RMV Open Space and already protected open space generally track the existing distributions in the planning area, but with a slight bias toward under-representations of the

upland vegetation communities at less than 800 feet. The protection of riparian vegetation shows no elevational bias. The maximum under-representation at -4 percent is grassland at less than 400 feet. The maximum over-representation at +4 percent is coastal sage scrub at 801 to 1,200 feet.

SRP Tenet 6: Protect Reserves from Encroachment

The Proposed Project circulation system compliance with General Policy 4 (roads and infrastructure to be located outside the Habitat Reserve to the maximum extent feasible) is reviewed in the previous section, Infrastructure Consistency Analysis. Protection from long-term indirect effects/encroachment would be assured by compliance with General Policy 5 requirements of the Draft NCCP/HCP Planning Guidelines.

The Proposed Project includes five golf courses that provide additional encroachment protection with respect to fire buffer and human intrusion buffer functions of golf courses. Based on the experience with the 1993 Laguna Hills wildfires and the fire protection function demonstrated by the Newport Coast golf course, four of the five Proposed Project golf courses, provide important fire protection/refugia protection and serve as human intrusion buffers (i.e., security protection against the presence of non-golf individuals) for important RMV Open Space areas. Important RMV Open Space fire buffer functions that would be provided by these golf courses are as follows:

- The Chiquita Canyon Golf course would provide fire buffer protection and a human intrusion protection by buffering proposed development in middle Chiquita from a portion of the California gnatcatcher *major population* in a *key location* in Chiquita Canyon and would provide a fire buffer for riparian habitat in the same areas.
- The Cristianitos Meadows golf course would provide fire buffer protection for the California gnatcatcher *important population* in a *key location* in Upper Cristianitos Canyon and would provide a fire buffer for riparian habitat in close proximity to the golf course.
- The Blind Canyon Mesa golf course would provide a fire buffer for riparian habitat in lower Gabino Canyon and lower Cristianitos Creek.
- The upper Gabino golf course would provide a fire buffer for riparian habitat in upper Gabino Canyon and potentially help protect riparian habitat in middle and lower Gabino Canyon from Santa Ana winds driven wildfires originating in the Cleveland National Forest.

SRP Tenet 7: Maintain Terrains/Hydrology

Fundamental to the open space planning design is the precept that the long-term functioning of habitat systems is significantly dependent on the long-term interactions between terrains and hydrology. From a terrains perspective, emphasis has been placed on protecting sources of coarse sediment important to maintaining the function of stream-associated habitats for species such as the arroyo toad; these areas include Verdugo Canyon, middle Gabino Canyon, and La Paz Canyon (the latter a source of cobbles). Also from a terrains perspective, proposed development has been located on ridges above the alluvial side canyons in Chiquita Canyon and in portions of the Gobernadora sub-basin in order to protect the geomorphology of the creek systems and the surface and groundwater flows essential to perennial flow in Chiquita Creek and Gobernadora Creek. Within the San Mateo Creek Watershed, proposed development areas have been focused in significant part on areas of presently eroding clay soils so that the current sources of fine sediments detrimental to aquatic habitats can be eliminated.

From a hydrology perspective, proposed development would be located away from all major streams and on ridges with hard-pan soils and clay soils where existing runoff patterns can be more effectively emulated. In the case of Gobernadora Creek, proposed development areas have been located away from the valley floor above the knickpoint in order to allow for the restoration of the stream meander and other measures proposed in the Gobernadora Creek Restoration Plan and away from the Sulphur Canyon major tributary to the creek system.

Further analysis of the above considerations is presented in more detail below in the review of consistency with the Baseline Conditions Watershed Planning Principles.

SAMP Tenets Consistency Review

As indicated below, the Proposed Project would be consistent or partially consistent with all of the following eight SAMP tenets.

SAMP Tenet 1: No Net Loss of Acreage and Functions of Waters of the U.S./State

The Proposed Project has been designed to protect the major terrains/hydrology functions of each sub-basin, as well as the major riparian/wetlands systems. With regard to net acreage of waters of the U.S./State, the Proposed Project would need to provide mitigation in the form of new restoration/creation of wetlands acreage equal to the loss of wetlands and non-wetlands waters due to development. Impacts to USACE and CDFG jurisdiction are identified previously. Mitigation for these impacts is discussed conceptually in the Habitat Restoration Plan, an appendix to the AMP (Appendix J).

SAMP Tenet 2: Maintain/Restore Riparian Ecosystem Integrity

Given its focus on protecting and, where feasible and beneficial, restoring each of the major canyon systems as well as the mainstem creeks, the Proposed Project addresses this tenet.

SAMP Tenet 3: Protect Headwaters

Each of the headwater areas not already urbanized would be protected and/or restored. Significant enhancement/restoration is proposed for Upper Cristianitos Creek and Upper Gabino Canyon. The headwaters areas of Trampas Creek are proposed for development, but this area is currently significantly altered due to existing mining operations.

SAMP Tenet 4: Maintain/Protect/Restore Riparian Corridors

All major riparian corridors are protected. The Proposed Project provides for riparian restoration discussed in the Habitat Restoration Plan, an appendix to the AMP (Appendix J).

SAMP Tenet 5: Maintain and/or Restore Floodplain Connection

The Proposed Project maintains all existing areas of floodplain connection. The Proposed Project is consistent with the concepts in the Habitat Restoration Plan in the AMP to restore the meander in Gobernadora Creek, thereby helping restore historic floodplain connection. Where longer-term terrains/hydrology processes are responsible for areas with existing loss of floodplain connection (e.g., Chiquita Canyon at the “Narrows” and lower Gobernadora Creek below the knickpoint), the Proposed Project does not propose any actions that would be contrary to such processes.

SAMP Tenet 6: Maintain and/or Restore Sediment Sources and Transport Equilibrium

Consistent with the Watershed Planning Principles, the Proposed Project protects all of the significant sources of coarse sediment in order assure the continued generation of such sediments important for riparian/wetlands habitat systems and focuses development on areas generating fine sediments in order to reduce the runoff of fine sediments that can cause deleterious impacts on riparian/wetland habitats and associated species. The Proposed Project is consistent with all or most of the vegetation restoration proposals for areas with clay soils, including Sulphur Canyon, Upper Cristianitos Canyon, and Upper Gabino Canyon. In some areas of Cristianitos Canyon and Upper Gabino Canyon, the Proposed Project would conflict with restoration recommendation contained in the Draft NCCP/HCP Planning Guidelines (e.g., the golf course in PA 6 Cristianitos Meadows and the golf course/estate lots in upper Gabino PA 9); however, proposed development in these areas would result in the stabilization and/or elimination of existing sources of fine sediments. In addition, it is likely that native species can be introduced to the landscape plant palette for the proposed PA 6 and PA 9 golf courses, thus potentially decreasing the conflict.

SAMP Tenet 7: Maintain Adequate Buffer for the Protection of Riparian Corridors

Under the Proposed Project, all major riparian corridors are adequately buffered from development bubbles. Where golf courses are proposed in close proximity to riparian corridors, setbacks consistent with those required for the recently approved Arroyo Trabuco Golf Course will assure the adequacy of buffer areas.

SAMP Tenet 8: Protect Riparian Areas and Associated Habitats of Listed and Sensitive Species

As reviewed above for Reserve Design Tenet 1, riparian areas associated with listed species and Planning Species would be protected.

<u>Baseline Conditions Watershed Planning Principles Consistency Review</u>

The following analysis relies substantially on information contained in reports cited in the Water Resources Section as well as the Watershed Sub-Basin Planning Principles.

Geomorphology/Terrains

Principle 1: Recognize and Account for the Hydrologic Response of Different Terrains at the Sub-Basin and Watershed Scale

Land use/resource planning (hereafter Planning) should recognize the characteristics of each of the terrains found within the planning area: (1) sandy terrains; (2) silty/sandy terrains; (3) clayey terrains; and (4) crystalline terrains.

Watershed Scale Analysis

Sandy Terrains – Planning in sandy terrains should provide for setbacks from the mainstem channel in order to retain the infiltration capacity of the valley floor and protect the integrity of the mainstem channels and corridors. Planning should avoid the addition of significant impervious surfaces to major tributary side canyons and swales to the extent feasible. Planning should direct significant new impervious surfaces to areas characterized by relatively high runoff rates/low infiltration rates under existing conditions.

As reviewed in the WQMP, site design BMPs for the Proposed Project used in identifying development bubbles generally cluster development far from the stream corridors on the ridgetops in areas characterized by relatively high runoff rates. This approach breaks away from the creek-centered pattern used elsewhere in Southern California which has resulted in significant erosion downstream from large projects. The Proposed Project provides setbacks from the mainstem channel in sandy terrains in order to protect the integrity of the mainstem channels and corridors. As reviewed in the WQMP, the Proposed Project generally avoids placing impervious surfaces in the major tributary side canyons, with the exception of the smaller side canyons of the Gobernadora sub-basin.

Sandy Terrains – Drainage from new impervious surfaces should, where feasible, be directed to major tributary side canyons for infiltration/detention. Drainage into major side canyons and swales must be accompanied by adequate detention/infiltration addressing the particular characteristics of sandy terrains.

Chapter 4 of the WQMP presents a "Combined Control System" strategy for each of the sub-basins under the Proposed Project. Chapter 5 of the WQMP then examines the specific strategy with respect to "hydrologic conditions of concern." As indicated in the WQMP, the Proposed Project provides for directing drainage to major tributary side canyons in Chiquita and for utilizing the infiltration characteristics of sandy terrains. With regard to Gobernadora Canyon, the Proposed Project addresses existing conditions characterized by excessive surface and subsurface water flows from upstream development with flow duration and discharge strategies under scenarios with and without a flow modulation basin just below Coto de Caza.

Clayey Terrains – Planning in clayey terrains should attempt, to the maximum extent feasible, to emulate the runoff/infiltration characteristics of clayey terrains and to correct any existing erosion in clayey terrains contributing to downstream turbidity impacts.

Clayey terrains are depicted in Figure 6 of the Watershed Planning Principles (Appendix G-3). The Proposed Project generally concentrates development in clayey terrains, thereby emulating the high runoff rates characteristic of clayey terrains. The Proposed Project proposes to remedy existing erosion in the Cristianitos and Gabino sub-basins in conjunction with development.

Clayey Terrains – Restoration of native grasslands may be a strategy for existing grazing lands in headwaters and other appropriate areas to reduce surface erosion, increase stormwater infiltration, and reduce downstream turbidity.

The AMP proposes the restoration of native grasslands in upper Cristianitos Canyon and Upper Gabino Canyon, in part to meet the purposes expressed in this policy. Appendix G-2 and G-3 addresses the consistency of the Proposed Project with the restoration recommendations of the AMP.

Crystalline Terrains – Planning in crystalline terrains should provide for the protection of sources of coarse sediments (e.g., Verdugo Canyon).

Figure 6 of the Watershed Planning Principles (Appendix G-3) depicts the locations of crystalline terrains. The Proposed Project protects the crystalline terrains that generate much of the coarse sediments in San Juan and La Paz creeks.

Sub-Basin Scale of Analysis – Although generalized terrains patterns can guide planning at a watershed scale, the specific characteristics of a given sub-basin should direct planning at the site-specific scale.

Sub-Basin Scale Terrains Analysis

The consistency of the Proposed Project with the sub-basin watershed principles is reviewed in Appendix G-3. With regard to the hydrologic response of the Proposed Project to terrains at the sub-basin level, Chapter 4 of the WQMP ('Water Quality Management Plan Elements") specifically reviews the sub-basin Planning Considerations and Planning Recommendations with regard to water quality and hydrologic issues for the Proposed Project; Chapter 4 of the WQMP proposes Site Planning and Treatment/Flow Control BMPs that specifically address each of the sub-basin Planning Considerations.

Hydrology

Principle 2: Emulate, to the Extent Feasible, the Existing Runoff and Infiltration Patterns in Consideration of Specific Terrains, Soil Types, and Ground Cover

Planning should consider existing rainfall infiltration and runoff processes in the context of terrains, land use, ground cover, soil types (e.g., sandy soils with higher infiltration vs. clays soils with high runoff), basin size and shape, natural zones of high runoff (e.g., heavy claypans or hardpan caps), and natural infiltration areas (e.g., sandy swales).

As reviewed in Chapter 3 of the WQMP:

> "The USEPA Storm Water Management Model (SWMM) was used to estimate the effects of the proposed development on the hydrologic balance. SWMM is a public domain model that is widely used for modeling hydrologic and hydraulic processes affecting runoff from urban and natural drainages. The model can simulate all aspects of the urban hydrologic cycle, including rainfall, surface and subsurface runoff, flow routing through the drainage network, storage, and treatment. The model is particularly appropriate for analyzing post development flow duration because the model takes into account the effects of precipitation, topography, land use, soils, and vegetation on surface runoff, infiltration, evapotranspiration, and groundwater recharge.
>
> "The model incorporates a continuous soil moisture accounting algorithm which requires soil properties to model infiltration and vegetation type to model evapotranspiration. Soils information was obtained from the US Department of Agriculture Soil Survey of Orange County and Western Part of Riverside County, California (1978) and also the hardpan areas mapped by Morton. More recent information on hardpan areas was provided by Balance Hydrologics. Evapotranspiration estimates utilized vegetation typing based on the PWA Codes contained in the Baseline Hydrologic Conditions Report (PCR *et al.* 2002). Reference evapotranspiration rates were obtained from the California Irrigation Management Information System (CIMIS) website (CIMIS 2003)."

Planning should recognize and account for the inherent characteristics of each sub-basin's channel network as it relates to the particular terrains and infiltration/runoff characteristics of the sub-basin.

As reviewed in Chapter 3 of the WQMP:

> "A detailed description of the hydrologic model, data sources and values, and calibration results is provided in Appendix A [of the WQMP].
>
> "In this application, PC-SWMM Version 4 was applied to each sub-basin to model the hydrologic response of the sub-basin under existing and proposed land use conditions,

and to assess the hydrologic effectiveness of the proposed BMPs. Each sub-basin was divided into catchments of an appropriate size to account for the natural variability in topography, soils, and land use, and changes in land use associated with proposed development. [For example, the Canada Chiquita Sub-basin was divided into 18 catchments.]"

Principle 3: Address Potential Effects of Future Land Use Changes on Hydrology

Planning should address the following hydrologic considerations under future land use scenarios: (1) potential increases in dry season streamflow and wet season baseflow between storms; (2) changes in the magnitude, frequency, and duration of annually expected flow events (1-2 year events); (3) changes in hydrologic response to major episodic storm events; . . . . (5) changes in the infiltration of surface/soil water to groundwater [sub-part (4) involving "potential changes in sediment supply" is addressed under Geomorphology/Terrains and Sediment Sources, Storage and Transport].

According to Chapter 3 of the WQMP:

"HYDROLOGIC MODELING

The [SWMM] model was applied in a continuous mode in which the model is driven with a continuous record of rainfall. The record extended for 53 years, from Water Year (WY) 1949 to WY 1998. The model was run for 3 periods:

- The entire 53-year period;
- a wet period of 17 years (WY 1978-1983 and 1991-2001); and
- a dry period of 36 years (WY 1949-1977 and 1984-1990).

The model incorporates a continuous soil moisture accounting algorithm which requires soil properties to model infiltration and vegetation type to model evapotranspiration. The model also incorporated the effects of anticipated landscape irrigation on the water balance based on water usage projections in the Santa Margarita Water District Landscape Irrigation Usage Analysis.

Once calibrated for specific sub-basins, the SWMM model was used to model all aspects of the hydrologic cycle (e.g., rainfall, runoff, stream flow, evaporation, infiltration, percolation, and groundwater discharge) over the 53-year period of rainfall records. The output from the model includes:

- Continuous stream flow hydrographs for storm events at any location in the sub-basin
- Continuous stream flow hydrographs for dry weather base flows
- The amount of precipitation that is infiltrated within each modeled catchment
- A continuous estimation of evaporation losses from the surface and subsurface due to evapotranspiration by plants within each modeled catchment

This output was then used to project, by month, the volume of storm runoff, groundwater lows, and evapotranspiration.

Runoff volumes and flows were predicted for three scenarios:

- Pre-development or existing condition
- Post-development condition without BMPs
- Post-development with BMPs condition

"The latter scenario involved evaluating the effectiveness of the flow and water quality management facilities, and trying to optimize the performance of these facilities.

"This modeling extends beyond the specifications of the Draft Watershed and Sub-basin Planning Principles in considering both wet and dry periods, a useful approach in Southern California, and one which can provide a higher level of modeling validity.

WATER BALANCE AND FLOW DURATION ANALYSIS

The effect of development on modifying the hydrologic regime within the riparian corridors and the subsequent effect on sediment transport and habitat are "hydrologic conditions of concern" [the latter as defined in the County of Orange MS4 Permit/DAMP and San Diego RWQCB Model SUSMP and as applied in the WQMP]. This effect was analyzed by comparing pre-versus-post development monthly water balance and flow duration.

Water Balance Analysis

The ultimate goal of the WQMP is to manage the overall balance, termed "water balance," of all the hydrologic components of the water cycle. The water balance concept is a useful accounting tool for evaluating and controlling the effects of land use changes on hydrology. A water balance, like a checkbook balance, is intended to show the balance between the 'deposits,' which include precipitation and irrigation, and 'withdrawals' which include: (1) infiltration into the soils, (2) evapotranspiration, and (3) water which runs off the surface of the land. This latter 'withdrawal' is called surface runoff and occurs during storm events or wet weather conditions. The water balance is a monthly accounting of how precipitation and irrigation water become distributed among (a) surface runoff, (b) groundwater infiltration that contributes to baseflows in streams or deep groundwater recharge, and (c) evapotranspiration.

Historical dry and wet cycles over a period of years or decades have an important effect on the water balance, and thus the water balance analyses were conducted for dry and wet cycles within the available rainfall record. In semi-arid areas, the variability in the water balance between wet and dry cycles is important to characterize when defining the baseline conditions.

- A key element in the evaluation of impacts for the proposed alternatives is modeling changes to the water balance caused by development and the extent to which the existing water balance could be maintained using BMPs.

Flow Duration Analysis

The impacts of urbanization on hydrology include increased runoff volumes, peak flow rates, and the duration of flows, especially modest flows less than the 10-year event. Yet it is these more frequent, modest flows that can have the most effect on long-term channel morphology (Leopold 1997). The effect of changes in flow on stream

geomorphology is a cumulative one; therefore the magnitude of flows (volume and flow rate), how often the flows occur (the frequency), and for how long (the duration) are all important. Managing the frequency and duration of flows is referred to herein as "***flow duration matching***" and refers to matching the post-development flow duration conditions with pre-development conditions. This matching is achieved through appropriate sizing of a flow duration basin and design of the outlet structure. In order to achieve flow duration matching, "***excess flows***," defined as the difference in runoff volume between the post-development without controls condition and the pre-development condition, must be captured and either infiltrated, stored and recycled, or diverted to a less sensitive stream or stream reach.

The flow duration analyses were conducted for the 53-year continuous rainfall record and the dry and wet cycles within that record as described above.

COMBINED FLOW AND WATER QUALITY CONTROL SYSTEM

In order to achieve flow duration matching, address the water balance and provide for water quality treatment, a combined flow and water quality control system (termed ***combined control system***) will be utilized. The combined control system is described in the Water Resources section and in detail in the WQMP.

Principle 4: Minimize Alterations of the Timing of Peak Flows of Each Sub-basin Relative to the Mainstem Creeks

Planning should address the relationship between the timing of peak flows of each sub-basin in relation to peak flows through and along the mainstem creeks. Instances where the relative timing of peak flows from tributary sub-basins coincides with those of the mainstem channel may result in amplification of flow rates, volumes, and associated sediment transport. Therefore, management of the timing of peak flows important to safeguard downstream areas from the effects of increased frequency of high flows and sediment yields. The goal should be to not adversely alter the runoff interactions between the sub-basins and mainstem creeks in relation to peak flow characteristics identified in the Baseline Conditions Report.

To address County Flood Control planning and management considerations, a HEC-1 analysis has been completed for the pre and post-project 2-, 5-, and 100-year events. HEC-1 was used to determine the comparative effects of the Proposed Project compared with pre-project conditions. These analyses are in addition to the SWMM modeling prepared for the WQMP. Potential impacts on the timing of peak flows have been analyzed and will be addressed through a combination of distributed flow duration control facilities and regional flood control systems. Commensurate with the level of entitlement being sought, the specific location and design of future flood control facilities are not identified. Rather, mitigation in terms of volume storage requirements and measures to assure that the timing of peak flows is not significantly altered from pre-development conditions are proposed where significant flood-related impacts are identified. While the general locations of facilities are identified, the specific location and design of future flood control facilities will be identified through subsequent levels of entitlement, specifically at the area plan approval stage.

Principle 5: Maintain and/or Restore the Inherent Geomorphic Structure of Major Tributaries and Their Floodplains

Land use and restoration should be planned in the context of the nature of the mainstem channel and its associated floodplains, flow characteristics, terraces, and important surface and

sub-surface drainage systems. Land planning should consider channel form (e.g., well-defined single channel, meandering channel, braided channel system) in relation to governing physical processes in the sub-basin, including terrains and groundwater. To the extent possible, the role of long-term geologic processes needs to be differentiated from localized processes influenced by specific land uses.

Chapter 4 of the WQMP presents flow control and water quality control strategies in response to the geographic-specific conditions found in each sub-basin. In this way, the role of long-term geologic processes identified in other planning documents has been differentiated from localized processes influenced by specific land uses.

Planning should consider the role of longer-term wet/dry cycles and how such cycles influence hydrologic conditions.

As reviewed previously in the responses to Planning Principle 3, both the water balance and flow duration analyses in the WQMP specifically address longer-term wet/dry cycles and how such cycles influence hydrologic conditions such as base flow and stream geomorphology. For instance, the flow control strategies and annual water balance analyses for each sub-basin are addressed in Chapter 5 under three climatic scenarios (All Years, Dry Years, and Wet Years) under pre-development conditions and post-development conditions with PDFs.

The role of major episodic storm events in transporting sediment, re-organizing channel/ floodplain structure, and re-generating riparian plant communities should also be considered.

Episodic considerations are intrinsic to the project design, and are embodied in the decision to locate most urban elements along the ridgetops, such that setbacks from the channels and protection of floodplains can be larger. Channels and geomorphically-active floodplain surfaces, where nearly all episodic adjustment occurs, have been left open, with only minimal constrictions at a limited number of crossings.

Longitudinal connectivity is maintained with the Proposed Project, to support recolonization of riparian communities (and the wildlife which depends upon them).

Sediment Sources, Storage, and Transport

Principle 6: Maintain Coarse Sediment Yields, Storage, and Transport Processes

Planning should take into account the volume and grain size of sediment generation occurring within the terrains specific to each sub-basin. In general, sandy and crystalline terrains will produce coarse sediments that may be important for downstream channel structure and habitat. Clayey terrains will produce fine sediments that may be associated with increased turbidity in downstream areas.

The USACE Hydraulic Design Package for Channels (SAM) model was used to evaluate in-channel sediment processes at the general plan level of planning. SAM allows computing an estimate of both sediment transport capacity and sediment yield for a given flood event. SAM is an advanced model, but is an appropriate choice in part because of its increasingly widespread use throughout California and because it provides analytic tools to: (a) establish a preliminary overview of sediment transport conditions in the different sub-basin under the baseline, pre-project conditions, and under post-development conditions; (b) assess the magnitude and direction of change in the sediment transport capacity (erosion and sedimentation); and (c) compare the effects of the different Alternatives on the sediment regime.

Planning should maintain sediment transport and storage processes between hill slope, tributaries, sub-basin channels, and mainstem creeks.

The Proposed Project avoids the sandy and crystalline terrains that protect significant sources of coarse sediments. Further, each significant source of coarse sediments (the sandy terrains in Chiquita and Gobernadora sub-basins and the crystalline terrains in Verdugo Canyon, middle Gabino, and La Paz Canyon) is treated in such a way that sediment transport and storage processes between hill slope, tributaries, sub-basin channels, and mainstem creeks are maintained in their current balance by means of protecting physical contiguity in these areas and through avoidance of structures that would impede sediment movement in tributaries and in mainstem creeks.

Planning should maintain the geomorphic characteristics of streambeds, including maintaining the supply and transport of sediment types that are important to aquatic habitat systems (e.g., sand, gravel, cobbles).

See above regarding protection of sources of coarse sediments that are important to aquatic habitat systems. Chapter 4 of the WQMP presents flow management strategies addressing the sub-basin principles directed toward maintaining the geomorphic characteristics of streambeds.

Planning should maintain significant sediment transport and storage processes in: (a) central San Juan Creek which transports coarse sediments from the upper San Juan Watershed, Bell Canyon, and Verdugo Canyon to downstream areas; and (b) middle and lower Gabino Creek and Cristianitos Creek downstream of the Gabino/Upper Cristianitos confluence containing areas with coarse texture channel beds and over-bank terraces supporting important aquatic habitats.

The response to Principle 4 reviews the manner in which planning has addressed the timing of peak flows which is a very important consideration in sediment transport. The consistency review analyzes the consistency of the Proposed Project with sub-basin planning recommendations directed toward protecting sediment transport and storage processes in central San Juan Creek and middle and lower Gabino Creek and lower Cristianitos Creek. The WQMP Chapter 4 strategies and WQMP Chapter 5 and 8 impact analyses analyze both land use site planning BMPs and flow management strategies with respect to the aforementioned creek systems for the Proposed Project.

Planning should assure that major new detrimental sources (or sinks) of sediment are not created. New sources can result from either causing new locations for sediment generation or mobilizing sediment through accelerating existing erosional areas or initiating sedimentation from recently inactive areas such as landslides. Particular attention must be paid to avoiding creating new sources of in-channel sediment.

The manner in which the Proposed Project address existing sources of erosion in clay soils and avoids sandy soils has been reviewed previously under Principle 1. Chapters 4 and 5 of the WQMP review strategies for the Proposed Project directed toward achieving “flow duration matching” under the post-development “water balance” scenarios under average, wet, and dry cycle rainfall conditions, which strategies are designed to protect stream geomorphology and avoid generating new sources of erosion.

Planning should attempt, to the extent feasible, to address existing sources of sediment, or deficits of sediments, that may be detrimental to the streams systems. Such sources may include increased fine sediment yields from upper Cristianitos Creek and upper Gabino Creek.

Consistency with this policy has also been reviewed previously.

Groundwater Hydrology

Principle 7: Utilize Infiltration Properties of Sandy Terrains for Groundwater Recharge and to Offset Potential Increases in Surface Runoff and Adverse Effects to Water Quality

Land planning should take advantage of the infiltration opportunities associated with sandy terrains to offset potential effects of changes in surface runoff and water quality associated with existing and future land uses and groundwater extractions.

As noted above for Principle 1, site design BMP's for the Proposed Project have considered the infiltration capacities of sandy soils. Site design BMP's have been implemented in those sub-basins with a predominance of sandy soils that concentrate development on ridgetop areas characterized by relatively high runoff rates and use the sandy side canyons for infiltration through the combined control system.

Principle 8: Protect Existing Groundwater Recharge Areas Supporting Slope Wetlands and Riparian Zones; and Maximize Groundwater Recharge of Alluvial Aquifers to the Extent Consistent with Aquifer Capacity and Habitat Management Goals

Planning should take into account and provide for the differences in character and function of groundwater recharge areas in specific sub-basins.

The influence of terrains on recharge areas in discussed under Principle 1, 2, and 5. As noted in these discussions, site design BMPs have been incorporated into the Proposed Project which seek to maximize infiltration in sub-basins with sandy terrains through which baseflow contributes to maintenance of mainstem creeks and their associated wetland and riparian habitats.

Furthermore, Chapter 2 of the WQMP sets forth "hydrologic conditions of concern" in accordance with the Orange County DAMP and Orange County/San Diego Regional Water Quality Control Board MS4 permit. Two of the identified conditions of concern are 1) decreased infiltration and groundwater recharge and 2) changed base flow. Chapter 5 of the WQMP reviews the Proposed Project in relation to these to conditions of concern and their related significance thresholds.

Planning should explore opportunities to utilize urban-generated runoff that has been treated in natural water quality systems for aquifer recharge.

As noted below in Water Quality, the combined control systems proposed for each sub-basin provide for aquifer recharge where such recharge may be beneficial. For example, recharge of the San Juan Creek aquifer may benefit the arroyo toad.

Planning should anticipate the need to maintain infiltration and groundwater recharge in the main valleys of Chiquita and Gobernadora sub-basins and their wide and sandy tributaries in order to maintain groundwater levels important for sustaining creek flows and associated wetlands and riparian habitats.

Maintenance of infiltration and groundwater recharge has been incorporated into the land use planning and site design BMPs for the Chiquita and Gobernadora sub-basins as the sandy valley floors in both sub-basins are protected as are the major side canyons in Chiquita.

Planning should protect the relationship between subsurface water and the slope wetlands.

Site design BMPs have been incorporated into the Proposed Project which seek to address recommendations contained in the Draft NCCP/HCP Planning Guidelines regarding the avoidance of slope wetlands within the study area. Those slope wetlands which are avoided by the Proposed Project or those slope wetlands for which mitigation in the form of avoidance is proposed, the recharge area for the slope wetland is also considered as part of the avoidance.

Water Quality

Principle 9: Protect Water Quality by Using a Variety of Strategies, with Particular Emphasis on Natural Treatment Systems such as Water Quality Wetlands, Swales and Infiltration Areas and Application of Best Management Practices Within Development Areas to Assure Comprehensive Water Quality Treatment Prior to the Discharge of Urban Runoff into the Habitat Reserve

Planning should account for the range of pollutant loadings and filtration functions associated with the specific terrains of each sub-basin.

Chapter 5 of the WQMP analyzes potential development impacts and proposed water quality PDFs addressing pollutant loadings associated with specific terrains including TSS, trace metals and nutrients. Although the modeling assumptions use information from the L.A. County database as a conservative baseline, the analysis of each sub-basin includes specific information regarding sub-basin geology and additional baseline information from Wildermuth in-stream data and the Baseline Conditions Report to assess and where appropriate qualify the modeling results.

With regard to the filtration functions associated with the specific terrains of each sub-basin, the WQMP identifies different flow management/water quality treatment strategies deriving in significant part from the infiltration characteristics of the soils/geology within each sub-basin.

Planning should provide for water quality treatment prior to the discharge of stormwater runoff into native or restored habitat areas or shallow groundwater systems. To the maximum extent feasible, water quality management for future land-use scenarios should rely on the use of “natural treatment systems” such as water quality wetlands, swales, and infiltration areas described in Management Measures 6B and 6C of the State Nonpoint Source Plan. These systems should address both dissolved and particulate-bound pollutants. Where feasible, such natural treatment systems should maintain existing hydrologic patterns, including infiltration of treated waters into groundwater systems, and should not displace existing significant habitat. Natural treatment system should be capable of treating dry season nuisance flows, non-storm wet season flows, and 1-2-year storms.

All dry season non-storm wet season flows and 1-2-year stormwater flows in accordance with County DAMP requirements will receive water quality treatment prior to the discharge of stormwater runoff into native restored habitat areas or to groundwater systems. Three components of the Combined Control System provide important water quality functions using natural treatment system approaches: (1) Flow Duration Control and Water Quality Treatment (FD/WQ) Basin; (2) Infiltration Basin; and (3) Bioinfiltration Swale. The flow duration control and water quality treatment basin provides the initial flow and water quality treatment control functions to the system. Depending on whether infiltration is an element of flow duration management and water quality treatment, additional water quality treatment control would also be provided in the infiltration basin and bioinfiltration swale components of the Combined

Control System. These three water quality treatments are described in the Water Resources Section and Chapter 3 of the WQMP.

Planning should consider restoration of upland vegetation and riparian habitat as a strategy, where appropriate, to reduce loadings from uplands, and increase assimilation of pollutants.

Habitat restoration that benefits downstream areas through increased infiltration of groundwater and reduced soil erosion include:

- coastal sage scrub restoration in the Chiquita sub-basin
- coastal sage scrub/grasslands restoration in Sulphur Canyon
- restoration of the meandering floodplain above the knickpoint in the Gobernadora sub-basin
- coastal sage scrub and native grasslands restoration in the Cristianitos sub-basin
- coastal sage scrub and native grasslands restoration in upper Gabino
- native grasslands restoration on Blind Canyon Mesa
- the proposed multipurpose basin downstream of Coto de Caza would reduce sedimentation and diminish channel erosion downstream, while increasing infiltration, especially during dry years.

Additionally, giant reed (*Arundo*) removal in San Juan Creek will allow for increased growth of riparian habitat in San Juan Creek with attendant water quality benefits. The potential benefits of these restoration programs are further described in the AMP and associated appendices.

Planning should consider infiltration in conjunction with created wetlands and recharge ponds as another strategy to assimilate and transform pollutants as near to the source as possible. Such systems should protect existing shallow aquifers.

Infiltration is discussed under Principles 1 and 2 above. As described above for Principle 3, the WQMP proposes a combined control system to achieve flow duration matching, address the water balance, and provide for water quality treatment for each sub-basin where development is proposed, thus treating “pollutants of concern” as close to the source as possible. Pre and post-project pollutant loadings are discussed in Chapter 5 of the WQMP. Depth to groundwater, where shallow, is noted in Chapter 4 and is accounted for in the siting of the combined control system. For example, the WQMP recommends that the combined control system for the Gobernadora sub-basin be located at the head of the side canyons where depth to groundwater is greatest.

Planning should assess the need for changing agricultural practices to reduce nutrients loading consistent with applicable water quality requirements.

Although some agricultural uses will continue under the Proposed Project, urban land uses will predominate and thus the potential pollutants are more urban in nature and include fine sediment, nutrients, trace metals, pathogens, hydrocarbons, pesticides, and trash and debris. Chapter 5 of the WQMP discusses pre-and post project pollutants loadings relative to the standards set forth in the San Diego Basin Plan and the California Toxics Rule as applicable.

Dry season and stormwater discharges under future land use scenarios should achieve appropriate levels of treatment for nutrients, metals, pathogens, and other potential pollutants. Stormwater discharges should address the policies established by the San Diego Regional Water Quality Control Board and the County of Orange for purposes of preparing a Jurisdictional Urban Runoff Management Program pursuant to the Regional Board’s Stormwater

Program. Areas that contain aquatic habitats supporting sensitive aquatic species should receive particular attention and meet appropriate water quality requirements.

In conformance with the Orange County DAMP and Orange County/San Diego Regional Quality Control Board MS4 permit, Chapter 2 of the WQMP identifies "pollutants of concern" that are anticipated or potentially could be generated by the Proposed Project, based on the proposed land uses and past land uses that have been identified by regulatory agencies as potentially impairing beneficial uses in the receiving water bodies or that could adversely affect receiving water quality or Endangered species. These "pollutants of concern" include fine sediment, nutrients, trace metals, pathogens, hydrocarbons, pesticides, and trash and debris. Chapter 4 reviews the combined control system elements, including size, required for each sub-basin where development is proposed. Chapter 5 of the WQMP discusses pre-and post project pollutants loadings relative to the standards set forth in the San Diego Basin Plan and the California Toxics Rule as applicable.

With regard to stormwater discharges and the San Diego Regional Board's Stormwater Program, the Orange County DAMP has incorporated the major provisions of the San Diego Regional Board's model SUSMP, including provisions for addressing "Pollutants of Concern "and "Hydrologic Conditions of Concern." In turn, the WQMP has framed its entire analysis around these requirements, along with the Watershed Sub-Basin Planning Principles and Baseline Conditions Watershed Planning Principles (see Chapter 2 of the WQMP). Chapter 4 of the WQMP presents and analyzes the elements of the WQMP that address these requirements with respect to the Proposed Project and Chapter 5 of the WQMP presents an impact analysis of the Proposed Project with respect to these requirements. Pollutants of Concern and Hydrologic Conditions of Concern considerations relating to aquatic habitats supporting sensitive aquatic species are specifically addressed in Chapters 4 and 5 of the WQMP, including findings of significance in Chapter 5.

Elements of the AMP for the RMV Open Space that Contribute to Maintaining and Enhancing Long-Term Net Habitat Value

The NCCP Conservation Guidelines define the manner in which the creation and long-term adaptive management of reserves provide for assuring no net reduction, over the long term, in the ability of the sub region to sustain populations of Identified Species (termed "target species" in the Conservation Guidelines) and their associated habitats:

> *…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 sub region, 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 sub region to maintain viable populations of target species over the long-term.*
>
> *With improved techniques for management and restoration, the goal of no net loss of habitat value may be attainable even if there is a net loss of habitat acreage.*
> (NCCP Conservation Guidelines, November 1993, CDFG, pg. 9)

Thus, the purpose of adaptive management within the framework of the statewide NCCP/HCP Program is to maintain and, where feasible, enhance the long-term net habitat value within a sub region. This section summarizes how the RMV Open Space AMP will maintain net habitat value. A more extensive discussion on this topic is contained in Appendix G-7. This section

also discusses the contributions of the AMP to the recovery of listed species within the Sub region.

Establishing the RMV Open Space is clearly key to maintaining net habitat value and for enhancing net habitat value over the long-term. However, it is the AMP that creates the implementation mechanism for both protecting and increasing net habitat value on a long-term basis. The RMV Open Space AMP is premised on concepts presented in the NCCP Conservation Guidelines and in the Southern Orange County NCCP Science Advisors Report. As stated in the latter Report:

> *Adaptive management assumes that managers will take actions (including leaving habitats undisturbed) that modify present ecosystem structure and function with the aim of moving the system towards a more desirable state or keeping it within some acceptable limits. This process takes advantage of the information generating opportunities that management activities create. The process is based on a feedback loop in which individual management activities are flexible and can be changed as new information becomes available or as conditions or priorities change. Adaptive management is iterative, meaning that managers constantly monitor and evaluate the consequences of their activities and refine them.*
> (Science Advisors Report, pp. 22-23; cf. Fish & Game Code Sections 2805(a) and 2852)

This management focus is necessarily embodied in the monitoring program for the RMV Open Space. As stated in the Science Advisors Report:

> *The biological monitoring program should be developed specifically to measure and evaluate the effects of management activities. It should identify and measure variables that permit <u>iterative refinement</u> of the management program*.
> (Science Advisors, Principles for Adaptive Management, pg. 4, emphasis added)

Appendix J describes the RMV Open Space AMP focus on "environmental factors known or thought to be directly or indirectly responsible for ecosystem changes." Appendix J goes on to indicate, "These factors, called 'environmental stressors,' may have both adverse and beneficial effects on ecosystem characteristics such as vegetation communities and species." Hence by addressing "environmental stressors," the AMP focuses on factors that influence the habitat value of the RMV Open Space. The "environmental stressor" approach to managing and monitoring natural resources provides a conceptual method, along with an applied management system for testing concepts that is amenable to an enhanced understanding of causal relationships that can be addressed through management actions. According to Noon (2003), and as further reviewed in Appendix J:

> *To be most meaningful, a monitoring program should provide insights into cause-and-effect relations between environmental stressors or between specific management practices and anticipated ecosystem responses. Prior knowledge of the factors likely to stress an ecological system or the expected outcomes from management should be incorporated into the selection of variables to measures and the sampling design. Indicators should be chosen based on a conceptual model that clearly indicates stressors (e.g., pollutants, management practices) and indicators with pathways that lead to effects on the structure and function of the ecological system (NRC 1995, 2000). This process enables the monitoring program to investigate relations between anticipated stressors, or between management practices and environmental consequences, and provides the opportunity to develop predictive models.*
> [Noon 2003, pg 3]

Hence, the uncertainties addressed by the AMP are not "data gaps" relating to species proposed for regulatory coverage such as the species "data gaps" referenced in the USFWS Five-Point Policy (dated June 1, 2000). Given the abundant data gathered regarding listed species on RMV lands, species data gaps are not an issue. Instead, the uncertainties that are addressed by the AMP are the scientific uncertainties inherent in our understandings of complex habitat considerations as vegetation communities and ecosystem processes react to both natural and anthropogenic stressors over time.

Appendix J describes the methodology used to prioritize management measures and strategies for the RMV Open Space vegetation communities and site-specific resources. Appendix J also reviews the adaptive management models that will be used in carrying out the management program. This section will further review the various substantive elements of the overall management program in relation to the manner in which these program elements contribute to maintaining and increasing net habitat value on a long-term basis.

<u>Goals of the AMP in Relation to the Objective of Maintaining, and Where Feasible, Increasing Net Habitat Value over the Long-Term</u>

Appendix J identified three broad goals for the AMP, each of which is related to the objective of maintaining, and where feasible, increasing net habitat value of the RMV Open Space over the long-term:

Goal 1 Ensure the Persistence of a Native-Dominated Vegetation Mosaic in the RMV Open Space

The AMP is comprised of four steps to ensure the persistence of a native-dominated vegetation mosaic in the RMV Open Space: (1) preparation of conceptual stressor models and conceptual management plans for vegetation communities; (2) periodic assessment of the status of the vegetation communities; (3) management of the vegetation communities; and (4) evaluation of the effect of the management actions. With regard to conceptual stressor models, these models address management and monitoring of resources at three fundamental scales: (a) natural community landscape mosaic; (b) specific vegetation communities and habitats; and (c) species and species assemblages. Although there is overlap, dependence and interaction among the different scales, clearly stated conceptual relationships and coordinated management objectives at all three scales will need to be articulated in order to help maintain and, where feasible, increase net habitat value:

(a) Landscape management pertains to the dynamic and interacting biotic natural communities and abiotic factors within the sub region, and focuses on the natural processes that maintain the condition and dynamics of the natural communities (see Goal (3) below).

(b) Management and monitoring of specific vegetation communities and habitats refers to site-specific conditions, as contrasted with the broader landscape scale that focuses on the dynamic interaction of biotic and abiotic processes. The AMP addresses vegetation communities through periodic monitoring and adaptive management of the major native-dominated vegetation communities in the RMV Open Space (coastal sage scrub, chaparral, grassland, riparian/wetlands and woodlands). Vegetation communities will be monitored and managed in terms of net habitat value, recognizing natural stressor-induced changes (i.e., *intrinsic drivers*) that occur in vegetation community associations

that will alter the relative amounts of the community at any given time (e.g., natural succession, fire flooding, etc.). Special habitats, such as vernal pools, and habitat functions, such as habitat linkages/wildlife corridors, are also addressed at this scale.

(c) Management and monitoring of species and species assemblages refers to maintaining species populations, including Planning Species or umbrella species.

Passive management will be the default initial approach to natural, periodic perturbations or disturbances of vegetation communities (e.g., major flood events). Active management will be employed where direct active manipulation may be effective in addressing a vegetation community that is becoming degraded and no longer responding naturally. Particular emphasis is placed on monitoring and responding to potential "stressors" affecting one or more of the major vegetation communities.

Goal 2 Restore the Quality of Degraded Vegetation Communities and Other Habitat Types

Habitat restoration is broadly defined as the process of intentionally altering a degraded habitat area or creating new habitat to re-establish a defined pre-existing habitat or ecosystem or enhance the functioning of a degraded habitat or ecosystem. The goal of restoration is to emulate the structure, function, diversity, and dynamics of the habitat or ecosystem. This goal generally will be achieved through implementation of several coordinated/integrated restoration plans and related management plans, including:

- A Habitat Restoration Plan that includes: (1) coastal sage scrub and valley needlegrass grassland (coastal sage scrub/native grassland) restoration plans; and (2) riparian/wetlands restoration plans focusing initially on controlling flows in Gobernadora Creek and invasives control in San Juan Creek (Appendix J-2)

- A Fire Management Plan (Appendix J-5)

- A Grazing Management Plan (Appendix J-4)

- An Invasive Species Control Plan (Appendix J-3)

Elements of the initial enhancement and restoration program are responses to past and present "stressors," including prior conversion of coastal sage scrub and native grasslands to non-native annual grasslands, the conversion of riparian habitat due to the impacts of giant reed (*Arundo donax*) and erosion in portions of lower Gobernadora Creek resulting from excessive surface and subsurface water supplies from upstream areas. Enhancement and restoration measures often include the integration of two or more management plan elements in relation to specific restoration actions (e.g., invasive species control in San Juan Creek in combination with measures to increase water supplies for arroyo toad and least Bell's vireo habitat). Further, the management plans listed above (Fire, Grazing and Invasive Species Control) are also central elements or tools to be used by the AMP in response to future "stressors" of vegetation communities identified over time.

Goal 3 Maintain and Restore Biotic and Abiotic Natural Processes, at All Identified Scales

The Science Advisors fashioned a new tenet of reserve design (Tenet 7) to focus on maintaining ecosystem processes and structures. Particular emphasis was placed on fire and on hydrologic/erosional processes. With regard to fire, the AMP will combine fieldwork information derived from undertaking experimental prescribed burns for habitat management and restoration purposes with baseline and comparative information assembled both for RMV Open Space and from other protected open space areas.

With regard to geomorphologic processes, information gained and lessons learned from the future implementation of the Habitat Restoration Plan (including the Gobernadora, San Juan Creek, and upper Cristianitos and upper Gabino plans) will be related to the Baseline Conditions Report analyses of geomorphology and terrains, hydrology, sediment yield and transport, water quality, and groundwater and the species-directed information presented in the Geomorphic and Hydrologic Needs of Aquatic and Riparian Endangered Species Report. The combination of applied adaptive management restoration actions and prior baseline studies will provide the foundation for future adaptive management actions directed toward riparian/wetlands system processes. In these ways, the AMP will be able to gain further understandings of fundamental processes (within the context of the unique attributes of each sub-basin reflected in the NCCP/HCP Planning Guidelines and Watershed Planning Principles) in order to maintain and to increase net habitat value of the RMV Open Space over the long-term.

Elements of the AMP for the RMV Open Space that Contribute to the Recovery of Listed Species within the Sub region

Specific elements of the AMP play a significant role in furthering the recovery of listed species. The following is a summary of actions to be undertaken pursuant to the AMP that will contribute to the recovery of listed species within the sub region.

<u>Gnatcatcher Sub region Actions</u>

To the extent that the Proposed Project is consistent with the *key locations* identified in the Species Account for the gnatcatcher, the Proposed Project considered to provide for the conservation of the species. The following is a summary of RMV Open Space design and AMP actions that will contribute to recovery of the gnatcatcher in the Sub region:

- protection of gnatcatcher *key locations* in accordance with the recommendations of the Species Account;
- protection of subregional connectivity and connectivity with adjoining subregions;
- enhancement/restoration of coastal sage scrub habitat and coastal sage scrub/native grassland areas in accordance with the restoration recommendations of the AMP resulting in likely occupied habitat comparable to existing conditions. Enhancement/restoration of coastal sage scrub habitat in Chiquita Canyon and in Sulphur Canyon in areas that benefit the major Chiquita/Chiquadora population;
- long-term fire management to significantly reduce the likelihood of type conversion to annual grassland in contrast with existing conditions lacking an AMP;

- comparative analysis of fire regimes and grazing regimes over time within the sub region, and in relation to areas within the Central/Coastal sub region, in order to better understand the roles of fire and grazing in maintaining and enhancing occupied coastal sage scrub habitat; and

- long-term control of invasive species to help reduce the likelihood of type conversion annual grassland in contrast with existing conditions lacking an AMP.

Least Bell's Vireo Recovery Actions

According to the Species Account for the least Bell's vireo there are two *key locations* that must be protected to provide for conservation of the species within the sub region. Accordingly, the RMV Open Space must provide for:

- protection of least Bell's vireo *key locations* in accordance with the recommendations of the Species Account.

Both of the *key locations* for the least Bell's vireo are currently subject to significant stressors impacts. The Arroyo Trabuco population is being impacted by giant reed infestation while the Gobernadora Creek population is being impacted by erosion/sediment impacts resulting from excessive surface and subsurface flows emanating from upstream urban development. Smaller vireo populations in San Juan Creek and lower Cristianitos Creek also are being impacted by invasive plant species. Another population near the Prima Deshecha landfill could be impacted by a future expansion of landfill operations. The following specific AMP actions will help increase net habitat value for the least Bell's vireo over time.

- **Gobernadora Restoration Plan**: (1) the revegetation program in Sulphur Canyon will reduce the generation of fine sediments currently impacting downstream areas within Gobernadora Creek; (2) management of excessive surface and subsurface water flows from Coto de Caza will help protect existing vireo habitat and potential new habitat upstream of the knickpoint; (3) restoration of the historic meander and associated habitat above the knickpoint will provide additional breeding habitat; and (4) invasive species control will remove a threat that currently exists.

- **San Juan Creek Restoration Plan**: (1) control of giant reed will provide more area for riparian habitat and will increase water supplies to help sustain such habitat – natural restoration of willow habitat is expected to occur in an area that presently supports a small population of vireo; (2) reduced groundwater pumping due to phasing out nurseries and orchards will provide groundwater resources to help sustain existing and new riparian habitat; and (3) the protection of upstream sources of coarse sediments and maintenance of episodic flood events are expected to help maintain natural succession for willow habitat.

- **Lower Cristianitos Creek Invasive Species Control**: Invasive species control in lower Cristianitos Creek will protect habitat supporting existing populations and the reduction in fine sediments due to coastal sage scrub/native grassland restoration and landform restoration will correspondingly reduce adverse sediment impacts.

Willow Flycatcher Recovery Actions

According to the Species Account for the southwestern willow flycatcher, there is one *key location* that must be protected to provide for conservation of the species within the sub region. Accordingly, the RMV Open Space must provide for:

- protection of the *key location* of willow flycatcher in accordance with the recommendations of the Species Account; and

- Gobernadora restoration plan actions listed for the least Bell's vireo will have similar beneficial effects for the willow flycatcher.

Arroyo Toad Recovery Actions

To the extent that Proposed Project is consistent with the *key locations* identified in the Species Account for the arroyo toad, the Proposed Project is considered to provide for the conservation of the species. The following is a summary of RMV Open Space design and AMP actions that will provide for recovery of the arroyo toad in the planning area:

- ***Key Location* Protection**: The protection of the *key locations* of the arroyo toad in accordance with the recommendations of the Species Account.

- **San Juan Creek Restoration Plan**: The arroyo toad population downstream of the *key location* in San Juan Creek has been impacted by a major infestation of giant reed, bullfrog predation, and decreased water supplies due both to giant reed water demands and groundwater pumping. Specific enhancement/restoration actions proposed by the AMP intended to enhance and restore arroyo toad breeding habitat areas are: (1) control of giant reed will provide more area for riparian habitat and breeding pools and will increase water supplies to help sustain such habitat; (2) control of bullfrog populations that presently have significant impacts on arroyo toad populations; (3) reduced groundwater pumping due to phasing out nurseries and orchards will provide groundwater resources to help sustain existing and new riparian habitat and breeding pools (the importance of water supplies is highlighted by existing conditions where the only persisting population during dry years is in the area receiving artificial flows from mining pumps); (4) the protection of upstream sources of coarse sediments and maintenance of episodic flood events are expected to help maintain natural succession for riparian habitat and the overall hydrologic/geomorphic conditions identified in the *Geomorphic and Hydrologic Needs of Aquatic and Riparian Endangered Species* report; and (5) grazing management to protect arroyo toad habitat during the breeding season.

- **San Mateo Watershed Protection and Enhancement Program**: The following management and enhancement/restoration actions are intended to help maintain and increase net habitat value for arroyo toad populations both within the sub region and arroyo toad and other significant aquatic species in areas downstream of the sub region: (1) protection of existing sources of coarse sediments; (2) reduction in the generation of fine sediments from areas with clay soils that will be achieved through the following management and restoration actions: (a) native grasslands restoration in Upper Cristianitos; (b) sediment controls for the existing clay pits; (c) landform restoration and coastal sage scrub/native grassland restoration in Upper Gabino; and (d) grasslands restoration on Blind Canyon Mesa; (3) control of bullfrogs in ponds adjacent to and in proximity to arroyo toad populations in lower Gabino Creek; (4) control of invasive

plants, particularly tamarisk and pampas grass; and (5) grazing management to assist in native grasslands restoration and to protect toad breeding pools.

Thread-leaved Brodiaea Recovery Actions

To the extent that the Proposed Project is consistent with the *key locations* identified in the Species Account for the thread-leaved brodiaea, the Proposed Project is considered to provide for the conservation of the species. The following is a summary of RMV Open Space design and AMP actions that will contribute to recovery of the thread-leaved brodiaea in the planning area.

- Protection of the *key locations* of the thread-leaved brodiaea in accordance with the recommendations of the Species Account; the preservation of *key locations* is in contrast with other *major populations* in the sub region where translocation has been permitted.

- Control of the main stressors, primarily non-native invasive species such as artichoke thistle, ryegrass, bromes, wild oats and mustards; and restoration of native grasslands.

- The use of timed grazing in conjunction with fire management for exotics control, especially where non-native grasses are widespread and for which site-specific, selective manual treatments are not very effective.

- Fire management to reduce the likelihood of frequent fire that may exacerbate invasions of exotic plants.

- Translocation of smaller populations to areas with clay topsoils and without competing plants.

Riverside and San Diego Fairy Shrimp Recovery Actions

To the extent that the Proposed Project is consistent with the *key locations* identified in the Species Accounts for the Riverside and San Diego fairy shrimp, the Proposed Project is considered to provide for the conservation of the species. The following is a summary of RMV Open Space design and AMP actions that will contribute to recovery of the Riverside and San Diego fairy shrimp in the sub region:

- Protection of *key locations* in accordance with the recommendations of the fairy shrimp Species Accounts.

- Management of vernal pools located along Radio Tower Road primarily through implementation of timed grazing for exotic species control during the vernal pool dry period, and seasonal exclusion of grazing during the vernal pool wet period. Experimental prescribed burns may also be used as an exotics control technique.

- Management of vernal pools located on Chiquita Ridge within the Ladera Open Space primarily through implementation of exotics control through mowing and/or selective weeding as cattle are excluded from the Ladera Open Space and prescribed burns seem unlikely due to the proximity of developed areas.

Mitigation for Potentially Significant Impacts

Under the CEQA Guidelines, an impact is considered significant if it would cause a "substantial adverse effect, either directly or through habitat modifications, on any species state-or federally-listed as Threatened or Endangered," on "any species identified as a candidate for listing, sensitive, rare, or otherwise, special status plant or animal species," impacts on riparian habitat or other natural community identified in various plans or by wildlife agencies, impacts on wetlands, or impacts on wildlife movement. The question of whether any such impacts within the study area can be reduced to below a level of significance through the implementation of the proposed Conservation Strategy is assessed through the consistency analyses reviewed above. Under the NCCP Act, the above-referenced consistency findings with respect to sub-basin and landscape scale guidelines, planning principles and tenets provide the basis for the ultimate determination as to whether the proposed Conservation Strategy provides for the conservation and management of species subject to future take authorization and of any covered habitats/natural communities. Under FESA Section 10(a)(1)(B), these same consistency analyses provide the basis for findings that modifications of habitat by the Proposed Project "will not appreciably reduce the likelihood of survival and recovery of the species in the wild." Accordingly, the levels of significance of potential impacts on species and their associated habitats will be reviewed in relation to the extent to which the proposed Conservation Strategy would maintain "net habitat value" (as assessed under the preceding consistency determinations) at the level of: (1) major vegetation communities; (2) listed species, Planning Species, and non-Planning Species; (3) unlisted Planning Species; and (4) other sensitive species.

Mitigation for Significant Direct Vegetation Impacts

Table 4.9-41 summarizes significant impacts to vegetation communities that are discussed in Section 4.9.4 in accordance with the significance criteria identified by the County of Orange.

The five major vegetation communities are used as the frame of reference because: (a) they embrace all of the major NCCP vegetation communities, (b) they were used as the natural communities framework in the formulation of the proposed AMP, and (c) the provided and effective natural communities framework for the review of the SRP/Science Advisors tenets of reserve design and the SAMP tenets (per the SRP/Science Advisors tenet 7, the underlying terrains/geomorphic characteristics of the study area were used as the basis for the Baseline Conditions Watershed Planning Principles consistency analysis). The following are the significance criteria used in the mitigation analyses as applied to the five major vegetation communities:

- Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS.

- Substantial adverse effect on State or Federally-protected wetlands as defined by Section 1600 of the California Fish and Game Code or Section 404 of the Clean Water Act through direct removal, filling, hydrologic interruption, or other means.

- Conflict with applicable Draft Southern Sub region NCCP/HCP Planning Guidelines

- Conflict with applicable Draft San Juan Creek Watershed/Western San Mateo Creek SAMP/MSAA Watershed Planning Principles

As noted above, for each significant impact, avoidance and minimization measures are reviewed. Where significant impacts remain after the application of avoidance and minimization measures, mitigation is proposed where feasible and an overall assessment of level of significance is made based on the application of the combined avoidance/minimization and mitigation measures.

TABLE 4.9-41
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO VEGETATION IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/ Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Avoidance/Minimization and Mitigation
Impact 4.9-61: The Proposed project would significantly impact 2,413.6 acres of grassland, including 505.1 acres of native grassland. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 41.3 acres of grassland, including 5.2 acres of native grassland.	The Proposed Project would conserve 2,627.3 acres (52%) of grassland through implementation of PDF 9-1.	Refer to the prior summary discussion and Appendix G-7 how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Also refer to the Habitat Restoration Plan regarding restoration of upland habitat types including native grassland. The proposed project would implement 82 acres of recommended native grassland restoration and 60 acres of coastal sage scrub/native grassland restoration.	Less than Significant
Impact 4.9-62 The Proposed Project would significantly impact 2,024.8 acres of coastal sage scrub. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 50.6 acres of coastal sage scrub.	The Proposed Project would conserve 5,657.2 acres (74%) of coastal sage scrub through implementation of PDF 9-1.	Refer to the prior summary discussion and Appendix G-7 how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Coastal Sage Scrub Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Also refer to the Habitat Restoration Plan regarding restoration of upland habitat types including coastal sage scrub. The proposed project would implement 348 acres of recommended coastal sage scrub restoration and 60 acres of coastal sage scrub/native grassland restoration.	Less than Significant

TABLE 4.9 41 (Continued)
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO VEGETATION IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/ Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Avoidance/Minimization and Mitigation
Impact 4.9-63: The Proposed Project would significantly impact 89.51 acres of USACE jurisdiction and 195.55 acres of CDFG jurisdiction (riparian habitat). The Proposed Project would impact a total of 62.23 acres of USACE jurisdiction, including 21.33 acres of "wetlands" and 40.9 acres of "waters". Construction and maintenance of infrastructure (excluding reservoirs) would permanently impact a further 8.44 acres of "wetlands" and 8.41 of "waters". In addition, construction and maintenance of infrastructure facilities would temporarily impact 10.43 acres under the USACE jurisdiction. The Proposed Project would impact a total of 138.85 acres under the jurisdiction of the CDFG, including 120.16 acres of riparian and 18.69 acres of un-vegetated areas. Construction of infrastructure (excluding reservoirs) would permanently impact a further 32.61 acres of riparian and 2.56 of un-vegetated areas. In addition, temporary construction of infrastructure facilities within the RMV Open Space would impact 21.53 acres under the jurisdiction of the CDFG.	The Proposed Project would conserve 1,507.4 acres (78%) of riparian vegetation communities, 63.1 acres (46%) of open water, 16.3 acres (65%) of freshwater marsh vegetation communities and 19.9 acres (100%) of vernal pools through implementation of PDF 9-1.	Refer to the prior summary discussion and Appendix G-7 how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Wetland/Riparian Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. In addition refer to Appendix J-2, Habitat Restoration Plan which identifies potential wetland and/or riparian creation/ restoration areas and sets forth the methods by which these areas would be created and/or restored. Selection of final sites would be coordinated with USACE and CDFG as part of permitting the project through Section 404 of the Clean Water Act and Section 1600 of the Fish and Game Code.	Less than Significant

TABLE 4.9 41 (Continued)
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO VEGETATION IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/ Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Avoidance/Minimization and Mitigation
Impact 4.9-64: The Proposed Project would significantly impact 95.8 acres of woodlands and 127.1 acres of forests. In addition, construction and maintenance of infrastructure facilities within the RMV Open Space would temporarily impact 2.4 acres of woodland and 1.2 acres pf forests.	The Proposed Project would conserve 180.1 acres (65%) of woodland and 184.8 acres (59%) of forests through implementation of PDF 9-1.	Refer to the prior summary discussion and Appendix G-7 how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Woodlands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions.	Less than Significant
Impact 4.9-65: The Proposed Project would significantly impact 4.1 acres of cliff and rock.	The Proposed Project would conserve 2.1 acres (34%) of cliff and rock through implementation of PDF 9-1	Refer to the prior summary discussion and Appendix G-7 how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Woodlands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions.	Less than Significant
Source: Dudek 2004			

<u>Assessment of the Extent to Which the Overall Net Habitat Value of the Five Major Vegetation Communities and Associated Habitats would be Maintained and Enhanced by the Proposed Conservation System – Long-Term Function and Value</u>

Prior discussions review the consistency of the Proposed Project and its associated Conservation Strategy with subregional conservation guidelines, planning principles, and tenets at both the geographic-specific sub-basin level and at the broader landscape/natural communities level of analysis. In terms of assessing the level of significance of potential impacts on the five major vegetation communities and associated habitats in relation to mitigation that would be provided by the proposed Conservation Strategy (i.e. the extent to which the habitat reserve and AMP maintain and enhance the net habitat value of the habitat systems within the five major vegetation communities), the plan approval criteria for the recently enacted amendments to the NCCP Act provide a comprehensive set of standards for assessing levels of significance of impacts on natural communities. The plan approval standards set forth

in the 2002 re-enactment the NCCP Act were intended to codify plan review standards that had been employed in the review and approval of the City and County of San Diego MSCP and the County of Orange Central and Coastal NCCP/HCP and thus represent both consistently applied subregional conservation plan approval standards (applied to subarea plans as well as to subregional plans- see MSCP) and a legislative endorsement of these standards.

At whatever subsequent time as any NCCP/HCP covering the Ranch Plan property is completed and considered for adoption, the proposed Conservation Strategy would be subject to the provisions of the NCCP Act of 1991 rather than the amended NCCP Act of 2002. Accordingly, the plan approval criteria from the 2002 NCCP Act are employed as a CEQA analytic tool in this draft EIR embodying the endorsement of the State of California rather than as actual plan approval standards when the Conservation Strategy is ultimately under formal review by CDFG. A list of proposed "covered species" (i.e., species proposed for regulatory coverage) will be formulated at a subsequent time in consultation with the wildlife agencies (i.e. when a NCCP/HCP is prepared for environmental review); consequently, the following analysis of consistency with the NCCP Act plan approval standards substitutes Planning Species for "covered species" because the Planning Species are the focus of reserve design planning and likely represent most of the species that would ultimately be recommended as "covered species."

The following are the substantive criteria for the review of NCCP plans under the 2002 Act followed by consistency summaries referencing analysis presented in this draft EIR:

[Fish and Game Code Section 2820]:

(1) Not applicable

(2) "The plan integrates adaptive management strategies that are periodically evaluated and modified based on the information from the monitoring program and other sources, which will assist in providing for the conservation of covered species and ecosystems within the plan area."

Consistency Assessment: Appendix J presents an extensive discussion of the proposed AMP and the manner in which information from the monitoring program will address "stressors" potentially impacting species and habitats within the vegetation communities. The manner in which specific management and restoration programs will help maintain and enhance net habitat value on a long-term basis and the manner in which the WQMP will address pollutants of concern and hydrologic conditions of concern potentially impacting vegetation communities has been evaluated. The manner in which specific management, enhancement, and restoration measures will contribute to the recovery of listed species is also reviewed.

(3) "The plan provides for the protection of habitat, natural communities, and species diversity on a landscape or ecosystem level through the creation and long-term management of habitat reserves or other measures that provide equivalent conservation of covered species as appropriate for land, aquatic, and marine habitats within the plan area."

Consistency Assessment: The previous discussion above reviews the consistency of the Proposed Project and its associated Conservation Strategy with the SRP/Science Advisors tenets of reserve design, the SAMP tenets, and

the Baseline Conditions Watershed Planning Principles. These consistency reviews indicate that the preservation of the RMV Open Space and implementation of the long-term AMP, both through the proposed Conservation Strategy, will, overall: (a) provide for the protection of habitat, natural communities, and species diversity on a landscape level, and (b) provide for the conservation of Planning Species found within land and aquatic habitats within the plan area. Potential downstream cumulative impacts on aquatic and marine habitats are addressed at the end of this section.

The development of reserve systems and conservation measures in the plan area provides, as needed for the conservation of species, all of the following:

(A) Conserving, restoring, and managing representative natural and semi-natural landscapes to maintain the ecological integrity of large habitat blocks, ecosystem function, and biological diversity.

Consistency Assessment: The consistency reviews of SRP/Science Advisors tenets of reserve design, SAMP tenets, and Baseline Conditions Watershed Planning Principles and the detailed review of the AMP. In particular, see (a) the review of habitat blocks under SRP tenets 2 and 4; (b) the review of ecosystem function under SRP tenets 1,3, 5, 6 and 7, the SAMP Tenets (particularly SAMP tenets 1-7), and the Baseline Conditions Watershed Planning Principles (all principles); and (c) the review of biological diversity under SRP tenets 4 and 5. The summary of the comprehensive AMP contributions to maintaining and enhancing net habitat value over the long term reviews specific measures for addressing areas of currently reduced ecologic integrity in order to maintain and increase ecosystem function and diversity (including programs for the enhancement and restoration of uplands and aquatic habitats). Likewise, the AMP element for monitoring the five major vegetation communities and addressing “stressors” impacting the function and integrity of these vegetation communities embodies a comprehensive management system for managing natural and semi-natural (e.g. non-native grasslands) landscapes in order to maintain the economic integrity of large habitat blocks, ecosystem function, and biological diversity.

(B) Establishing one or more reserves or other measures that provide equivalent conservation of covered species within the plan area and linkages between them and adjacent habitat areas outside of the plan area.

Consistency Assessment: The proposed RMV Open Space provides for preservation of open space comparable in scale to the Coastal Subarea Reserve and the Central Subarea Reserve of the County of Orange Central and Coastal NCCP/HCP and the Otay Mesa component of the Chula Vists Subarea Plan under the MSCP. The consistency of the proposed open space lands with the SRP/Science Advisors tenets of reserve design has been evaluated, and concludes that overall consistency is attained with the exception of five specific habitat linkage/wildlife movement corridors (see discussion under (E) below; overall consistency with the SRP/Science Advisors tenets of reserve design is achieved as reviewed). Linkages with adjacent habitat areas

outside of the study area are reviewed under the analysis of consistency with the SRP/Science advisors tenets 2, 3, and 4.

(C) Protecting and maintaining habitat areas that are large enough to support sustainable populations of covered species.

Consistency Assessment: The consistency review of SRP/Science Advisors tenets 1-5 and 7 demonstrate compliance with this plan approval standard. A further review of NCCP Species Consistency Analysis and Watershed Species Consistency Analysis are provided in the impacts section.

(D) Incorporating a range of environmental gradients (such as slope, elevation, aspect, and coastal or inland characteristics) and high habitat diversity to provide for shifting species distributions due to changed circumstances.

Consistency Assessment*:* The consistency analyses with SRP/Science Advisors tenets 3, 5, and 7 and the Baseline Conditions Watershed Principles Consistency Analysis (particularly Principle 1 addressing terrains and hydrology) demonstrate compliance with this plan approval standard.

(E) Sustaining the effective movement and interchange of organisms between habitat areas in a manner that maintains the ecological integrity of the habitat areas within the plan area.

Consistency Assessment: The consistency review of SRP/Science Advisors tenets 1-6 and SAMP tenets 1-7 demonstrate compliance with this plan approval standard. However, the consistency review for SRP/Science Advisors tenet 3 indicates "some degree of conflict with the NCCP habitat connectivity Guidelines set forth in NCCP General Policy 3" that are addressed as follows: (1) the potential conflict with the upper Gobernadora movement corridor is determined to be adequate because the 1,000-foot corridor combined with open space provided pursuant to the low density estate housing designation adjacent to the corridor provides for a substantial movement corridor; (2) two linkages/movement corridors which are in the Cristianitos Creek area include the Donna O'Neill Land Conservancy, mitigation provisions for the proposed golf course to include native grassland and coastal sage scrub restoration, and a minimum 200 feet (average 500 feet) setback from the creek for the Cristianitos Canyon development bubble; (3), the Gobernadora Creek "ox-bow" involves adverse wetlands impacts that will be subject to further review by CDFG and the ACOE; (4) some potential impacts on large mammal movement in upper Gabino and Verdugo canyons, which appear to be limited due to the very low density proposed estates, and (5) Linkage K at the southern end of Trampas Canyon which is impacted and cannot be further minimized or mitigated. Overall, major habitat linkages/wildlife movement corridors are protected and will be subject to long-term "stressor" monitoring and management in accordance with specific measures set forth in the AMP***.***

(F) The plan identifies activities, and any restrictions on those activities, allowed within reserve areas that are compatible with the conservation of species, habitats, natural communities, and their associated ecologic functions.

Consistency Assessment: The review of the contributions of the AMP to maintaining and enhancing net habitat value over the long-term contains an extensive analysis of the "stressors" focus of long-term habitat management, including the identification of potential stressors, provisions for monitoring "focal species," and vegetation communities to provide indications of stressors impacts and measures for adapting habitat management to any indicated presence of stressors impacts. With regard to restrictions on activities within the RMV Open Space, PDF 9-1 provides for the subsequent identification of allowed uses and conditions under which those uses will be allowed subject to the approval of the County of Orange. Subsequent wildlife agencies reviews by CDFG, USFWS, and the ACOE of allowed uses within open space lands will also occur as part of development of any future NCCP/HCP and SAMP/MSAA.

(4) The plan contains specific conservation measures that meet the biological needs of covered species and that are based upon the best available scientific information regarding the status of covered species and the impacts of permitted activities on those species.

Consistency Assessment: The review of the Species Accounts in the introduction to the Impacts Section presents the analytic approach to identifying *major* and *important populations* of NCCP/HCP Planning Species and *key locations* of such populations (and other impact criteria for the few Planning Species for which Species Accounts have not been prepared). The Planning Species Consistency Analyses focusing on the sub-basin guidelines and principles in the Impact Section and the Planning Species Consistency Analysis under the consistency review for SRP/Science Advisors Tenet 1 identify protection and conservation measures for each planning species. Further measures and consistency analyses are included in the following discussion addressing avoidance/minimization and mitigation for listed Planning Species and unlisted Planning Species. These analyses also relate proposed permitted impacts on the Planning Species to the conservation of each Planning Species. The review of the proposed AMP further identifies specific management and restoration measures that will contribute to the recovery of the listed Planning Species within the sub region. Overall, the proposed conservation measures for Planning Species reduce potential impacts to below a level of significance for all of the Planning Species except the mud nama and the grasshopper sparrow; regarding the grasshopper sparrow, measures reducing impacts on the grasslands vegetation community to below a level of significant also reduce potential impacts on the grasshopper sparrow to below a level of significant.

(5) The plan contains a monitoring program.

Consistency Assessment: The proposed AMP identifies the elements of a long-term monitoring program which will be incorporated into the Mitigation Monitoring Program adopted as part of the final EIR. The AMP set forth in Appendix J contains an extensive discussion of the conceptual framework for monitoring focusing on

stressors potentially impacting vegetation communities and habitats of species that may extend to multiple vegetation communities. The role of "focal species" is discussed in relation to monitoring and an initial set of focal species is identified. Monitoring for each of the vegetation communities is discussed in relation to specific goals and objectives is summarized above and in Appendix J. Additionally, the role of monitoring in relation to testing adaptive management hypotheses is discussed in Appendix J. Finally, monitoring activities specific to individual management and restoration plans are outlined in the subappendices to Appendix J.

(6) The plan contains an adaptive management plan.

Consistency Assessment: A comprehensive AMP is set forth in Appendix J and is summarized above.

(7) The plan includes the estimated timeframe and process, by which the reserves or other conservation measures are to be implemented, including obligations of land owners and plan signatories and consequences of the failure to acquire lands in a timely manner.

Consistency Assessment: The Proposed Project does not require the use of public acquisition funds to assemble the RMV Open Space. PFD 9-1 requires the project proponent to provide for a phased dedication program (dedication of conservation easements) meeting the approval requirements of the County of Orange. The plan contains provisions that ensure adequate funding to carry out the conservation actions identified in the plan.

Consistency Assessment: As indicated above, no funding is required to set aside RMV Open Space. With regard to funding required for the implementation of the AMP, PDF 9-1 requires that the project proponent identify the funding mechanism for implementation of the AMP, and anticipated funding is discussed in this section.

For the above reasons, the implementation of the proposed Conservation Strategy will reduce potential impacts to the five major vegetation communities and specific habitats contained within the five major vegetation communities to below a level of significant.

Minimization/Avoidance and Mitigation Measures for Potential Direct Impacts to Listed NCCP/HCP Planning Species and to Other Listed Species

Table 4.9-42 summarizes significant impacts to listed species (planning and non-planning) that are discussed in Section 4.9.4 in accordance with the significance criteria identified by the County of Orange:

- Substantial adverse effect, either directly or though habitat modifications, on any species state- or federally-listed as threatened or endangered.
- Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS [assumed to include critical habitat designations]
- Conflict with applicable Draft Southern Sub region NCCP/HCP Planning Guidelines

- Conflict with applicable Draft San Juan Creek Watershed/Western San Mateo Creek SAMP/MSAA Watershed Planning Principles

For each potentially significant impact, specific avoidance and minimization measures are reviewed. Where potentially significant impacts remain after the application of avoidance and minimization measures, mitigation is proposed where feasible and an overall assessment of level of significance is made based on the combined application of avoidance/minimization and mitigation measures.

TABLE 4.9-42
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO LISTED SPECIES IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
Planning Species			
Impact 4.9-66: The Proposed Project would significantly impact 21 locations of thread-leaved brodiaea, totaling 6,790 flowering stalks.	The Proposed Project would conserve 2,922 (31 percent) and 12 of 20 locations, including the location with 2,000 flowering stalks in the *major population/key location* on Chiquadora Ridge, the *important population* in Gabino and Blind Canyons and the *important population* in Trampas Canyon. Portions of other populations and some scattered locations would also be conserved as follows: 1 location (3 flowering stalks) in Chiquita Canyon, 398 flowering stalks of the easternmost population in the southern portion of Cristianitos and Gabino Canyons, 4 scattered locations in southern portion of Cristianitos and Gabino Canyons and 2 locations (42 flowering stalks) in the Talega sub-basin. Additional site-specific avoidance and minimization measures would be implemented as required by the NCCP Guidelines for the Chiquita *major population/key location*, *major population/key location* in Cristianitos Canyon, *important population* in Cristianitos Canyon, *major population/key location* in lower Gabino sub-unit and Cristianitos Canyon and *important population* in Talega sub-basin. See avoidance and minimization measures 4.9-1, 4.9-8, 4.9-9, 4.9-17, and 4.9-20.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to the Contributions of the AMP to Contributing to the Recovery of Listed Species within the Sub region: Thread- leaved Brodiaea Recovery Actions. Also refer to Appendix J-1 Plant Translocation, Management Plan regarding how the AMP maintains and enhances net habitat value for the thread-leaved Brodiaea.	Less than Significant

TABLE 4.9-42 (Continued)
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO LISTED SPECIES IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
Impact 4.9-67 The Proposed Project would result in significant impact on one vernal pool supporting the San Diego fairy shrimp.	The Proposed Project would conserve two vernal pools and their contributing hydrologic sources along Radio Tower Road that support San Diego fairy shrimp through implementation of PDF 9-1. Site-specific avoidance and minimization measures would be implemented as required by the Draft NCCP/HCP Guidelines for the third vernal pool. Minimization/Avoidance Measure 4.9-35: Prior to issuance of a grading permit for Planning Area 5, the Project Applicant shall demonstrate to the satisfaction of the County's Director of Planning Services Department or his/her designee that all vernal pools in the Trampas Sub-basin have been avoided.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to the Contributions of the AMP to Contributing to the Recovery of Listed Species within the Sub region: San Diego Fairy Shrimp Recovery Actions	Less than Significant
Impact 4.9-68: The Proposed Project would result in significant impact on one vernal pool supporting the Riverside fairy shrimp.	The Proposed Project would conserve one vernal pool and its contributing hydrologic sources along Radio Tower Road that support Riverside fairy shrimp through implementation of PDF 9-1. Site-specific avoidance and minimization measures would be implemented as required by the Draft NCCP/HCP Guidelines for the second vernal pool. Refer above to mitigation measure 4.9-35.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to the Contributions of the AMP to Contributing to the Recovery of Listed Species within the Sub region: Riverside Fairy Shrimp Recovery Actions	Less than Significant
Impact 4.9-69: The Proposed Project would result in significant impacts on suitable habitat types for arroyo toad.	The Proposed Project would conserve 100% of breeding locations comprising *major* and *important populations* in *key locations* in San Juan Creek, lower Gabino Creek, lower Cristianitos Creek, and Talega Creek would be conserved within the Proposed Project Open Space through implementation of PDF 9-1, as well as the majority of adjacent upland habitats. In the San Mateo Creek Watershed, the minimum elevation differential between development and	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular, refer to the Contributions of the AMP to Contributing to the Recovery of Listed Species within the Sub region: Arroyo	Less than Significant

TABLE 4.9-42 (Continued)
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO LISTED SPECIES IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
	breeding locations would be 80 feet. Along San Juan Creek, development would be offset by at least 300 feet south of the 100-year floodplain and an average of about 300 feet north of the 100-year floodplain. Short-term impacts relating to construction of infrastructure, particularly Cristianitos Road, would occur.	Toad Recovery Actions eg. invasives species control in San Juan Creek and San Mateo Watershed would mitigate any remaining permanent impacts resulting from road construction. Mitigation measure 4.9-19 and PDF 4.9-2 would mitigate short-term direct impacts related to construction impacts and water quality impacts.	
Impact 4.9-70: The Proposed Project would result in significant impacts on suitable habitat for California gnatcatcher.	The Proposed Project would result in the conservation of 171 locations (70%) and 5,657.2 acres (74%) of suitable habitat, including 143 of 188 locations (76%) and 1,012 acres of coastal sage scrub (77%) within the *major population/key location* in the Chiquita and Wagon Wheel sub-basins and Chiquadora Ridge portion of the Gobernadora sub-basin through implementation of PDF 9-1. For *important populations/key location*, the Proposed Project would include: 1 of 1 location (100%) of the East San Juan Capistrano *important populations/ key location* that occurs on RMV and 6 of 7 locations (86%) of the Trampas Canyon *important populations/ key location.* Impacts to locations in the Upper Cristianitos *important populations/key location* would be minimized through implementation of site-specific avoidance and minimization measures as required by the NCCP Guidelines, refer to minimization/avoidance measure 4.9-18. Assuming minimization of impacts to locations in Upper Cristianitos, approximately 162 of 208 locations (78%) within the *major* and *important populations* would be conserved in the study area.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to the Contributions of the AMP to Contributing to the Recovery of Listed Species within the Sub region: California Gnatcatcher Recovery Actions. Enhancement/restoration of coastal sage scrub habitat and coastal sage scrub/native grassland areas in accordance with the restoration recommendations of the AMP resulting in likely occupied habitat comparable to existing conditions. Enhancement/ restoration of coastal sage scrub habitat in Chiquita Canyon and in Sulphur Canyon in areas that benefit the major Chiquita/ Chiquadora population.	Less than Significant

TABLE 4.9-42 (Continued)
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO LISTED SPECIES IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
Impact 4.9-71: The Proposed Project has the potential to significantly impact the least Bell's vireo.	28 of 30 breeding locations (97%) and approximately 443 acres (84%) of southern willow scrub/arroyo willow riparian forest would be conserved on RMV. The single *important population* on RMV in GERA would be conserved.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to the Contributions of the AMP to Contributing to the Recovery of Listed Species within the Sub region: least Bell's vireo Recovery Actions.	Less than Significant
Non-planning Species			
Impact 4.9-72: The Proposed Project would result in significant impacts on suitable habitat for the Swainson's Hawk.	The Proposed Project would conserve 2,627.3 acres of grassland and approximately 1,023.4 acres of agriculture habitat for the Swainson's hawk through implementation of PDF 9-1. Since the Swainson's hawk is rare migrant visitor to California coastal areas, this level of conservation is sufficient to support such a limited potential presence.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space.	Less than Significant
Source: Dudek 2004			

The consistency of the five major vegetation communities and associated habitats with the plan approval standards set forth in the re-enactment of the NCCP Act in 2002 is reviewed above. Since the listed species habitats are within the five major vegetation communities, the same analysis applies to the above species. The above review of consistency with the Species Accounts and the references to species-specific recovery actions for the listed planning species set forth above and in the AMP, along with the consistency review of proposed protected open space under the landscape scale guidelines and the five major vegetation communities, provide the basis for concluding that the Conservation Strategy for the Proposed Project: (a) will not appreciably reduce the likelihood of survival and recovery of the listed species (as required by FESA Section 10(a)(1) [B]) and (b) provide for the conservation and management of the listed species as required by the NCCP Act of 1991.

For the above reasons, as well as for the reasons specified in the prior review of potential impacts on the five major vegetation communities, potential impacts to listed species and their associated habitats, are reduced to below a level of significance.

Minimization/Avoidance and Mitigation Measures for Potential Direct Impacts to the Unlisted NCCP/HCP Planning Species and Other Listed Species

Table 4.9-43 summarizes significant impacts to unlisted species (planning and non-planning) that are discussed in Section 4.9.4 in accordance with the significance criteria identified by the County of Orange.

- Substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate for listing, sensitive, rare or otherwise special status plant or animal species in local or regional plans, policies, or regulations, or by the CDFG or USFWS

- Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS [assumed to include critical habitat designations]

- Conflict with applicable Draft Southern Sub region NCCP/HCP Planning Guidelines

- Conflict with applicable Draft San Juan Creek Watershed/Western San Mateo Creek SAMP/MSAA Watershed Planning Principles.

For each potentially significant impact, specific avoidance and minimization measures are reviewed. Where potentially significant impacts remain after the application of avoidance and minimization measures, mitigation is proposed where feasible and an overall assessment of level of significance is made based on the combined application of avoidance/minimization and mitigation measures.

TABLE 4.9-43
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO UNLISTED SPECIES IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
Planning Species			
Impact 4.9-73: The Proposed Project would result in significant impacts on suitable for the western spadefoot toad.	The Proposed Project, through implementation of PDF 9-1, would conserve 13 locations (87%) and all of three *important populations* (Radio Tower Road, Upper Cristianitos, Lower Gabino Creek) if site-specific avoidance and minimization measures required by the NCCP Guidelines were implemented to avoid the stockpond and adjacent upland habitat. A portion of the fifth *important population* along San Juan Creek would be conserved. All conserved breeding locations would have at least a 650-ft upland buffer zone from proposed development to support all life stages. See also Mitigation Measure 4.9-5.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Riparian Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions.	Less than Significant
Impact 4.9-74: The Proposed Project has the potential to result in a significant	A total of 6 of 8 locations would be conserved by the Proposed Project through implementation of PDF 9-1. *Important populations/key locations* in riparian and aquatic habitats along San	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes	Less than Significant

TABLE 4.9-43 (Continued)
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO UNLISTED SPECIES IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
impact on suitable habitat for the southwestern pond turtle.	Juan Creek. Locations in San Juan Creek and adjacent floodplain providing nesting habitat/estivation habitat would be conserved. Setbacks of at least 328 feet from breeding ponds containing suitable habitat upland habitat with southern exposures would provide for nesting and overwintering habitat. Habitat connectivity between San Juan Creek and San Mateo Creek watersheds would be maintained to allow dispersal. Impacts to the stockpond and other wetlands in Upper Cristianitos, and Jerome's Lake in Upper Gabin would be avoided through implementation of site-specific avoidance/minimization measures required by the NCCP Guidelines. See also Mitigation Measure 4.9-4 and 4.9-12.	to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Riparian Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions.	
Impact 4.9-75: The Proposed Project would result in a potentially significant impact on suitable habitat types for the orange-throated whiptail.	The Proposed Project would conserve 102 locations (69%) and 910.3 acres (75%) of coastal sage scrub, chaparral and woodland habitats through implementation of PDF 9-1. Seventeen of the 18 locations (94%) in the *important population/key location* on Chiquadora Ridge and 50 of 59 (85%) of the *important population/ key location* on the Chiquita Canyon/Wagon Wheel Canyon ridgeline would be conserved. In the Gobernadora/San Juan Creek *important population/key location* 16 of 47 locations (34%) would be conserved.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Riparian Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions.	Less than Significant
Impact 4.9-76: The Proposed Project would result in a potentially significant impact on suitable habitat types for the San Diego horned lizard.	The Proposed Project would conserve 26 (60%) of known locations and 8,738 acres (76%) of coastal sage scrub and chaparral habitats through implementation of PDF 9-1. The large majority of (93%) of the important population/ key location on the Chiquita Canyon/Wagon Wheel Canyon ridgeline would be conserved.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Riparian Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions.	Less than Significant

TABLE 4.9-43 (Continued)
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO UNLISTED SPECIES IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
Impact 4.9-77: The Proposed Project would result in a potentially significant impact on the Cooper's hawk.	A total of 19 historic nest locations (83%) and 1,880 acres (75%) of suitable habitat (riparian, woodlands and forest) would be conserved through implementation of PDF 9-1. Although no major and/or important populations have been identified for this species within the study area, breeding and foraging habitat within the major drainages would be conserved, including Talega, Cristianitos, Gabino, La Paz, San Juan, Chiquita, Gobernadora, and Verdugo canyons.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Riparian Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions.	Less than Significant
Impact 4.9-78: The Proposed Project would result in potentially significant impacts on suitable habitat types for the tricolored blackbird.	Approximately 50% of the historic nesting colony areas would be conserved through implementation of PDF 9-1. In particular, grassland habitat in the valley bottom of Lower Gobernadora on RMV property would be conserved to support a breeding population located in Coto de Caza. In combination with the existing breeding ponds in south Coto de Caza, this area supports an *important population/key location*. Potential breeding/foraging areas also would be conserved south of a ranch residence south of Ortega Highway.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Riparian Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions.	Less than Significant
Impact 4.9-79: The Proposed Project would result in significant impacts on the grasshopper sparrow through habitat loss.	The Proposed Project would conserve 331 locations (57%) and 2,627.3 (52%) of grassland through implementation of PDF 9-1. Approximately 53% of the *major population/key location* in the Chiquita sub-basin/Chiquadora Ridge area, 96% of the *important population/key location* on the Radio Tower Road mesa, and 37% of the *important population/key location* in Cristianitos and Lower Gabino would be conserved.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions.	Less than Significant
Impact 4.9-80: The Proposed Project would result in potentially significant impacts on suitable habitat for the cactus wren.	The Proposed Project would conserve 303 locations (58%) and 5,657.3 acres (74%) of suitable habitat through implementation of PDF 9-1. Habitat connectivity would be maintained, including: north-south connections along Chiquita and Chiquadora ridges; east-west connectivity between Arroyo	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of	Less than Significant

TABLE 4.9-43 (Continued)
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO UNLISTED SPECIES IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
	Trabuco and Caspers Wilderness Park; along the San Juan Creek floodplain; north-south connections through the Trampas sub-basin and southern portion of Chiquita sub-basins, leading to the Donna O'Neill Land Conservancy and Cristianitos Canyon; and throughout the remainder of the San Mateo Creek Watershed.	resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Riparian Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions.	
Impact 4.9-81: The Proposed Project would result in potentially significant impacts on suitable habitat for the white-tailed kite.	A total of 13 historic nest locations (93%) and 1,880 acres (74%) of riparian, woodland, and forest habitats would be conserved through implementation of PDF 9-1. In particular, nesting and foraging habitat would be conserved in GERA, Central San Juan Creek, Lower Cristrianitos Creek, Middle and Lower Gabino Canyon, La Paz Canyon, and Talega Canyon	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Riparian Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions.	Less than Significant
Impact 4.9-82: The Proposed Project would result in significant impacts on the merlin through habitat loss.	The Proposed Project would conserve 3,651 acres (48%) of grassland and agricultural foraging habitat. Potential foraging habitat in Upper Gabino Canyon and in the Radio Tower Road mesa area also would be conserved.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions.	Less than Significant
Impact 4.9-83: The Proposed Project has the potential to significantly impact the yellow-breasted chat.	The Proposed Project would conserve 61 locations (81%) and 1,507.4 acres (78%) of riparian habitat through implementation of PDF 9-1. All five of the *important populations* would be conserved. Scattered locations in upper San Juan Creek and Middle Chiquita, Bell, Verdugo, Lower Gabino and La Paz canyons also would be conserved.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Riparian Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions.	Less than Significant

TABLE 4.9-43 (Continued)
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO UNLISTED SPECIES IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
Impact 4.9-84: The Proposed Project would result in potentially significant impacts on Coulter's saltbush.	A total of 2,611 individuals (85%) and 16 locations (47%) would be conserved through implementation of PDF 9-1. The *major population/ key location* in Chiquita Canyon would be conserved through avoidance and minimization of impacts of the proposed golf course west of Chiquita Creek. The *important population/key location* north the treatment plant in Chiquita Canyon would be conserved. The *important population* in Lower Chiquita would be conserved and the *important populations* in upper Cristianitos and upper Gabino canyons could be conserved through incorporating golf course avoidance and minimization features.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. Refer also to the Appendix J-1: Plant Species Translocation, Propagation and Management Plan which sets forth the methods by which Coulter's saltbush would be restored through creation of new populations from seed and translocation of existing populations.	Less than Significant
Impact 4.9-85: The Proposed Project would result in significant impacts on southern tarplant.	The Proposed Project would conserve approximately 105,000 individuals (72%) and 9 locations (24%). The *major populations/key locations* in Lower Chiquita Canyon (the Tesoro mitigation site) and Gobernadora (GERA) would be conserved. Impacts to the *major population/key location* and *important population* north of the treatment plant in Chiquita Canyon site specific avoidance and minimization measures required by the NCCP Guidelines. See avoidance and minimization measures 4.9-6,	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. Significant. Refer also to the Appendix J-1: Plant Species Translocation, Propagation and Management Plan which sets forth the methods by which southern tarplant would be restored through creation of new populations from seed and translocation of existing populations.	Less than Significant
Impact 4.9-86: The Proposed Project would result in significant impacts on many-stemmed dudleya.	The Proposed Project would conserve approximately 20,391 individuals (43%) and 112 locations (39%) through implementation of PDF 9-1. Of the *major populations/ key locations*, 93% of individuals and 80% of locations of the Chiquadora Ridge population, 92% of individuals and 50% of locations of the Upper Gabino/La Paz Canyon population, and 4% of individuals and 8% of locations of the Gobernadora population would be conserved. Of the *important populations/key locations*, 100% of the Chiquita Ridge population/ locations, 87% of the individuals and 71% of the locations in the Upper Gobernadora population, and 14% of the individuals and 19% of the locations of the Lower Chiquita Canyon population would be conserved. In the East Talega	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. Significant. Refer also to the Appendix J-1: Plant Species Translocation, Propagation and Management Plan which sets forth the methods by which many-stemmed dudleya would be restored through creation of new populations from seed and translocation of existing populations.	Less than Significant

TABLE 4.9-43 (Continued)
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO UNLISTED SPECIES IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
	important population, 89% of the individuals and 93% of the locations would be conserved. In addition, approximately 90% of individuals and 69% of locations of the Cristianitos Canyon *major population/key location* could be conserved through golf course design features, bringing the total conservation to approximately 33,000 individuals (70%) and 175 locations (62%), see avoidance and minimization measures 4.9-13, 4.9-16, 4.9-21 and 4.9-24		
Impact 4.9-87: The Proposed Project would result in significant impacts on mud nama.	The Proposed Project would conserve 350 individuals (3%) and 1 (33%) location along Radio Tower Road through implementation of PDF 9-1.	Mitigation Measure 4.9-40 Mud nama inoculum (topsoil and dried pants to obtain seed) shall be collected prior to project impacts for use in the relocation of this species. The receiver sites shall support appropriate soils and other conditions suitable for mud nama. Implementation details of the salvage and relocation program shall be identified in the Final Plant Species Translocation, Propagation and Management Plan, outlined in Appendix J-1. Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. Refer also to the Appendix J-1: Plant Species Translocation, Propagation and Management Plan which sets forth the methods by which mud nama would be restored through creation of new populations from seed and translocation of existing populations.	Less than Significant

TABLE 4.9-43 (Continued)
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO UNLISTED SPECIES IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
Non-planning Species			
Impact 4.9-88: The Proposed Project would result in potentially significant impacts on the partially armored threespine stickleback and arroyo chub.	The Proposed Project will conserve suitable habitat for the partially armored threespine stickleback and arroyo chub in San Juan Creek, and suitable habitat in Gobernadora Creek for the arroyo chub through implementation of PDF 9-1.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Riparian Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Refer also to mitigation measures within Section 4.5, Water Resources.	Less than Significant
Impact 4.9-89: The Proposed Project would result in significant impacts on the sharp-shinned hawk, short-eared owl, short-eared owl, ferruginous hawk, and prairie falcon through habitat loss.	Approximately 3,651 acres (48%) of suitable foraging habitat for these species would be conserved through the implementation PDF 9-1	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions.	Less than Significant
Impact 4.9-90: The Proposed Project would result in significant impacts on the long-eared owl, red-shouldered hawk, northern harrier, and barn owl through habitat loss.	A total of 5,531 acres (55%) of suitable nesting and foraging habitat (grassland, agricultural, riparian, woodlands and forest), three historic nest locations (78%) of the long eared owl, 22 historic nest locations (88%) of the red-shouldered hawk, and 13 historic nest locations (52%) of the barn owl would be conserved through implementation of PDF 9-1.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDFS 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions.	Less than Significant

TABLE 4.9-43 (Continued)
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO UNLISTED SPECIES IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
Impact 4.9-91: The Proposed Project would result in significant impacts on Palmer's grappling hook.	The Proposed Project would conserve 4,825 individuals (18%) and 16 locations (20%) of Palmer's grapplinghook through implementation of PDF 9-1.	Mitigation Measure 4.9-36: Palmers grappling hook seed will be collected prior to project impacts for use in the seed mix for coastal sage scrub/native grassland restoration areas. Receiver sites will support clay soils and other conditions suitable for Palmer's grapplinghook. In addition, where feasible, clay soils will be salvaged from development areas and appropriately transported to restoration areas to provide a seed bank. Implementation details of the salvage and relocation program shall be identified in the Final Plant Species Translocation, Propagation and Management Plan, outlined in Appendix J-1.	Less than Significant
Impact 4.9-92: The Proposed Project would result in significant impacts to Catalina mariposa lily.	The Proposed Project would conserve 1,465 individuals (30%) and 48 locations (48%) of Catalina mariposa lily through implementation of PDF 9-1.	Mitigation Measure 4.9-37: Catalina mariposa lily shall be salvaged and relocated to the coastal sage scrub/native grassland restoration and enhancement areas by the Project Applicant; or seed can be collected prior to project impacts for use in the seed mix for coastal sage scrub/native grassland restoration areas. The receiver sites shall support clay soils and other conditions suitable for Catalina mariposa lily. In addition, where feasible, clay soils shall be salvaged from development areas and appropriately transported to restoration areas to provide a seed bank. Implementation details of the salvage and relocation program shall be identified in the Final Plant Species Translocation, Propagation and Management Plan, outlined in Appendix J-1.	Less than Significant
Impact 4.9-93: The Proposed Project would result in potentially significant impacts on vernal barley.	No avoidance and minimization measures are proposed for this species.	Mitigation Measure 4.9-38: vernal barley seed can be collected prior to project impacts for use in the seed mix for coastal sage scrub/native grassland restoration areas. The receiver sites shall support clay soils and other conditions suitable for vernal barley. In addition, where feasible, clay soils shall be salvaged from development areas and appropriately transported to restoration areas to provide a	Less than Significant

TABLE 4.9-43 (Continued)
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR DIRECT IMPACTS TO UNLISTED SPECIES IDENTIFIED AS SIGNIFICANT

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
		seed bank. Implementation details of the salvage and relocation program shall be identified in the Final Plant Species Translocation, Propagation and Management Plan, outlined in Appendix J-1.	
Impact 4.9-94: The Proposed Project would result in potentially significant impacts on small-flowered microseris.	The Proposed Project would conserve 7,842 individuals (27%) and 4 locations (20%) through implementation of PDF 9-1.	Mitigation Measure 4.9-39: small-flowered microseris seed can be collected prior to project impacts for use in the seed mix for coastal sage scrub/native grassland restoration areas. The receiver sites shall support clay soils and other conditions suitable for small-flowered microseris. In addition, where feasible, clay soils shall be salvaged from development areas and appropriately transported to restoration areas to provide a seed bank. Implementation details of the salvage and relocation program shall be identified in the Final Plant Species Translocation, Propagation and Management Plan, outlined in Appendix J-1.	Less than Significant
Source: Dudek 2004			

For the above reasons, potential impacts to unlisted species and their associated habitats, as well as for the reasons specified in the prior review of potential impacts on the five major vegetation communities, are reduced to below a level of significant.

Mitigation for Potential Impacts Resulting from Conflicts with the NCCP/HCP Sub-basin Planning Guidelines ("Not Consistent" Findings)

Table 4.9-44 summarizes significant impacts resulting from the NCCP/HCP consistency analysis discussed in Section 4.9.4 in accordance with the significance criteria identified by the County of Orange:

- Conflict with Applicable Draft Southern Sub region NCCP/HCP Planning Guidelines.

As noted above, each "not consistent" finding identified through the consistency analysis is a significant impact under CEQA. For ease of reference, both the impact number from Section 4.9.4 and applicable NCCP/HCP Planning Guideline are noted for each impact. For each such significant impact, avoidance and minimization measures are discussed and a determination of level of significance is made after the application of avoidance and minimization measures. Where significant impacts remain after the application of avoidance and minimization measures, mitigation is proposed where feasible.

TABLE 4.9-44
MINIMIZATION/AVOIDANCE MEASURES AND MITIGATION FOR IMPACTS IDENTIFIED AS SIGNIFICANT BASED ON NCCP SUB-BASIN PLANNING GUIDELINES CONSISTENCY ANALYSIS "NOT CONSISTENT" FINDINGS

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining and Enhancing Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
Impact 4.9-23: The Proposed Project would result in impacts to two slope wetlands located in the Chiquita Sub-basin (Planning Guideline 7)	No avoidance/minimization measures are proposed for this impact.	No mitigation is feasible for these slope wetlands due to their unique geologic and hydrologic attributes. However, the Proposed Project will contribute to maintaining and enhancing net habitat value of wetlands and other riparian habitats through implementation of the AMP, particularly the Invasive Species Control Plan. In addition the Habitat Restoration Plan identifies potential wetland mitigation sites in Chiquita sub-basin that could contribute to net habitat value overall within the sub-basin.	Significant, unavoidable
Impact 4.9-24: The Proposed Project would not protect a 2,000 to 2,500 foot area along the southern boundary of Coto de Caza in the Gobernadora sub-basin to provide a functional east-west wildlife movement from Sulphur Canyon to Bell Canyon (Planning Guideline 29).	The Proposed Project provides for a 1,000 foot area between the southern boundary of Coto de Caza and 289 acres of low density estate type housing/ open space though implementation of PDF 9-1	Refer to the AMP (Appendix J) regarding the monitoring of wildlife movement corridors and potential indirect effects.	Less than Significant
Impact 4.9-25: The Proposed Project would not minimize impacts to native grasslands in the Gobernadora sub-basin (Planning Guideline 30).	The Proposed Project would conserve 2,627.3 acres (52%) of grassland including 470.1 acres (48%) of native grassland through implementation of PDF 9-1.	Refer to the prior summary discussion and Appendix G-7 how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Also refer to the Habitat Restoration Plan regarding restoration of upland habitat types including native grassland. The proposed	Less than Significant

TABLE 4.9-44 (Continued)
MINIMIZATION/AVOIDANCE MEASURES AND MITIGATION FOR IMPACTS IDENTIFIED AS SIGNIFICANT BASED ON NCCP PLANNING GUIDELINES CONSISTENCY ANALYSIS "NOT CONSISTENT" FINDINGS

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining and Enhancing Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
		project would implement 82 acres of recommended native grassland restoration and 60 acres of coastal sage scrub/native grassland restoration.	
Impact 4.9-26: The Proposed Project would not protect at least 80% of coastal sage scrub and gnatcatcher sites along the eastern slopes of Chiquadora Ridge in the Chiquita sub-basin to contribute to the overall goal of protecting at least 80% of the *major population* of gnatcatcher extending from Chiquita canyon across to Gobernadora Creek (Planning Guideline 39).	The Proposed Project would protect 57% of existing coastal sage scrub and 68% of gnatcatcher locations along the eastern slopes of Chiquadora Ridge in the Chiquita sub-basin. Connectivity among protected coastal sage scrub would be maintained. Overall the Proposed Project would result in the conservation of 171 locations (69%) and 5,657.2 acres (74%) of suitable habitat, including 140 of 188 locations (76%) and 1,012 acres of coastal sage scrub (77%) within the *major population/key location* in the Chiquita and Wagon Wheel sub-basins and Chiquadora Ridge portion of the Gobernadora sub-basin through implementation of PDF 9-1. For *important populations/key location*, the Proposed Project would include: 1 of 1 location (100%) of the East San Juan Capistrano *important populations/ key location* that occurs on RMV and 6 of 7 locations (86%) of the Trampas Canyon *important populations/key location.*	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to the Contributions of the AMP to Contributing to the Recovery of Listed Species within the Sub region: California Gnatcatcher Recovery Actions.	Less than Significant
Impact 4.9-27: The Proposed Project would impact foraging habitat for raptors in Chiquita, Gobernadora and Trampas sub-basins (Planning Guideline 54).	Breeding habitat in San Juan Creek and adjacent major tributaries (e.g., Chiquita, Gobernadora) would be protected and impacts to adjacent foraging habitat in the Chiquita sub-basin would be reduced through avoidance of the major alluvial side canyons.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions for all major vegetation communities help maintain and enhance net habitat value for raptors.	Less than Significant

TABLE 4.9-44 (Continued)
MINIMIZATION/AVOIDANCE MEASURES AND MITIGATION FOR IMPACTS IDENTIFIED AS SIGNIFICANT BASED ON NCCP PLANNING GUIDELINES CONSISTENCY ANALYSIS "NOT CONSISTENT" FINDINGS

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining and Enhancing Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
Impact 4.9-28: The Proposed Project would constrain the east-west portion of habitat linkage K south of Trampas Dam (Planning Guideline 68).	No avoidance/minimization measures are proposed for this impact.	N/A	Significant, unavoidable
Impact 4.9-29: The Proposed Project would impact grasslands habitat at the mouth of Verdugo Canyon (Planning Guideline 79).	Minimization/Avoidance Measure 4.9-31: Wetland/riparian habitat at the mouth of Verdugo Canyon would be avoided. A limited number of rural estates are proposed in the mouth of Verdugo that would impact grassland habitat used as foraging habitat for tri-colored blackbirds.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Refer also to Appendix J-2, Habitat Restoration Plan which discusses the locations and methods by which 490.5 acres of upland habitat types including grassland and coastal sage scrub will be restored.	Less than Significant
Impact 4.9-30: The Proposed Project would impact grasslands habitat in the Cristianitos sub-basin (Planning Guideline 85).	The Proposed Project would conserve 2,627.3 acres (52%) of grassland through implementation of PDF 9-1.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Refer also to Appendix J-2, Habitat Restoration Plan which discusses the locations and methods by which 490.5 acres of upland habitat types including grassland and coastal sage scrub will be	Less than Significant

TABLE 4.9-44 (Continued)
MINIMIZATION/AVOIDANCE MEASURES AND MITIGATION FOR IMPACTS IDENTIFIED AS SIGNIFICANT BASED ON NCCP PLANNING GUIDELINES CONSISTENCY ANALYSIS "NOT CONSISTENT" FINDINGS

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining and Enhancing Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
		restored. Mitigation Measure 4.9-32. Prior to issuance of grading permits for the proposed golf course in Cristianitos sub-basin, the County's Director of Planning Services or his/her designee shall verify that the landscape plans for the golf course include native habitats including native grassland which could contribute to the restoration of grasslands in the sub-basin.	
Impact 4.9-31: The Proposed Project would impact raptor grassland forging habitat in the Cristianitos sub-basin. (Planning Guideline 86).	The Proposed Project would conserve 2,627.3 acres (52%) of grassland through implementation of PDF 9-1.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Refer also to Appendix J-2, Habitat Restoration Plan which discusses the locations and methods by which 490.5 acres of upland habitat types including grassland and coastal sage scrub will be restored. See also mitigation measure 4.9-32 above.	Less than Significant
Impact 4.9-32: The development pattern proposed under the Proposed Project would conflict with some areas targeted for restoration in upper Cristianitos (Planning Guideline 96).	Partial implementation of the coastal sage scrub/native grassland restoration recommendations would occur.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation	Less than Significant

TABLE 4.9-44 (Continued)
MINIMIZATION/AVOIDANCE MEASURES AND MITIGATION FOR IMPACTS IDENTIFIED AS SIGNIFICANT BASED ON NCCP PLANNING GUIDELINES CONSISTENCY ANALYSIS "NOT CONSISTENT" FINDINGS

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining and Enhancing Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
		Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Refer also to J-2, Habitat Restoration Plan which discusses the locations and methods by which 490.5 acres of upland habitat types including grassland and coastal sage scrub will be restored. See also mitigation measure 4.9-32 above.	
Impact 4.9-33: The development pattern proposed under the Proposed Project would conflict with some areas targeted for restoration in upper Cristianitos (Planning Guideline 97).	Partial implementation of the coastal sage scrub/native grassland restoration and plant translocation recommendations would occur in the Cristianitos sub-basin.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Refer also to Appendix J-2, Habitat Restoration Plan which discusses the locations and methods by which 490.5 acres of upland habitat types including grassland and coastal sage scrub will be restored. See also mitigation measure 4.9-32 above.	Less than Significant
Impact 4.9-34: The development pattern proposed under the Proposed Project would conflict with some areas targeted for restoration in the Upper Gabino subunit (Planning Guideline 96).	Partial implementation of the coastal sage scrub/native grassland restoration recommendations would occur	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and	Less than Significant

TABLE 4.9-44 (Continued)
MINIMIZATION/AVOIDANCE MEASURES AND MITIGATION FOR IMPACTS IDENTIFIED AS SIGNIFICANT BASED ON NCCP PLANNING GUIDELINES CONSISTENCY ANALYSIS "NOT CONSISTENT" FINDINGS

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining and Enhancing Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
		Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Refer also to Appendix J-2, Habitat Restoration Plan which discusses the locations and methods by which 490.5 acres of upland habitat types including grassland and coastal sage scrub will be restored. See also mitigation measure 4.9-32 above.	
Impact 4.9-35: The Proposed Project would impact 42% of cactus wren locations in the Lower Gabino subunit (Planning Guideline 124).	A total of 303 locations (58%) and 5,657.2 acres (74%) of suitable habitat would be conserved for the coastal cactus wren. Habitat connectivity would be maintained, including: north-south connections along Chiquita and Chiquadora ridges; east-west connectivity between Arroyo Trabuco and Caspers Wilderness Park; along the San Juan Creek floodplain; north-south connections through the Trampas sub-basin and southern portion of Chiquita sub-basins, leading to the Donna O'Neill Land Conservancy and Cristianitos Canyon; and throughout the remainder of the San Mateo Creek Watershed.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Coastal Sage Scrub Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Refer also to Appendix J-2, Habitat Restoration Plan which discusses the locations and methods by which 490.5 acres of upland habitat types including grassland and coastal sage scrub will be restored.	Less than Significant
Impact 4.9-36: The Proposed Project would impact raptor breeding habitat in Blind Canyon, particularly grasslands (Planning Guideline 126).	Raptor breeding habitat in the Lower Gabino subunit would be protected. Refer to Minimization/ Avoidance Measure 4.9-32 for a discussion of overall conservation of grasslands.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals,	Less than Significant

TABLE 4.9-44 (Continued)
MINIMIZATION/AVOIDANCE MEASURES AND MITIGATION FOR IMPACTS IDENTIFIED AS SIGNIFICANT BASED ON NCCP PLANNING GUIDELINES CONSISTENCY ANALYSIS "NOT CONSISTENT" FINDINGS

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining and Enhancing Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
		Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Refer also to Appendix J-2, Habitat Restoration Plan which discusses the locations and methods by which 490.5 acres of upland habitat types including grassland and coastal sage scrub will be restored. Mitigation Measure 4.9-33. Prior to issuance of grading permits for the proposed golf course in Blind subunit, the County's Director of Planning Services or his/her designee shall verify that the landscape plans for the golf course include native habitats including native grassland which could contribute to the restoration of grasslands in the sub-basin.	
Impact 4.9-37: The Proposed Project would impact 67% of many stemmed dudleya locations in the Lower Gabino subunit (Planning Guideline 128).	The Proposed Project would conserve 81% of individuals, although 67% of locations would be impacted. Overall the Proposed Project would conserve approximately 20,391 individuals (43%) and 112 locations (39%) through implementation of PDF 9-1. Of the *major populations/key locations*, 93% of individuals and 80% of locations of the Chiquadora Ridge population, 92% of individuals and 50% of locations of the Upper Gabino/La Paz Canyon population, and 4% of individuals and 8% of locations of the Gobernadora population would be conserved. Of the *important populations/key locations*, 100% of the Chiquita Ridge population/locations, 87% of the individuals and 71% of the locations in the Upper Gobernadora population, and 14% of the individuals and 19% of the locations of the Lower Chiquita Canyon population would be conserved. In the East Talega *important population*, 89% of the individuals and 93% of the locations would be conserved.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. Significant. Refer also to the Appendix J-1: Plant Species Translocation, Propagation and Management Plan which sets forth the methods by which many-stemmed dudleya would be restored through creation of new populations from seed and translocation of existing populations.	Less than Significant

TABLE 4.9-44 (Continued)
MINIMIZATION/AVOIDANCE MEASURES AND MITIGATION FOR IMPACTS IDENTIFIED AS SIGNIFICANT BASED ON NCCP PLANNING GUIDELINES CONSISTENCY ANALYSIS "NOT CONSISTENT" FINDINGS

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining and Enhancing Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
Impact 4.9-38: The development pattern proposed under the Proposed Project would conflict with the areas targeted for native grassland restoration in Blind Canyon portion of the Lower Gabino subunit (Planning Guideline 134).	No avoidance/minimization measures are proposed for this impact.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Refer also to Appendix J-2, Habitat Restoration Plan which discusses the locations and methods by which 490.5 acres of upland habitat types including grassland and coastal sage scrub will be restored.	Less than Significant
Impact 4.9-39: The Proposed Project would impact 84% of grasslands habitat in the Other Planning Area (Planning Guideline 151).	The Proposed Project would conserve 2,627.3 acres (52%) of grassland through implementation of PDF 9-1.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Refer also to Appendix J-2, Habitat Restoration Plan which discusses the locations and methods by which upland habitat types including grassland and coastal sage scrub will be restored.	Less than Significant

TABLE 4.9-44 (Continued)
MINIMIZATION/AVOIDANCE MEASURES AND MITIGATION FOR IMPACTS IDENTIFIED AS SIGNIFICANT BASED ON NCCP PLANNING GUIDELINES CONSISTENCY ANALYSIS "NOT CONSISTENT" FINDINGS

Significant Impact	Minimization/Avoidance	Contributions of AMP to Maintaining and Enhancing Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
Impact 4.9-40: The Proposed Project would impact raptor grassland forging habitat in the Other Planning Area (Planning Guideline 155).	The Proposed Project would conserve 2,617.9 acres (52%) of grassland through implementation of PDF 9-1.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Refer also to Appendix J-2, Habitat Restoration Plan which discusses the locations and methods by which 490.5 acres of upland habitat types including grassland and coastal sage scrub will be restored.	Less than Significant
Source: Dudek 2004			

The following "new" protection recommendations were developed as a result of the updated 2004 NCCP Guidelines, specifically the updated species information on the thread-leaved brodiaea and many-stemmed dudleya. These recommendations are not included in the SRP consistency analysis above, as well as not included in the June 2003 submittal to the resource agencies. The consistency of the Proposed Project with these new recommendations are reviewed here and are reflected in the consistency conclusions in Tables 4.9-43 and 4.9-44. The direct impacts of the Proposed Project to sensitive species includes this updated information.

<u>Thread-leaved Brodiaea</u>

- Protect the location of approximately 250 flowering stalks in the southeastern portion of the Trampas Canyon subunit of the Central San Juan and Trampas Canyon sub-basin. This location is considered an *important population* because it contributes to the geographic diversity of the species in the sub region.

The Proposed Project would avoid this population and thus would be consistent with this recommendation.

- Protect the location of approximately 183 flowering stalks in the western portion of the middle Gabino subunit of the Gabino and Blind Canyons sub-basin. This location

is considered an *important population* because it contributes to the geographic diversity of the species in the sub region.

The Proposed Project would avoid this population and thus would be consistent with this recommendation.

<u>Many-stemmed Dudleya</u>

- Protect the lower Chiquita *major population* and *key location*, totaling about 6,686 individuals in 41 locations. The locations in this population range from 1 individual to 1,330 individuals, with four locations supporting at least 500 individuals.

The Proposed Project would result in impacts to this population and thus would not be consistent with this recommendation.

- Protect the upper Gobernadora *important population* and *key location*, totaling 1,622 individuals in 13 locations.

The Proposed Project would protect all of 11 and a portion of one of the 13 locations and 1,446 of the 1,622 individuals (89%) in this population and thus would be consistent with this recommendation.

For the reasons above, significant impacts identified based on the NCCP Planning Guidelines are reduced to below a level of less than significant, with the exception of impacts to two slope wetlands located in the Chiquita sub-basin and impacts to habitat linkage/wildlife movement corridor K.

Mitigation for Potentially Significant Impacts Resulting from Conflicts with the Watershed Planning Principles Sub-Basin Guidelines ("Not Consistent" Findings)

Table 4.9-45 summarizes significant impacts from the SAMP/MSAA planning principles consistency analysis that are discussed in Section 4.9.4 in accordance with the significance criteria identified by the County of Orange:

- Conflict With Applicable Draft San Juan Creek Watershed/Western San Mateo Creek Watershed SAMP/MSAA Watershed Planning Principles

As noted above, each "not consistent" finding identified through the consistency analysis is a significant impact under CEQA. For ease of reference, both the impact number from Section 4.9.4 and applicable SAMP/MSAA sub-basin planning principle are noted for each impact. For each such significant impact, avoidance and minimization measures are discussed and a determination of level of significance is made after the application of avoidance and minimization measures. Where significant impacts remain after the application of avoidance and minimization measures, mitigation is proposed where feasible.

TABLE 4.9-45
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR IMPACTS IDENTIFIED AS SIGNIFICANT BASED ON SAMP/MSAA SUB-BASIN PLANNING PRINCIPLES CONSISTENCY ANALYSIS "NOT CONSISTENT" FINDINGS

Significant Impact	Minimization/Avoidance Measure	Contributions of AMP to Maintaining and Enhancing Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
Impact 4.9-44: The Proposed Project would result in impacts to two slope wetlands located in the Chiquita Sub-basin (Planning Principle 8).	No avoidance/minimization measures are proposed for this impact.	N/A	Significant, unavoidable
Impact 4.9-45: The Proposed Project would result development to the edge of the valley floor in a few locations and in the alluvial side canyons of the Gobernadora sub-basin. (Planning Principle 10).	Development is largely setback from the valley floor and creek and is located primarily on Class C and D soils. No further avoidance/minimization measures are proposed for this impact.	N/A	Less than Significant
Impact 4.9-46: The development pattern proposed under the Proposed Project would conflict with some areas targeted for restoration in upper Cristianitos. (Planning Principle 25).	Partial implementation of the coastal sage scrub/native grassland restoration recommendations would occur.	Refer to the prior summary discussion and Appendix G-7 for a detailed discussion of how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Refer also to Appendix J-2, Habitat Restoration Plan which discusses the locations and methods by which 490.5 acres of upland habitat types including grassland and coastal sage scrub will be restored. See also mitigation measure 4.9-32 above.	Less than Significant
Impact 4.9-47: The development pattern proposed under the Proposed Project would conflict with some areas targeted for restoration in the Gabino sub-basin (Planning Principle 30).	Partial implementation of the coastal sage scrub/native grassland restoration recommendations would occur.	Refer to the discussion below how the Conservation Strategy (PDF 9-1 and 9-2) contributes to the mitigation of significant impacts and helps maintain and enhance net habitat value of resources protected through the creation and adaptive management of the RMV Open Space. In particular refer to Annual and Native Grasslands Vegetation Community – Goals, Objectives, Potential Stressors and Management, Enhancement and Restoration Actions. Refer also to Appendix J-2, Habitat Restoration Plan which discusses the locations and methods by which 490.5 acres of upland	Less than Significant

TABLE 4.9-45 (Continued)
MINIMIZATION/AVOIDANCE AND MITIGATION MEASURES FOR IMPACTS IDENTIFIED AS SIGNIFICANT BASED ON SAMP/MSAA SUB-BASIN PLANNING PRINCIPLES CONSISTENCY ANALYSIS "NOT CONSISTENT" FINDINGS

Significant Impact	Minimization/Avoidance Measure	Contributions of AMP to Maintaining and Enhancing Net Habitat Value/Mitigation Measure	Level of Significance After Minimization/Avoidance and Mitigation
		habitat types including grassland and coastal sage scrub will be restored. Mitigation Measure 4.9-34. Prior to issuance of grading permits for the proposed golf course in the Gabino sub-basin, the County's Director of Planning Services or his/her designee shall verify that the landscape plans for the golf course include native habitats including native grassland which could contribute to the restoration of grasslands in the sub-basin.	
Impact 4.9-48: The Proposed Project would result in limited impacts to steeper slopes in Blind Canyon and areas south of the existing Northrup Grumman facilities (Planning Principle 40).	No avoidance/minimization measures are proposed for this impact.	N/A	Significant, unavoidable
Source: Dudek 2004			

For the reasons above, significant impacts identified based on the Watershed Planning Principles are reduced to below a level of less than significant, with the exception of impacts to slope wetlands in the Chiquita sub-basin.

Habitat Linkages and Wildlife Movement Corridors

Impact 4.9-95: *The Proposed Project would result in potentially significant impacts on habitat linkages and wildlife movement corridors.*

Potential impacts to habitat linkages and wildlife movement corridors will be reduced to a level of less than significant after implementation of Mitigation Measures 4.9-22, 4.9-23, 4.9-24, and 4.9-25, except for linkages K and G should alternative tank sites not be identified.

Overall Conclusions Regarding Net Habitat Value

For the reasons set forth in the preceding subsections, implementation of the proposed Conservation Strategy would maintain and enhance net habitat value within the study area and thus provide for:

- survival and recovery of listed species (also, see further analysis of critical habitat impacts/avoidance/minimization and mitigation)
- protection and management of unlisted planning species
- mitigation of impacts on other sensitive species

- mitigation of impacts on major vegetation communities

Mitigation for Potentially Significant Indirect Effects

General Policy 5 of the Draft NCCP/HCP Planning Guidelines states:

> *Long-term impacts to the Habitat Reserve and other areas being preserved for species protection shall be managed through the creation of an urban/wildlands interface zone separating the Habitat Reserve and the non-reserve/urban areas.*

The potential indirect effects resulting from implementation of the Proposed Project including noise, invasive exotic species, night lighting, and human activities would be addressed through implementation of the specific sub-policies that support General Policy 5 as follows:

Short-Term Indirect Effects

Noise

Impact 4.9-96: *The Proposed Project would result in potentially significant noise impacts on the wildlife population within the vicinity of the planning areas and circulation system.*

Mitigation Measure 4.9-26: During construction, a construction monitoring program shall be implemented to mitigate for short-term noise impacts to nesting raptors, to the satisfaction of the County of Orange, Manager, Subdivision and Grading. Indirect impacts shall be mitigated by limiting heavy construction (i.e., mass grading) within 300 feet of occupied raptor nests. Occupied raptors nests shall be marked as "Environmentally Sensitive Areas" on grading/construction plans and shall be protected with fencing consisting of T-bar posts and yellow rope. Signs noting the area as an "Environmentally Sensitive Area" will be attached to the rope at regular intervals.

Implementation of Mitigation Measure 4.9-26 would reduce the level of impact from noise to raptors to a level of less than significance.

Construction Impacts

Impact 4.9-97: *The Proposed Project would result in potentially significant construction-related impacts on the wildlife population within the vicinity of the planning areas and circulation system including increased dust, trash accumulation, and accidental disturbances of native vegetation.*

Mitigation Measure 4.9-30:

Biological resources outside of the Proposed Project impact area shall be protected during construction. To ensure this protection, the Project Applicant shall prepare and implement a Biological Resources Construction Plan (BRCP) that provides for the protection of the resource and established the monitoring requirements. The BRCP shall contain at a minimum the following:

- Specific measures for the protection of sensitive amphibian, mammal, bird, and plant species during construction.

- Identification and qualification of habitats to be removed.

- Design of protective fencing around conserved habitat areas and the construction staging areas.

- Specific construction monitoring programs for sensitive species required by resource agencies including, but not limited to, programs for the arroyo southwestern toad, western spadefoot toad, southwestern pond turtle, cactus wren, and coastal California gnatcatcher.

- Specific measures for the protection of sensitive habitats including, 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.

- Provisions for biological monitoring during construction activities to ensure compliance and success of each protective measure. The monitoring procedures will (1) identify specific locations of wildlife habitat and sensitive species to be monitored; (2) identify the frequency of monitoring, monitoring methodology (for each habitat and sensitive species to be monitored); (3) list required qualifications of biological monitor(s); and (4) identify reporting requirements.

Implementation of Mitigation Measure 4.9-30 would reduce construction impacts to a level of less than significance.

Long-Term Indirect Effects

Noise

Noise would also increase over present levels with implementation of the proposed project. The chronic (i.e., permanent) noise increase would be considered adverse but less than significant because there is a substantial amount of similar habitat remaining in the Proposed Project Open Space. Therefore, no mitigation would be required.

Invasive Exotic Plants

Impact 4.9-98: *The Proposed Project would result in potentially significant impacts from invasive exotic species.*

Mitigation Measure 4.9-27: All plants identified by the California Exotic Pest Plant Council as an invasive risk in Southern California shall be prohibited from development and fuel management zones adjacent to the RMV Open Space.

Prior to issuance of fuel modification plan approvals, the County of Orange shall verify that plants identified by the California Exotic Pest Plant Council as an invasive risk in Southern California are not included in plans for fuel modification adjacent to the RMV Open Space.

Prior to the recordation of a map for a tract adjacent to the RMV Open Space, the County of Orange shall verify that the CC&Rs contain language prohibiting the planting of plants identified by the California Exotic Pest Plant Council as an invasive risk in Southern California in private landscaped areas.

Implementation of Mitigation Measure 4.9-27, combined with the implementation of an Invasive Species Control Plan as required by PDF 9-2, would reduce the level of impact from invasive exotic species to a level of less than significance.

Water Quality

Impact 4.9-99*: The Proposed Project would result in potentially significant impacts from pollutants entering native habitats.*

Mitigation measures for water quality impacts are identified within Section 4.5, Water Resources. Also, the prior subsection reviewing consistency with the Baseline Conditions Watershed Planning Principles contains a review of mitigation provided by land use planning and the draft WQMP.

Lighting

Impact 4.9-100: *The Proposed Project would result in potentially significant impacts from night lighting.*

Mitigation Measure 4.9-28: Lighting shall be shielded or directed away from RMV Open Space habitat areas through the use of low-sodium or similar intensity lights, light shields, native shrubs, berms or other shielding methods.

Prior to the issuance of building permits for a tract with public street lighting adjacent to RMV Open Space habitat areas, the County of Orange shall verify that measures to shield such lighting have been incorporated in the building plans.

Implementation of Mitigation Measure 4.9-28 would reduce the level of impact from lighting to a level of less than significance.

Human Activities

Impact 4.9-101: *The Proposed Project would result in potentially significant impacts from human activity.*

Mitigation Measure 4.9-29: Access to the RMV Open Space shall be managed and directed as specified in the Open Space Agreement between the County of Orange and RMV. Where potential conflicts between development and open space are identified per the agreement the following shall occur:

Prior to the issuance of building permits for a tract adjacent to the RMV Open Space, the County of Orange shall verify that measures, such as fencing, signs etc., to direct the public to public access points within the RMV Open Space have been incorporated into the building plans. To the extent that public access points are not identified, the County of Orange shall verify that measures, such as fencing, signs etc., to prohibit public access have been incorporated into the building plans.

Implementation of Mitigation Measure 4.9-29 would reduce the level of impact from human intrusion to a level of less than significance.

DISCUSSION OF CRITICAL HABITAT DESIGNATIONS FOR FEDERALLY-LISTED THREATENED OR ENDANGERED NCCP/HCP PLANNING SPECIES

Section 4 of the federal ESA provides for the designations of critical habitat for listed species when judged to be "prudent and determinable." Critical habitat includes geographic areas "on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection (USFWS March 2002)."

The following species have critical habitat designations that are in effect over portions of RMV lands. These in effect designation are illustrated on Exhibit 4.9-23:

- California gnatcatcher
- San Diego fairy shrimp

The following species had critical habitat designations in effect over portions of RMV lands until vacated by court order.

- Arroyo toad
- Riverside fairy shrimp

Revised critical habitat designations are proposed for the following species over portions of RMV lands:

- California gnatcatcher (proposed)
- Arroyo toad (proposed)
- San Diego fairy shrimp (proposed)
- Riverside fairy shrimp (proposed)

For purposes of this impact analysis, critical habitat designations currently in effect and proposed designations are addressed. The least Bell's vireo and southwestern willow flycatcher also have designated critical habitat, but these designations do not extend to RMV lands and are therefore not addressed here. Because no critical habitat is designated for the thread leaved brodiaea, this species is not addressed here.

As noted above, the designation of critical habitat addresses three elements: (1) occupied habitat essential to the conservation of the species; (2) special management considerations; and (3) special protection.

- Regarding the first element, "occupied habitat essential to the conservation of the species", the Draft NCCP/HCP Planning Guidelines identify *key locations* for all listed Planning Species. These *key locations* are defined as those locations that are deemed necessary for the conservation of the species in the sub region and, as a result, encompass all occupied habitat "essential to the conservation" of any such species.

- Regarding the second element, "special management considerations," both management and restoration recommendations, are included in the Species Accounts and in the Draft NCCP/HCP Planning Guidelines sub-basin planning

considerations and recommendations. Further, Appendix J contains the proposed long-term AMP intended to be applied at a large-scale within the study area including, Habitat Enhancement/Restoration; Plant Species Translocation, Propagation and Management; Invasive Species Control, Fire Management and Grazing Management; each of these aspects of the AMP will benefit species in specific ways over the long-term (e.g., invasive species control will remove a major threat to arroyo toad habitat, eliminate existing degradation, increase instream water flows and allow for natural regeneration of arroyo toad habitat conditions).

- Regarding the third element, "special protection," the Proposed Project proposes to dedicate approximately 15,121 acres of open space that, in conjunction with previously protected habitat areas in the Sub region, would provide "special protection" in the form of phased dedications of a "hard-line" protection system encompassing all habitats constituting *key locations* for all listed species. Dedication of the RMV Open Space would be committed in conjunction with development approvals without the need for any public acquisition funds. Consequently, "special protection" of the habitats of listed species will be assured under the Proposed Project.

For these reasons, and as further elaborated below with respect to particular species, the Proposed Project fully addresses the requirements of federal ESA Section 3(5)(A)(i) for all listed species with either in effect or proposed critical habitat designations.

California Gnatcatcher

On October 24, 2000 USFWS published a final rule designating 513,650 acres of land as critical habitat for the California gnatcatcher (USFWS October 24, 2000) in Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties, California (USFWS October 24, 2000). Following the designation of critical habitat, several lawsuits were filed challenging various aspects of the designation. On June 11, 2002, the U.S. District Court for the Central District of California granted the USFWS's request for a remand of the California gnatcatcher critical habitat designation so that the USFWS could reconsider the economic impact associated with designating any particular area as critical habitat. The Court ordered the USFWS to complete a new proposed rule on or before April 11, 2003. In a subsequent order, the Court held that the critical habitat designated for the California gnatcatcher should remain in place until such time as a new final regulation becomes effective. The USFWS subsequently published a revised proposed critical habitat designation on April 23, 2003: as of this date, this proposed rule has not been finalized and therefore the October 24, 2000 Final Rule remains in effect. RMV lands are within the in-effect designation and the proposed designation of critical habitat for the gnatcatcher.

As noted above, the Draft NCCP/HCP Planning Guidelines identify 1) *key locations* that are by definition deemed necessary for the conservation of the species in the sub region and, as a result, encompass all occupied habitat "essential to the conservation" of any such species and 2) special management recommendations including restoration recommendations. Dedication of the RMV Open Space would provide "special protection" in the form of phased dedications of a "hard-line" protection system encompassing all habitats constituting *key locations* for all listed species.

All *key locations* on RMV property are protected. As discussed previously, the Proposed Project meets the 80 percent protection requirement of the gnatcatcher Species Account for the Chiquita Canyon/Chiquadora *major population* (sites were considered protected if a territory of

five acres is protected and the site is connected with other contiguous or proximate habitat). When the coastal sage scrub restoration sites identified on Draft NCCP/HCP Planning Guidelines for Chiquita Canyon and Sulphur Canyon are included, total protected/restored habitat for the Chiquita/Chiquadora *major population* results in no net loss of occupied habitat.

With respect to "connectivity" considerations, the Proposed Project protects two major gnatcatcher movement corridors linking populations in the southern portion of the study area and Camp Pendleton to populations in the eastern portion of the Southern Sub region (Bell Canyon, Lucas Canyon, Coto de Caza) and to the *major population* in Chiquita Canyon/ Chiquadora Ridge. The *major population* is further connected with the Arroyo Trabuco population through the combination of prior Las Flores and Ladera open space dedication areas.

The Conservation Strategy (dedication of the RMV Open Space and implementation of the AMP) along with other adaptive management actions will help assure no net loss of long-term habitat value for the RMV lands. When combined with previously protected California gnatcatcher sites and the demonstrated ability of gnatcatchers to persist in proximity to developed areas such as Coto de Caza and the smaller 4(d) permit conservation easement areas (Dudek 2004), the Proposed Project Conservation Strategy would be expected to contribute to the recovery of the gnatcatcher in the Sub region (see discussion in previous subsection of the contributions of the AMP to the recovery of the gnatcatcher within the sub region).

San Diego Fairy Shrimp

On October 23, 2000 USFWS published a final rule designating 4,025 acres of land as critical habitat for the San Diego fairy shrimp in Orange and San Diego counties, California (65 FR 63438). Following the designation of critical habitat, several lawsuits were filed challenging various aspects of the designation. On June 11, 2002, the U.S. District Court for the Central District of California granted the USFWS's request for a remand of the San Diego fairy shrimp critical habitat designation so that the USFWS could reconsider the economic impact associated with designating any particular area as critical habitat. The Court ordered the USFWS to complete a new proposed rule on or before April 11, 2003. In a subsequent order, the Court held that the critical habitat designated for the San Diego fairy shrimp should remain in place until such time as a new final regulation becomes effective. The USFWS subsequently published a revised proposed critical habitat designation on April 22, 2003, however as of this date this proposed rule has not been finalized therefore the October 23, 2000 Final Rule remains in effect. The proposed designation includes units 1d and 1e over RMV lands, specifically the vernal pools located on Chiquita Ridge and Radio Tower Road. As noted above, the Chiquita Ridge pool is already protected. The Radio Tower Road pools are identified in the NCCP/HCP Planning Guidelines as a *key location* and would be conserved and managed through implementation of PDF 9-1 (RMV Open Space) and PDF 9-2 (the AMP) and the avoidance/minimization and mitigation measures described previously. The proposed Conservation Strategy would therefore be expected to contribute to the recovery of the San Diego fairy shrimp in the sub region.

Unit 1 of the October 23, 2000 critical habitat designation currently in effect designated critical habitat over Fairview Park in Costa Mesa, California. No critical habitat was designated on RMV lands.

Arroyo Toad

On February 7, 2001 USFWS published a final rule designating 182,360 acres of land as critical habitat for the arroyo toad in Monterey, Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego counties, California (USFWS February 7, 2001). Following the designation of critical habitat, several lawsuits were filed challenging various aspects of the designation. In response to these lawsuits, the critical habitat designation was vacated and the USFWS was instructed by the court to re-evaluate its previous position. A new proposed critical habitat designation was published on April 28, 2004 (USFWS April 28, 2004).

All documented arroyo toad breeding sites are protected and associated streamcourse habitat areas identified as *key locations* are identified for protection by the Proposed Project (in the case of the Talega Creek population, approximately half of the creek is within the boundaries of MCB Camp Pendleton and thus is within the control of the United States Department of Defense). In conjunction with protection of San Juan Creek provided through County and Forest Service ownership upstream of RMV lands, all streamcourse movement areas between *important* and *major populations* would be protected.

Lateral setbacks from arroyo toad breeding areas determined to be *major* and *important populations* have been provided and have been identified on the basis of either 1) the 80-foot contour line standard used in the court-vacated arroyo toad critical habitat designation and analyses of soils types on slopes adjoining arroyo toad breeding habitat or 2) in the case of the Gobernadora (PA 3) and East Ortega (PA 4) planning areas, a 300-foot setback from the expansive San Juan Creek floodplain. The criteria included in the arroyo toad critical habitat designation have been used because the designation addressed the most recent studies of arroyo toad movement along streamcourses and lateral movement from streamcourses into adjacent alluvial terraces and foraging/estivation areas. According to the prior critical habitat designation for the arroyo toad (incorporated by reference into the new proposed designation):

> "The width of the upland component of critical habitat varies based on topography. The habitat widens in broad alluvial valleys and narrows in places where streams run through constricted canyons or between surrounding hills."
> (USFWS February 7, 2001)
>
> Although the upland habitat use patterns of this species are poorly understood, activity probably is concentrated in the alluvial flats (areas created when sediments from the stream are deposited) and sandy terraces found in valley bottoms of currently active drainages (USFWS 1999, Griffin *et al.* 1999, Sweet in litt., 1999, Ramirez 2000, Holland and Sisk 2000).
> (USFWS February 7, 2001) (Ib. 9415)

On the same page in the vacated arroyo toad critical habitat designation, the USFWS examined the Holland and Sisk (2000) study of toad upland habitats and noted that 35 of the 466 toad captures were in upland habitats (7.5 percent) at distances ranging from 15 to 1,175 meters from the upland/riparian ecotone boundary. The USFWS concluded the following regarding the use of the 25 meter (80 foot) upland limit standard employed in designating the upland extent of critical habitat:

> "For the two areas sampled in this study, our modeled critical habitat boundaries encompassed 88 percent of the pitfall trapping stations where arroyo toads were detected."
> (Ib, p. (9420)

Accordingly, the use of the 25 meter/80 foot contour employed in the vacated arroyo toad critical habitat designation is considered appropriate in addressing the arroyo toad and sub-basin Protection Recommendation to "Protect breeding and foraging habitat and movement opportunities within the streamcourse and adjacent alluvial terraces" because this criterion protects 88 percent of upland movements of the arroyo toad.

In terms of lateral setbacks beyond adjacent alluvial terraces, the 80-foot contour standard has also been supplemented with information on soils types in slopes adjacent to arroyo toad streamcourse habitats. According to the vacated critical habitat designation, arroyo toads "tend to utilize upland habitats that have sandy, friable (readily crumbled) soils." (Ib, p. 9415). In the case of the Northrop Grumman ridge and Cristianitos Canyon development bubbles in proximity to arroyo toad *key locations*, the terrains map indicate that underlying soils types on the slopes are primarily clays which are not considered friable soils and thus not likely estivation habitat. Similarly, the soils on the lower slopes of the Gobernadora development bubble in proximity to the arroyo toad *key location* south of the Bell Canyon/San Juan Creek confluence are also predominantly clay soils.

Equally important, the terrains and hydrology/geomorphology habitat management considerations for the arroyo toad have been central planning precepts for the Proposed Project. Natural processes considered important to maintaining suitable habitat conditions for arroyo toads were reviewed in the report titled "Geomorphic and Hydrologic Needs of Aquatic and Riparian Endangered Species;" these processes have been addressed and provided for in the Proposed Project (see WQMP) and Watershed Planning Principles Consistency Analysis. Sources of coarse sediments and cobbles important for arroyo toad breeding and life cycle needs such as the creation of breeding pools and sediment sources for sandy benches have been protected (Verdugo Canyon, middle Gabino Canyon, and La Paz Canyon). Current sources of fine sediments that are potentially detrimental to toad breeding (the eroding clay pits in Cristianitos Canyon and the eroded hillsides in upper Gabino Canyon) would be eliminated by development. The Proposed Project WQMP includes provisions for assuring that flow duration under rainfall conditions and episodic events under post-development conditions mimic pre-development conditions and that water quality protection for toad habitat is assured.

Important habitat protection and long-term management actions are included as elements of the AMP and, in addition to the protection of *key locations*, will contribute to the recovery of the arroyo toad within the sub region:

- A comprehensive Invasive Species Control Plan is included as part of the AMP and will, in combination with ongoing County giant reed eradication efforts upstream of the planning area in San Juan Creek, help enhance/restore arroyo toad breeding habitat in San Juan Creek (Appendix J). A similar effort will be undertaken in the San Mateo Creek Watershed, with particular emphasis on invasive plant species in lower Cristianitos Creek and on tamarisk and pampas grass removal in uplands areas. Bullfrog and crayfish control in areas potentially affecting arroyo toad populations will also be undertaken.

- With respect to arroyo toad populations both within the San Mateo Creek Watershed portion of the study area and downstream of the study area, proposed coastal sage scrub and valley grasslands enhancement/restoration in the upper Cristianitos and upper Gabino sub-basins will both help reduce the generation of fine sediments from clay soils and will improve stormwater infiltration; these restoration measures will (a) reduce existing impacts on arroyo toad breeding habitat and (b) slow the discharge

of stormwater, potentially helping support spring breeding habitat (PCR, August 2002).

- With respect to arroyo toad water supply considerations in San Juan Creek, the eradication of large areas of giant reed and contributions of developed areas to baseflow in San Juan Creek will improve water supplies to the portions of San Juan Creek where arroyo toad breeding appears to be limited, in part, by a lack of breeding pool water supply.

Riverside Fairy Shrimp

On May 30, 2001, the USFWS published a final rule designating 6,878 acres of land as critical habitat for the Riverside fairy shrimp in Los Angeles, Orange, Riverside, San Diego, and Ventura counties, California (USFWS May 30, 2001). Following the designation of critical habitat, several lawsuits were filed challenging various aspects of the designation. On October 30, 2002, critical habitat for the Riverside fairy shrimp was vacated by court order. A revised designation is pending. A proposed critical habitat designation was published on April 27, 2004 (USFWS April 27, 2004).

The May 30, 2001 critical habitat designation included Unit 2 Los Angeles Basin-Orange Critical Habitat Unit, Location G. Location G was located on Chiquita Ridge over a vernal pool occupied by Riverside fairy shrimp. The mapped critical habitat around the vernal pool overlays with RMV property on Chiquita Ridge. However, it should be noted that this pool lies within open space protected by the Ladera Ranch Conservation Easement and is subject to special management actions contained in the Ladera Open Space Management Plan, thus protection and management of this pool contributes to recovery of the Riverside fairy shrimp in the Sub region.

The proposed designation includes units 2f and 2g over RMV lands, specifically the vernal pools located on Chiquita Ridge and Radio Tower Road. As noted above, the Chiquita Ridge pool is already protected. The Radio Tower Road pools are identified in the NCCP/HCP Planning Guidelines as a *key location* and would be conserved and managed through implementation of PDF 9-1 (RMV Open Space) and PDF 9-2 (the AMP) and the avoidance/minimization and mitigation measures described previously. The proposed Conservation Strategy would therefore be expected to contribute to the recovery of the Riverside fairy shrimp in the sub region.

POTENTIAL CUMULATIVE IMPACTS ON DOWNSTREAM AQUATIC HABITATS AND SPECIES – IMPACTS AND MITIGATION ANALYSIS IN RELATION TO THE PROPOSED CONSERVATION STRATEGY MEASURES

In addition to potential impacts on aquatic habitats within the study area addressed above, the Proposed Project has the potential to cause cumulative impacts on species outside the study area.

Given its location in the San Juan Creek Watershed and in the western portion of the San Mateo Creek Watershed, potential impacts on aquatic species would be downstream of the Proposed Project. Upstream of the Proposed Project in the San Juan Creek Watershed, almost all landholdings are in public ownership (Cleveland National Forest, Caspers Wilderness Park). With regard to the San Mateo Watershed, the western portion of the Proposed Project encompasses the headwaters areas of upper Cristianitos and upper Gabino creeks that comprise the headwaters of lower Cristianitos Creek to its confluence with Talega Creek. A

portion of the headwaters of Gabino Creek lies outside the study area in Riverside County and a portion of the Talega Creek watershed is in Camp Pendleton and the San Mateo Wilderness.

The potential for downstream cumulative impacts was anticipated and addressed during the preparation of technical studies for the NCCP/HCP and SAMP/MSAA programs. Consistent with the SRP/Science Advisors Tenet 7, considerable emphasis has been placed on understanding and planning for the geomorphic and hydrologic processes that shape aquatic systems both within the study area and downstream of the study area. Within the study area, the Baseline Geomorphic and Hydrologic Conditions Report assessed the fundamental terrains conditions and hydrologic influences that shape and influence riparian/aquatic systems within the study area. Specific recommendations from that report, along with guidance provided by the SAMP Tenets and the WES/CRL assessments, resulted in the preparation of the Watershed and Sub-Basin Planning Principles that have been used to assess the potential impacts of the project on aquatic/riparian systems both at the sub-basin level and at the landscape level. By avoiding, minimizing, and mitigating potential impacts within the study area to below a level of significance, the project would be expected to have minimal impacts on downstream resources (further analysis is presented below).

Several other reports and plans are particularly significant for the assessment of potential downstream cumulative impacts on riparian/aquatic habitats and associated species:

- **Geomorphic and Hydrologic Needs of Aquatic and Riparian Endangered Species** – The purpose of this report was to address three listed aquatic/riparian species found within the study area and downstream of the study area (arroyo toad, least Bell's vireo, and southwestern willow flycatcher) and the two aquatic/riparian Endangered species found in the San Mateo watershed downstream of the study area (tidewater goby and southern steelhead). The specific goals of the report were to:

  1. Summarize the regulatory status of the species.
  2. Identify key physical attributes of the habitats supporting each species.
  3. Characterize the hydrologic and geomorphic conditions and processes that shape/determine the presence and long-term viability of habitat for all life-stages.
  4. Relate key physical habitat attributes to underlying physical processes.
  5. Assess the relationship between land uses and aquatic resources for species found both within and downstream and outside the planning area.

  Overall, the report is intended to provide a summary of generalized habitat, geomorphic and hydrologic considerations, and a review of those considerations in the context of conditions within and downstream of the planning area. Although the report is directed at understanding processes affecting the habitats of the five listed species enumerated above, the species addressed constitute a broad range of types of species and habitat requirements such that they represent "planning surrogates" for overall aquatic/riparian habitat protection requirements. A detailed review of the link between physical processes and habitat components is presented in Section 4.0 of the Report (Key Physical Processes) and Section 5.0 of the Report presents a "Summary of Key Physical Processes Important for Each Species") which sections are hereby incorporated by reference. The understanding of key processes resulting from the preparation of this Report contributed significantly to the preparation of the Watershed Planning Principles sub-basin guidelines and to the content of the Baseline Conditions Watershed Planning Principles (e.g., see Principle 6).

- **The proposed RMV WQMP** addresses "pollutants of concern" and "hydrologic conditions of concern" in accordance with applicable water quality requirements. Both sets of considerations have implications for downstream species as reviewed extensively in Chapter 2 of the WQMP hereby incorporated by reference. By addressing the planning considerations set forth in the Baseline Conditions Watershed Planning Principles and the Watershed Principles sub-basin planning considerations and recommendations, the WQMP addresses hydrologic and geomorphic considerations at the sub-basin level (see WQMP Chapters 4 and 5 incorporated by reference) as well as at the overall watershed level (see WQMP Chapter 8, Cumulative Impacts incorporated by reference). By reducing potential water quality impacts involving "pollutants of concern" and post-development flow conditions involving "hydrologic conditions of concern" to below a level of significance, the Proposed Project with mitigation specified in the WQMP will not cause adverse impacts to water flows as they exit the boundaries of the project downstream of the project.

- **Geomorphologic Factors Affecting Sediment Generation and Transport under Pre- and Post-Urbanization Conditions at Rancho Mission Viejo and in the San Juan and San Mateo Watersheds, Orange County, California** – Important findings regarding post-development sediment yield (including differentiation between coarse sediments and fine sediments) and sediment transport functions that significantly affect riparian/aquatic habitats both within and downstream of the Proposed Project's study area are presented in this report: Sediment transport needs of aquatic species are addressed in Section 4.2 of the report. Several sections of the report (hereby incorporated by reference) stress project design features directed toward preserving sources of coarse sediments and cobbles important to the habitats of aquatic species and of reducing the excess generation of fine sediments resulting from the conversion of native plant species to non-native annual grasses and from several areas of site-specific erosion. This report also details the manner in which the sources and transport of beach sands important to downstream marine life habitat have been protected while the aforementioned reduction in the generation of excess fine sediments will benefit marine life habitat systems (for confirmation of the benefits to marine life of reducing the generation of fine sediments, see Inman, Jenkins and Masters, June 2000 analyzing post-development runoff characteristics from a project on the Newport Coast discharging into the offshore marine life reserve).

Overall, with regard to potential cumulative impacts, the Proposed Project has the following effects:

- <u>Pollutants of Concern</u>: Potential pollutants have been reduced to below a significance in a manner fully in compliance with applicable water quality standards intended to assure that cumulative impacts do not occur as a result of discharges to waters of the U.S either from existing or new non-point and point discharges. No TMDLs other than pathogens have been identified for the San Juan Creek watershed and thus the project does not cumulatively contribute to already impaired waters. With regard to pathogens, the proposed project may increase pathogens depending on the adequacy of source control BMPs but neither existing nor post-development levels are likely to meet REC-1 standards for fecal coliform consistently, other than those flows that are infiltrated (see WQMP at pp. 145). Although the Proposed Project will have significant unavoidable impacts to fecal coliform/pathogen (primarily due to pet wastes and the efficacy of public education programs).

- Hydrologic Conditions of Concern: Potential increases in total volumes of water for 100-year storm events as a result of urbanization impacts are projected at 308 acre-feet in the San Juan watershed and 25 acre-feet in the San Mateo watershed. With regard to the San Juan Creek watershed and San Juan Creek itself downstream of the study area, the potential increase is relatively very small but beneficial. Increases in water flows resulting both from development areas and from invasive species control (the removal of giant reed) will be beneficial to arroyo toad habitat both within the study area and potentially downstream of the study area). Additionally, the comprehensive control of arundo within the study area and upstream of the study area under the proposed AMP will eliminate the source of giant reed presently impacting downstream reaches of San Juan Creek.

  With regard to the San Mateo watershed, any increase in surface water flows would help offset the impacts of groundwater pumping in Camp Pendleton identified by CDFG as a major impact on aquatic resources (see "Geomorphic and Hydrologic Needs" Report at p. 99). As in the case of the invasive species control plan for the San Juan Creek watershed, the invasive species control plan for the San Mateo watershed within the study area will address tamarisk and other invasive species that would otherwise migrate downstream with potentially significant adverse impacts on aquatic/riparian habitat systems.

- Geomorphic/Terrains Considerations: The "Geomorphologic Factors" report cited above reviews the manner in which the project protects sources of coarse sands which, in combination with the protection of upstream sources of coarse sands under government ownership, will protect the types of sediments important to maintaining aquatic/riparian habitats downstream of the study area (see Geomorphic and Hydrologic Needs report) and offshore marine life supported by sand supplies to the littoral cell. Additionally, as reviewed in the same report, the measures designed to reduce the excess generation of fine sediments (both through vegetation restoration measures detailed in the AMP and through the correction of existing site-specific sources of excess fine sediments such as in upper Gabino and in Cristianitos canyons) will cumulatively benefit downstream aquatic/riparian habitats and offshore marine life areas.

SIGNIFICANT, UNAVOIDABLE IMPACTS FOLLOWING AVOIDANCE, MINIMIZATION, AND MITIGATION

The Proposed Project will result in significant, unavoidable impacts to two slope wetlands in the Chiquita sub-basin, linkages K and G, and fecal coliform pathogen impacts.

Upper Chiquita Canyon Conservation Area

Not a Part

General Thomas F. Riley Wilderness Park

Audobon Star Ranch

Chiquita Canyon

Bell Canyon

Verdugo Canyon

Canada Gobernadora

Caspers Wilderness Park

Ladera Open Space

Not a Part

Chiquadora Ridge

Ranch Plan Boundary

Protected Open Space

List 3

vernal barley

List 4

Catalina mariposa lily

western dichondra

beaked spikerush

Palmer's grapplinghook

small-flowered microseris

Fish's milkwort

Local Concern

mesa brodiaea

upright burhead

California juniper

Small-flowered wild petunia

Piper's rein orchid

0 5 Miles

Source: Dudek, 2004

Sensitive Plants: CNPS List 3 and 4 and Local Concern (North)

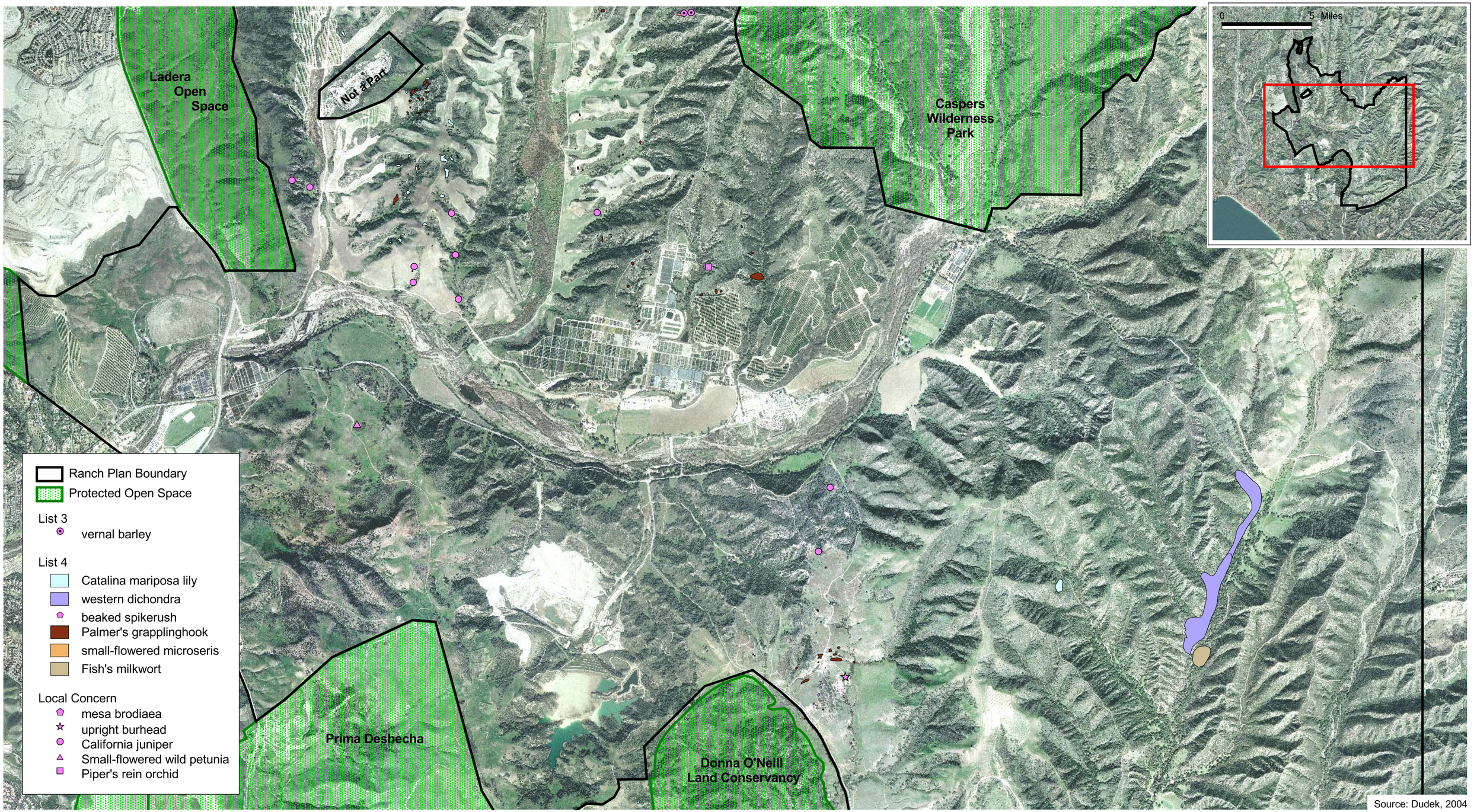
Exhibit 4.9-10a

The Ranch Plan

N W E S

2500 0 2500 Feet

R:/Projects/RMV/J008/Ex4.9-10a_Plants_060404.pdf



Source: Dudek, 2004

Sensitive Plants: CNPS List 3 and 4 and Local Concern (Middle)

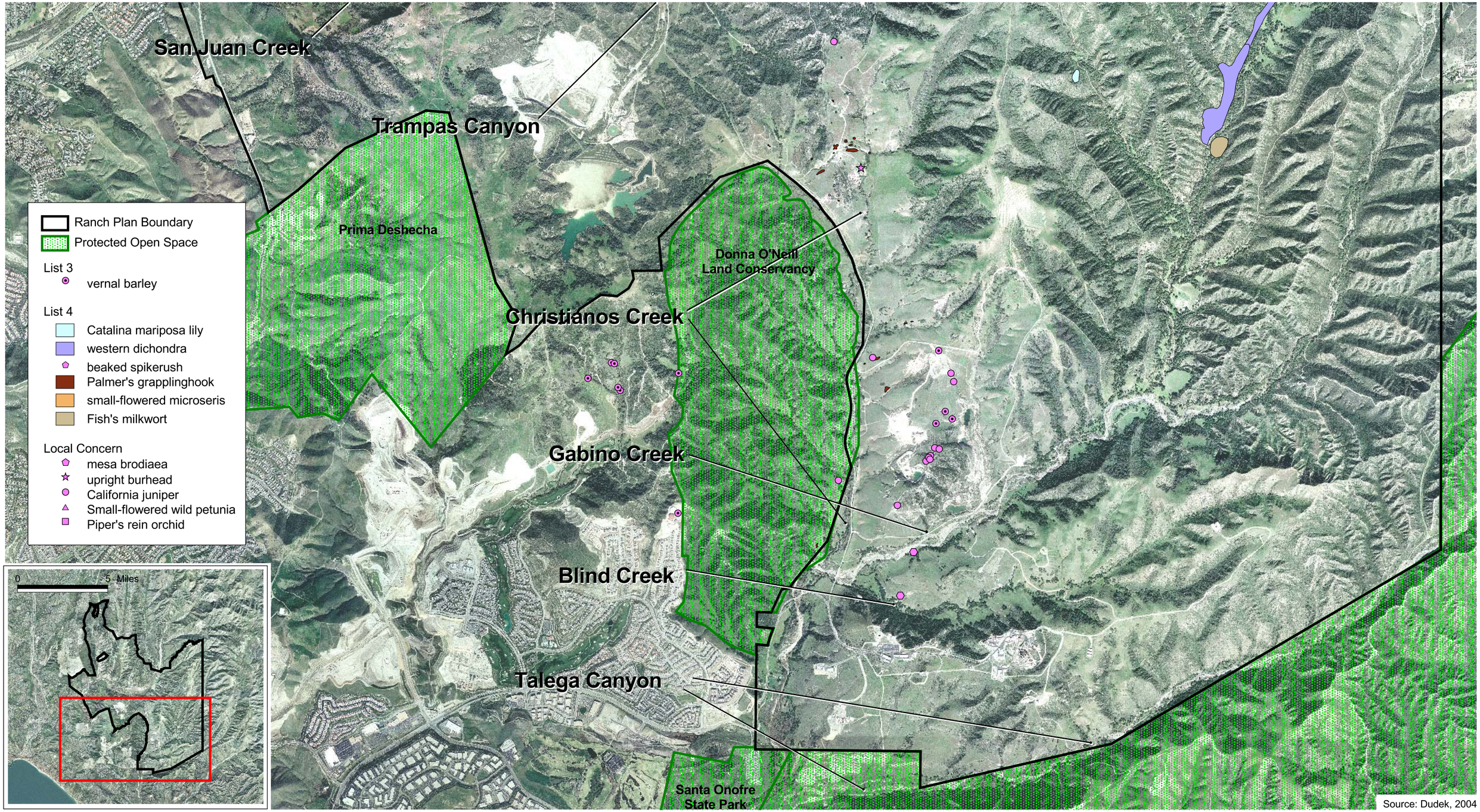
Exhibit 4.9-10b

The Ranch Plan

N W E S

2500 0 2500 Feet

R:/Projects/RMV/J008/Ex4.9-10b_Plants_060404.pdf



Source: Dudek, 2004

Sensitive Plants: CNPS List 3 and 4 and Local Concern (South)

Exhibit 4.9-10c

The Ranch Plan

N W E S

2500 0 2500 Feet

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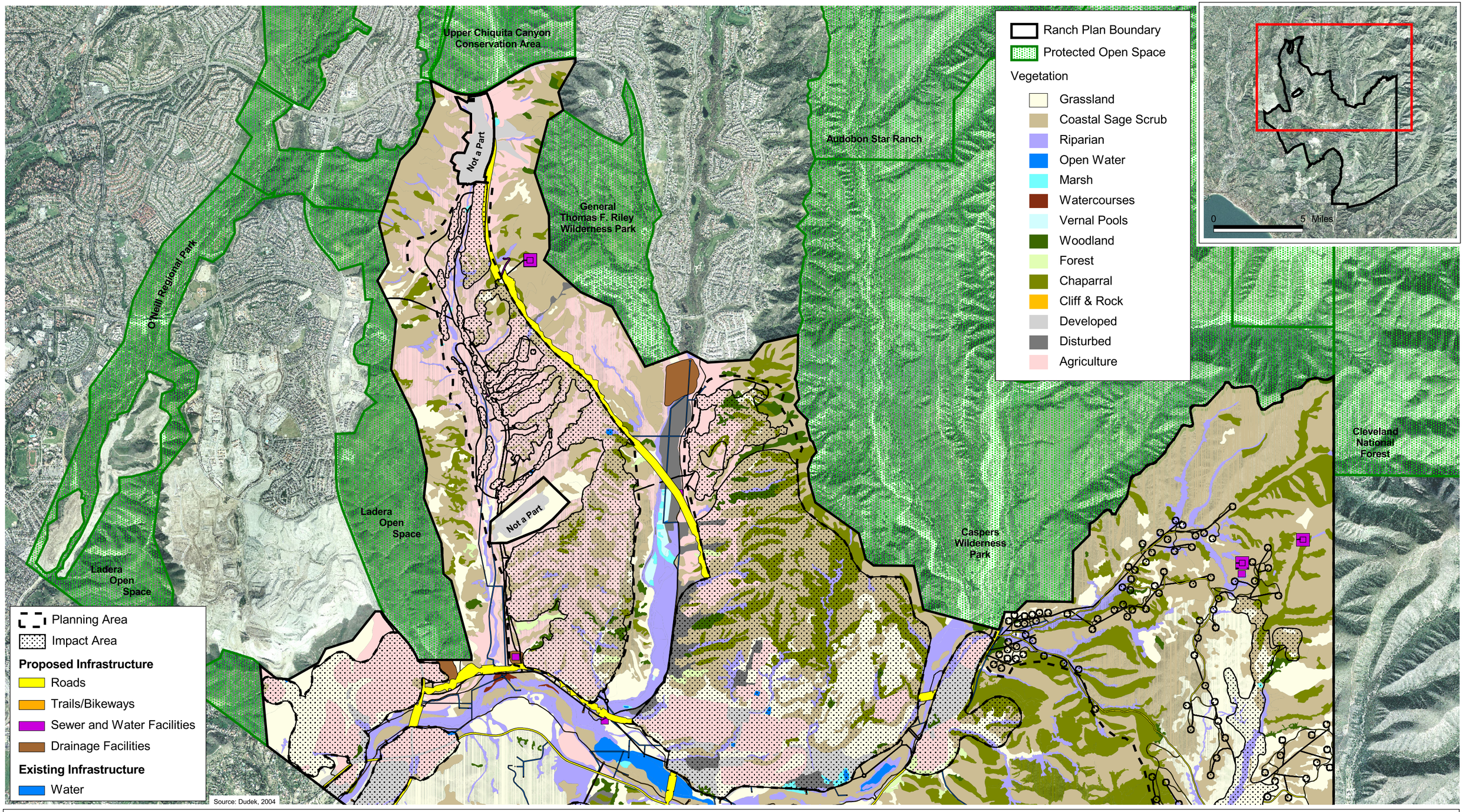


Impacts to Vegetation Communities (North)

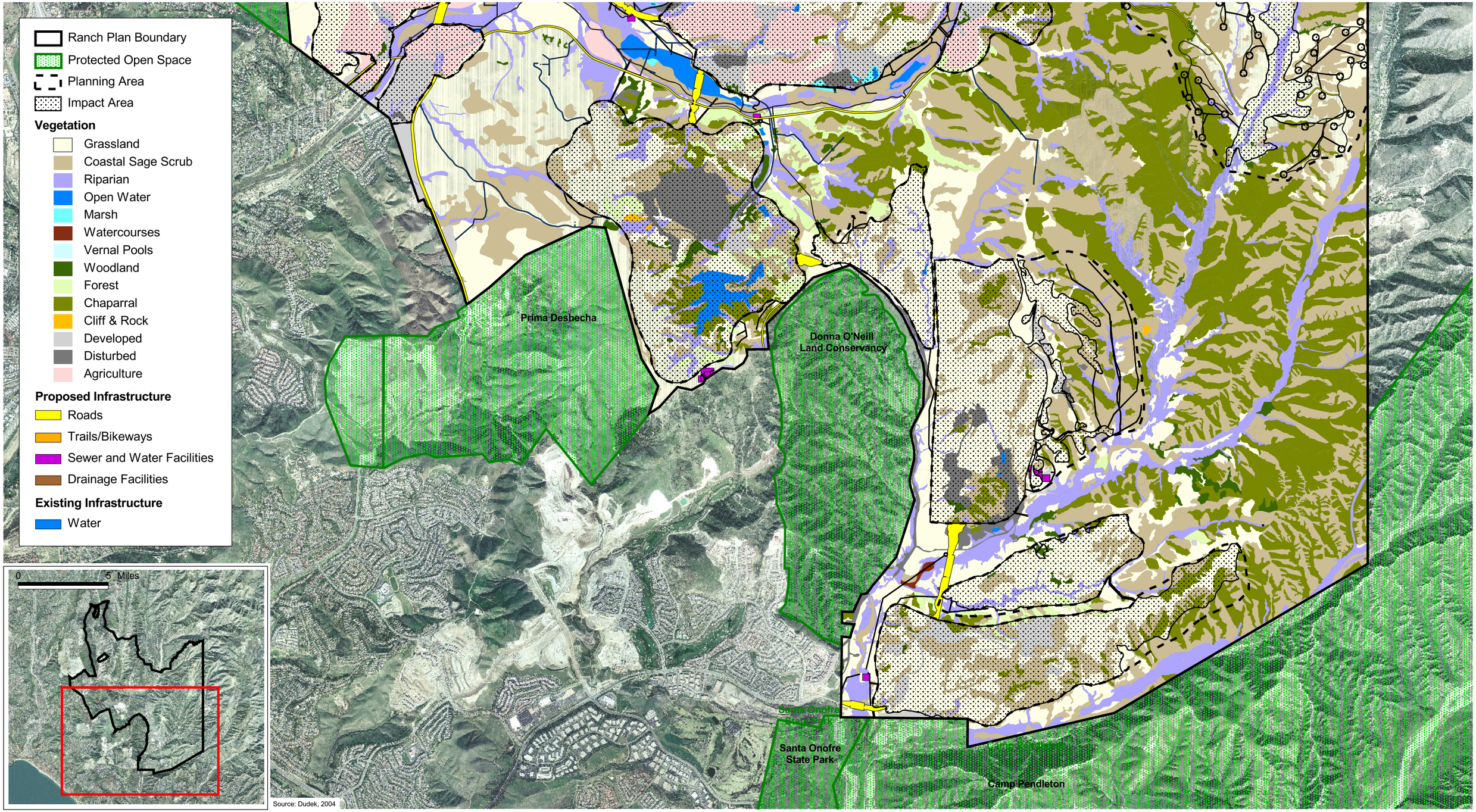
Exhibit 4.9-11a

The Ranch Plan

N W E S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-11a_vegimpacts_060404.pdf



Vegetation Communities (South)

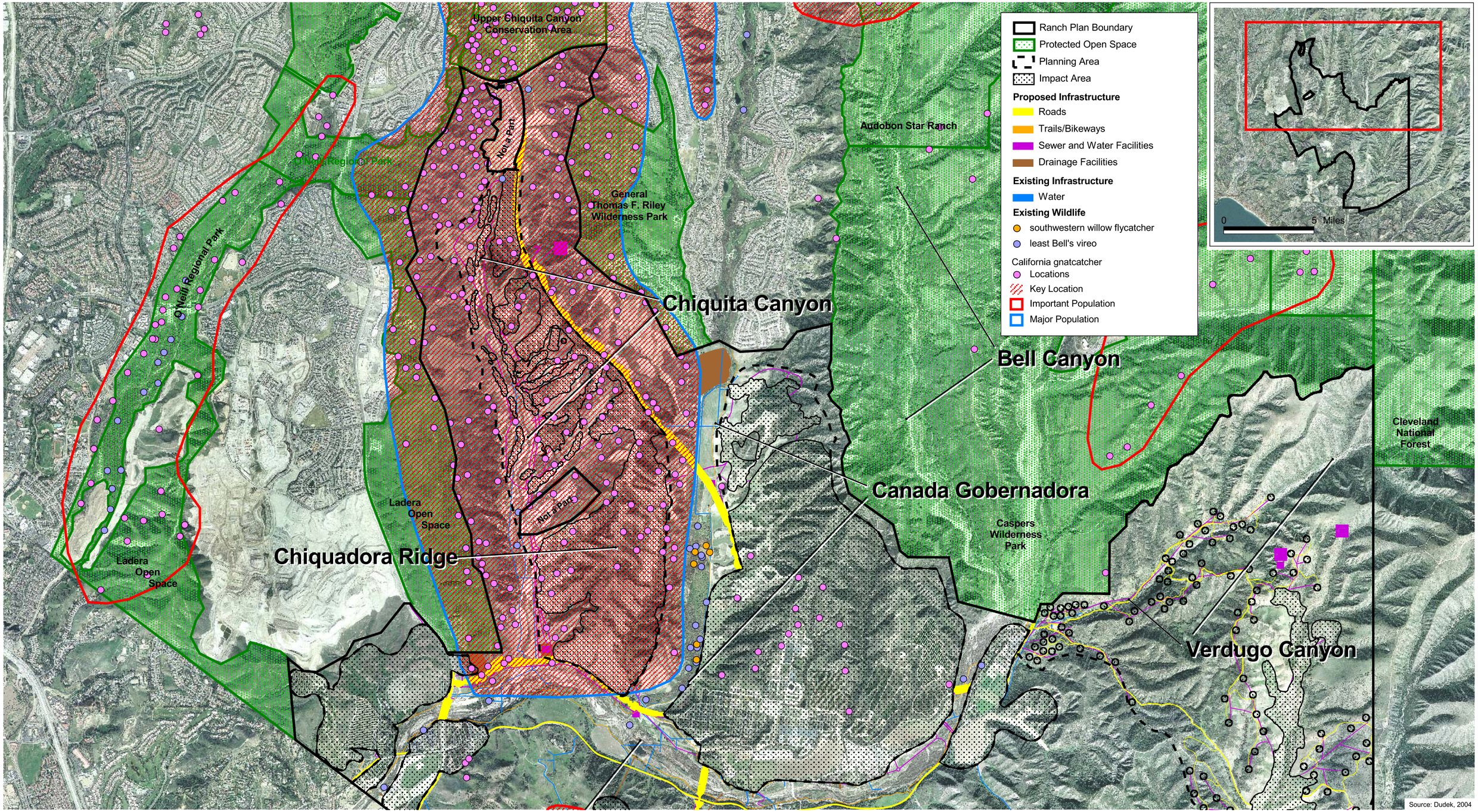
Exhibit 4.9-11b

The Ranch Plan

N
W
E
S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-11a_vegimpactsB_060404.pdf



Impacts to Sensitive Wildlife: Threatened and Endangered Birds (North)

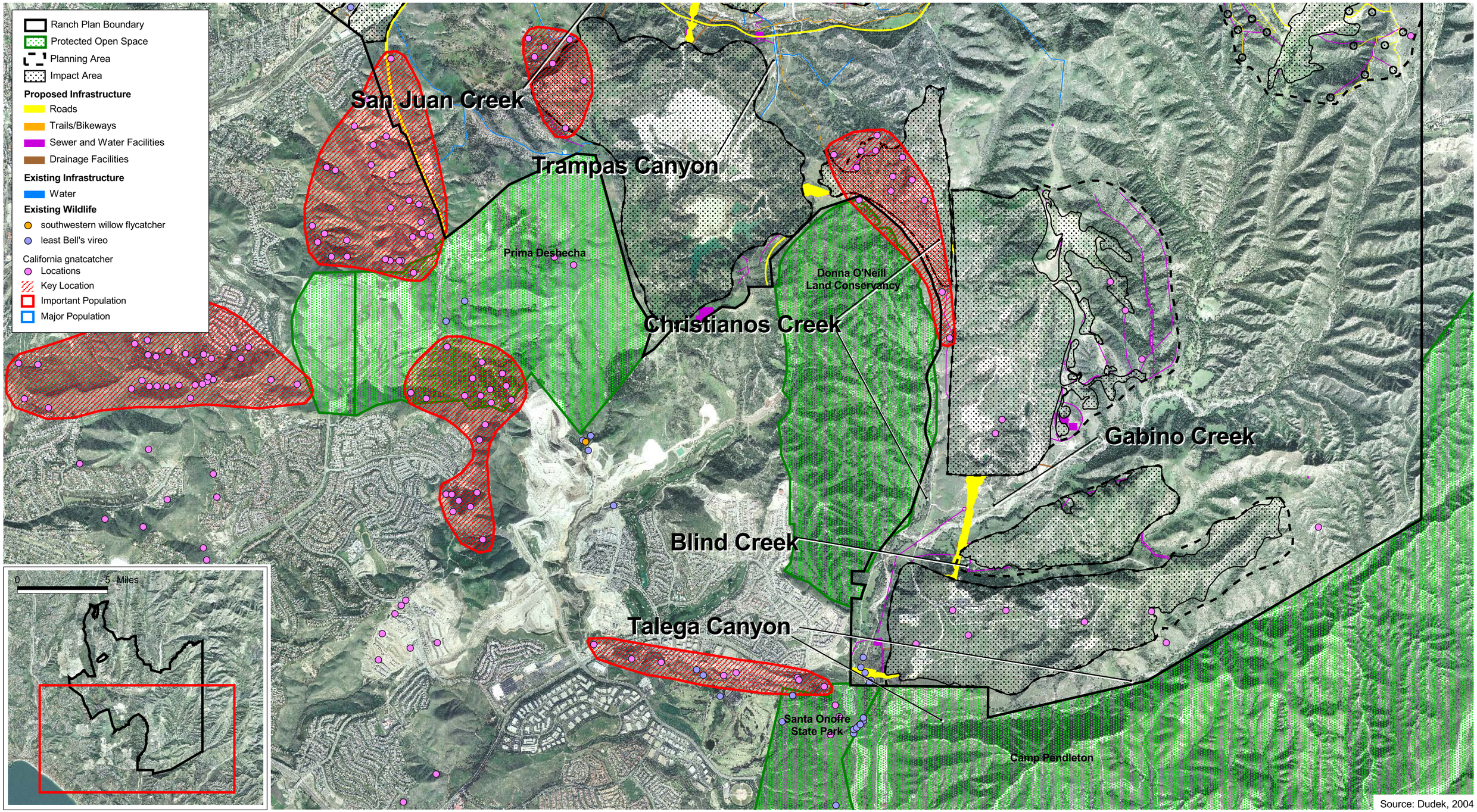
Exhibit 4.9-12a

The Ranch Plan

N W E S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-12a_impSW_threatBirds_060404.pdf



Source: Dudek, 2004

Impacts to Sensitive Wildlife: Threatened and Endangered Birds (South)

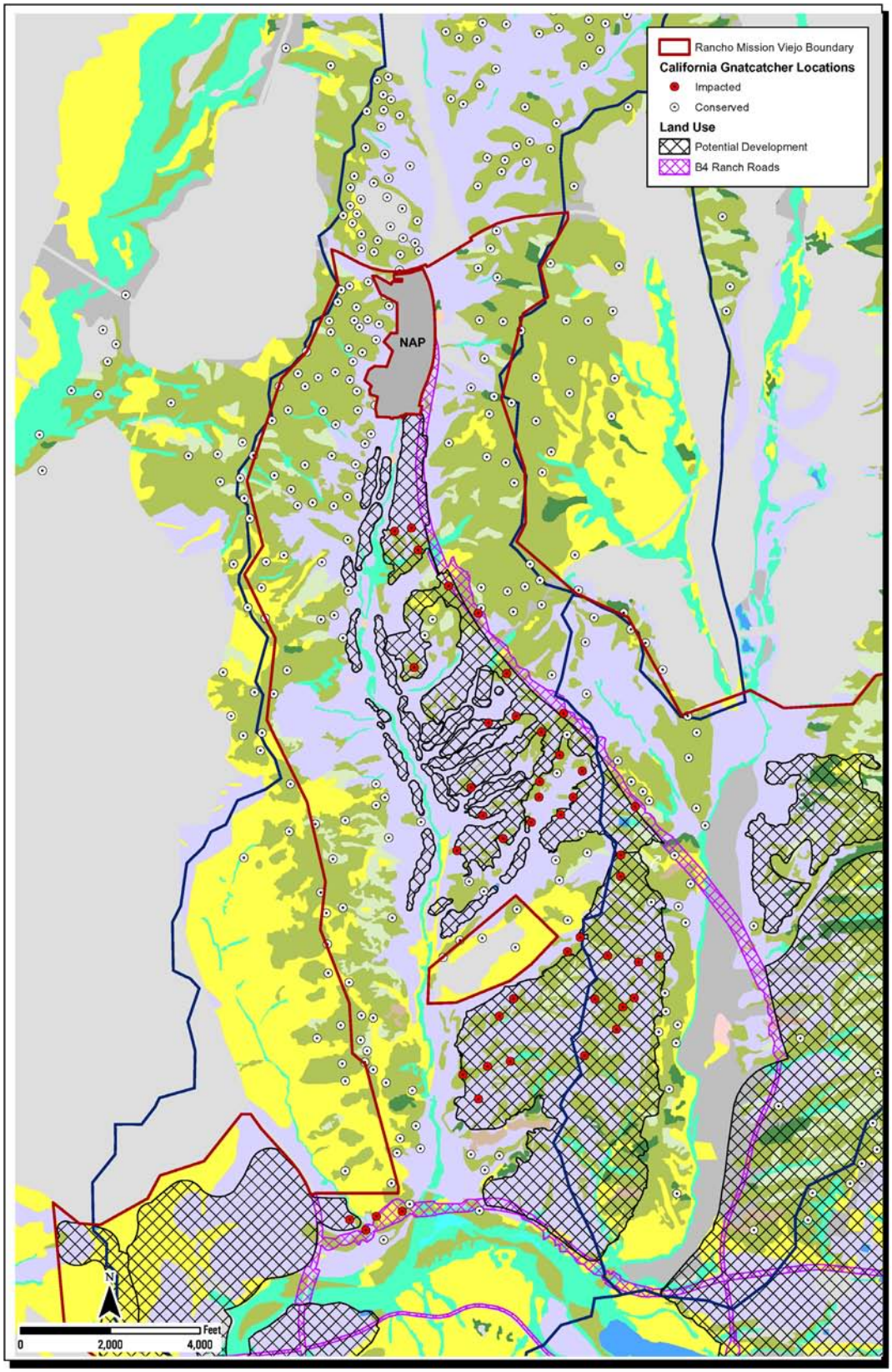
Exhibit 4.9-12b

The Ranch Plan

N W E S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-12b_impSW_threatBirds_060404.pdf



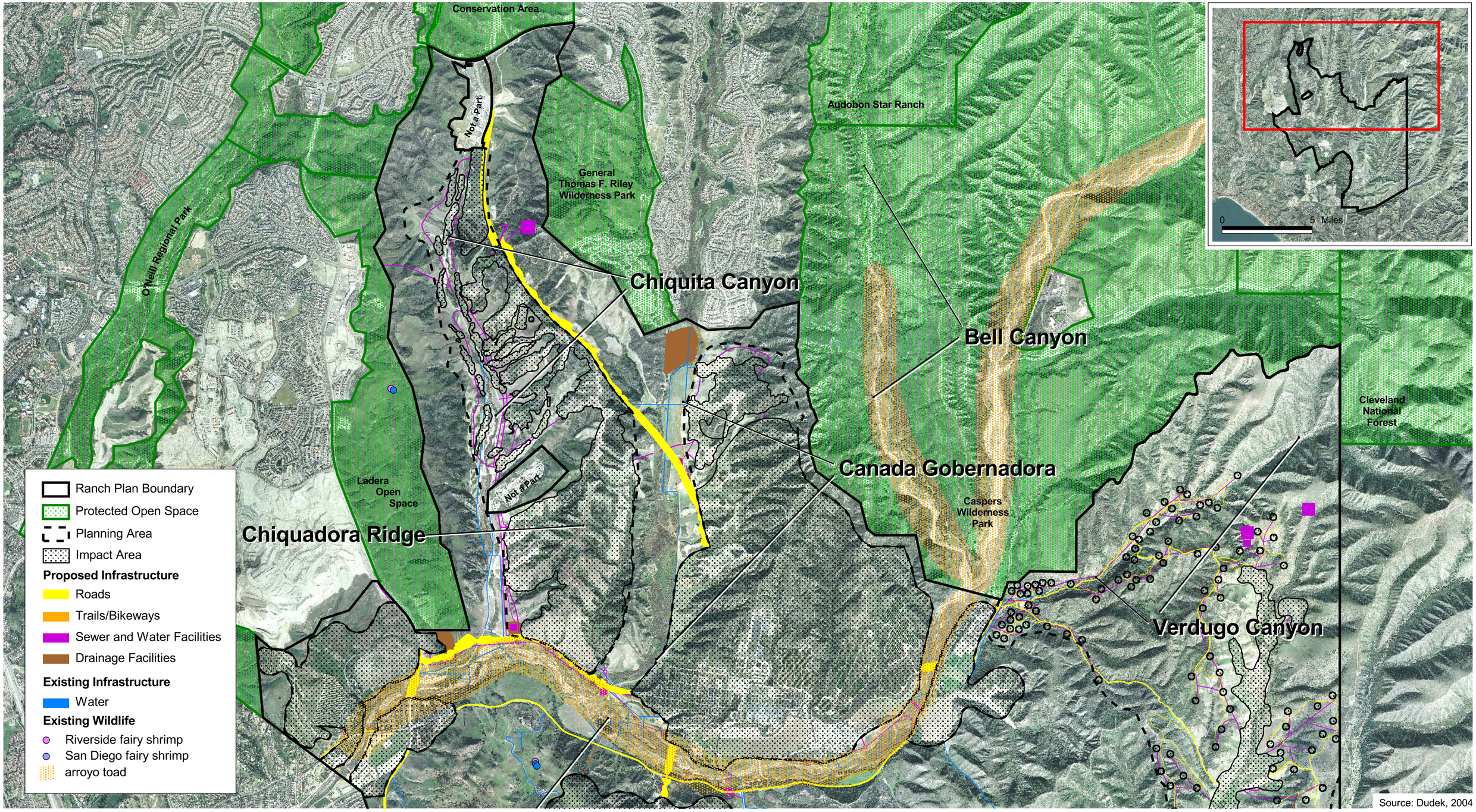
California Gnatcatcher Protection within Chiquita Canyon Major Population

Exhibit 4.9-13

The Ranch Plan

Source: Dudek 2004

R:\Projects\RMVJ008\Ex4.9-13_CAGNPro_060804.pdf



Impacts to Sensitive Wildlife: Threatened and Endangered Invertebrates and Amphibians (North)

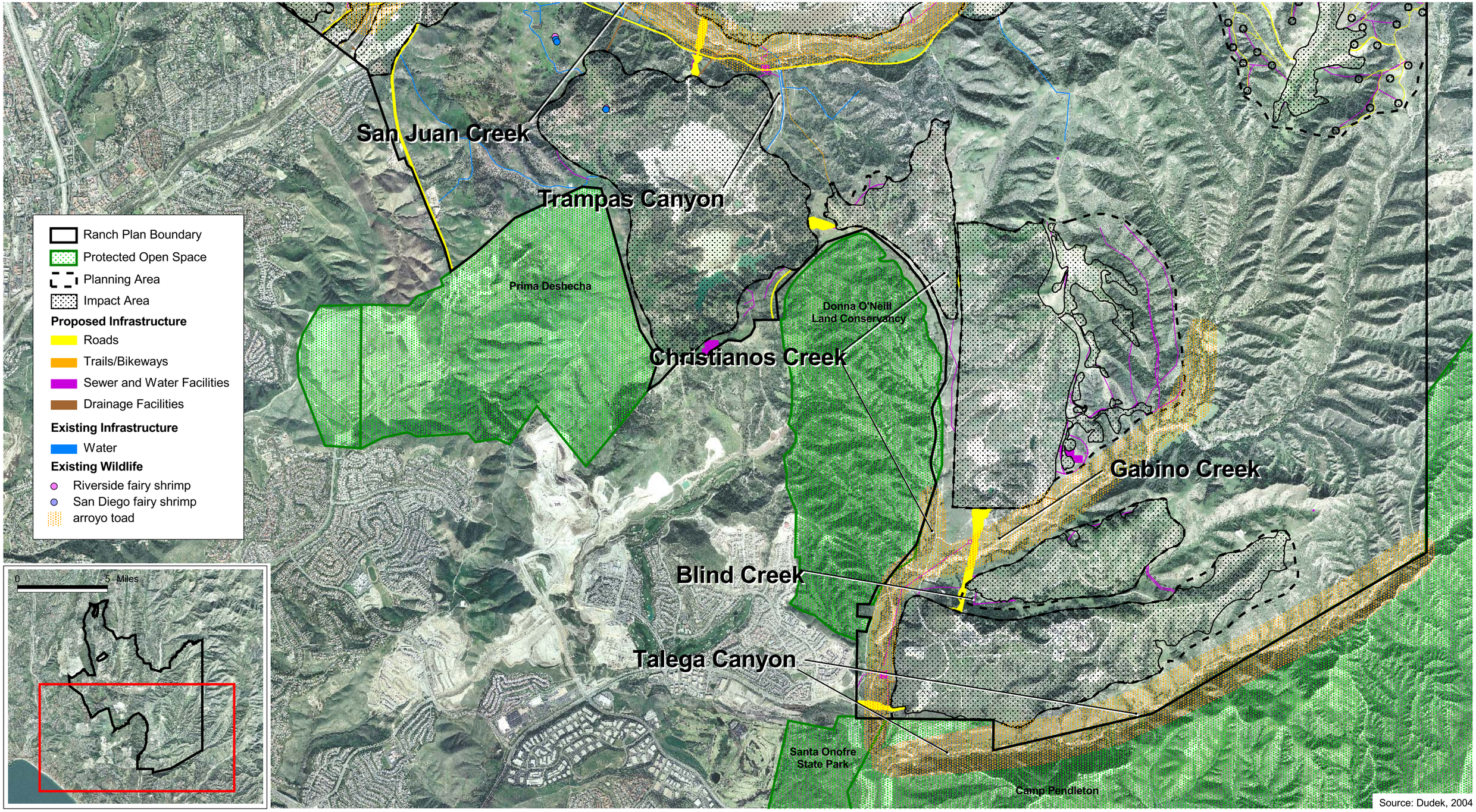
Exhibit 4.9-14a

The Ranch Plan

N S E W

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-14a_impSW_threatAmph_060404.pdf



Source: Dudek, 2004

Impacts to Sensitive Wildlife: Threatened and Endangered Invertebrates and Amphibians (South)

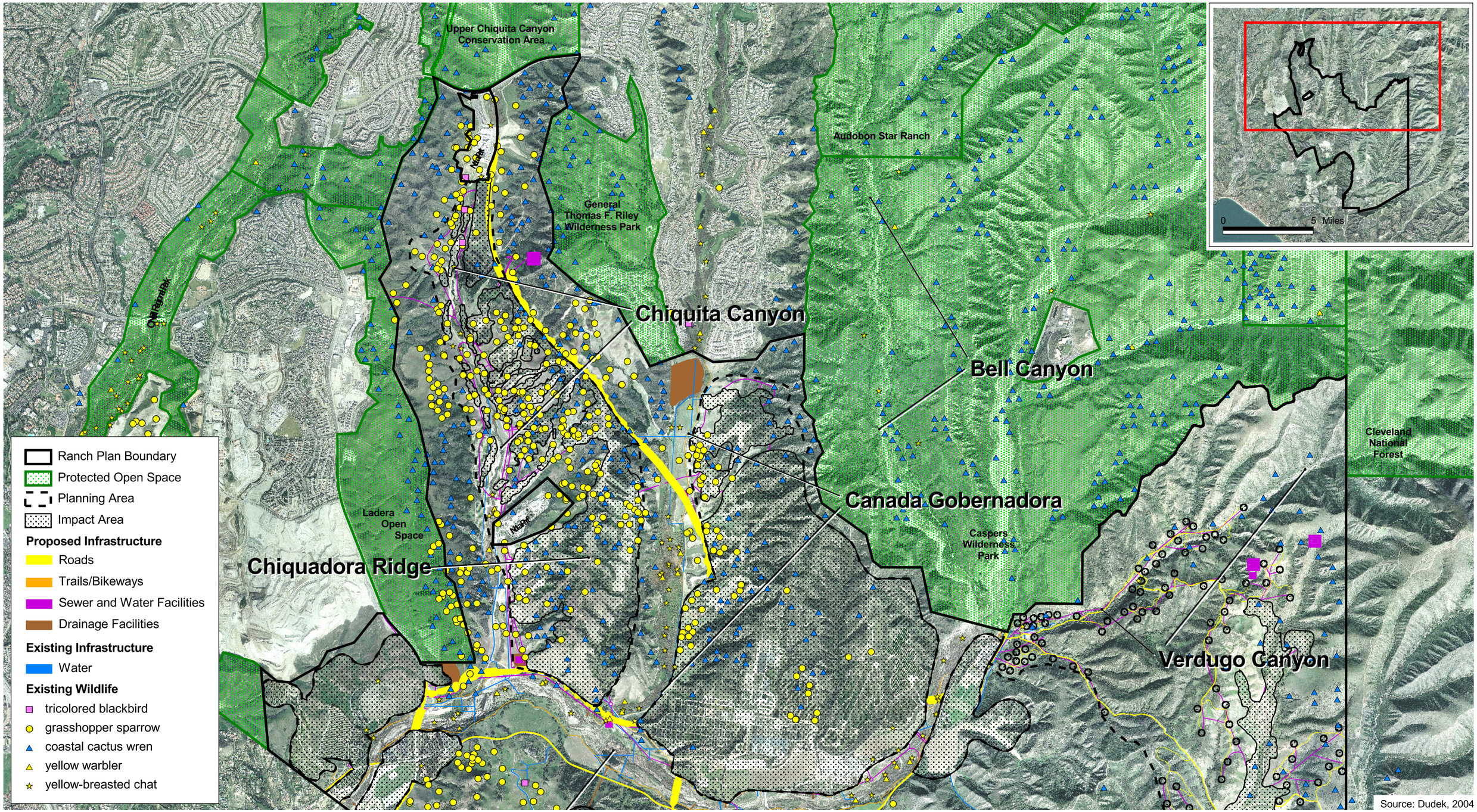
Exhibit 4.9-14b

The Ranch Plan

N W E S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-14b_impSW_threatAmph_060404.pdf



Impacts to Sensitive Wildlife: Birds (Non-Threatened/Endangered and Planning Species)(North)

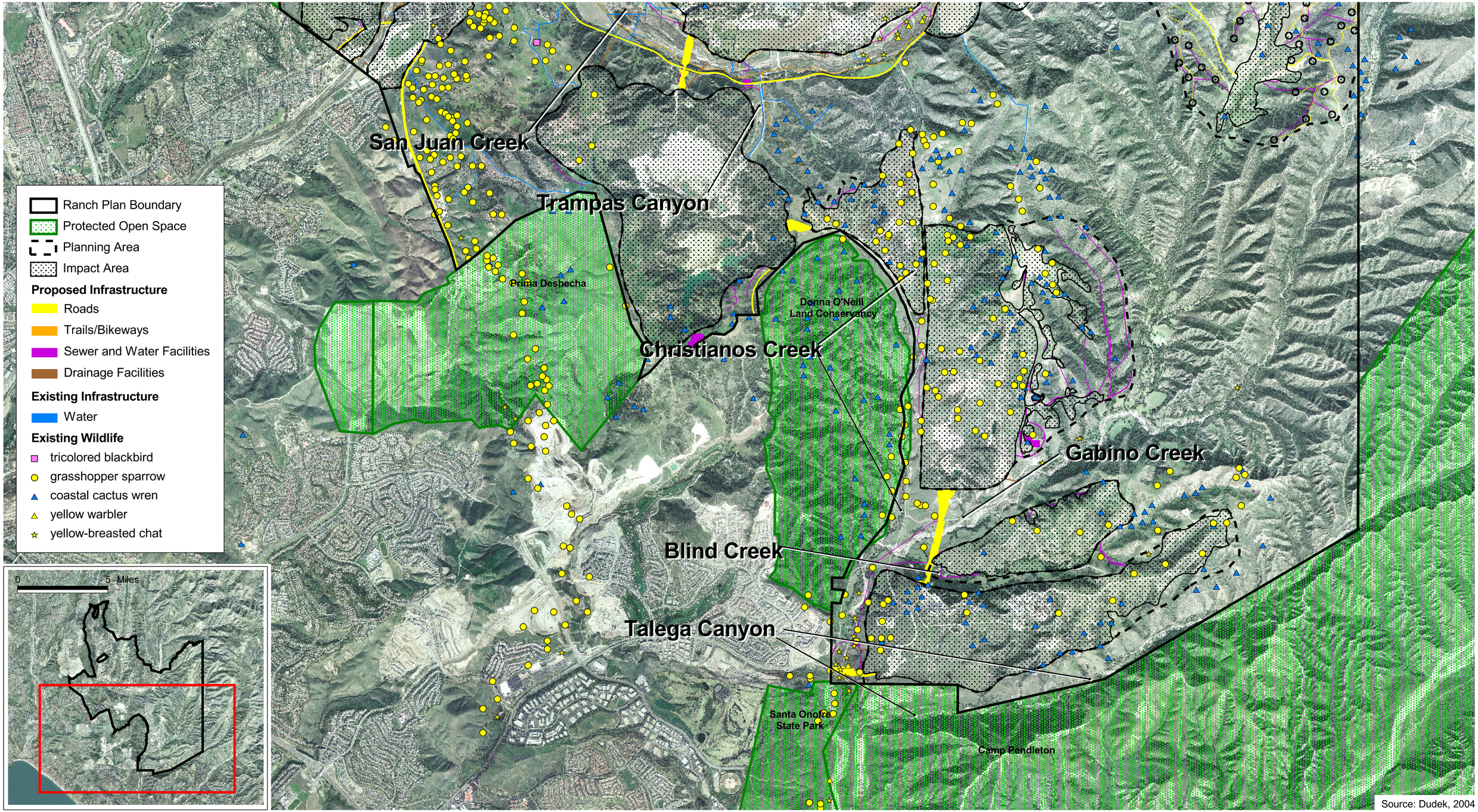
Exhibit 4.9-15a

The Ranch Plan

N W E S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-15a_impSW_Birds_060404.pdf



Source: Dudek, 2004

Impacts to Sensitive Wildlife: Birds (Non-Threatened/Endangered and Planning Species)(South)

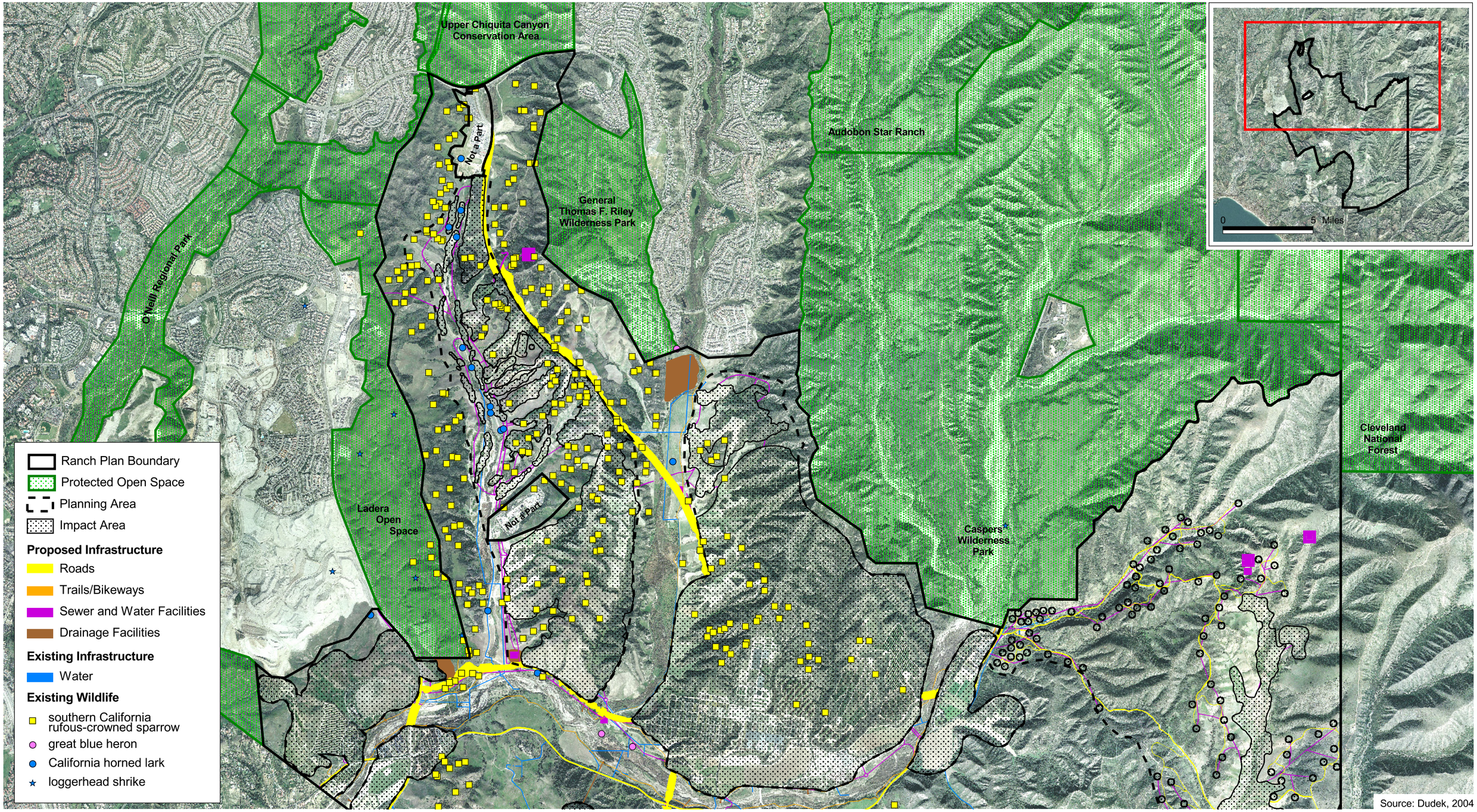
Exhibit 4.9-15b

The Ranch Plan

N W E S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-15b_impSW_Birds_060404.pdf



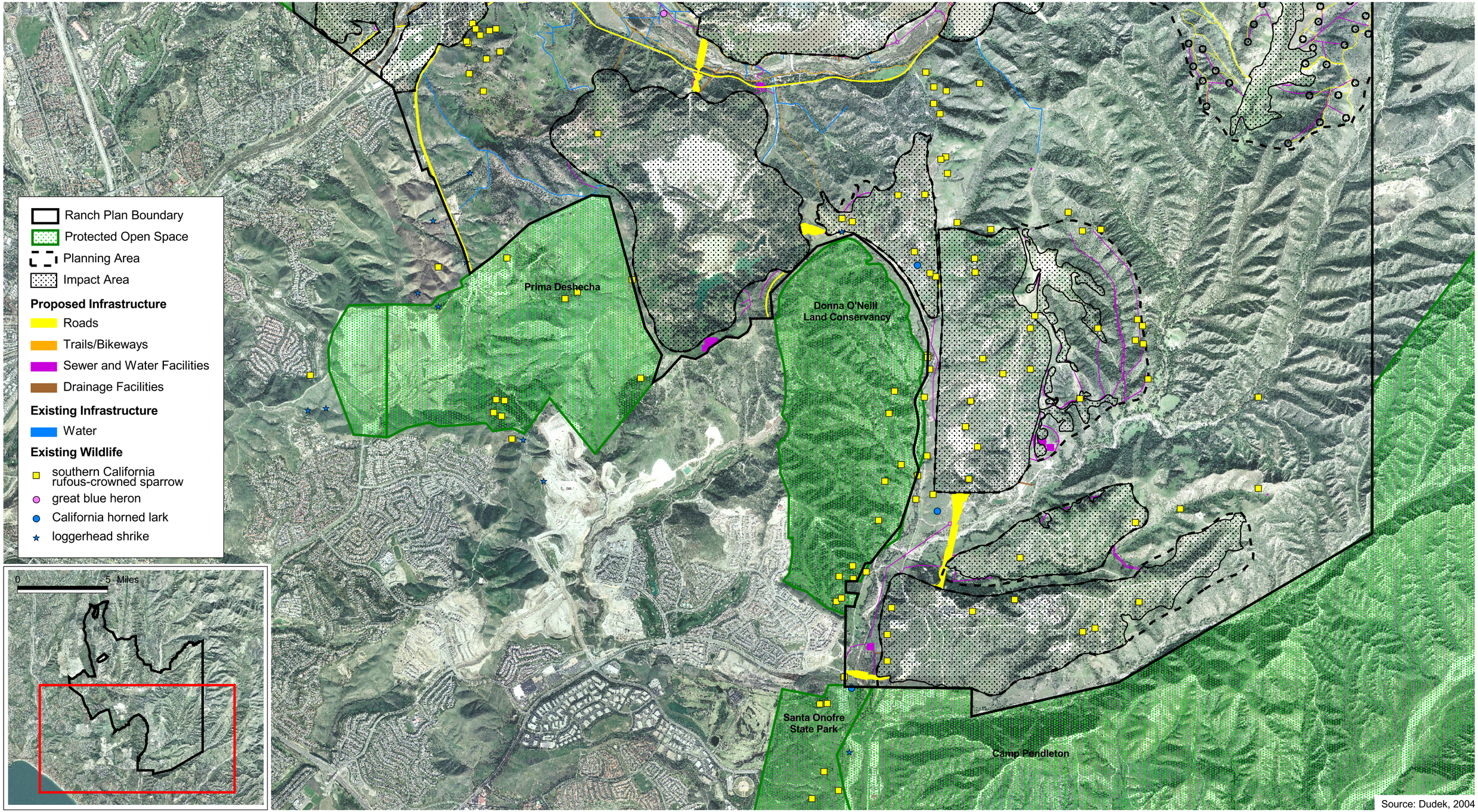
Impacts to Sensitive Wildlife: Birds (Non-Threatened/Endangered and Non-Planning Species)(North) Exhibit 4.9-16a

The Ranch Plan

N W E S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-16a_impSW_BirdsB_060404.pdf



Source: Dudek, 2004

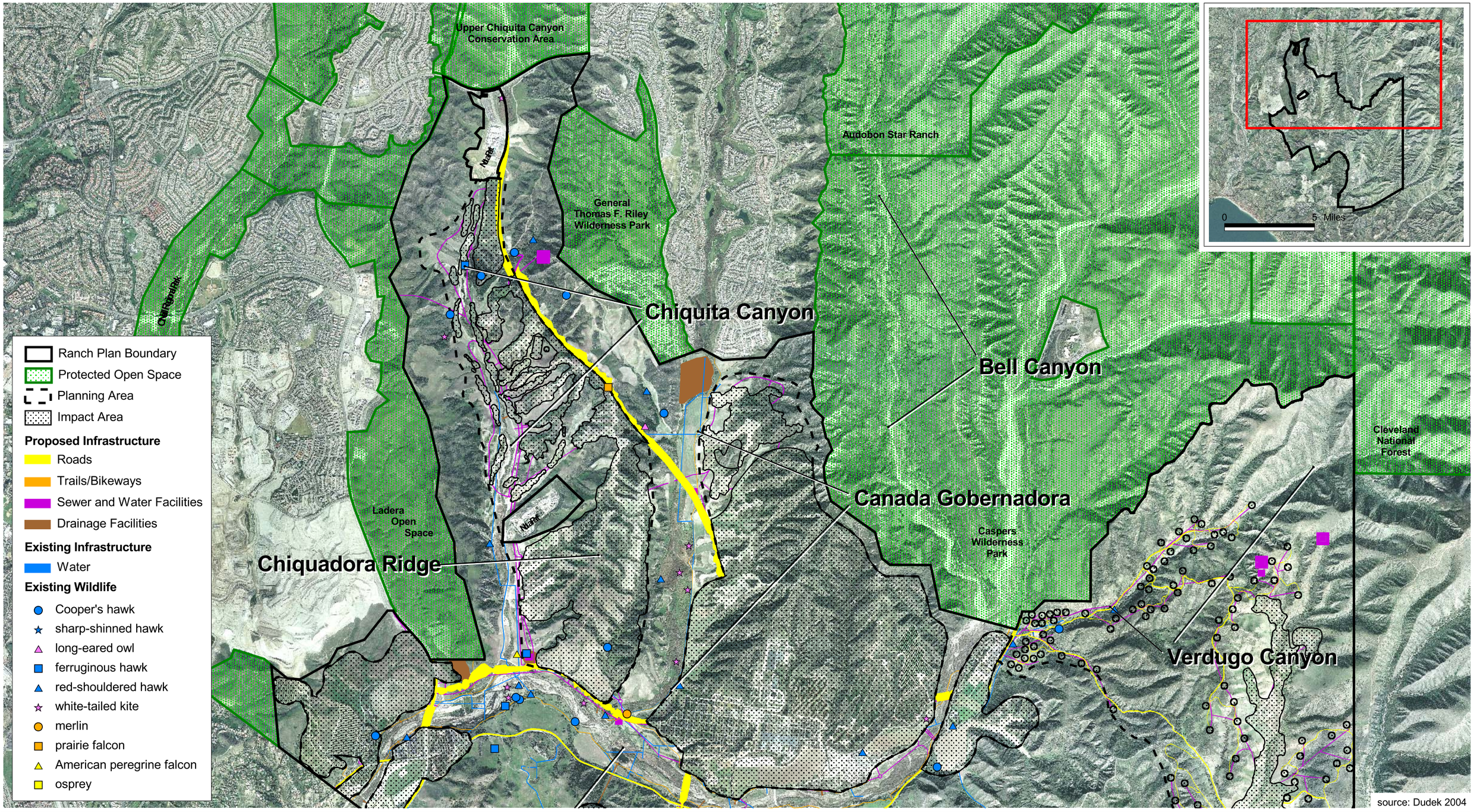
Impacts to Sensitive Wildlife: Birds (Non-Threatened/Endangered and Non-Planning Species)(South) Exhibit 4.9-16b

The Ranch Plan

N W E S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-16b_impSW_BirdsB_060404.pdf



Impacts to Sensitive Wildlife: Raptors (North)

Exhibit 4.9-17a

The Ranch Plan

N W E S

3250 0 3250 Feet

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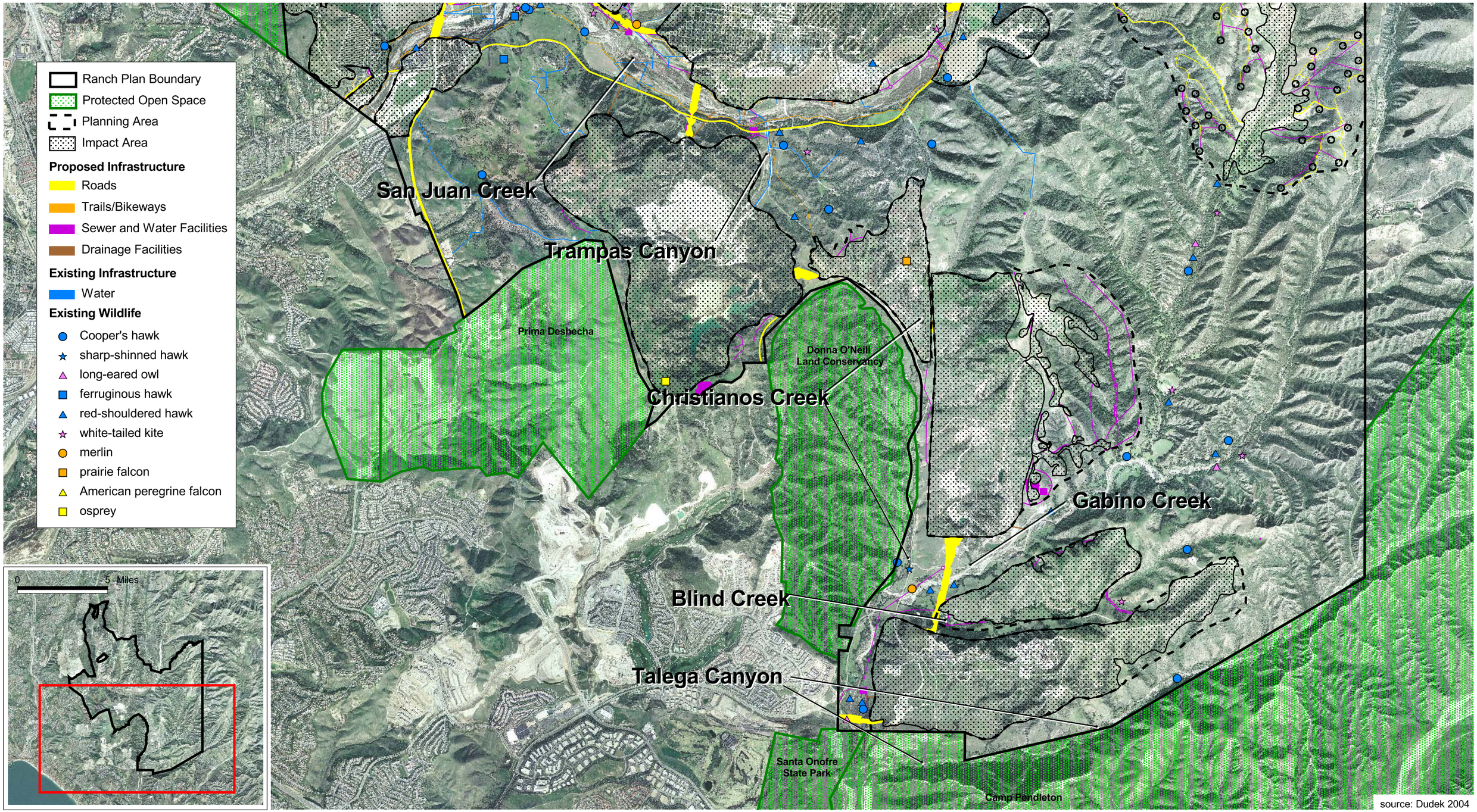


source: Dudek 2004

Impacts to Sensitive Wildlife: Raptors (South)

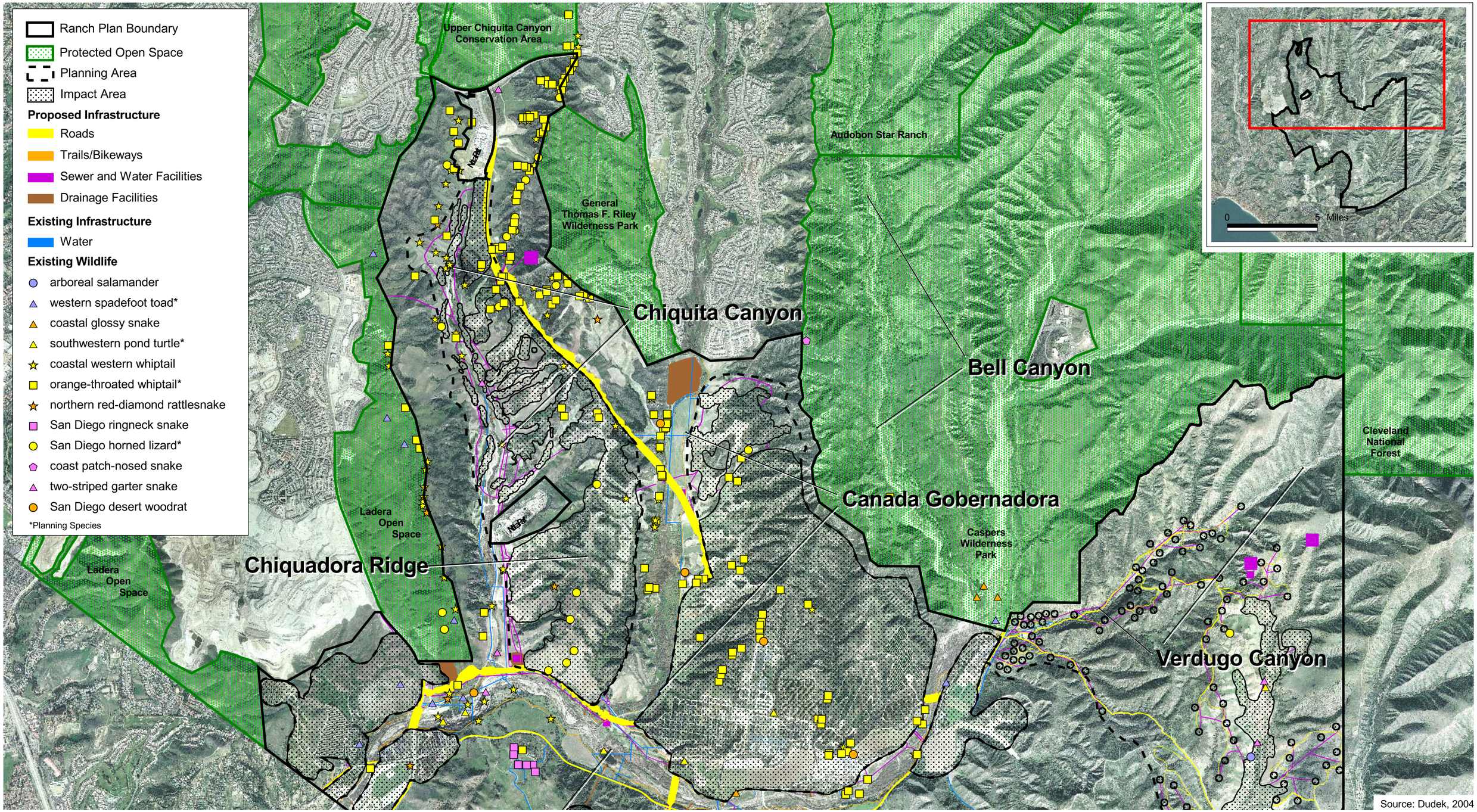
Exhibit 4.9-17b

The Ranch Plan

N W E S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-17b_impSW_Rapt_060404.pdf



Impacts to Sensitive Wildlife: Amphibians, Reptiles and Mammals (Non-Threatened/Endangered) (North)

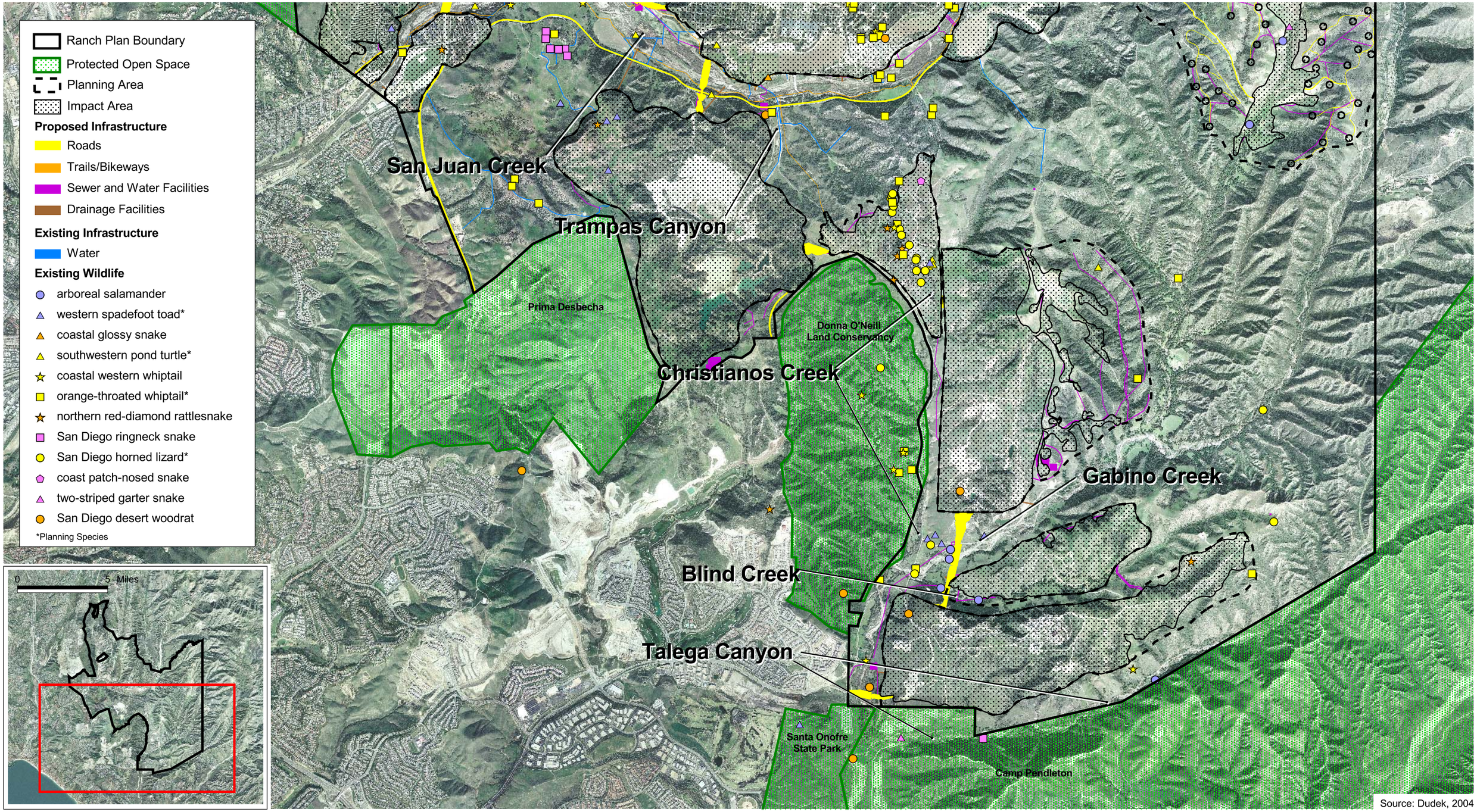
Exhibit 4.9-18a

The Ranch Plan

N W E S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-18a_impSW_Amph_060404.pdf



Source: Dudek, 2004

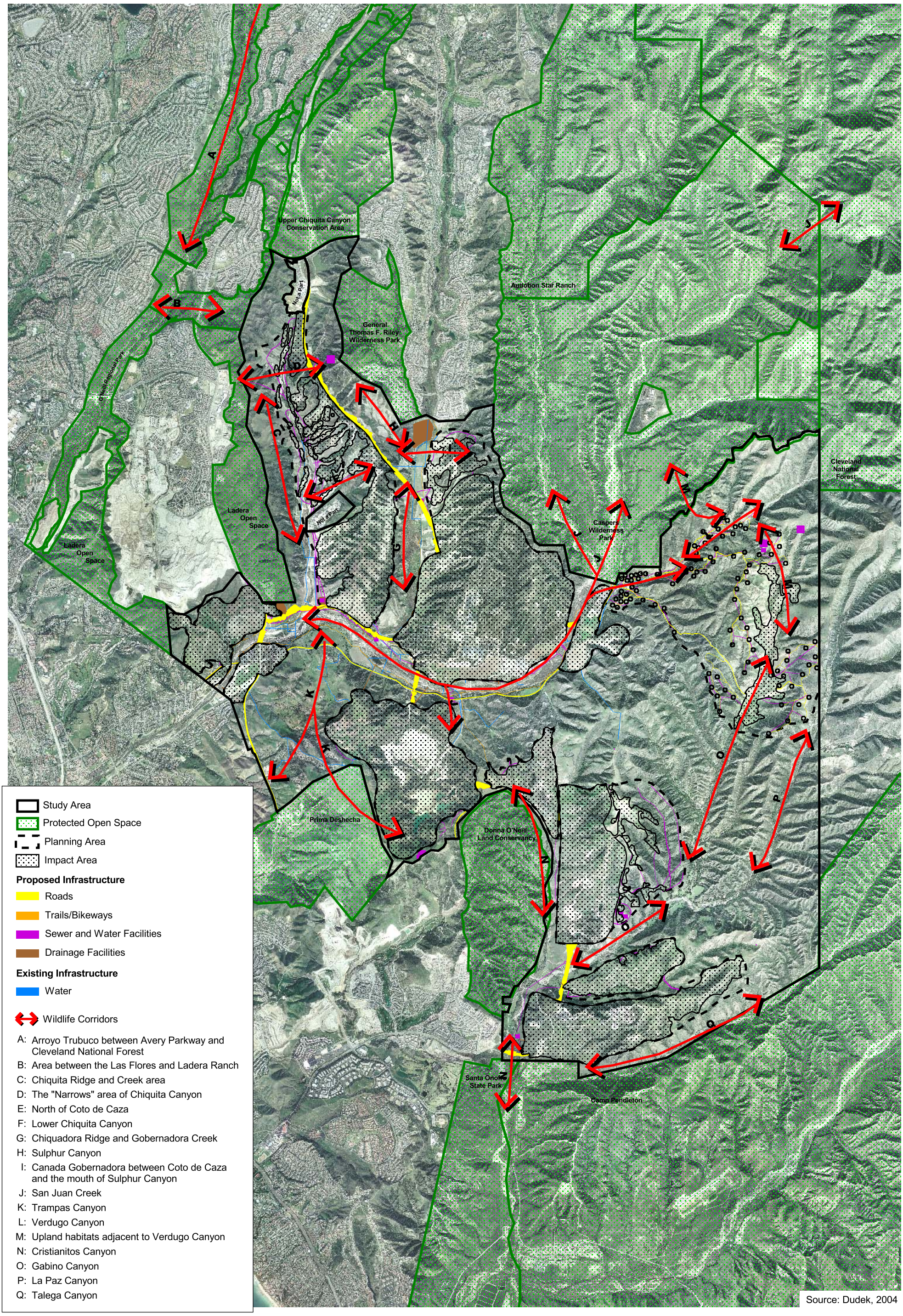
Impacts to Sensitive Wildlife: Amphibians, Reptiles and Mammals (Non-Threatened/Endangered) (South) Exhibit 4.9-18b

The Ranch Plan

N W E S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-18b_impSW_Amph_060404.pdf



Source: Dudek, 2004

Impacts to Wildlife Movements

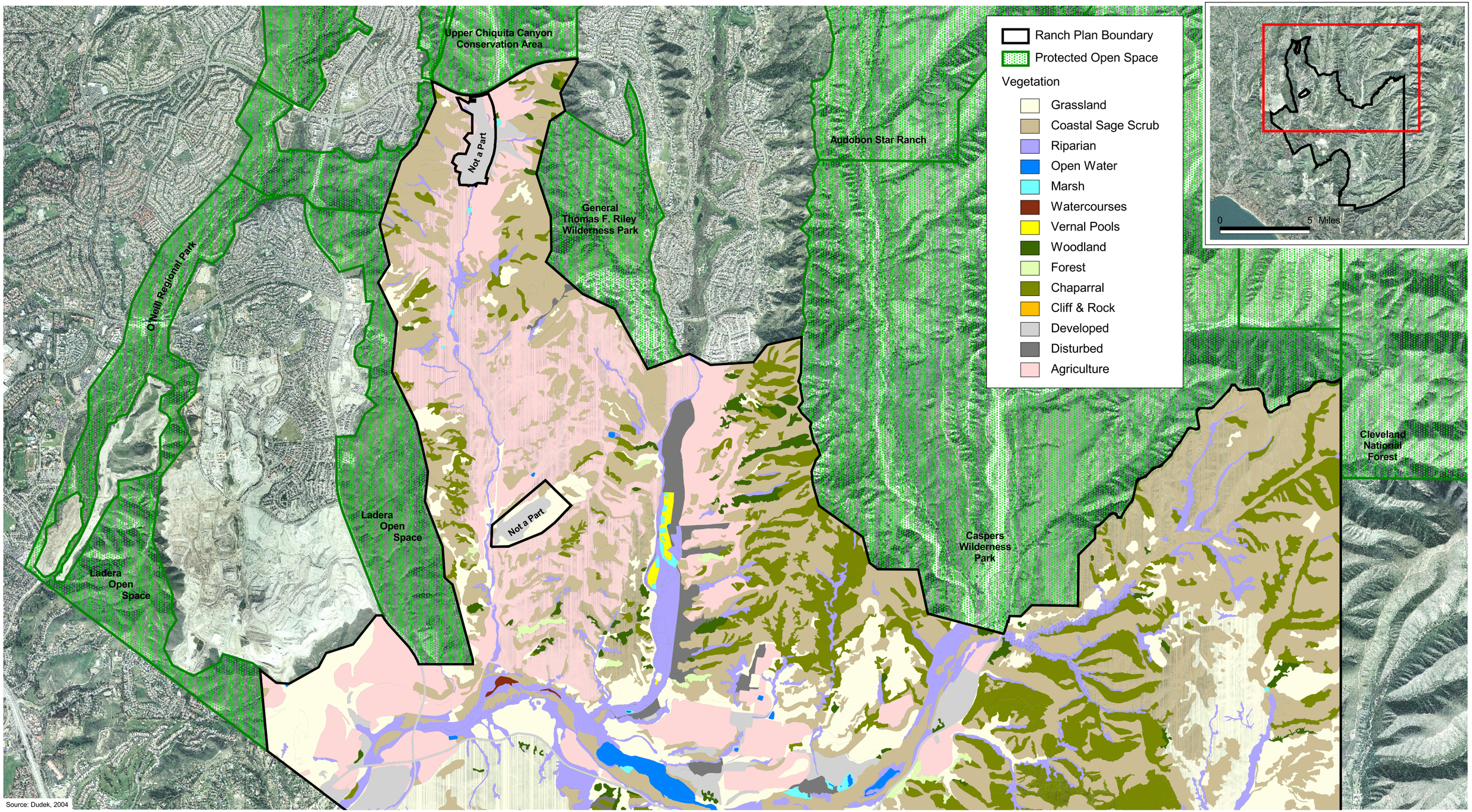
Exhibit 4.9-19

The Ranch Plan

N W E S

1 0 1 Miles

R:/Projects/RMV/J008/Ex4.9-19_move_060404.pdf



Source: Dudek, 2004

Vegetation Communities (North)

Exhibit 4.9-1a

The Ranch Plan

N W E S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-1a_veg_060404.pdf

Ranch Plan Boundary
Protected Open Space
Vegetation
Grassland
Coastal Sage Scrub
Riparian
Open Water
Marsh
Watercourses
Vernal Pools
Woodland
Forest
Chaparral
Cliff & Rock
Developed
Disturbed
Agriculture

Prima Deshecha

Donna O'Neill Land Conservancy

Santa Onofre State Park

Camp Pendleton

0 5 Miles

Source: Dudek, 2004

Vegetation Communities (South)

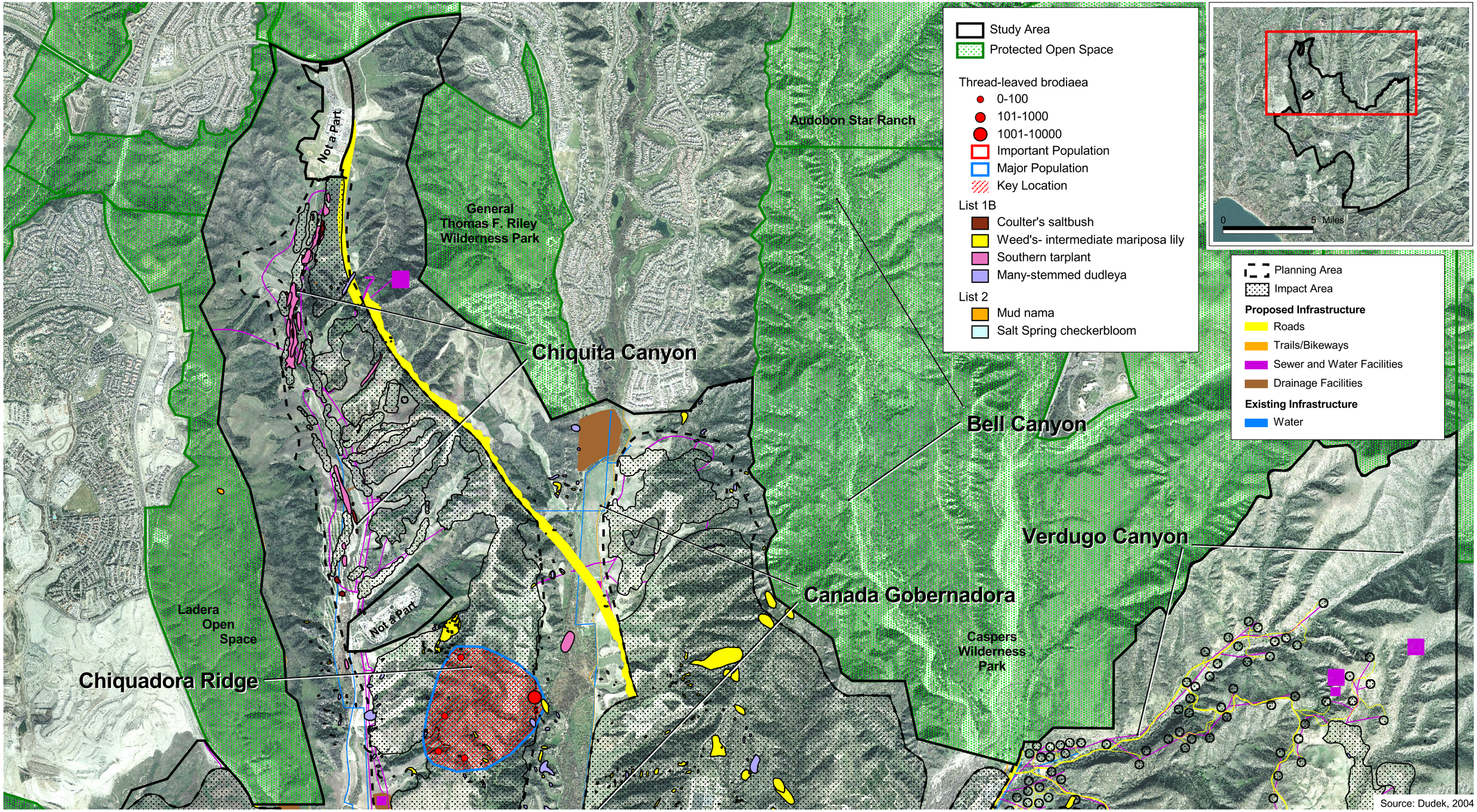
Exhibit 4.9-1b

The Ranch Plan

N W E S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-1b_veg_060404.pdf



Source: Dudek, 2004

Impacts to Threatened/Endangered and High Priority (CNPS List 1B and 2) Sensitive Plants (North)

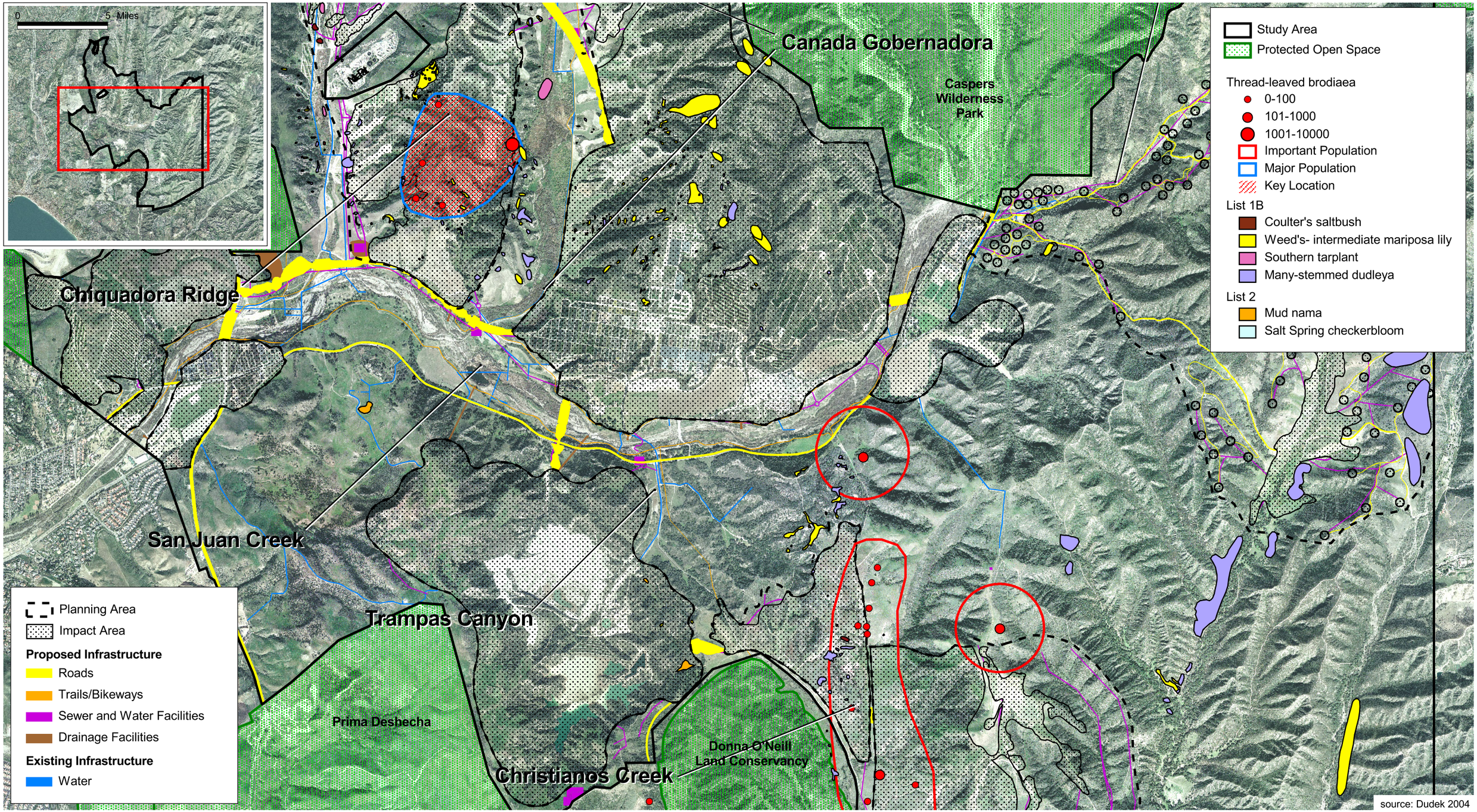
Exhibit 4.9-20a

The Ranch Plan

N W E S

2500 0 2500 Feet

R:/Projects/RMV/J008/Ex4.9-20a_impPlants_060404.pdf



Impacts to Threatened/Endangered and High Priority (CNPS List 1B and 2) Sensitive Plants (Middle)

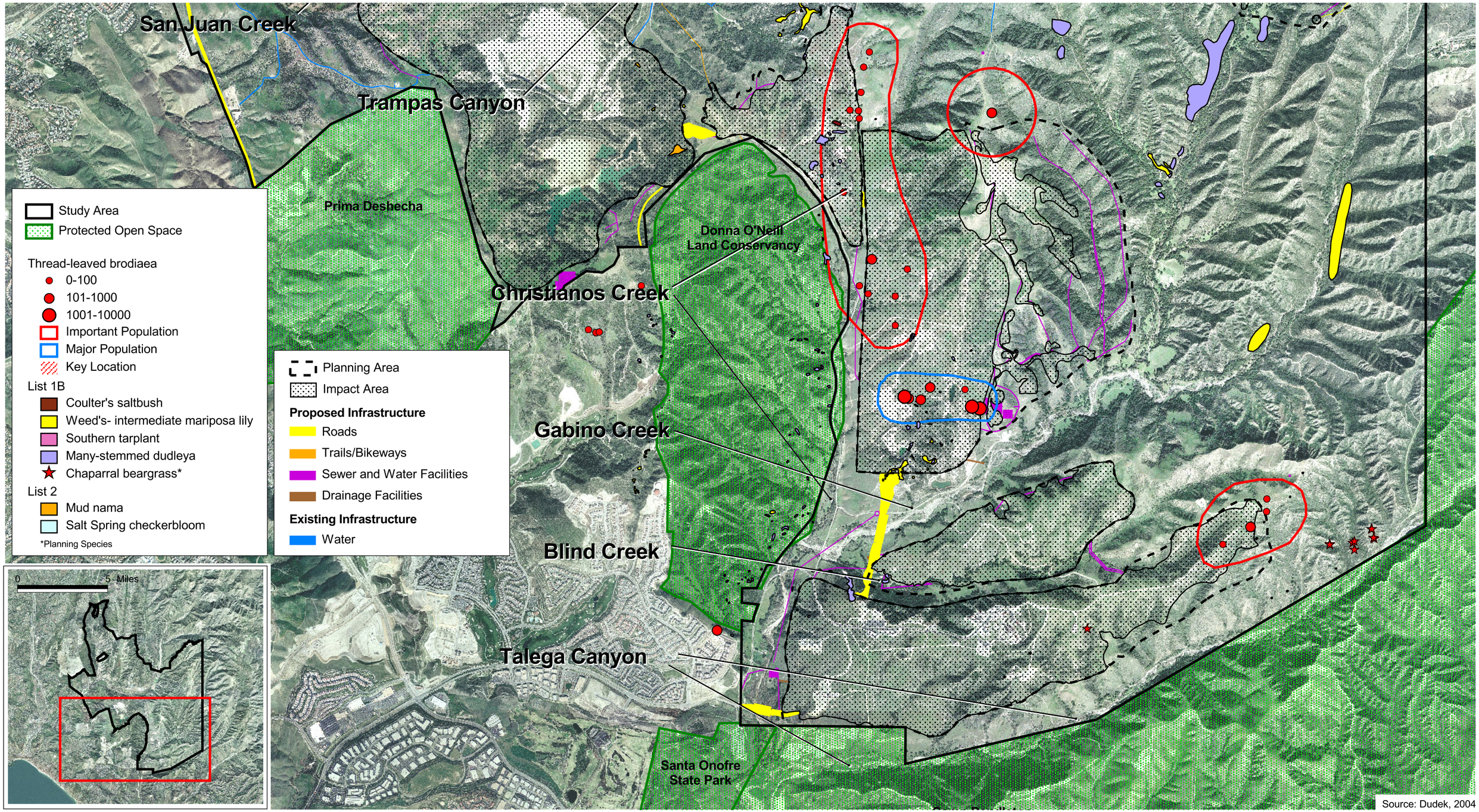
Exhibit 4.9-20b

The Ranch Plan

N W E S

2500 0 2500 Feet

R:/Projects/RMV/J008/Ex4.9-20b_impPlants_060404.pdf



Source: Dudek, 2004

Impacts to Threatened/Endangered and High Priority (CNPS List 1B and 2) Sensitive Plants (South)

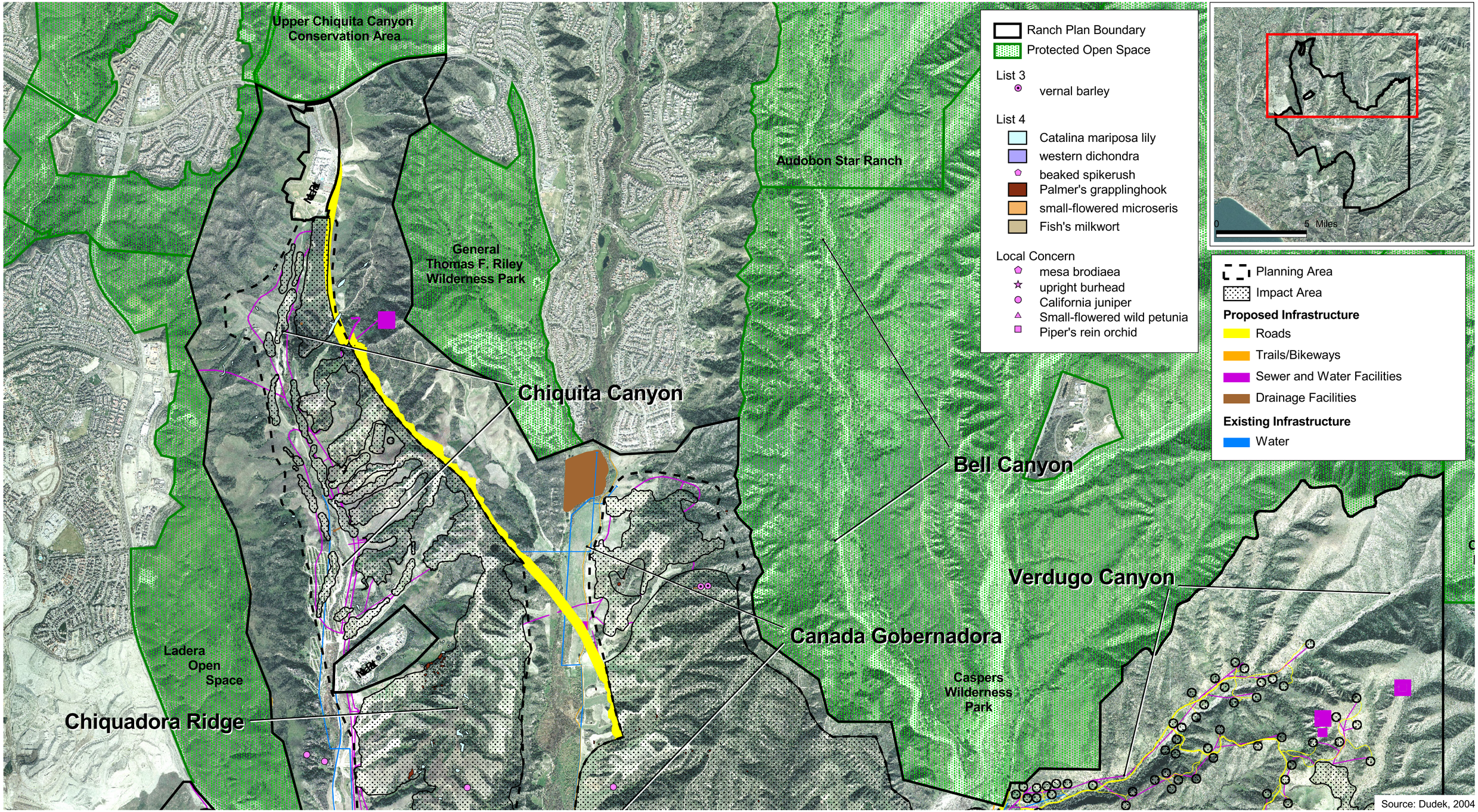
Exhibit 4.9-20c

The Ranch Plan

N W E S

2500 0 2500 Feet

R:/Projects/RMV/J008/Ex4.9-20b_impPlants_060404.pdf



Impacts to Sensitive Plants: CNPS List 3 and 4 and Local Concern (North)

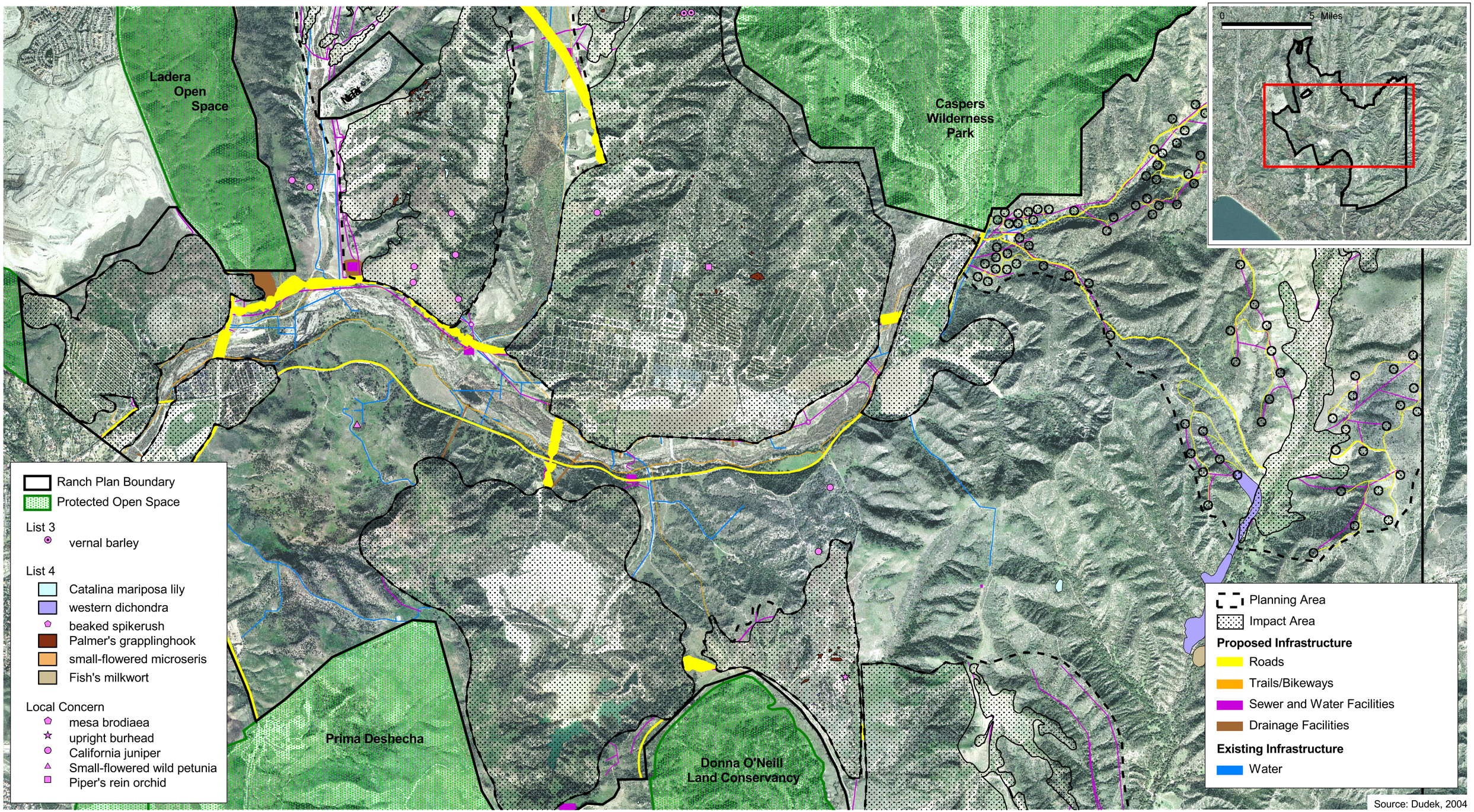
Exhibit 4.9-21a

The Ranch Plan

N W E S

2500 0 2500 Feet

R:/Projects/RMV/J008/Ex4.9-21a_imp_snstvPlants_042904.pdf



Impacts to Sensitive Plants: CNPS List 3 and 4 and Local Concern (middle)

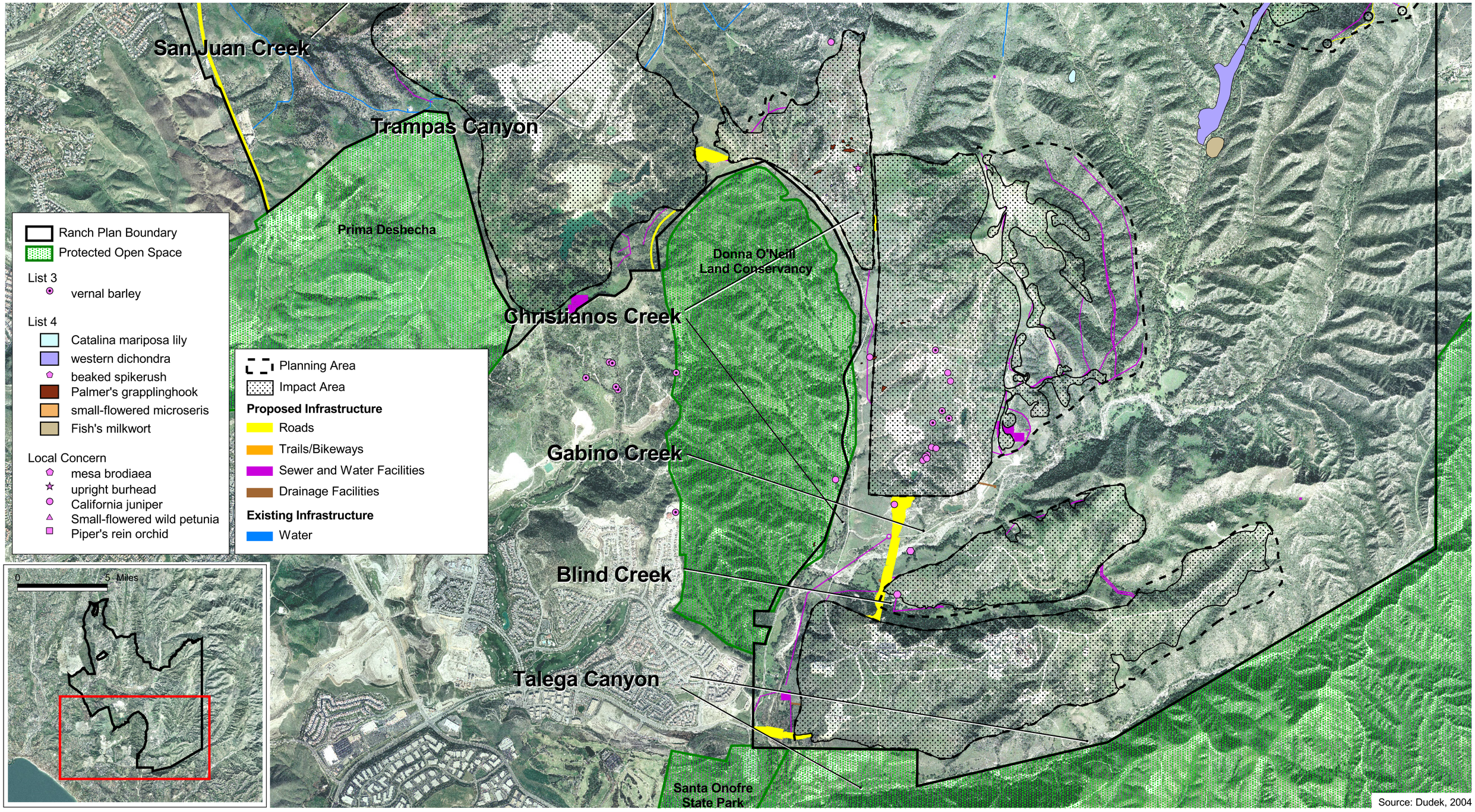
Exhibit 4.9-21b

The Ranch Plan

N W E S

3000 0 3000 Feet

R:/Projects/RMV/J008/Ex4.9-21b_imp_snstvPlants_042904.pdf



Source: Dudek, 2004

Impacts to Sensitive Plants: CNPS List 3 and 4 and Local Concern (South)

Exhibit 4.9-21c

The Ranch Plan

N W E S

2500 0 2500 Feet

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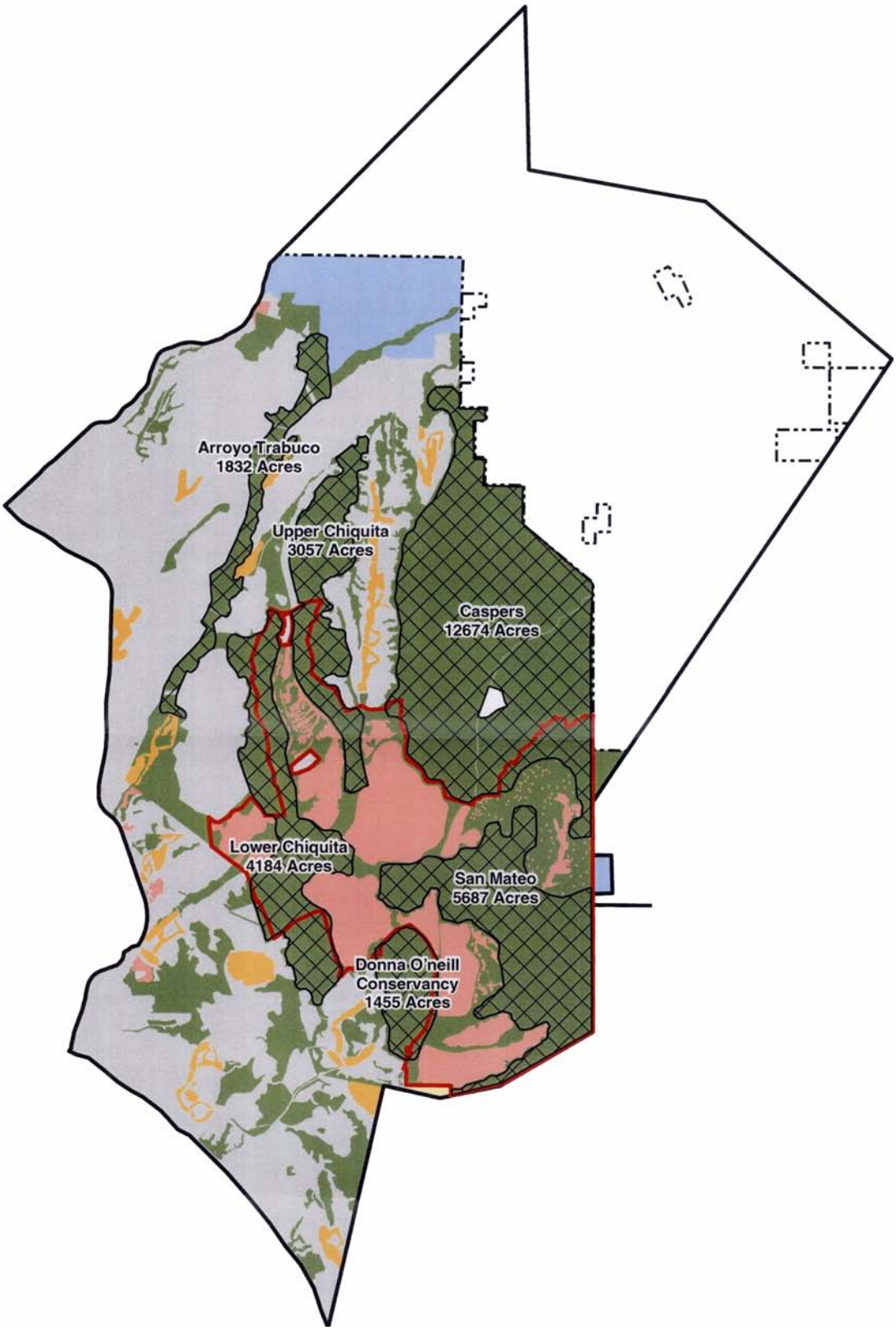

Proposed Project Habitat Blocks

Exhibit 4.9-22

The Ranch Plan

N
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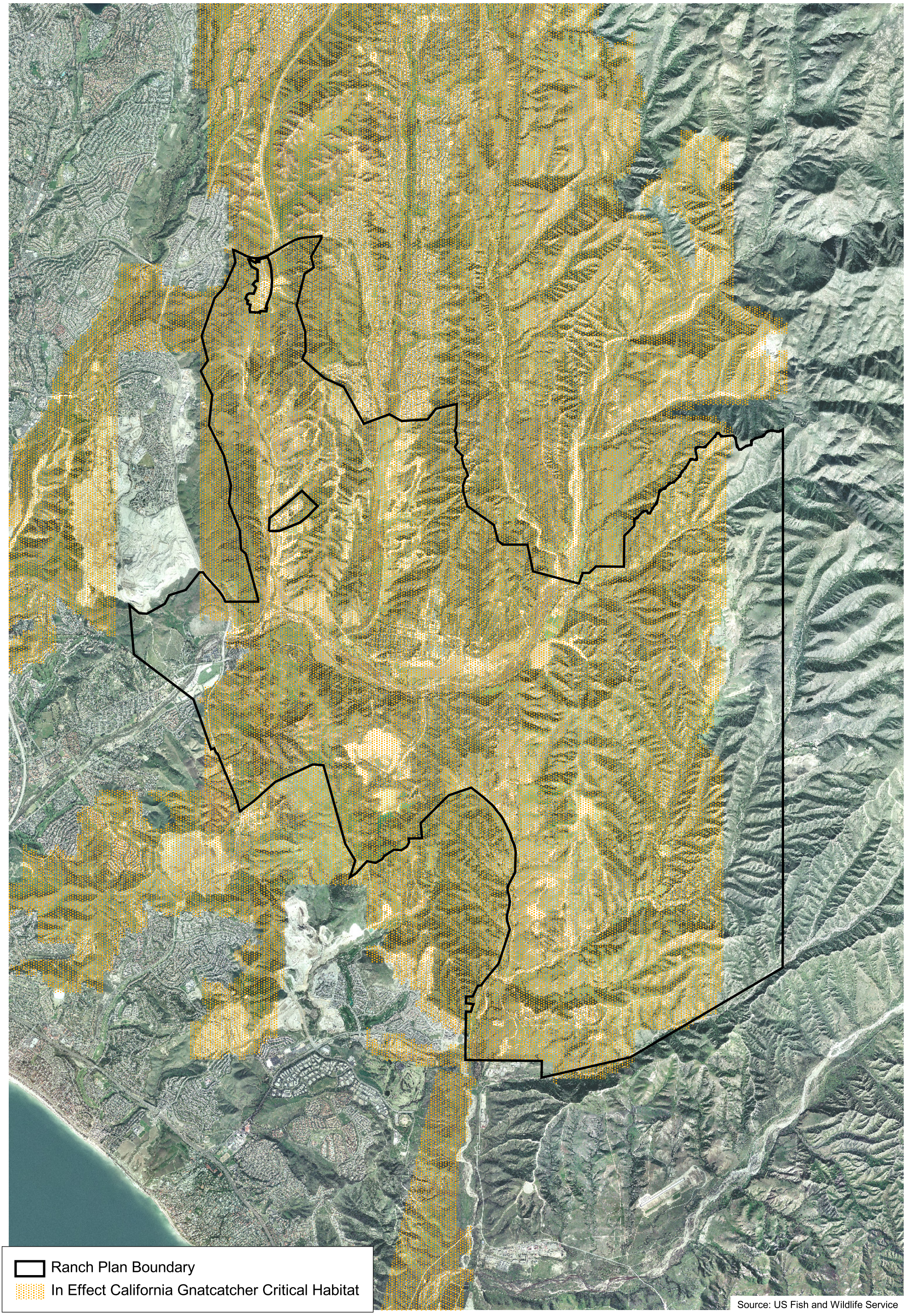
S

Source: Dudek 2004

R:\Projects\RMVJ008\Ex4.9-22_Habitat_060804.pdf



Critical Habitat

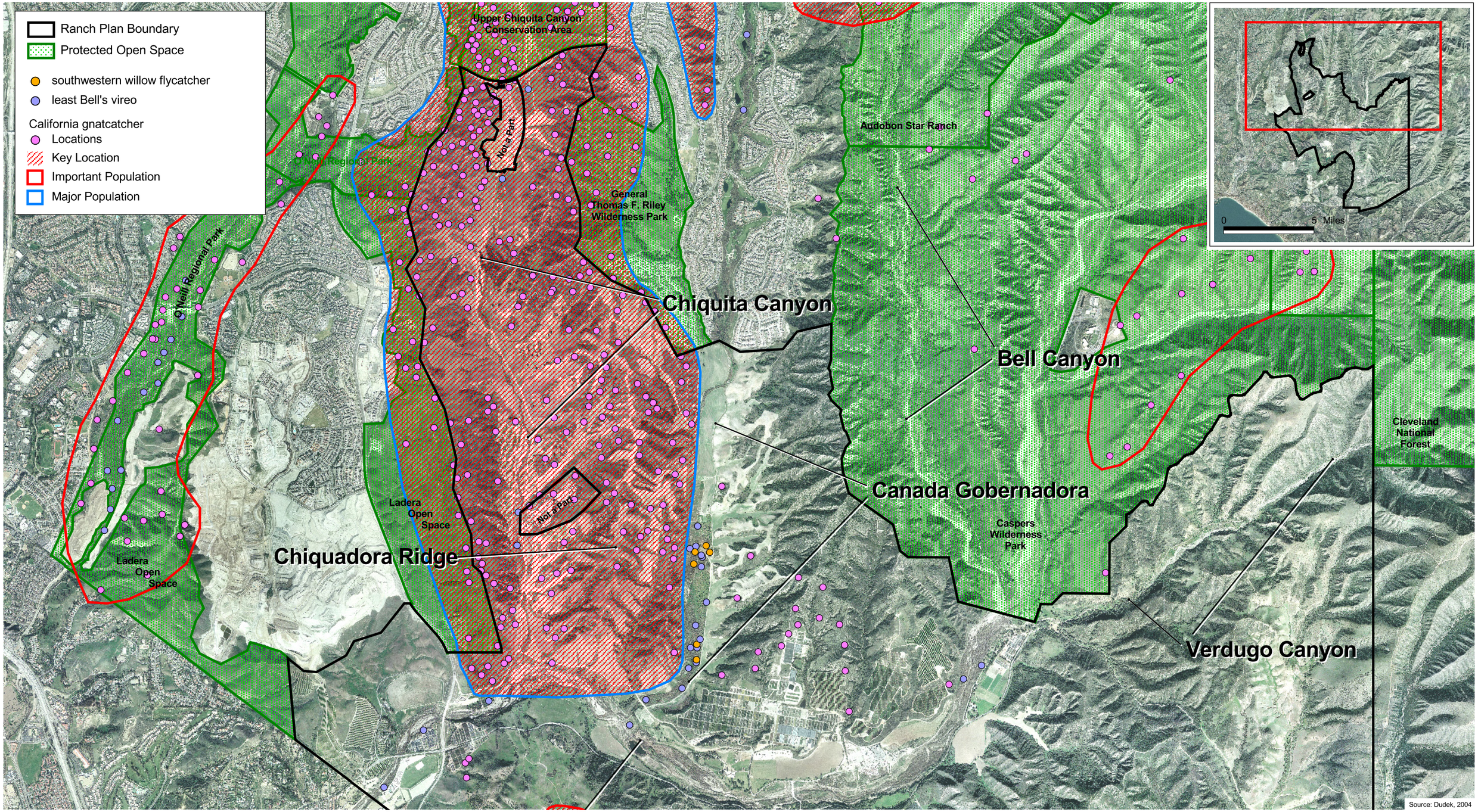
Exhibit 4.9-23

The Ranch Plan

N W E S

1 0 1 Miles

R:/Projects/RMV/J008/Ex4.9-23_criticalHab_060404.pdf



Sensitive Wildlife: Threatened and Endangered Birds (North)

Exhibit 4.9-2a

The Ranch Plan

N W E S

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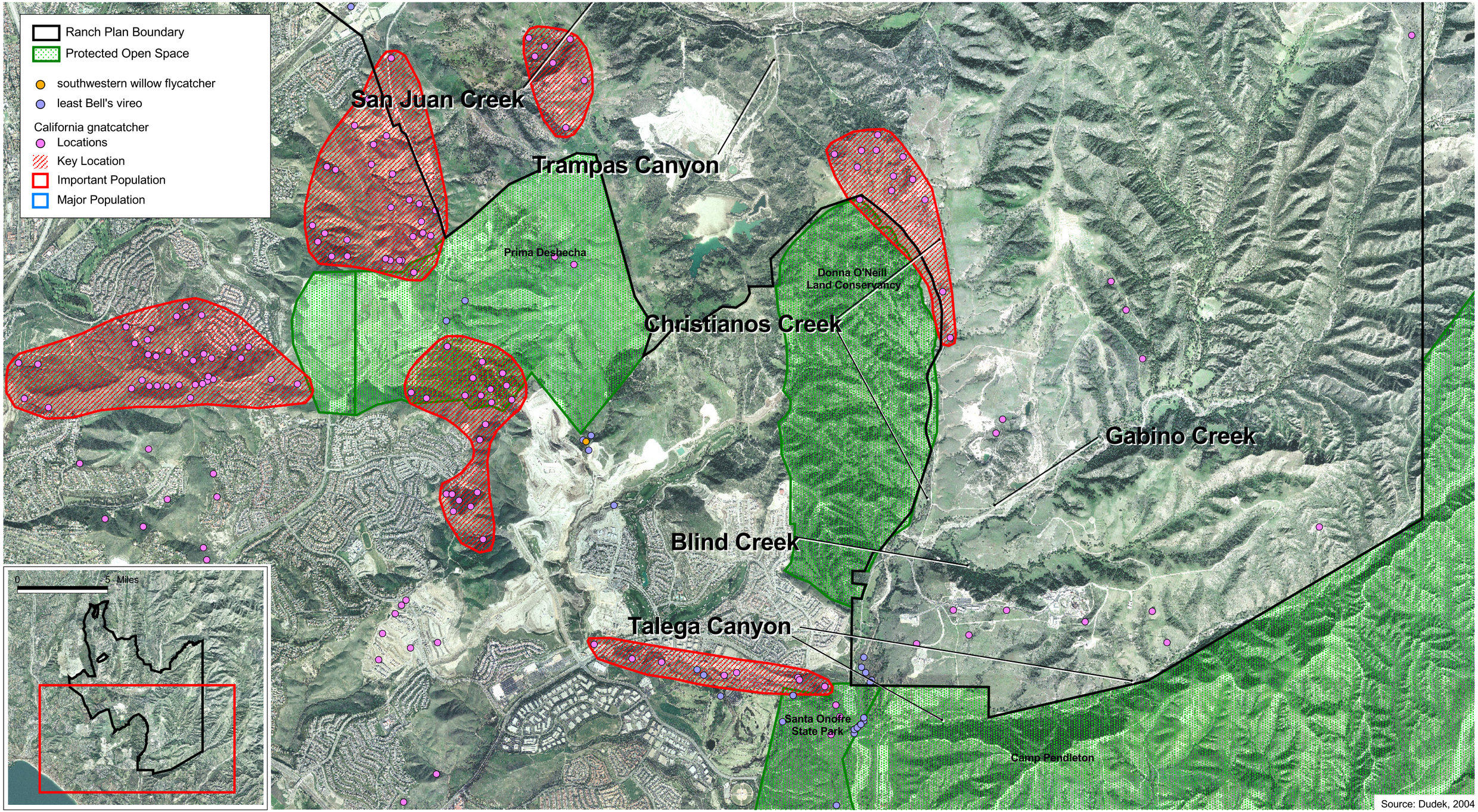
R:/Projects/RMV/J008/Ex4.9-2a_SW_threatBirds_060404.pdf



Source: Dudek, 2004

Sensitive Wildlife: Threatened and Endangered Birds (South)

Exhibit 4.9-2b

The Ranch Plan

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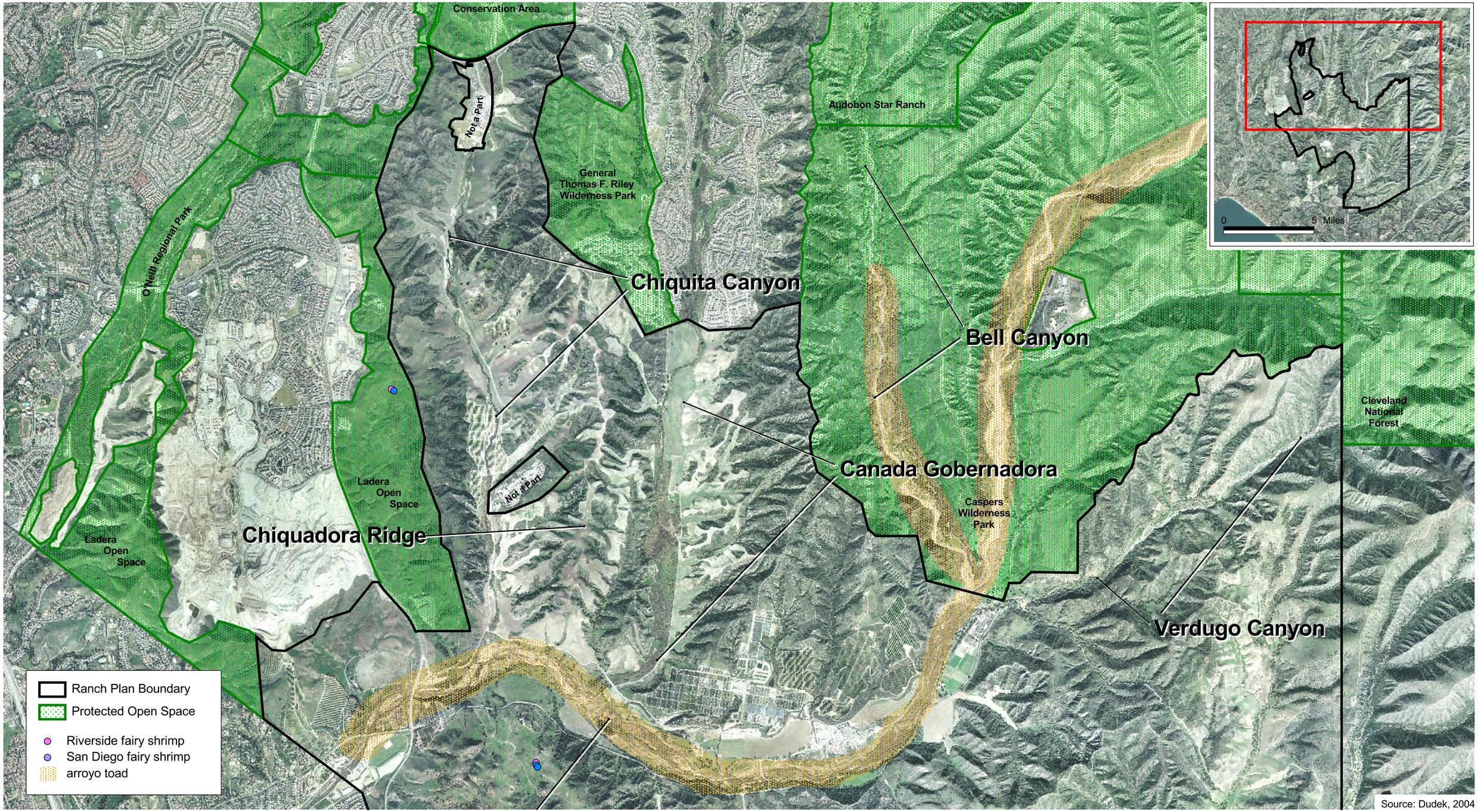

Sensitive Wildlife: Threatened and Endangered Invertebrates and Amphibians (North)

Exhibit 4.9-3a

The Ranch Plan

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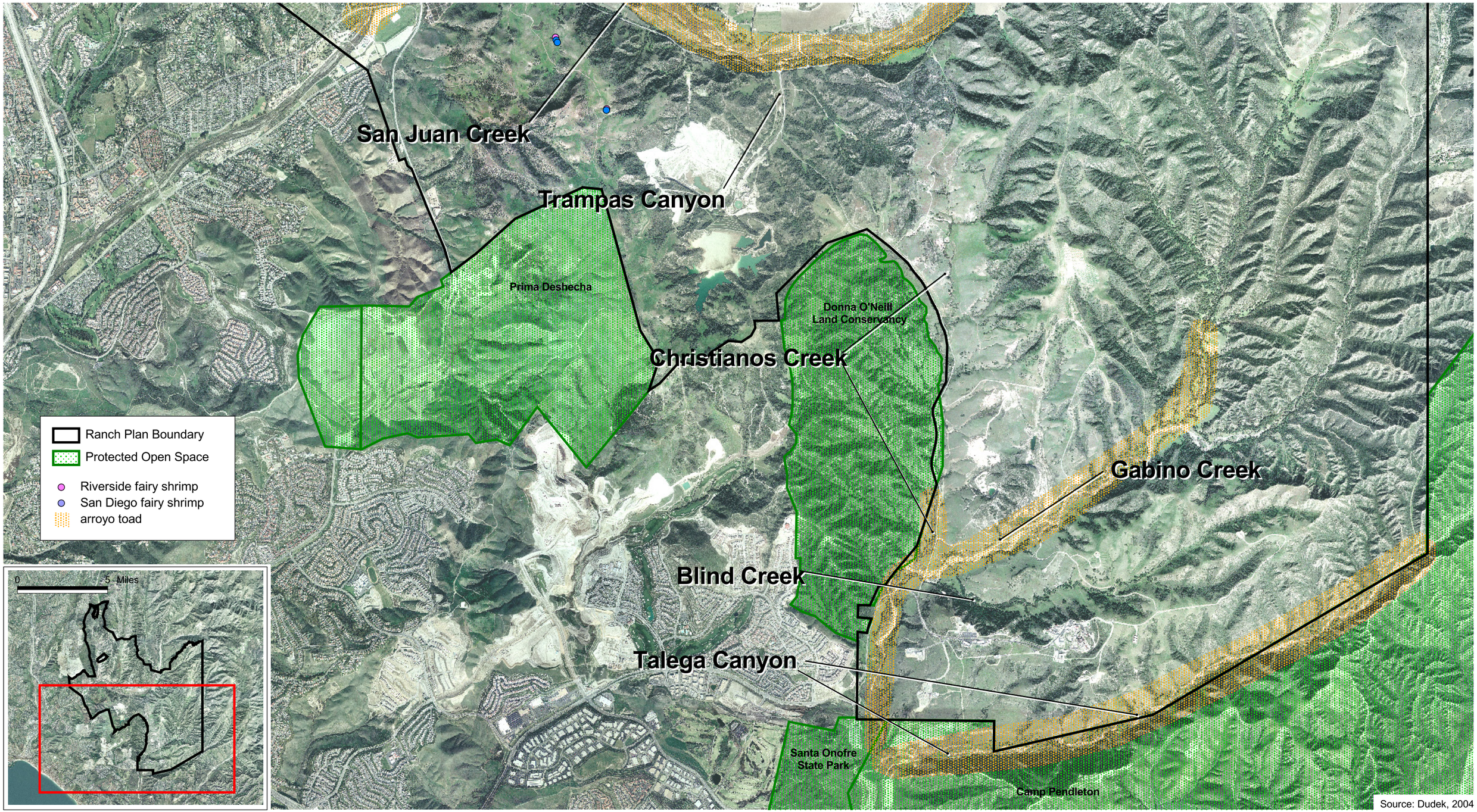

Source: Dudek, 2004

Sensitive Wildlife: Threatened and Endangered Invertebrates and Amphibians (South)

Exhibit 4.9-3b

The Ranch Plan

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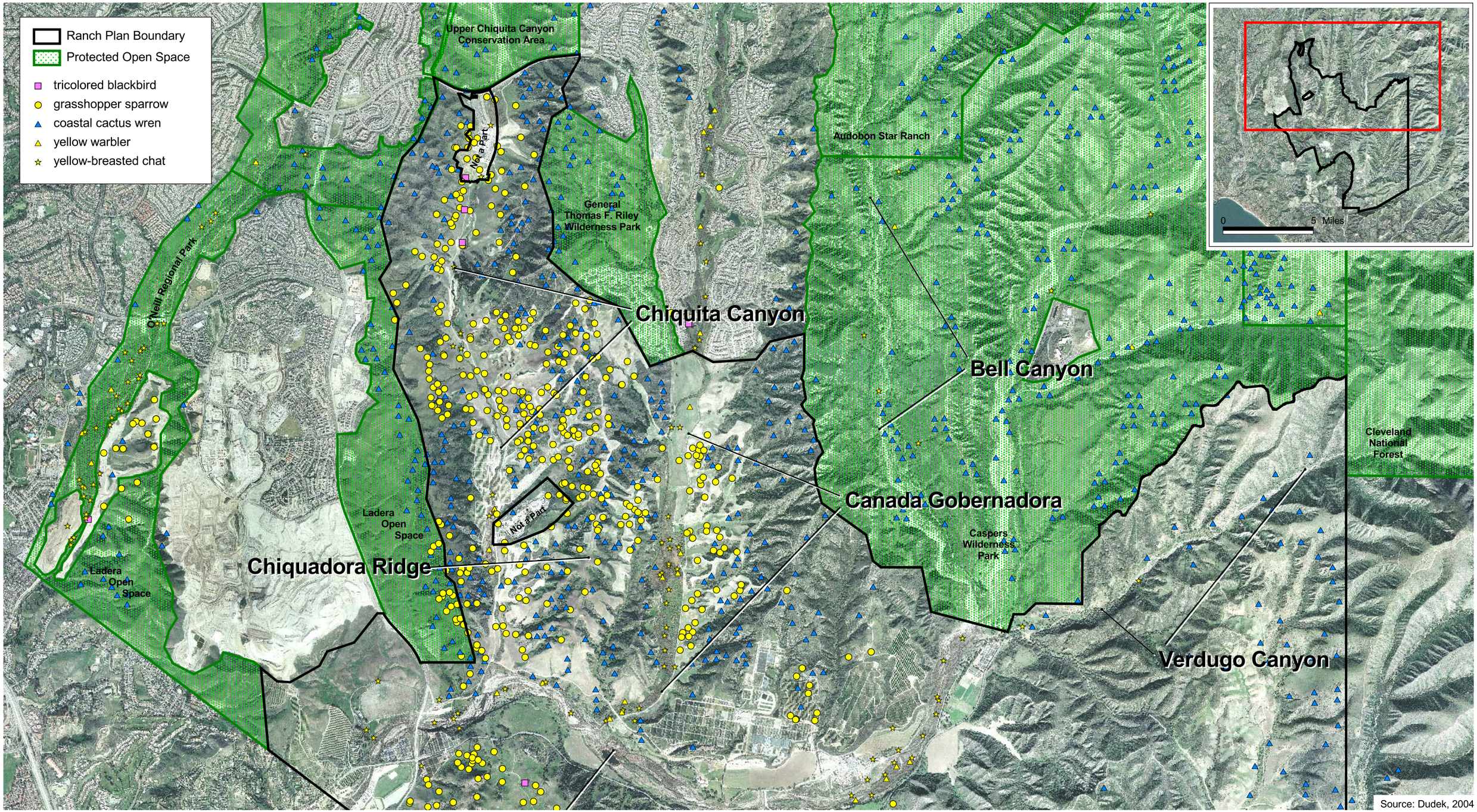

Sensitive Wildlife: Birds (Non-Threatened/Endangered and Planning Species)(North)

Exhibit 4.9-4a

The Ranch Plan

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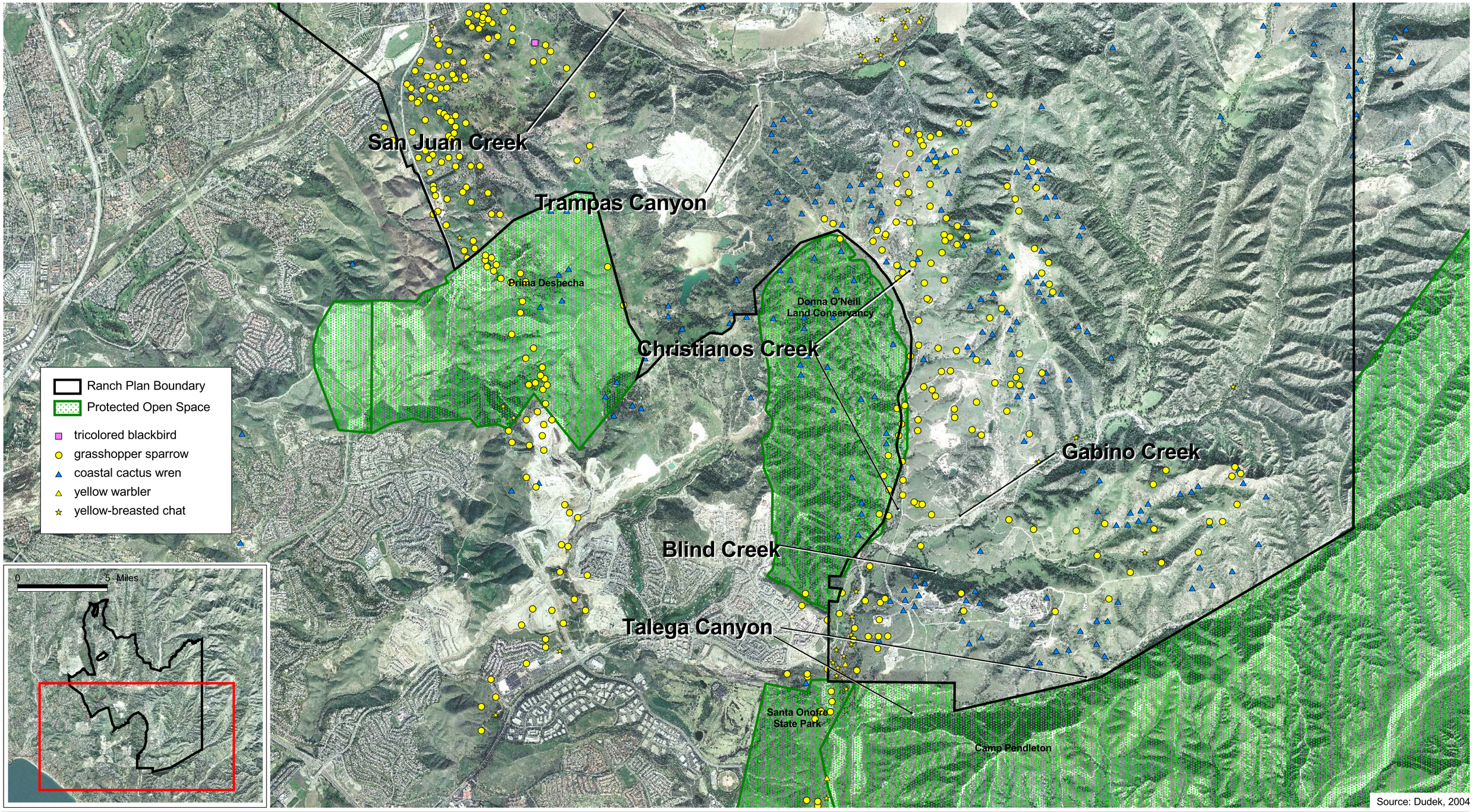

Sensitive Wildlife: Birds (Non-Threatened/Endangered and Planning Species)(South)

Exhibit 4.9-4b

The Ranch Plan

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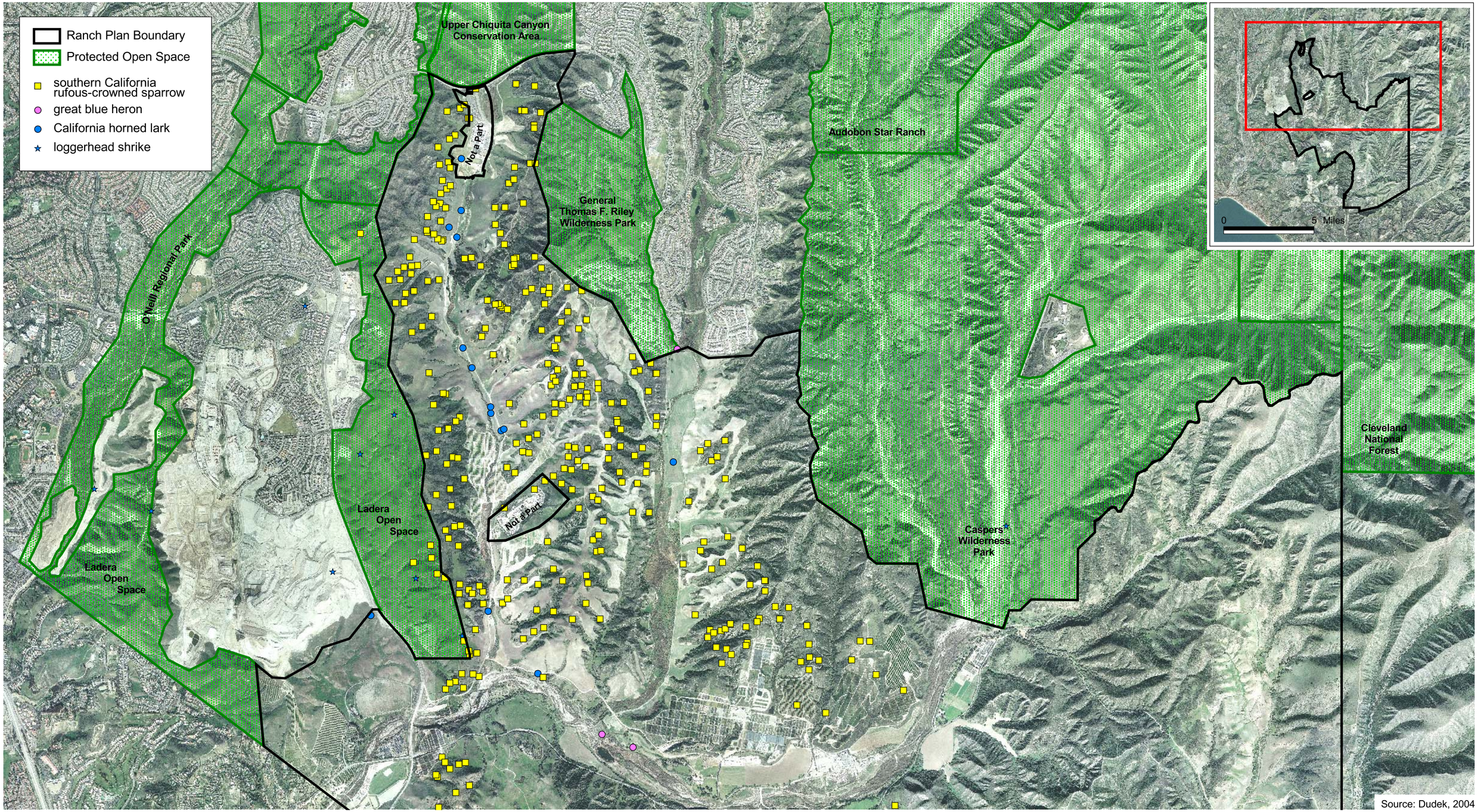

Sensitive Wildlife: Birds (Non-Threatened/Endangered and Non-Planning Species)(North)

Exhibit 4.9-5a

The Ranch Plan

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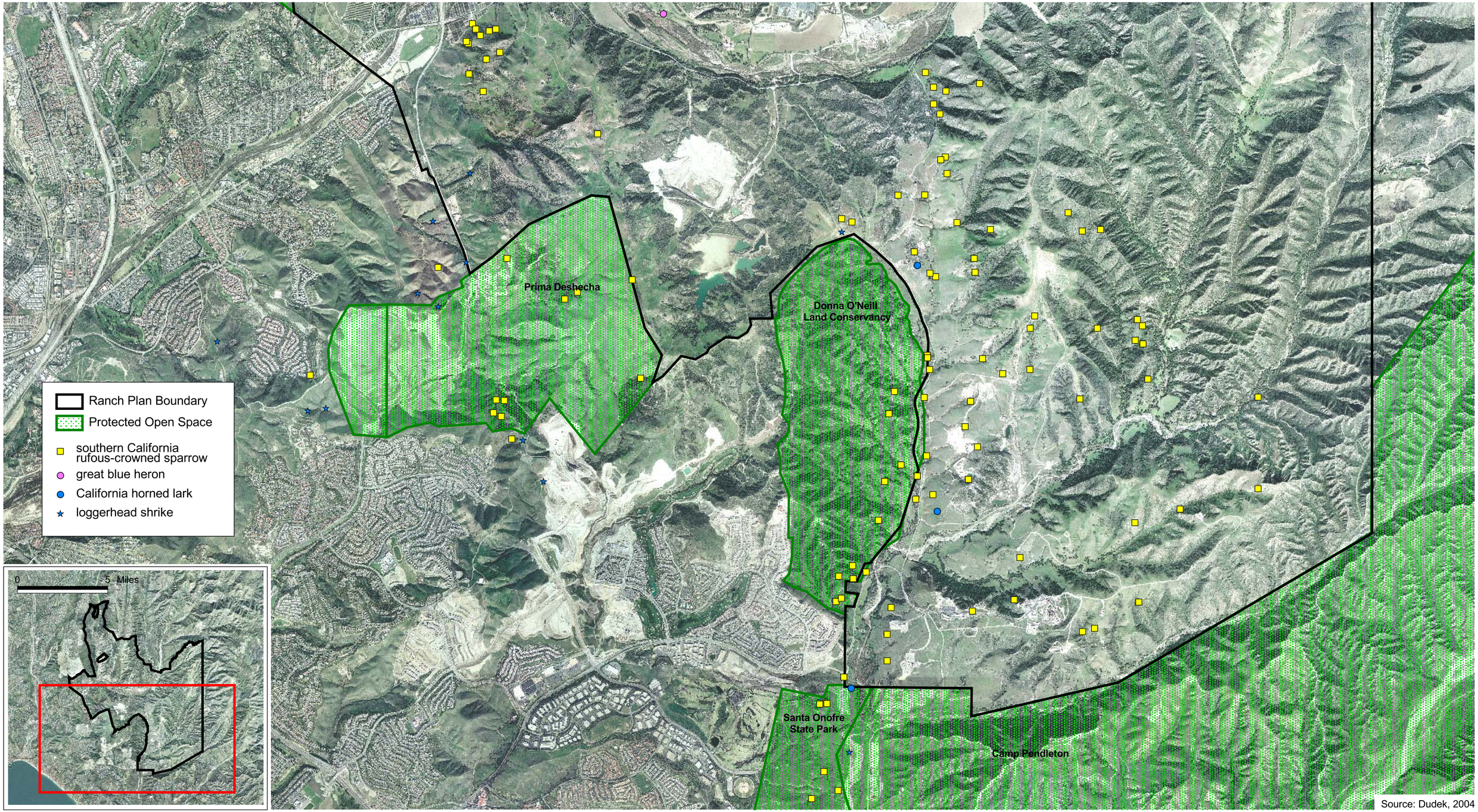
R:/Projects/RMV/J008/Ex4.9-5a_SW_Birds_060404.pdf



Source: Dudek, 2004

Sensitive Wildlife: Birds (Non-Threatened/Endangered and Non-Planning Species)(South)

Exhibit 4.9-5b

The Ranch Plan

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R:/Projects/RMV/J008/Ex4.9-5b_SW_Birds_060404.pdf

Ranch Plan Boundary
Protected Open Space

- Cooper's hawk
- sharp-shinned hawk
- long-eared owl
- ferruginous hawk
- red-shouldered hawk
- white-tailed kite
- merlin
- prairie falcon
- American peregrine falcon
- osprey

0 5 Miles

Upper Chiquita Canyon Conservation Area
Not a Part
General Thomas F. Riley Wilderness Park
Audobon Star Ranch
O'Neill Regional Park
Chiquita Canyon
Bell Canyon
Cleveland National Forest
Canada Gobernadora
Ladera Open Space
Not a Part
Caspers Wilderness Park
Chiquadora Ridge
Ladera Open Space
Verdugo Canyon

source: Dudek 2004

Sensitive Wildlife: Raptors (North)

Exhibit 4.9-6a

The Ranch Plan

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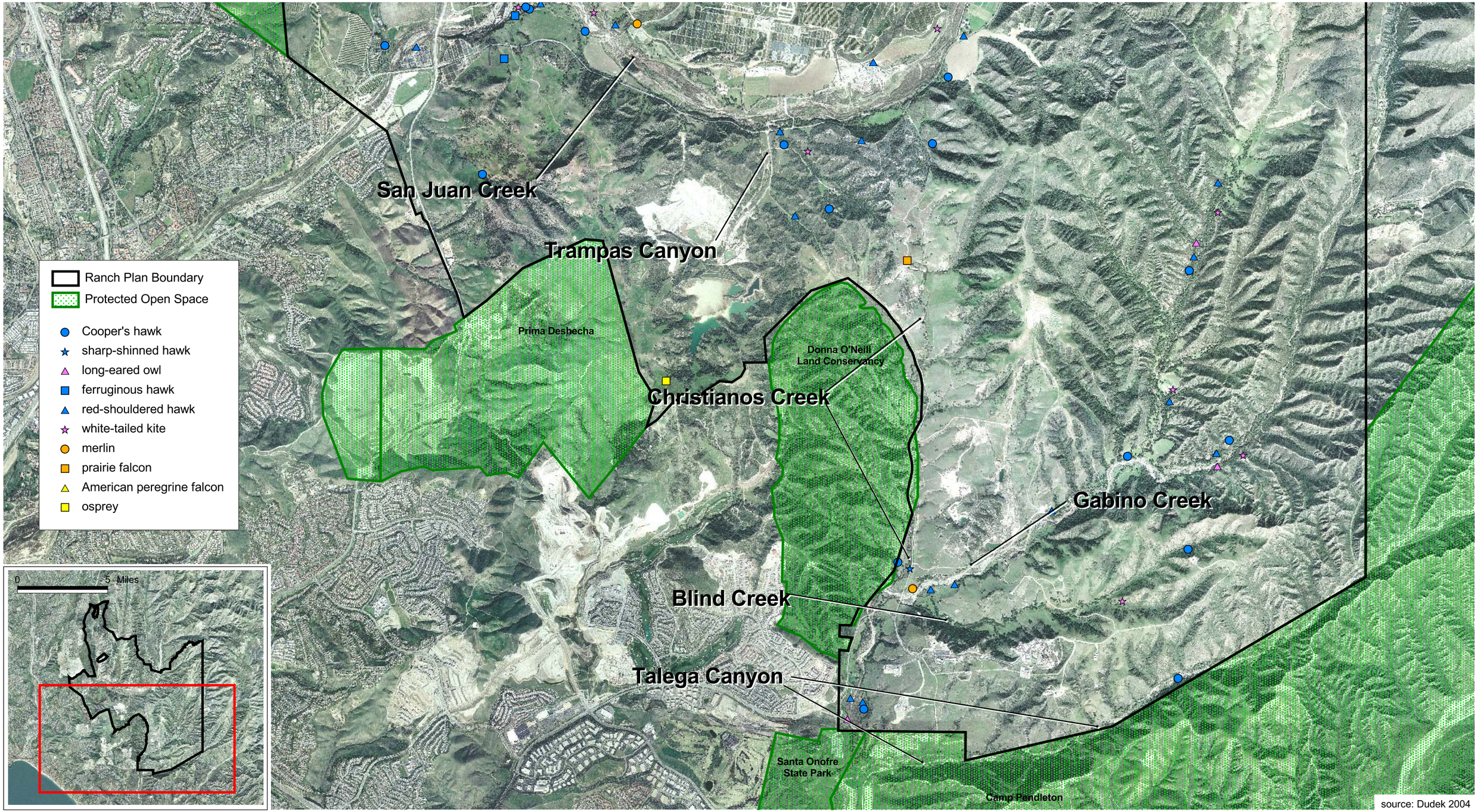
R:/Projects/RMV/J008/Ex4.9-6a_SW_Rapt_060404.pdf



Sensitive Wildlife: Raptors (South)

Exhibit 4.9-6b

The Ranch Plan

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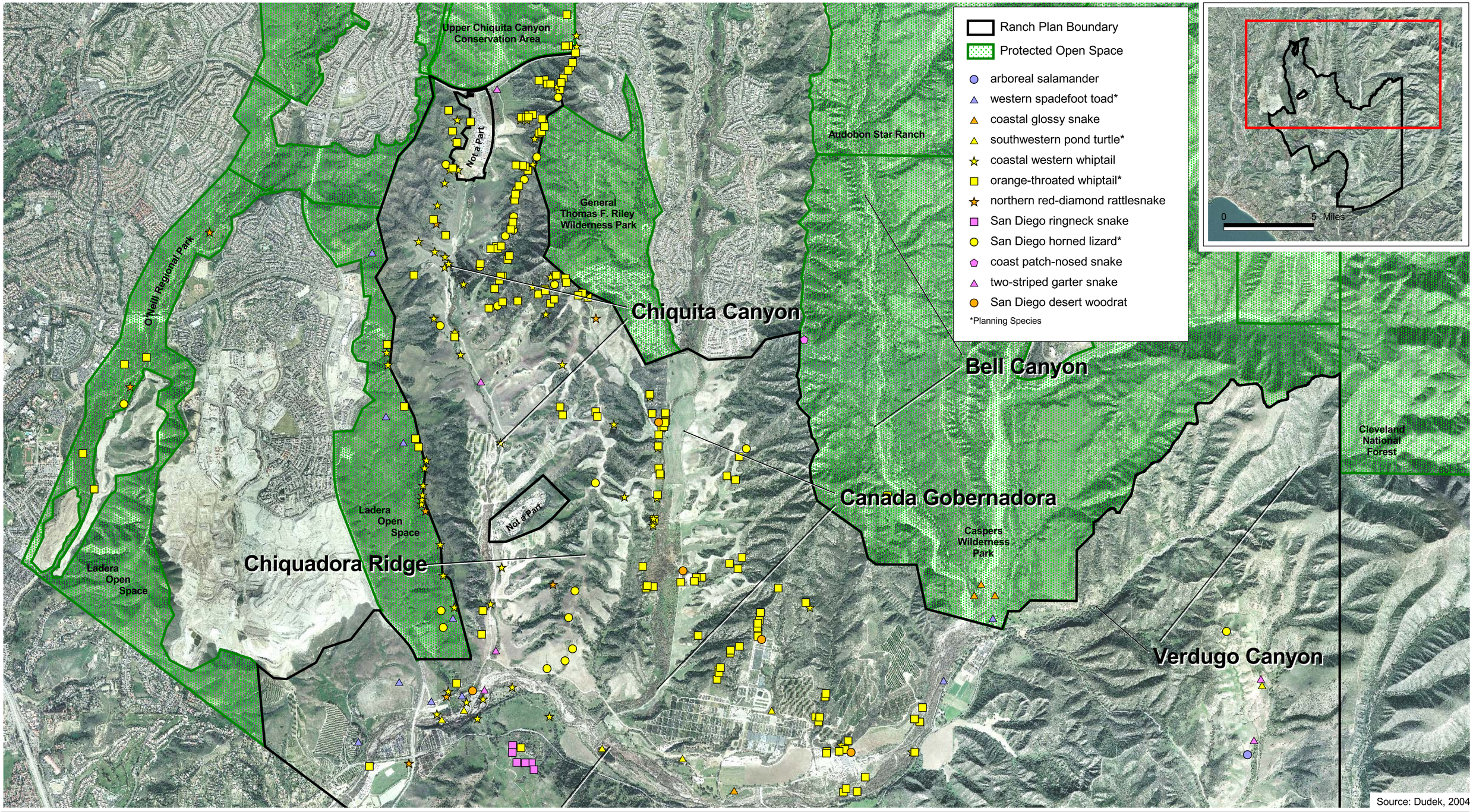


Sensitive Wildlife: Amphibians, Reptiles and Mammals (Non-Threatened/Endangered) (North)

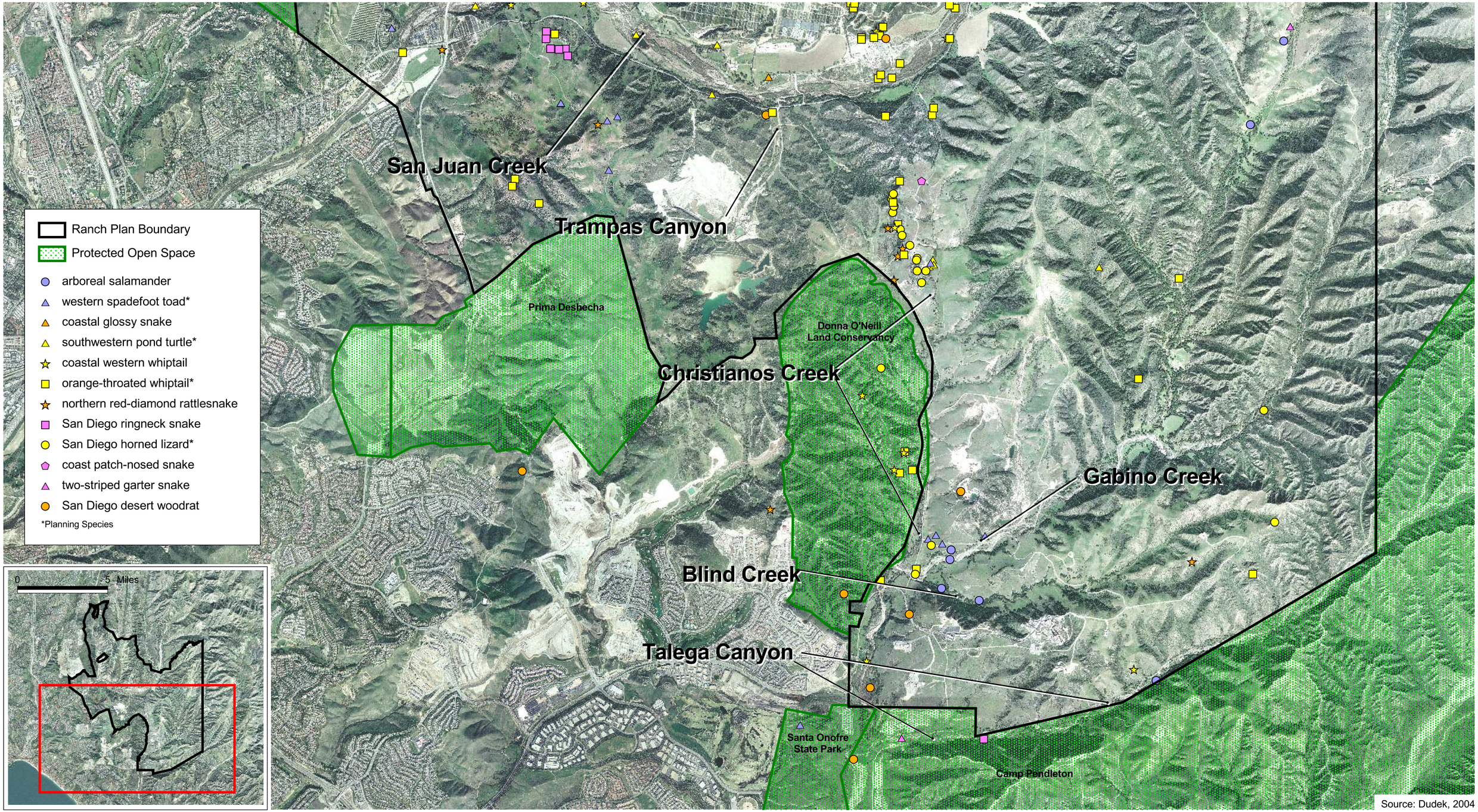
Exhibit 4.9-7a

The Ranch Plan

N W E S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-7a_SW_Amph_060404.pdf



Sensitive Wildlife: Amphibians, Reptiles and Mammals (Non-Threatened/Endangered) (South)

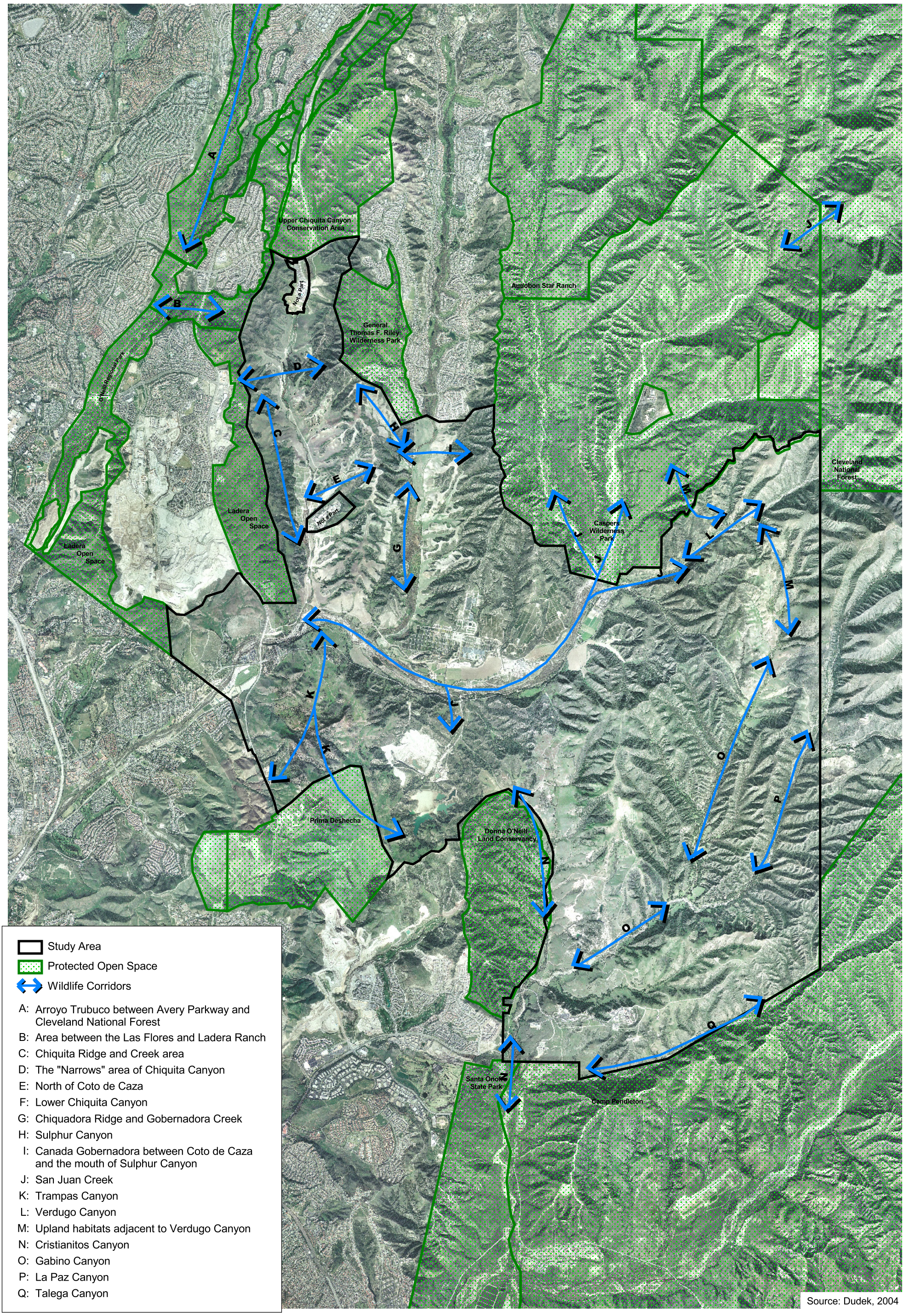
Exhibit 4.9-7b

The Ranch Plan

N W E S

3250 0 3250 Feet

R:/Projects/RMV/J008/Ex4.9-7b_SW_Amph_060404.pdf



Wildlife Movement – Impact Areas

Exhibit 4.9-8

The Ranch Plan

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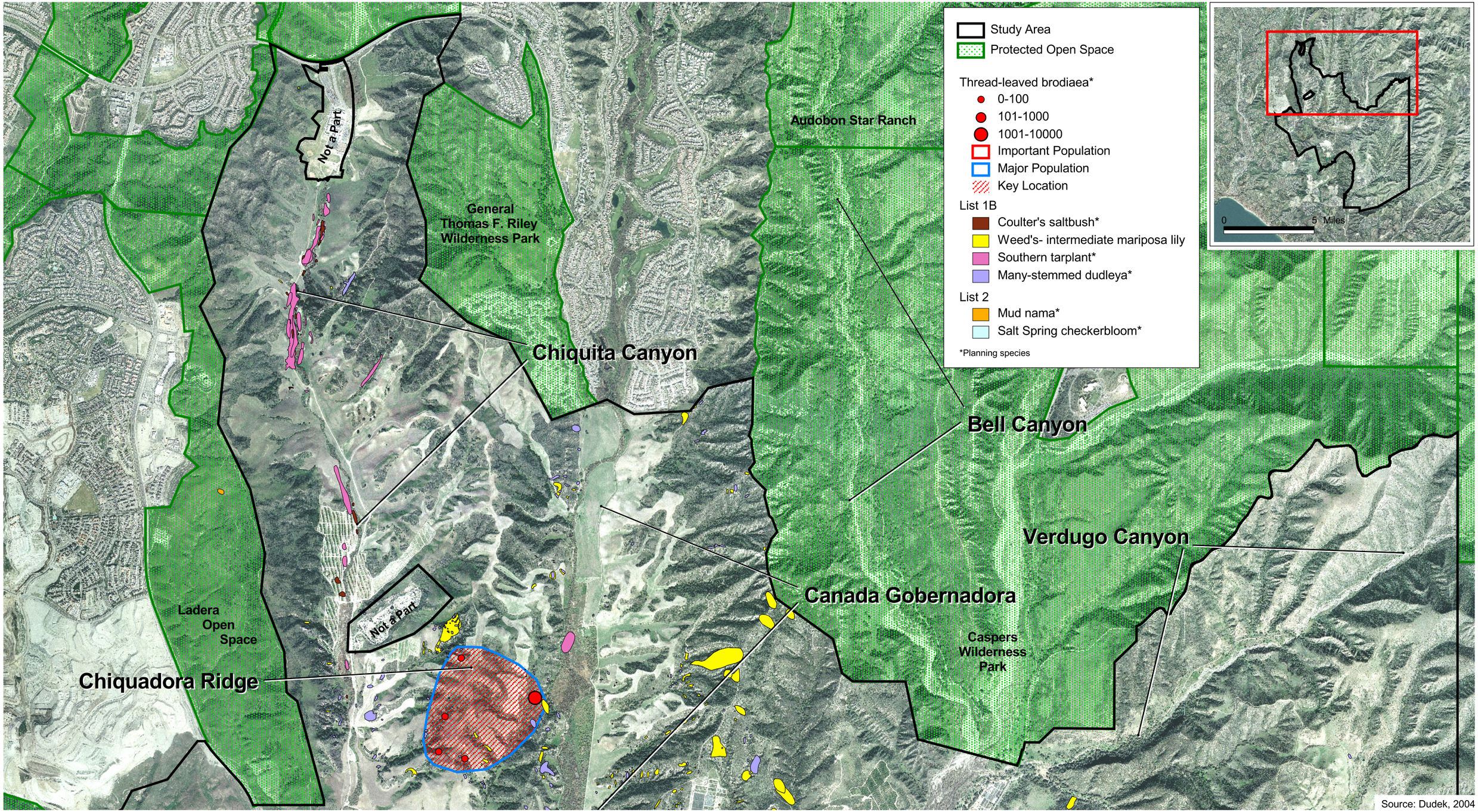
1 0 1 Miles

R:/Projects/RMV/J008/Ex4.9-8_move_060404.pdf



Source: Dudek, 2004

Threatened/Endangered and High Priority (CNPS List 1B and 2) Sensitive Plants (North)

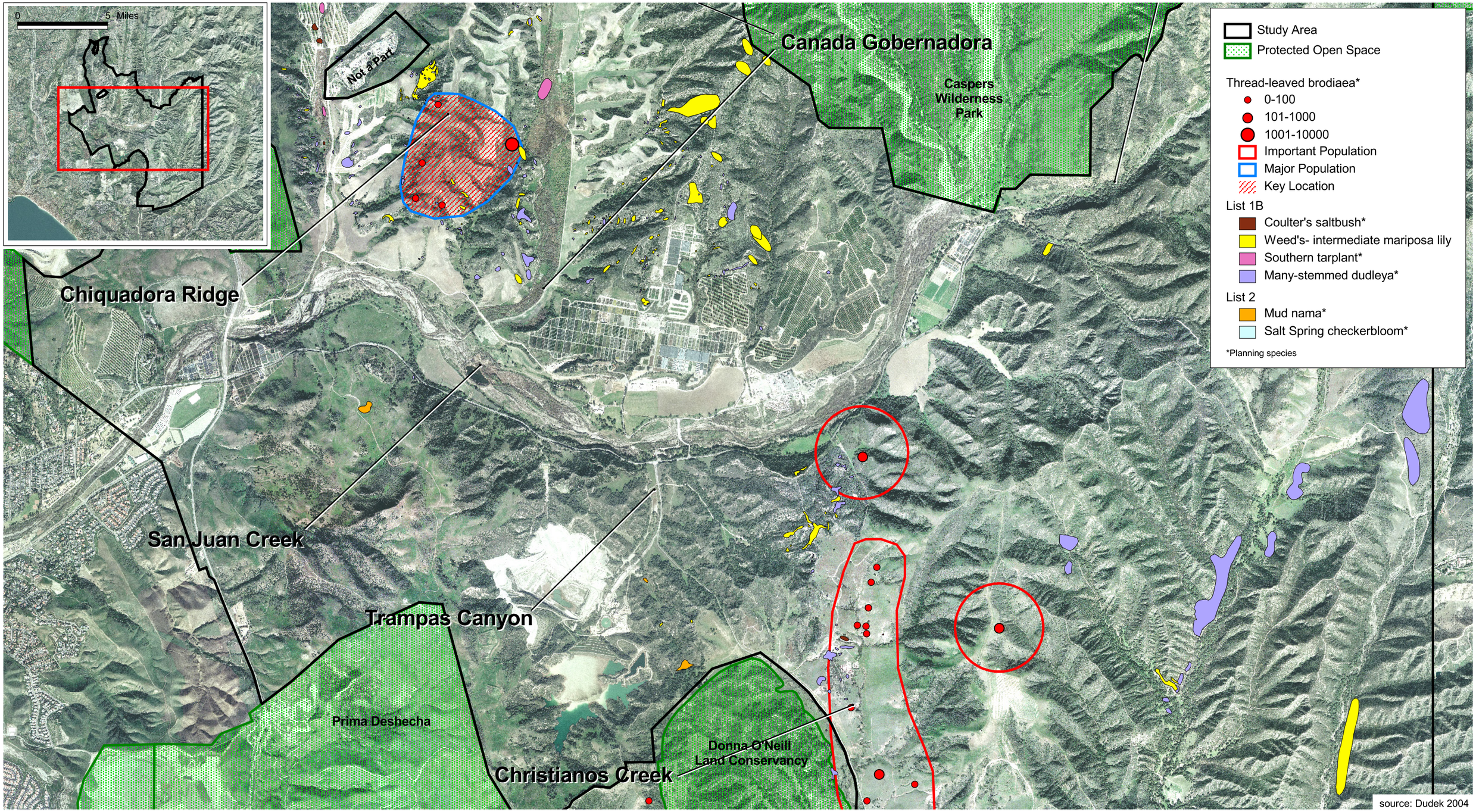
Exhibit 4.9-9a

The Ranch Plan

N W E S

2500 0 2500 Feet

R:/Projects/RMV/J008/Ex4.9-9a_TE_Plants_060404.pdf



Threatened/Endangered and High Priority (CNPS List 1B and 2) Sensitive Plants (Middle)

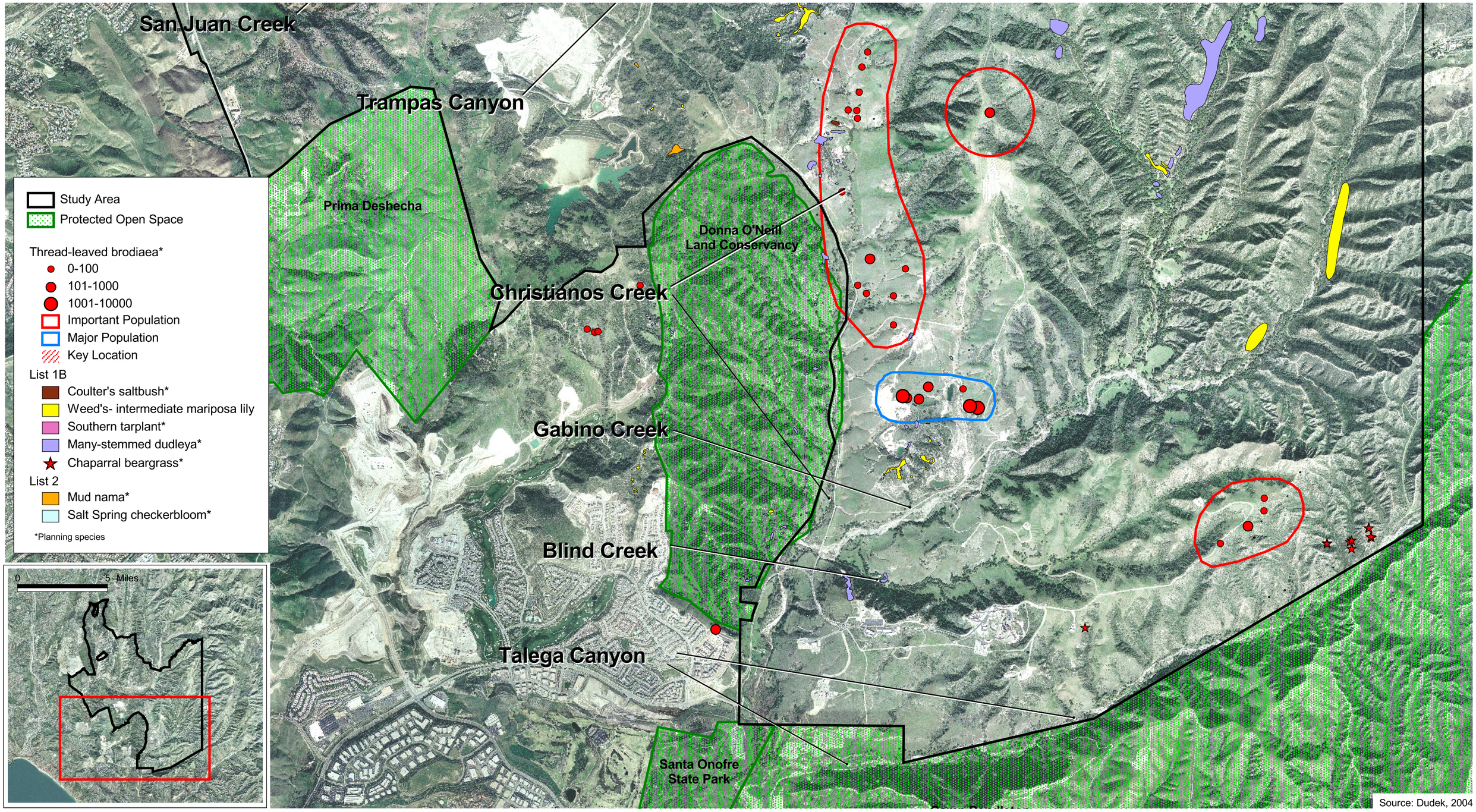
Exhibit 4.9-9b

The Ranch Plan

N W E S

2500 0 2500 Feet

R:/Projects/RMV/J008/Ex4.9-9b_TE_Plants_060404.pdf



Threatened/Endangered and High Priority (CNPS List 1B and 2) Sensitive Plants (South)

Exhibit 4.9-9c

The Ranch Plan

N W E S

2500 0 2500 Feet

R:/Projects/RMV/J008/Ex4.9-9c_TE_Plants_042904.pdf

4.10 AESTHETICS AND VISUAL RESOURCES

This section describes the aesthetic and visual resource conditions of the Ranch Plan project and immediate vicinity and discusses potential aesthetic impacts that could result from implementation of the proposed project; a mitigation program is also provided.

4.10.1 METHODOLOGY

A visual analysis was conducted by evaluating color photographs for vantage points within, adjacent to, and along view corridors of the Ranch Plan area. The photographs depict existing viewsheds with and without the proposed project land uses. The vantage points from which the photographs were selected are intended as representative typical locations to assess the potential aesthetic impacts of the Ranch Plan on the surrounding cities and their existing residents, recreational users of the surrounding parks, bicycle and trail systems, and automobile commuters traveling on Ortega Highway and I-5. Views internal to the project site are also addressed. In addition, vantage points were selected from various non-public locations where private areas exist proximate to proposed Ranch Plan development areas.

The proposed development areas within the Ranch Plan planning areas, depicted in the color photographs, are shown as footprint areas where project grading would occur. Building elevations are shown on a representative sample of these photographs to conceptually show the types and/or height of structures that would be permitted within the planning areas of the Ranch Plan. The proposed Ranch Plan Planned Community zoning regulations would allow for building height elevations ranging from 35 feet for single-family residences and neighborhood commercial uses; and 45 feet for urban activity center, business park, and multiple-residential uses. Subject to a public hearing and increased setback standards, senior residential and urban activity center land uses may be increased to 75 feet.

As depicted in Exhibit 4.10-1, three landscape zones have been identified as part of the visual analysis for areas within the project boundaries and in areas immediately adjacent to the site. The three zones are based on relative elevation across the geographic region in which the project site is located. These zones are intended to assist in understanding the visual character and physical definition of the viewshed. The three zones are defined as follows:

- ***Foreground:*** Under 600-foot Elevation Zone. As seen from on- and off-site vantage points, this lower elevation landscape is a generally prominent foreground view.

- ***Middleground:*** 600-foot to 1,000-foot Elevation Zone. As seen from on- and off-site vantage points, this mid-elevation landscape in the middleground zone contains the most visually prominent features in the project site because of height and proximity.

- ***Background:*** Above 1,000-foot Elevation Zone. These are the highest elevation landscape or background features, as viewed from the depicted on- and off-site vantage points. Most of these features are located off-site, but establish a backdrop of silhouetted views from in and around the project site.

Selected ridgelines are identified in each of the three landscape zones. Ridgelines are defined as all ridge elevations beginning at approximately 600 feet and above in the middleground and background zones. This definition was chosen based upon the approximate mid-point of relative elevation range (relief) of the project site ranging from 60 feet to 1,326 feet above mean sea level (msl). Some additional ridges have also been identified in the foreground zone that has prominent or distinctive features. General Plan-designated ridgelines for the cities of San

Clemente and San Juan Capistrano have also been identified because of their proximity to the proposed Ranch Plan development.

4.10.2 EXISTING CONDITIONS

On-Site Features

The project site has a variety of visual characteristics. Visually prominent on-site features include the undeveloped natural character of portions of the site with grasslands, woodlands, and streambeds. The natural terrain contains plains, hillsides, and ridgelines, ranging from gently sloping to steep, with elevations of approximately 60 feet to a maximum of 1,326 feet above msl.

The project site contains many man-made improvements and ongoing operations visible from on and off the site, including but not limited to nurseries, roadways, wireless facilities, communications towers, research and aerospace testing facilities, concrete processing, and mining operations. Please refer to Section 3, Project Description, for further details regarding existing site uses.

Ridgelines

There are approximately 217,804 lineal feet of ridgelines within the project boundary (Exhibit 4.10-1). The project site is visually defined by higher elevation ridgelines surrounding the project site located along several of its boundaries. These ridgelines include, from Ortega Highway at the western project entry clock-wise around the site:

- An Unnamed Ridge, located just within the project boundary at the northwest edge of Planning Area 1, visually separates proposed development from existing residential neighborhoods in the City of San Juan Capistrano north of Ortega Highway

- West Chiquita Ridge along the northwesterly project boundary, separates Ladera Ranch from the project site

- Chiquadora Ridge along the project boundary separates the northern portion of Planning Area 2 from Coto de Caza

- Gobernadora Ridge, located along the project boundary separates Planning Area 3 from Caspers Regional Park

- North Verdugo Canyon Ridge along the project boundary separates Planning Area 9 from Caspers Regional Park

- East Gabino Canyon Ridge separates Planning Area 9 from the Cleveland National Forest

- South Talega Ridge just south of the project boundary at Planning Area 8, visually separates the project site from Marine Corps Base (MCB) Camp Pendleton

- Radio Tower Ridge, located along the southwest project boundary, separates Planning Area 5 from the cities of San Juan Capistrano and San Clemente, as well as the Prima Deshecha Sanitary Landfill. In compliance with existing agreements between the County and the applicant, all proposed Ranch Plan development must be site behind the

ridgeline such that development would not be visible from the Prima Deshecha trail system.

With the exception of Radio Tower Ridge, these ridgelines are a part of larger ridgeline system that extends off the site. The majority of backdrop ridgelines or ridgelines that silhouette the skyline to the northeast, east, and southeast of the project site are off-site ridgelines. Many of the ridgelines that bound the site serve to visually shield or contain much of the project site from surrounding areas.

Recreational Areas

Three existing public regional recreational areas are located to the north and east of the project site (Exhibit 4.10-1). They are:

- Thomas F. Riley Wilderness Park, a 523-acre County of Orange Regional Park
- Caspers Wilderness Park, an 8,500-acre County of Orange Regional Park
- Cleveland National Forest, a 460,000-acre national facility

Existing views of the project site from these recreational areas, primarily from campgrounds, are limited by native vegetation and natural landforms. Pedestrian riding and hiking trails that extend to higher points in these parks have views into the project site.

Light and Glare

Light and glare from the project site is currently limited to scattered residences and businesses located throughout the site, and from traffic along Ortega Highway and Antonio Parkway. Off-site uses in the surrounding communities to the north, west, and south of the project site (i.e., Coto de Caza, Ladera Ranch, San Juan Capistrano, San Clemente, and MCB Camp Pendleton) generate light from street and other outdoor lighting. Glare is limited because most on- and off-site uses in the area are constructed of non-reflective materials.

Scenic Highways

The *County of Orange General Plan, Transportation Element* includes a Scenic Highways Plan. The County's designated scenic highways are included in two categories: Viewscape Corridors and Landscape Corridors. Within the project site, Ortega Highway is designated a Viewscape Corridor east of Antonio Parkway and a Landscape Corridor west of Antonio Parkway. Antonio Parkway is designated a Landscape Corridor. According to the Scenic Highway Component:

- "A viewscape corridor is a route which traverses a corridor within which unique or unusual scenic resources and aesthetic values are found. This designation is intended to minimize the impact of the highway and land development upon the significant scenic resources along the route."
- "A landscape corridor traverses developed or developing areas and has been designated for special treatment to provide a pleasant driving environment as well as community enhancement. Development within the corridor should serve to complement the scenic highway."

4.10.3 IMPACTS

Thresholds of Significance

For the purpose of this analysis, the project is considered to have a significant visual and aesthetic impact if any of the following occurs:

- The project would substantially degrade the existing visual character or quality of the site and its surroundings.
- The project would result in substantial landform alteration that would adversely affect the visual quality of the area.
- The project would create light, glare, or illumination beyond the physical limits of the project site, which would adversely affect views in the area.

Project Impacts

The aesthetic impacts of a project include both the objective visual resource change created by the project and the subjective viewer response to that change. Distance from the project, frequency of view, length of view, viewer activity, viewer perception, and viewing conditions contribute to the assessment of an aesthetic impact. The physical limits and changes of the views and the quantity of the viewers are objective.

Viewer perception is subjective. The perception of different viewer groups to the visual environment and its elements varies based on viewer activity and awareness. Activities such as commuting in heavy traffic can distract an observer from many aspects of the visual environment. Conversely, pleasure driving or relaxing in a scenic environment can encourage an observer to look at the view more closely and at greater length, thereby increasing the observer's attention to detail. Sensitivity is also determined by how much the viewer has at stake in the viewshed. Typically, people who own property in an area would be more sensitive to change than those just passing through an area.

Landform Alteration

Impact 4.10-1: *Grading activities would significantly alter the existing visual characteristics and topography of the site.*

The proposed project would be developed incrementally over a period of approximately 20 to 25 years (see Section 3.5 of the Project Description for a discussion of project phasing).

Short-term impacts would fall within several categories of visual change. Mass grading would affect existing topography, vegetation cover, and vistas. Throughout much of the grading, large construction vehicles would be visible from adjacent (and some distant) vantage points. Barren slopes and new development in various stages of construction would be visible intermittently throughout the development of the project.

Implementation of the proposed project would alter the visual characteristics of the site. As addressed in Section 3, Project Description, implementation of the proposed project would require approximately 288,461,000 cubic yards (cy) of cut and fill (153,235,000 cy of mass grading and 135,226,000 cy of remedial grading). The grading plan (see Exhibit 4.4-11 of

Section 4.4, Geology and Soils) identifies cuts to ridgelines and fills in valleys for the proposed development.

Landscape plans to be implemented as part of the project would involve the replanting of slopes in order to reduce the aesthetic impacts associated with grading, to the extent possible given fuel modification and habitat preservation goals.

Surrounding Views

Impact 4.10-2: *The visual character of the project site visible from several viewpoints will be significantly altered through implementation of the project.*

A photographic aesthetic impact analysis was conducted from key vantage points within and outside the project area. As previously noted, a representative sample of these photographs show the type and/or height of structures that would be permitted within the planning areas. A Viewshed Analysis Key Map is provided as Exhibit 4.10-2. Vantage Points 1 through 23 are from on-site and off-site locations that can be characterized as public areas–primarily existing and future roadways; Vantage Points A through H are from on-site and off-site locations that can be characterized as private areas–primarily from existing off-site or proposed on-site residential areas. The limits of the proposed grading are delineated in the photographs and, therefore, represent a worst-case depiction of the area of disturbance associated with the proposed project.

Views from Public Areas

The following describes the existing views and anticipated impacts from public Vantage Points 1 through 23:

View 1: ***Ortega Highway at I-5 in the City of San Juan Capistrano***

Exhibit 4.10-3 depicts the project site from Ortega Highway west of the project boundary in the City of San Juan Capistrano.

Effect: Proposed development would not be visible from this vantage point. No significant impacts would occur.

View 2a: ***West of Project Site on Ortega Highway in the City of San Juan Capistrano***

Exhibit 4.10-4 depicts Ortega Highway, west of the project boundary looking east.

Effect: As depicted in View 2a, the project site is not visible from this vantage point. No significant impacts would occur. It should be noted that Ortega Highway is planned for widening to a four-lane road in this location, and landscaped as a landscape corridor as part of a future Caltrans road improvement project. These improvements are not a part of the proposed project or the responsibility of the applicant.

View 2b: ***West of Project Site on Ortega Highway in the City of San Juan Capistrano***

This view is looking east near the project site's boundary on Ortega Highway (Exhibit 4.10-4).

Effect: The southernmost portion of Planning Area 2 would be visible in the background. Planning Area 2 is located north of Ortega Highway, east of Antonio Parkway, south of Oso Parkway and Tesoro High School, and west of Cañada Gobernadora in Chiquita Canyon. Of the 1,680-acre planning area, 1,030 acres is proposed for development with 1,550 residential dwelling units, 610,000 square feet of urban activity uses, and 50,000 square feet of neighborhood center uses; 650 acres would be in open space. Approximately 37,300,000 cy of cut and fill (18,650,000 cy of mass grading and 18,650,000 cy of remedial grading) would be required. From this distance (over 1.5 miles), the change in topography and land use from open space to residential development would not result in significant aesthetic impacts because of limited visibility.

View 3: ***Intersection of Ortega Highway at Antonio Parkway***

Exhibit 4.10-5 shows the proposed development area in Planning Area 1, looking west and northwest, at the southeast corner of the existing intersection of Ortega Highway at Antonio Parkway. The Planned Community of Ladera Ranch is in the background.

Effect: Planning Area 1 is an 810-acre site proposed for a mix of residential, urban activity center uses, and open space uses. Of the 810 acres, approximately 540 acres is proposed for development (1,020 dwelling units and 1.19 million square feet of urban activity center uses); 148 acres would be open space internal to Planning Area 1; and 122 acres would be a part of the proposed Rancho Mission Viejo Regional Park. Approximately 14,250,000 cy of cut and fill (4,500,000 cy of mass grading and 9,750,000 cy of remedial grading) would be required.

From this vantage point, residential development in Planning Area 1 would be visible between La Pata Avenue and Ortega Highway. Urban activity center uses are proposed in Planning Area 1 on three of the four quadrants of the intersection of Ortega Highway at Antonio Parkway/La Pata Avenue. Proposed residential development on the hillside below Ladera Ranch would also be visible from this vantage point. Although the southeast quadrant is partially developed with polo fields and the southwest quadrant contains nursery facilities, the change in character of the site from this public view and the introduction of night lighting is considered a significant impact because of the extent of the change.

View 4a: ***Ortega Highway, East of Antonio Parkway***

Exhibit 4.10-6 depicts the project site looking north from Ortega Highway east of Antonio Parkway.

Effect: Proposed residential development in Planning Area 1 northeast of the intersection of Antonio Parkway at the proposed New Ortega Highway

would be visible from this vantage point. The proposed New Ortega Highway, as it travels in an easterly direction, from its intersection at Antonio Parkway and enters Planning Area 2, as well as the proposed bridge crossing over Chiquita Creek would be visible from this vantage point.

Proposed residential development in the southern portion of Planning Area 2 would also be visible from this vantage point. The middle development area of Planning Area 2 would be partially visible from this vantage point. Bicycle trails in the proposed Rancho Mission Viejo Regional Park would not be visible from this viewpoint. Based on the thresholds of significance set forth in this Program EIR, the change in views from this public vantage point, as well as the change in landform and introduction of nighttime lighting, is considered a significant impact.

View 4b, c: Ortega Highway, East of Antonio Parkway

As depicted in Exhibit 4.10-7, these views are further east on Ortega Highway than View 4a (Exhibit 4.10-6) and look north from Ortega Highway, east of Antonio Parkway.

Effect: The proposed New Ortega Highway and two bridge crossings would be visible from this vantage point. New Ortega Highway is proposed to cross Chiquita Creek as the roadway exits the development area in Planning Area 1 and enters Planning Area 2. As New Ortega Highway continues in an easterly direction, it exits Planning Area 2 and crosses Cañada Gobernadora Creek, continuing in an easterly direction, to enter into the western portion of Planning Area 3.

The proposed residential development in the southern portions of Planning Areas 2 and 3 would also be visible from this vantage point, as well as the proposed arterial, Chiquita Canyon Road, as it crosses Cañada Gobernadora via a bridge. Planning Area 3 is located north of San Juan Creek, west of Caspers Wilderness Park, south of Coto de Caza, and east of Cañada Gobernadora, and is generally known as the Gobernadora area. The 2,353-acre planning area is proposed for residential, urban activity center uses, and neighborhood center uses. Of the 2,353 acres, 2,089 acres would be developed with 5,630 dwelling units, approximately 1,680,000 square feet of urban activity center uses, and 100,000 square feet of retail uses; 264 acres of open space is proposed internal to the planning area. Approximately 75,800,000 cubic yards of cut and fill grading (42,400,000 cy of mass grading and 33,400,000 cy of remedial grading) would be required. Based on the thresholds of significance set forth in this Program EIR, the change in views from this public vantage point, as well as the change in landform and introduction of nighttime lighting, is considered a significant impact.

View 5: Oso Parkway at Tesoro Creek Road in the City of Rancho Santa Margarita, South of Coto de Caza

Exhibit 4.10-8 depicts the project site looking south from the Tesoro High School entrance at the intersection of Oso Parkway at Tesoro Creek Road.

Effect: A portion of the proposed residential development area located on the ridgeline directly south of the viewpoint and Tesoro High School would be

visible from this vantage point. The exhibit conceptually depicts the type of large lot, low-density residential development that would be permitted in Planning Area 2. Because of the limited visibility and type of residential development (large lot, low-density) proposed in this portion of the planning area, no significant aesthetic impacts are anticipated.

View 6: Tesoro High School, Southeast Corner

Exhibit 4.10-9 provides a view of Planning Area 2 looking south from the southernmost boundary of the Tesoro High School property.

Effect: Proposed Planning Area 2 low-density residential and golf course development would be implemented directly south of the viewpoint and would be visible from this vantage point, including a portion of Planning Area 2 development to be located on the ridgeline. One or two golf course holes may be visible from this vantage point. A portion of the proposed Chiquita Canyon Road would be constructed in the eastern portion of the Planning Area 2 development. Chiquita Canyon Road would not be visible from this vantage point because it would be obscured by large lot, low-density residential development in the foreground. Although implementation of development would result in a land use change from open space to residential and golf course development, its proximity to existing urban land uses and the low density of development would not result in significant aesthetic impacts that are considered to substantially degrade the visual quality of the area.

View 7: Thomas F. Riley Wilderness Park

Exhibit 4.10-10 depicts Planning Area 3 looking southeast from Riley Wilderness Park.

Effect: Proposed large lot, low-density residential development in the northern portion of Planning Area 3 is conceptually depicted in this exhibit. This residential development would be visible in the background (approximately 1.5 miles) from this vantage point. Existing residential development in Coto de Caza is also visible in the foreground from this location. Although the visual character of the area from this vantage point would not be significantly altered, proposed grading would impact ridgelines. Therefore, changes from this vantage point are considered significant.

View 8a: West Ridge Trail in Caspers Wilderness Park

Exhibit 4.10-11 depicts Planning Areas 2, 3, and 5 looking southwest from the West Ridge Trail in Caspers Wilderness Park.

Effect: Proposed residential development in Planning Area 2 would be visible from the East Ridge Trail in Caspers Regional Park. Existing residential development in Coto de Caza is also visible from this location. Proposed large lot, low-density and conventional residential development in Planning Area 3 would not be visible from this vantage point. A small portion of the proposed residential development area in Planning Area 5 would also be visible from this vantage point. At its closest point, Planning Area 2 is approximately two miles from this trail. As such, the visual character of the

area from this vantage point would not be significantly altered. No significant aesthetic impacts are expected.

View 8b: West Ridge Trail in Caspers Wilderness Park

Exhibit 4.10-12 depicts Planning Areas 2, 3, and 5 looking southwest from the West Ridge Trail in Caspers Wilderness Park.

Effect: Proposed residential and urban activity center development, the latter of which also permits residential uses, in Planning Area 2 would be visible from the trail in Caspers Regional Park. As conceptually depicted in the exhibit, the proposed large lot, low-density and conventional residential development in Planning Area 3 would be visible in the foreground from this vantage point. A small portion of the proposed residential development area in Planning Area 5 would also be visible from this vantage point. Existing residential development in Coto de Caza is also visible from this location. Due to the proximity of change in visual character that would occur in Planning Area 3 near this existing County park trail, implementation of the project would result in significant aesthetic impacts.

View 9: East Ridge Trail in Caspers Wilderness Park

Exhibit 4.10-13 shows Planning Areas 3 and 4 from the East Ridge Trail in Caspers Wilderness Park looking southwest towards San Juan Creek.

Effect: A portion of proposed large lot, low-density residential development in Planning Area 4 and a portion of proposed New Ortega Highway may be visible from this vantage point, although these views may be obscured by existing vegetation. Development is conceptually depicted in this exhibit. Planning Area 4 is located north and south of existing Ortega Highway, known as the East Ortega area. The 216-acre planning area is proposed for 150 large lot, low-density residential units and approximately 50,000 square feet of neighborhood commercial. Grading would require approximately 3,244,000 cy of cut and fill (2,000,000 cy of mass grading and 1,244,000 cy of remedial grading). Proposed development in Planning Area 3 would not be visible from this vantage point. Because of limited views of Planning Area 4 in the background from this vantage point (approximately 1.4 miles), no significant aesthetic impacts would occur.

View 10: Starr Mesa Campground in Caspers Wilderness Park

Exhibit 4.10-14 shows Starr Mesa Campground, located approximately one mile from the Caspers Wilderness Park entrance.

Effect: The proposed large lot, low-density residential development in Planning Area 4 would not be visible from this location because of existing screening provided by native vegetation and landform features. No significant impacts would occur.

View 11a: West Ridge Trail in Caspers Wilderness Park

Exhibit 4.10-15 depicts views of Planning Areas 2 and 3 from the West Ridge Trail that traverses the most westerly ridgeline in Caspers Wilderness Park.

At points along the 2.2-mile trail, hikers and bicycle riders would have views into the project site.

Effect: Proposed Planning Area 3 residential development would be visible in the foreground from this vantage point. Proposed Planning Area 2 development, the Chiquita Canyon arterial road alignment, and the bridge crossing Cañada Gobernadora Creek (from Planning Area 2 into Planning Area 3) would also be visible in the background from this public vantage point. Changes to the topography and character of the site from this vantage point would result in significant aesthetic impacts.

View 11b: West Ridge Trail in Caspers Wilderness Park

Exhibit 4.10-16 depicts views of Planning Areas 2 and 3 from the West Ridge Trail in Caspers Wilderness Park.

Effect: Proposed Planning Area 3 residential development would be visible in the immediate foreground from this vantage point. This residential development is expected to obscure proposed development in Planning Area 2, as well as the Chiquita Canyon arterial road alignment and bridge crossing Cañada Gobernadora Creek. At points along West Ridge Trail, hikers and bicycle rider would have views into the project site. Changes to the topography and character of the site from this vantage point would result in significant aesthetic impacts.

View 12: Nature Center in Caspers Wilderness Park

Exhibit 4.10-17 is taken from the Nature Center, an interpretive center, located in the southern portion of Caspers Wilderness Park. The view is southeasterly, from the parking lot of the Nature Center.

Effect: Proposed large lot, low-density residential development in Planning Area 4 would be visible from the parking lot of and the entrance (southern staircase and ramp) to the Nature Center. Additional native landscaping is proposed for Planning Area 4 to screen proposed development from view. A portion may be visible in the background because this vantage point is at a higher elevation than the proposed final grade for Planning Area 4. The proposed New Ortega Highway arterial road alignment and bridge crossing San Juan Creek would be visible. The observation platform for the Nature Center is on the northern side of the building and is oriented directly into Caspers Wilderness Park. Planning Area 4 is not visible from the observation platform on the northern side of the Nature Center. Changes to the character of the area associated with the development of New Ortega Highway are considered a significant impact.

View 13: Ortega Highway at Verdugo Canyon

Exhibit 4.10-18 depicts a portion of Planning Area 4 looking southwest from Ortega Highway at Verdugo Canyon.

Effect: As conceptually depicted in the exhibit, the proposed large lot, low-density residential development in Planning Area 4 would be visible to the Ortega Highway commuter traffic and the local traffic as it exits Verdugo

Canyon. The foreground views of proposed development may be partially obscured by proposed landscaping (e.g., trees and walls) associated with residences in the planning area. Although implementation of residential development in this location would result in a change in land use, the proposed development area has been subject to disturbance and development. Therefore, implementation of large lot, low-density residential development is not considered to result in a substantial degradation of the visual quality of the area of site and, therefore, is not considered a significant impact.

View 14: Ortega Highway at Tree of Life Nursery

Exhibit 4.10-19 depicts views of the project site westerly from Ortega Highway within Planning Area 4 and toward the southeastern portion of Planning Area 3.

Effect: As conceptually depicted in the exhibit, existing Tree of Life Nursery would be removed to allow for the implementation of large lot, low-density residences. This proposed residential development in Planning Area 4 would be visible in the foreground and would serve to obscure the alignment of proposed New Ortega Highway portions of Planning Area 3 in the background, and it would also eliminate views of the hillsides. Because the implementation of proposed development in this area would result in the change of all land uses from this vantage point, aesthetic impacts are considered significant.

View 15: Ortega Highway, South of Verdugo Canyon

Exhibit 4.10-20 depicts Planning Area 4 looking southeast from Ortega Highway, south of Verdugo Canyon.

Effect: From this vantage point, views of the hillsides in the background would be obscured by proposed residential and commercial land uses in Planning Area 4. The proposed development area is conceptually depicted in the exhibit. Although limited grading would be required in this portion of the planning area to implement proposed development, the change in character of the landscape from open fields to urban development, as viewed from Ortega Highway, is considered a significant impact.

View 16a: Ortega Highway at Cristianitos Road

Exhibit 4.10-21 shows Planning Areas 2 and 3 looking north from Ortega Highway.

Effect: Much of the residential development proposed in Planning Areas 2 and 3 would be visible from this vantage point. The proposed development is conceptually depicted in this exhibit. The foreground views would continue to be dominated by the floodplain of San Juan Creek. Future residences in Planning Area 3 may obscure the proposed alignment of New Ortega Highway; the bridge crossing from Planning Area 3 to Planning Area 2 would be visible. Implementation of residential development in this location would result in a change in land use from open space, orchards, and existing ranch uses. Although portions of the site visible from Ortega Highway are disturbed

from industrial lease operations and agricultural activities, the change in character of the area is considered a significant aesthetic impact.

View 16b: Ortega Highway at Cristianitos Road

Exhibit 4.10-22 shows Planning Areas 3 and 4 looking north from Ortega Highway.

Effect: Much of the residential development proposed in Planning Area 3 would be visible from this vantage point. The foreground views would be dominated by the floodplain of San Juan Creek. The proposed alignment of New Ortega Highway is expected to be obscured by future residences in Planning Area 3. A small portion of the New Ortega Highway bridge crossing may be visible. Proposed residential development in Planning Area 4 would not be visible from this vantage point. Implementation of residential development in this location would result in a change in land use from open space, orchards, and existing ranch uses. Although portions of the site visible from Ortega Highway are disturbed from industrial lease operations and agricultural activities, the change in character of the area is considered a significant aesthetic impact.

View 17a: Ortega Highway at Cristianitos Road

Exhibit 4.10-23 shows Planning Area 5 looking south from Ortega Highway at Cristianitos Road.

Effect: The existing alignment of Cristianitos Road is seen in the left portion of the photograph (to the east from this vantage point). The proposed Cristianitos Road would be visible to the west, including the proposed bridge to elevate the road over existing Ortega Highway (right portion of photograph). The foreground hills would provide a partial visual barrier of Planning Area 5 residential development from Ortega Highway. Planning Area 5 is located south of Ortega Highway and east of the City of San Juan Capistrano, in Trampas Canyon. Much of this planning area has been disturbed from silica mining operations. The 1,350-acre planning area is proposed for development with 2,440 residential dwelling units, a 200-acre golf course, and 100,000 square feet of neighborhood center uses; approximately 159 acres of open space within the planning area would be provided. Approximately 60,200,000 cy of cut and fill grading (25,200,000 cy of mass grading, and 35,000,000 cy of remedial grading) would be required. Implementation of residential development in this portion of Planning Area 5 would result in extensive topographical modifications visible from Ortega Highway. Aesthetic impacts are considered significant.

View 17b: North of Ortega Highway at San Juan Creek

Exhibit 4.10-24 is a view of Planning Area 5 looking south from the northern bank of San Juan Creek.

Effect: Proposed residential development of the northern portion of Planning Area 5 would be visible from this vantage point. Proposed residential development is conceptually depicted in the exhibit. The foreground San Juan Creek floodplain, lower elevation hills, and background higher-elevation

ridges would continue to be visible. The change in the topographical character and change of land use of the planning area visible from this public roadway is considered a significant impact.

View 18: Talega Planned Community in the City of San Clemente

Exhibit 4.10-25 depicts views looking east within the Talega Planned Community (currently under construction), to the western portion of the proposed Planning Area 7 development.

Effect: Residential development has been conceptually depicted in this exhibit. A portion of the proposed residential development in Planning Area 7 may be visible from this elevated vantage point, but is expected to be partially obscured by future residential development in Talega. Planning Area 7 is located north of the existing TRW site in Cristianitos Canyon. Of the 1,442-acre planning area, approximately 853 acres would be developed with 1,480 single-family dwelling units and 100,000 square feet of neighborhood center uses; the remaining 589 acres would be in open space within the planning area. Approximately 38,412,000 cy of cut and fill grading (24,000,000 cy of mass grading and 14,412,000 cy of remedial grading) would be required. Residential development in this location would serve as a continuation of urban land uses visible from this vantage point. From this vantage point, these land use changes would not be considered significant aesthetic impacts.

View 19a: Talega Planned Community, Cul-de-Sac: Looking Toward Planning Area 7

Exhibit 4.10-26 depicts views looking east from the eastern edge of the Talega Planned Community toward the southern portion of the Donna O'Neill Land Conservancy and Planning Area 7.

Effect: The proposed Cristianitos Road arterial alignment and bridge crossing of Gabino Canyon would be visible from this vantage point (east of the Donna O'Neill Land Conservancy). Proposed residential development in Planning Area 7 would also be visible (approximately 1 mile from the vantage point), particularly development on the westerly facing hillsides and at the higher elevations. Visibility of the bridge would result in significant aesthetic impacts from this vantage point.

View 19b: Talega Planned Community, Cul-de-Sac: Looking Toward Planning Area 8

This view is looking east from the easterly edge of the Talega Planned Community toward the leased Northrop Grumman site (formerly TRW) and Planning Area 8 (Exhibit 4.10-26).

Effect: Proposed residential development Planning Area 8 would be visible from this vantage point (approximately 0.4 mile away). The proposed Cristianitos Road Bridge crossing of Gabino Canyon would also be visible. The alignment of this arterial within Planning Area 8 would be partially obscured by future development in Talega. Planning Area 8 is located south of Planning Area 7, the current site leased by Northrop Grumman. Of the

planning area's 1,264 acres, 1,092 acres are proposed for 1,400 dwelling units, a 20-acre golf-oriented resort, a 1,220,000 square foot business park, and 100,000 square feet of neighborhood commercial uses. The remaining 172 acres would be in open space. Implementation of development would require approximately 48,141,000 cy of cut and fill grading (30,140,000 cy of mass grading and 18,001,000 cy of remedial grading). Extensive grading would result in changes to the visual character of the area that is considered a significant impact.

View 20: End of Avenida Pico/Cristianitos Road in the City of San Clemente

Exhibit 4.10-27 depicts Planning Area 8 from the existing terminus of Avenida Pico/Cristianitos Road in the Planned Community of Talega, looking northeasterly. Avenida Pico would enter Planning Area 8 in this location.

Effect: The proposed extension of Avenida Pico/Cristianitos Road would cross Cristianitos Creek via a bridge crossing and enter the southern development area of proposed Planning Area 8. The existing (under construction) Talega Apartment Community is visible on the northern side of Avenida Pico. Residents of this apartment complex will be able to view residential and business park uses in the southern developed portion of Planning Area 8. The Northrop Grumman site is visible from this vantage point and would be demolished to facilitate the development. Although the proposed land uses are consistent and compatible with existing land uses in Talega, the extensive grading (approximately 48,141,000 cy of cut and fill) necessary to implement proposed land uses would result in changes to the visual character of the area that are considered significant.

View 21: Avenida Vista Hermosa in the City of San Clemente

Exhibit 4.10-28 depicts Planning Areas 7 and 8 looking east from the highest elevation point on Avenida Vista Hermosa in the City of San Clemente.

Effect: Proposed development is conceptually depicted in the exhibit. In the background, the southerly development portion of Planning Area 8 would be visible. Residential and business park uses are proposed. The southern portion of the Planning Area 7 would also be visible from this vantage point. Because of the limited views of these planning areas (approximately 2.6 miles and three miles, respectively, from Planning Areas 7 and 8), and existing residential and industrial/business park uses visible in the foreground, no significant aesthetic impacts from the vantage point would occur.

View 22a: Near I-5 at Cristianitos Road

Exhibit 4.10-29 depicts Planning Area 8 looking northeast from the I-5 off-ramp area for Cristianitos Road in the City San Clemente.

Effect: The proposed southern development of Planning Area 8 would be visible in the distant view (approximately 3.8 miles). MCB Camp Pendleton and the existing SDG&E electrical tower easement lines are visible in the foreground. The existing Northrop Grumman facilities would be demolished to allow for the implementation of residential development. Extensive grading

would be required. Although the proposed development is not proximate to the vantage point, the view of Planning Area 8 is not obscured. The change in topographical character and visibility of development are considered significant aesthetic impacts.

View 22b: Near I-5 at Cristianitos Road

Exhibit 4.10-30 shows Planning Area 8 looking north along the alignment of existing Cristianitos Road in San Clemente and the western boundary of MCB Camp Pendleton.

Effect: A small portion of proposed residential development in Planning Area 8 would be visible from this vantage point. The SDG&E electrical lines are visible in the foreground. Extensive grading would be required to implement development in this planning area. Because of limited visibility of the development area from this vantage point, no significant aesthetic impacts are anticipated.

View 22c: Near I-5 at Cristianitos Road

Planning Areas 7 and 8 are shown in the photograph (Exhibit 4.10-30) looking north along the alignment of existing Cristianitos Road in San Clemente and the western boundary of MCB Camp Pendleton.

Effect: A small portion of proposed residential development in Planning Area 7 and the proposed alignment of Cristianitos Road, and a large area of proposed residential development in Planning Area 8 would be visible from this vantage point. The SDG&E electrical lines are visible in the middle ground and the Northrup Grumman facilities are visible in the background. The existing Northrop Grumman facilities would be demolished to allow for the implementation of residential development. Extensive grading would be required. Because of visibility of the development area for Planning Area 8 from this vantage point, significant aesthetic impacts are anticipated.

View 23: I-5 South of Cristianitos Road

Exhibit 4.10-31 shows Planning Area 8 looking north from I-5 at Cristianitos Creek.

Effect: A distant view of the southerly development portion of Planning Area 8 (approximately 4.7 miles) would be visible. Residential development is proposed in this area. MCB Camp Pendleton and the existing SDG&E electrical tower easement lines are visible in the foreground. Because of the distance of the planning area from this vantage point, proposed development would not result in visible changes to the topographical character of the area that would be considered significant. Therefore, no significant aesthetic impacts are anticipated.

Views from Non-Public Areas

The following describes the existing views and anticipated impacts from non-public vantage points A through H:

View A1: San Juan Estates in the City of San Juan Capistrano

Exhibit 4.10-32 depicts views of Planning Area 1 looking northeast from the easternmost edge of the San Juan Estates residential community in the City of San Juan Capistrano.

Effect: Adjacent to the San Diego Gas and Electric (SDG&E) transmission line easement, proposed residential development in Planning Area 1 would be visible, but buffered by proposed landscaping. Proposed residential development in the northern portion and on the small ridgeline in the western portion of the planning area would be visible from this vantage point. As previously addressed, implementation of development within the 810-acre Planning Area 1 would require approximately 14,250,000 cy of cut and fill, inclusive of mass grading and remedial grading. Development would be implemented in areas that have been subject to prior disturbance associated with agricultural activities. The proposed land uses are considered a continuation of existing residential development proximate to the vantage point. However, the visibility of land uses, conversion of use, and alterations in the landform are considered significant.

View A2: Adjacent to SDG&E Easement

The photographs depict views of Planning Area 1 looking northerly from the western edge of the 200-foot-wide easement for the SDG&E transmission lines. This easement will remain as currently dedicated.

Effect: In the foreground, proposed residential development in Planning Area 1 would be visible. The proposed development footprint (Exhibit 4.10-32) does not account for grade elevations or future building elevations. Therefore, development that would be located in the immediate foreground would visually block proposed development in the background of Planning Area 1, as well as areas that would be retained in open space. Development would be primarily implemented in areas that have been subject to prior disturbance associated with agricultural activities. However, the visibility of land uses, conversion of use, and alterations in the landform are considered significant.

View A3: San Juan Estates in the City of San Juan Capistrano

Exhibit 4.10-33 provides an expanded view looking north and east from the easternmost portion of San Juan Estates. The rear yards of San Juan Estates residences are approximately five to ten feet higher than the existing SDG&E transmission line easement.

Effect: Five of the San Juan Estates residences located adjacent to the easement would view proposed residential development in Planning Area 1. All of the existing land uses within the development areas depicted in the exhibit would be removed as a part of the project. Proposed development would be of similar heights as the existing development shown in the photographs. Development in the middleground and background would be visible from this vantage point, but similar in scale and use as the adjacent existing residences. Development would be primarily implemented in areas that have been subject to prior disturbance associated with agricultural

activities. However, the visibility of land uses, conversion of use, and alterations in the landform are considered significant.

View B: Private Estates in the City of San Juan Capistrano

Exhibit 4.10-34 depicts Planning Area 1 looking east from existing private estates in the City of San Juan Capistrano.

Effect: Proposed urban activity center uses in Planning Area 1 would be visible (approximately 0.7 mile away) from existing residences in the City of San Juan Capistrano. The *Urban Activity Center* land use designation permits a range of land uses, including retail, industrial, and residential. Because of the developed nature of the area and distance from the planning area, no significant aesthetic impacts are anticipated.

View C: Covenant Hills Development in Ladera Ranch, Unincorporated Orange County

Exhibit 4.10-35 depicts the project site looking southeasterly towards Planning Areas 1, 2, and 3 from the paved community trail along the southerly edge of Ladera Ranch.

Effect: As depicted in photograph, proposed development in Planning Areas 1, 2, and 3 would be visible from this vantage point. With respect to Planning Area 1, senior housing would be visible in the foreground; residential and urban activity center uses, which include retail, business, and residential uses proposed in the planning area would be visible in the background. In the middle/right portion of the photograph, urban activity center uses are proposed on the northeast, northwest, and southwest quadrants of the intersection of Ortega Highway at Antonio Parkway; residential development is proposed in the southeast quadrant of the intersection. The proposed New Ortega Highway would be visible, east of Antonio Parkway, as well as with the vehicular bridge crossing of Cañada Gobernadora Creek. The residential community of Covenant Hills, in the southernmost portion of Ladera Ranch, is under construction and is visible from this vantage point (see development area in far left portion of photograph). Proposed development in Planning Area 1 would be considered a continuation of existing residential development both constructed and under construction in Ladera Ranch. However, the visibility of land uses and alterations in the landform are considered significant.

Urban activity center uses in Planning Area 2 would be visible from this vantage point. The southerly portion of the proposed development in Planning Area 3 would be visible from this vantage point. The proposed development area is approximately two miles from the vantage point. Based on the distance from this vantage point, no significant aesthetic impacts are anticipated.

View D1: Community Trail in Ladera Open Space

Exhibit 4.10-36 depicts Planning Area 2 looking northeast from the Ladera Open Space community trail along Chiquita Ridge toward the northern portion of the planning area; Saddleback Mountain is in the background.

Effect: Proposed residential development is conceptually depicted in this exhibit. The northern development portion of Planning Area 2 and Chiquita Canyon Road would be visible from this vantage point. Proposed development in this area would be multi-family residences. The middle portion would be low-density residences. The southerly, developed portion of Coto de Caza, Tesoro High School, and a portion of Oso Parkway can be seen from this community trail vantage point. The change in land use from open space to urban land uses, as well as the visibility of the bridge would result in significant aesthetic impacts from this vantage point.

View D2: Community Trail in Ladera Open Space

Exhibit 4.10-37 shows the middle portions of Planning Area 2 and most of Planning Area 3 looking southeasterly from the Ladera Open Space community trail along Chiquita Ridge.

Effect: The middle portion of Planning Area 2 and most of Planning Area 3, and portions of the proposed golf course would be visible from this vantage point. Clustered and low-density residential development would be visible in Planning Area 2. Conventional residential and urban activity center uses, which can include residential uses, are proposed in Planning Area 3. The upper portion of Planning Area 3, visible in the photograph, would be developed with large lot, low-density residences. In addition, the proposed Chiquita Canyon Road would also be visible, although it may be partially obscured in some areas by development in these two planning areas. The change in land use from open space to urban land uses, as well as the visibility of the bridge would result in significant aesthetic impacts from this vantage point.

View E: Bend Road in the Community of Coto de Caza, Unincorporated Orange County

Exhibit 4.10-38 is taken looking southerly from Bend Road in the gated community of Coto de Caza, towards Planning Area 3.

Effect: Existing residences in Coto de Caza can be seen in the left portion of this photograph. A small portion of proposed large lot, low-density development to be sited in the northerly portion of Planning Area 3 may be visible. Proposed development would be of a similar density and character as existing development in Coto de Caza. Established vegetative growth in the bottom of the Gobernadora Canyon, as well as topographic features, would provide some visual buffering from this vantage point. Because of the limited visibility of the proposed residential uses and their consistency with existing residential uses in the immediate area, no significant aesthetic impacts are anticipated.

View F: Coto de Caza, Unincorporated Orange County

Exhibit 4.10-39 shows the northern portion of Planning Area 3 looking south from the southern edge of Coto de Caza.

Effect: The northern large lot, low-density residential development portion of Planning Area 3 would be visible from this vantage point. A 500-foot-wide

wildlife corridor is proposed between this vantage point and proposed development in Planning Area 3. Because of the change in landform and visibility of development from this viewpoint, the change is considered a significant aesthetic impact.

View G: Donna O'Neill Land Conservancy

Exhibit 4.10-40 depicts Planning Areas 3 through 8, as well as the proposed alignment of Cristianitos Road looking north and east from the Donna O'Neill Land Conservancy.

Effect: Planning Area 3 is proposed for residential and urban activity center uses, the latter land use designation also permits residential development. Planning Areas 4 and 6 are proposed for large lot, low-density residential development. Planning Area 7 is proposed for conventional residential and retail development. Planning Area 8 is proposed for conventional and large lot, low-density residences and business park uses. The change in land use from open space to urban land uses, as well as changes to the topographical character of the area, would result in significant aesthetic impacts from this vantage point.

View H Private Estates East of Property Boundary

Exhibit 4.10-41 is of Planning Area 9 looking west from the eastern property boundary.

Effect: Planning Area 9 is 9,272 acres and is located in the southeastern portion of the project site. All but 420 acres would be retained as open space. Development would occur in the far eastern portion of the planning area in vicinity of Verdugo Canyon and the upper Gabino Canyon and would include an approximately 218-acre golf course, a 20-acre site for development of 120 residential casitas, and 100 estate (1 dwelling unit per acre) residential lots. Implementation of development would require approximately 1,769,000 cy of cut and fill grading (500,000 cy of mass grading and 1,269,000 cy of remedial grading). A portion of the proposed golf course and the estate residential and golf course development would be visible from this vantage point. Because of the limited amount of estate residential development that would occur in this area, no significant aesthetic impacts are anticipated.

Ridgeline Modifications

Impact 4.10-3: *Foreground, middleground, and background ridgelines located in landscape zones would be significantly impacted by project grading to allow for the implementation of proposed land uses.*

Exhibit 4.10-42 identifies ridgelines that would be impacted by development of the proposed project. The project would result in approximately 55,152 lineal feet of ridgelines that would be impacted by project grading and subsequent development; approximately 162,652 lineal feet of ridgelines would be preserved or protected. Therefore, approximately 25 percent of the on-site identified ridgelines would be impacted. Ridgelines significantly impacted by grading activities associated with development (landform alteration) are listed below by planning area:

Planning Area 1: The westerly foreground ridgeline (under 600 feet), identified in the *City of San Juan Capistrano General Plan*, would be impacted by proposed project grading. Please note that this ridgeline is identified on the city's General Plan but is located outside of the city's boundaries. The ridgeline would be visible from the following vantage points:

- View 3: Ortega Highway at Antonio Parkway
- View A1, 2, 3: San Juan Estates in the City of San Juan Capistrano
- View B: Private estates in the City of San Juan Capistrano
- View C: Covenant Hills in Ladera Ranch, Unincorporated Orange County

Planning Area 2: The southern portion of the westerly Planning Area 2 foreground ridgeline (under 600 feet) would be impacted by proposed project grading which is anticipated to be visible from the following vantage points:

- View 2b: Easterly from Ortega Highway prior to the entrance to the project in the City of San Juan Capistrano
- View 4a, b, c: North from Ortega Highway
- View 6: Tesoro High School, southeast corner
- View 8a, b: West Ridge Trail in Caspers Wilderness Park
- View 11a, b: West Ridge Trail in Caspers Wilderness Park
- View A3: San Juan Estates in the City of San Juan Capistrano
- View C: Covenant Hills Development in Ladera Ranch, Unincorporated Orange County
- View D1, 2: Community Trail in Ladera Open Space

The easterly Planning Area 2 foreground ridgeline would be preserved and result in no grading impacts.

Planning Area 3: Proposed project grading would impact two central Planning Area 3 ridgelines. These ridgelines are classified as middleground ridgelines (600 to 1,000 feet) in the northern portion of Planning Area 3 and foreground ridgelines (under 600 feet) in the mid-southern portion of Planning Area 3. These two ridgelines are anticipated to be visible from the following vantage points:

- View 4c: Ortega Highway, east of Antonio Parkway
- View 7: Thomas F. Riley Wilderness Park
- View 8b: West Ridge Trail in Caspers Wilderness Park
- View 11a, b: West Ridge Trail in Caspers Wilderness Park
- View 14: Ortega Highway at Tree of Life Nursery

- View 16a, b: Northwest from Ortega Highway
- View C: Convenant Hills in Ladera Ranch, Unincorporated Orange County
- View D2: Ladera Open Space
- View G: Donna O'Neill Land Conservancy

Planning Area 5: The northern portion of the background ridgeline (over 1,000 feet) at the western edge of Planning Area 5 would be impacted by proposed project grading which is anticipated to be visible from the following vantage points:

- View 8a, b: West Ridge Trail in Caspers Wilderness Park
- View 15: Ortega Highway, South of Verdugo Canyon
- View 17b: Ortega Highway at San Juan Creek
- View G: Donna O'Neill Land Conservancy

Planning Area 7: Two eastern middleground ridgelines (between 600 and 1,000 feet) would be impacted by proposed project grading which is anticipated to be visible from the following vantage points:

- View 18: Talega Planned Community in the City of San Clemente
- View 19a: Talega Planned Community cul-de-sac in the City of San Clemente
- View 21: Avenida Vista Hermosa in the City of San Clemente
- View 22c: Near I-5 at Cristianitos Road
- View G: Donna O'Neill Land Conservancy

Planning Area 8: Two eastern middleground ridgelines (between 600 and 1,000 feet) would be impacted by proposed project grading which is anticipated to be visible from the following vantage points:

- View 20: End of Avenida Pico/Cristianitos Road in the City of San Clemente
- View 21: Avenida Vista Hermosa in the City of San Clemente
- View 22a, b, c: Near I-5 at Cristianitos Road
- View 23: I-5 South of Cristianitos Road
- View G: Donna O'Neill Land Conservancy

Wilderness Parks

Impact 4.10-4: *Views from some recreational area vantage points within wilderness parks would be significantly impacted by project grading and associated development activities. Changes in the character would be significant.*

Aesthetic impacts associated with proposed project grading and associated development are anticipated to be visible from, but not limited to, the following vantage points:

- View 7: Thomas F. Riley Wilderness Park
- View 8a, b: West Ridge Trail in Caspers Wilderness Park
- View 9: East Ridge Trail in Caspers Wilderness Park
- View 11a, b: West Ridge Trail in Caspers Wilderness Park
- View 12: Nature Center in Caspers Wilderness Park

It should be noted that the Cleveland National Forest is not considered to be affected because there are no publicly accessible roads or trails within the forest proximate to the project site.

Viewscape and Landscape Corridors

Impact 4.10-5: *Some views from Ortega Highway would be significantly impacted by project grading and development activities.*

As previously addressed, Ortega Highway is designated a Viewscape Corridor east of Antonio Parkway. Ortega Highway is a designated Landscape Corridor west of Antonio Parkway. Aesthetic impacts from Ortega Highway associated with proposed project grading and development are anticipated to be visible from, but not limited to, the following vantage points:

- View 3: Ortega Highway at Antonio Parkway/La Pata Avenue
- View 4a, b, c: Ortega Highway, East of Antonio Parkway
- View 13: Ortega Highway at Verdugo Canyon
- View 14: Ortega Highway at Tree of Life Nursery
- View 15: Ortega Highway, South of Antonio Parkway
- View 16a, b: Ortega Highway at Cristianitos Road
- View 17a: Ortega Highway at Cristianitos Road

Antonio Parkway is also designated a Landscape Corridor. The proposed project does not preclude the implementation of design and landscape features in compliance with the designation of Ortega Highway, west of Antonio Parkway, and Antonio Parkway as a Landscape Corridor. Proposed New Ortega Highway is intended to be designated a Landscape Corridor. As such, no significant impacts are anticipated.

Night Lighting and Glare

Impact 4.10-6: *The project would introduce new sources of nighttime lighting and the potential for glare. The change in character of the project site through the introduction of land uses requiring night lighting and the potential for the use of building materials resulting in glare is considered significant.*

Development and construction of the proposed project would introduce new sources of nighttime light into the area. New light sources are anticipated to occur from the illumination of on-site structures such as commercial buildings and recreational uses (i.e., signage, interior and exterior lighting), residences (i.e., interior and exterior lighting), and street and vehicle lights. The most prominent light source is expected to originate from the proposed sports park in Planning Area 3. The goal of lighting a sports facility is to provide an appropriately illuminated environment for players and spectators for nighttime activities. Light "spills" when it shines beyond the sports facility and illuminates an unintended area. The amount of light spill, measured in foot-candles, is a function of distance and intensity of the light source.

To determine if light and glare that would occur with implementation of the proposed project would result in a significant impact, some basic information regarding light and glare is provided.

Light Scales

Illuminance is the amount of total light received from a source by a unit of surface area. Illumination is measured in foot-candles of light. One candlepower is approximately equal to the light emitted from one candle, and a foot-candle is the amount of light produced by this candle on one-square-foot of a spherical surface one foot from the light source. Illuminance values for natural outdoor light levels are listed in Table 4.10-1. This table is provided for informational purposes to provide the reader with the range of Illuminance associated with natural and man-made light sources.

TABLE 4.10-1
SCENE ILLUMINATION UNDER VARIOUS OUTDOORS CONDITIONS

Lighting Conditions	Scene Illuminance (Foot-candles)
Direct Sunlight	10,000
Full Daylight	1,000
Overcast Day	100
Very Dark Day	10
Twilight	1
Deep Twilight	0.1
Full Moon	0.01
Quarter Moon	0.001
Starlight	0.0001
Overcast Starlight	0.00001
Source: User's Manual, Tetronix Digital Photometer.	

As a part of the proposed Ranch Plan project, land uses will introduce night lighting associated with outdoor structure lighting, street fixtures, recreational facilities, signage, etc. Although these light sources are not expected to extend beyond the physical limits of the Ranch project

site, they have the potential and spillage to create night glow in an area that has very limited night light sources. This change is considered a significant impact.

Glare is defined as the sensation produced when brightness of an object is greater than the brightness to which the eyes are adapted. Glare, a function of candlepower, may be caused directly by a lamp or indirectly from the reflection of surrounding surfaces within the field of view. The presence of glare is frequently a subjective issue. In such cases, the magnitude of glare may prove of less importance than its very presence. When glare is excessive, it can cause discomfort, reduction of visibility, and even momentary loss of vision. This Program EIR has been prepared to address potential impacts at a General Plan and zoning level of analysis. No site-specific development is proposed at this time. Although the intent of the applicant would be to site structures in a manner that would preclude glare impacts that could affect the safety of motorists, the potential for glare impacts is considered a significant impact.

4.10.4 MITIGATION PROGRAM

Project Design Features

PDF4.10-1 Approximately two-thirds of the project site shall be retained in open space.

PDF4.10-2 A 1,000-foot-wide buffer shall be provided between Coto de Caza and the project site.

PDF 4.10-3 Within Planning Area 4 and along the easterly development edge of Planning Area 3 adjacent to Caspers Wilderness Park, the exterior lighting shall be designed and located to confine direct rays to the premises. In addition, parking lots and lighting within Planning Area 4 and along the easterly development edge of Planning Area 3 shall be designed and constructed in a manner that minimizes the diffusion of refractive light into surrounding neighborhoods and/or into the night sky.

PDF 4.10-4 Within Planning Area 4 and along the easterly development edge of Planning Area 3 adjacent to Caspers Wilderness Park, the Master Area Plan shall demonstrate that the exterior walls, and particularly the roofing materials, of residences and businesses visible from Caspers Regional Park are compatible with the natural surroundings.

Standard Conditions and Regulations

Many standard conditions and regulations are enacted at subsequent levels of approval. The following are the County of Orange Standard Conditions that would apply to the project. These are listed because they would be applicable at subsequent levels of approvals (i.e., grading permits and tract maps). The number of the standard condition is listed in parentheses at the end of each condition.

SC4.10-1 The applicant shall install landscaping, equip for irrigation, and improvements on lots in accordance with an approved plan as stated below:

A. Detailed Plan − Prior to the issuance of any building permit(s), the applicant shall submit a detailed landscape plan showing the detailed irrigation and landscaping design to the Manager, Subdivision and Grading for approval, in consultation with the Manager HBP/Program Management. Detailed plans

shall show the detailed irrigation and landscaping design and shall take into account the previously approved landscape plan for the Ranch Plan project, the County Standard Plans for landscape areas, adopted plant palette guides, applicable scenic and specific plan requirements, Water Conservation Measures contained in Board Resolution 90-487 (Water Conservation Measures), and Board Resolution 90-1341 (Water Conservation Implementation Plan).

B. Installation Certification − Prior to the issuance of final certificates of use and occupancy and the release of financial security, if any, guaranteeing the landscape improvements, said improvements shall be installed and shall be certified by a licensed landscape architect or licensed landscape contractor, as having been installed in accordance with the approved detailed plans. The applicant shall furnish said certification, including an irrigation management report for each landscape irrigation system, and any other required implementation report determined applicable, to the Manager, Construction, and the Manager, Building Inspection Services, prior to the issuance of any certificates of use and occupancy. (County of Orange Standard Conditions of Approval, LA01b)

SC4.14-2 A. Prior to the issuance of precise grading permits, the applicant shall prepare a detailed landscape plan for privately maintained common areas which shall be reviewed and approved by the Manager, Subdivision and Grading. The plan shall be certified by a licensed landscape architect or a licensed landscape contractor, as required, as taking into account the approved preliminary landscape plan (if any), County Standard Plans for landscape areas, adopted plant palette guides, applicable scenic and specific plan requirements, Water Conservation Measures contained in Board Resolution 90-487 (Water Conservation Measures), and Board Resolution 90-1341 (Water Conservation Implementation Plan).

B. Prior to the issuance of certificates of use and occupancy, applicant shall install said landscaping and irrigation system and shall have a licensed landscape architect or licensed landscape contractor, certify that it was installed in accordance with the approved plan.

C. Prior to the issuance of any certificates of use and occupancy, the applicant shall furnish said installation certification, including an irrigation management report for each landscape irrigation system, and any other implementation report determined applicable, to the Manager, Building Inspection Services. (County of Orange Standard Conditions of Approval, LA02b)

SC4.10-3 Prior to issuance of any building permit, the applicant shall demonstrate that all exterior lighting has been designed and located so that all direct rays are confined to the property in a manner meeting the approval of the Manager, Building Permit. (County of Orange Standard Conditions of Approval, LG01)

Mitigation Measures

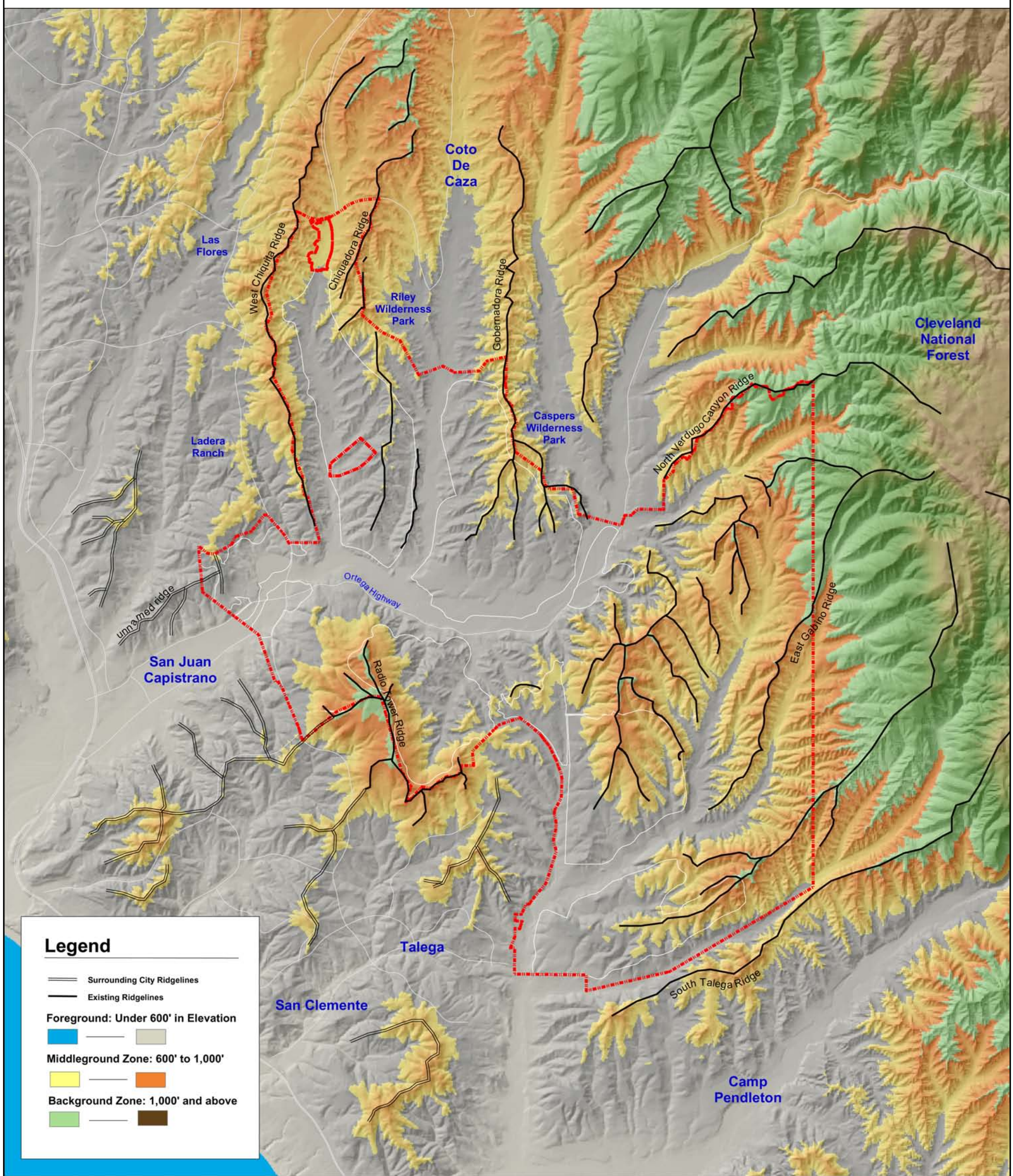
Night Lighting

Please refer to Section 4.9, Biological Resources, which addresses night lighting related to wildlife movement corridors.

MM4.10-1 All lighting along the perimeter of natural areas, particularly street lights, shall be downcast luminaries and shall be shielded and oriented in a manner that will prevent spillage or glare into the remaining natural and open space areas. Final lighting orientation and design shall be to the satisfaction of the County of Orange, Manager, Building Permit. Prior to final inspection or issuance of a certificate of occupancy, where applicable, the Manager, Building Permit, shall cause to be performed a photometric field inspection of the approved lighting system for the project. The inspection shall verify the proper construction and installation of materials within the approved plan, determine the actual light patterns and values through light meter testing and observation, and determine the extent of any errant lighting. Deviations and/or violations shall be corrected prior to the final clearance for the project.

4.10.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The proposed project involves altering the existing natural visual characteristics of the Ranch Plan project site through the grading and construction of residential, urban activity center, commercial, business park, and recreational uses. The proposed project incorporates design features and would implement standard conditions and requirements and mitigation measures that would apply at the time of subsequent approvals, for the purpose of reducing visual disruption associated with this change in uses. However, to the extent that the open space appearance of the predominantly undeveloped portion of the site would be irreversibly lost, this significant impact is unavoidable. Also, implementation of the project would result in significant project lighting impacts. After mitigation, there would also be incremental increases in light levels that are considered significant and unavoidable.



Landscape Zones and Ridgeline Analysis

Exhibit 4.10-1

The Ranch Plan

1" = 6,500'

N W E S

Source: EDAW

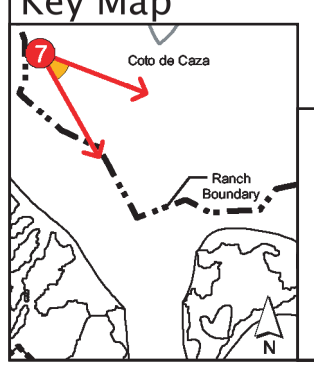
R:\Projects\RMVJ008\Ex4.10-1_Landscape_060704.pdf

Existing

Proposed

Reflects a Conceptual Example of Proposed Project Development

Key Map



Viewshed Analysis

The Ranch Plan

Source: EDAW Inc.

Exhibit 4.10-10

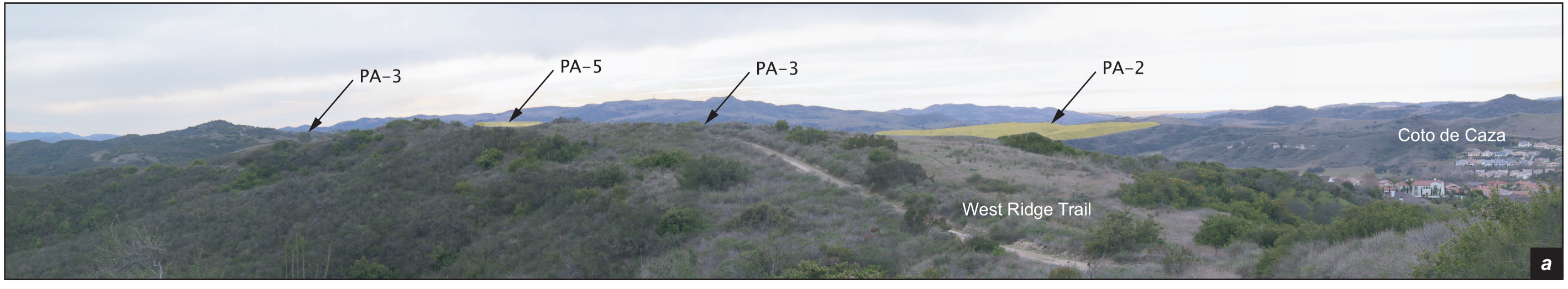
View 7:

Riley Wilderness Park

View East Toward PA-3

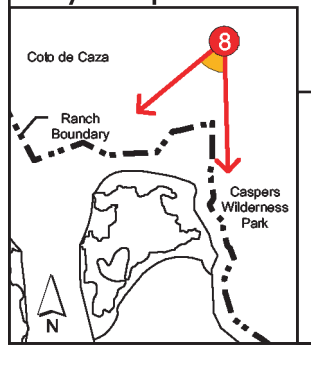
R:\Projects\RMVJ008\Ex4.10-10_View7_060104.pdf

Existing



Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-11

View 8: a

Caspers Wilderness Park: West Ridge Trail

View Southwest Towards PA-2, PA-3, and PA-5

Source: EDAW Inc.

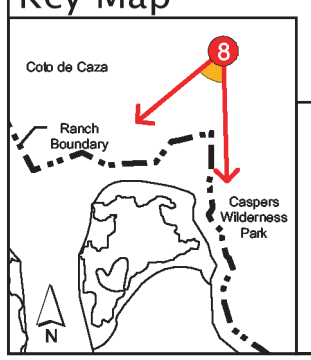
R:\Projects\RMVJ008\Ex4.10-11_View8a_060704.pdf

Existing

Proposed

Reflects a Conceptual Example of Proposed Project Development

Key Map



Viewshed Analysis

The Ranch Plan

Exhibit 4.10.-12

View 8: b

Caspers Wilderness Park: West Ridge Trail

View Southwest Towards PA-2, PA-3, and PA-5

Source: EDAW Inc.

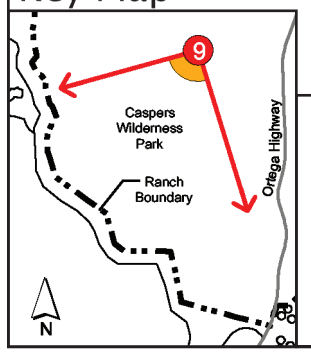
R:\Projects\RMVJ008\Ex4.10-12_View8b_060704.pdf

Existing

Proposed

Reflects a Conceptual Example of Proposed Project Development

Key Map



Viewshed Analysis

The Ranch Plan

Exhibit 4.10-13

View 9:

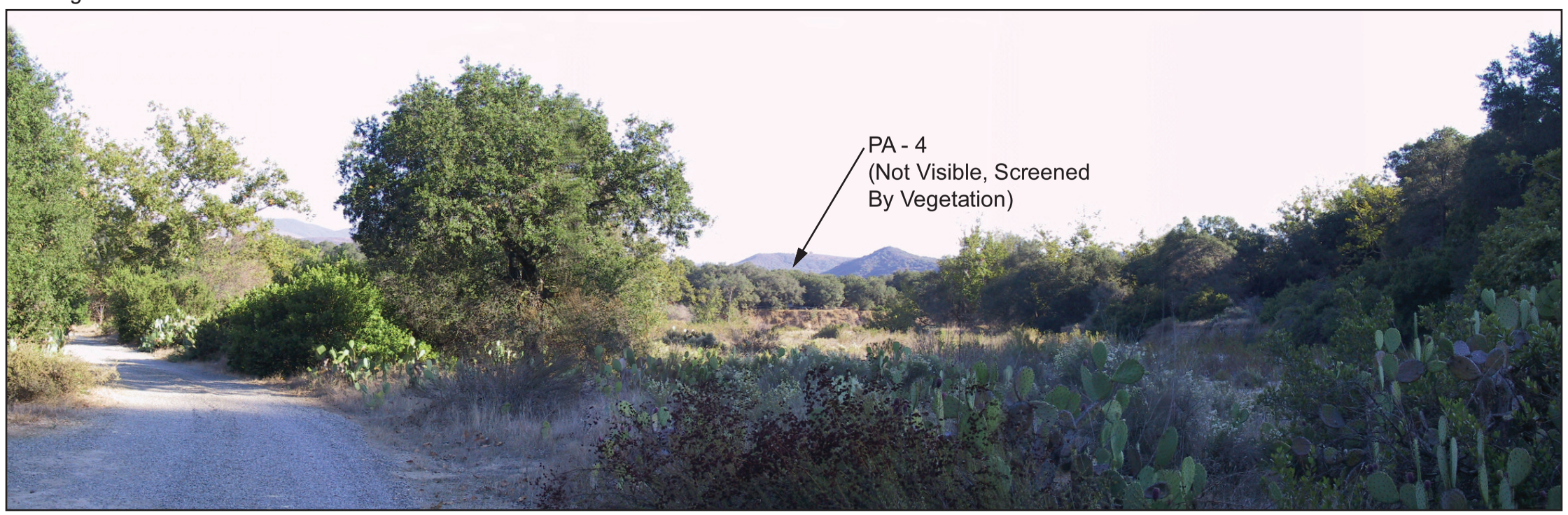
Caspers Wilderness Park: East Ridge Trail

View Southwest Towards PA-3 and PA-4

Source: EDAW Inc.

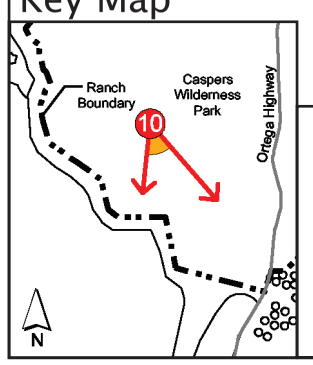
R:\Projects\RMVJ008\Ex4.10-13_View9_060104.pdf

Existing



Proposed

Key Map



Viewshed Analysis

The Ranch Plan

Exhibit 4.10-14

View 10:

Starr Mesa Campground

View South Toward PA-4

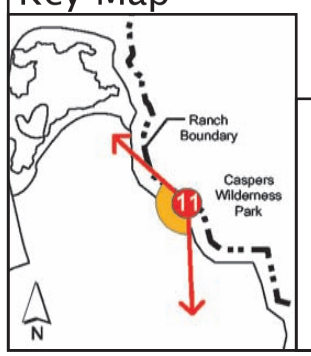
Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-14_View10_060104.pdf

Existing

Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Cristianitos Road

Proposed Bridge Crossing

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-15

View 11: a

Caspers Wilderness Park: West Ridge Trail

View Southwest Over PA-2 and PA-3

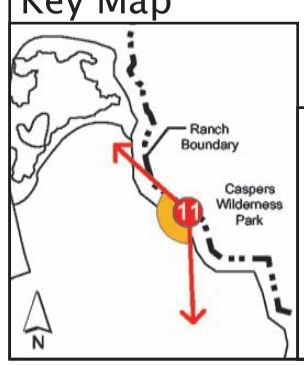
Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-15_View11a_060704.pdf

Existing

Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Christianitos and New Ortega Roads

Proposed Bridge Crossing

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-16

View 11: b

Caspers Wilderness Park: West Ridge Trail

View Southwest Over PA-2 and PA-3

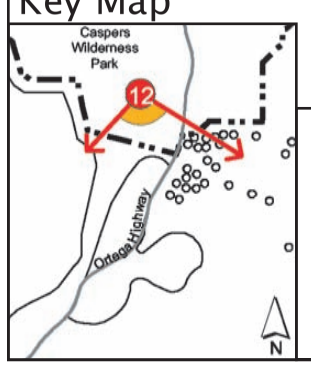
Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-16_View11b_060704.pdf

Existing

Proposed

Key Map



Legend

Proposed Development Footprint

Proposed New Ortega Road

Proposed Bridge Crossing

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-17

View 12:

Caspers Wilderness Park: Nature Center

View Southwest Toward PA-3 and PA-4

Source: EDAW Inc.

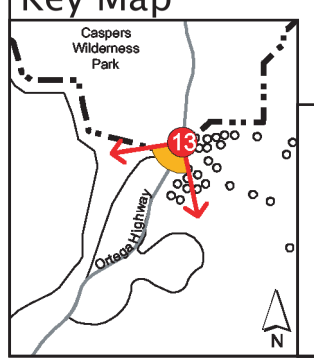
R:\Projects\RMVJ008\Ex4.10-17_View12_060704.pdf

Existing

Proposed

Reflects a Conceptual Example of Proposed Project Development

Key Map



Viewshed Analysis

The Ranch Plan

Source: EDAW Inc.

Exhibit 4.10-18

View 13:

Verdugo Canyon

View Southwest Towards PA-4

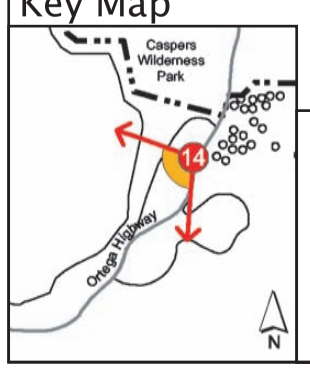
R:\Projects\RMVJ008\Ex4.10-18_View13_060704.pdf

Existing

Proposed

Reflects a Conceptual Example of Proposed Project Development Effect

Key Map



Viewshed Analysis

The Ranch Plan

Exhibit 4.10-19

View 14:

Ortega Highway at Tree of Life Nursery

View Northwest Towards PA-3

Source: EDAW Inc.

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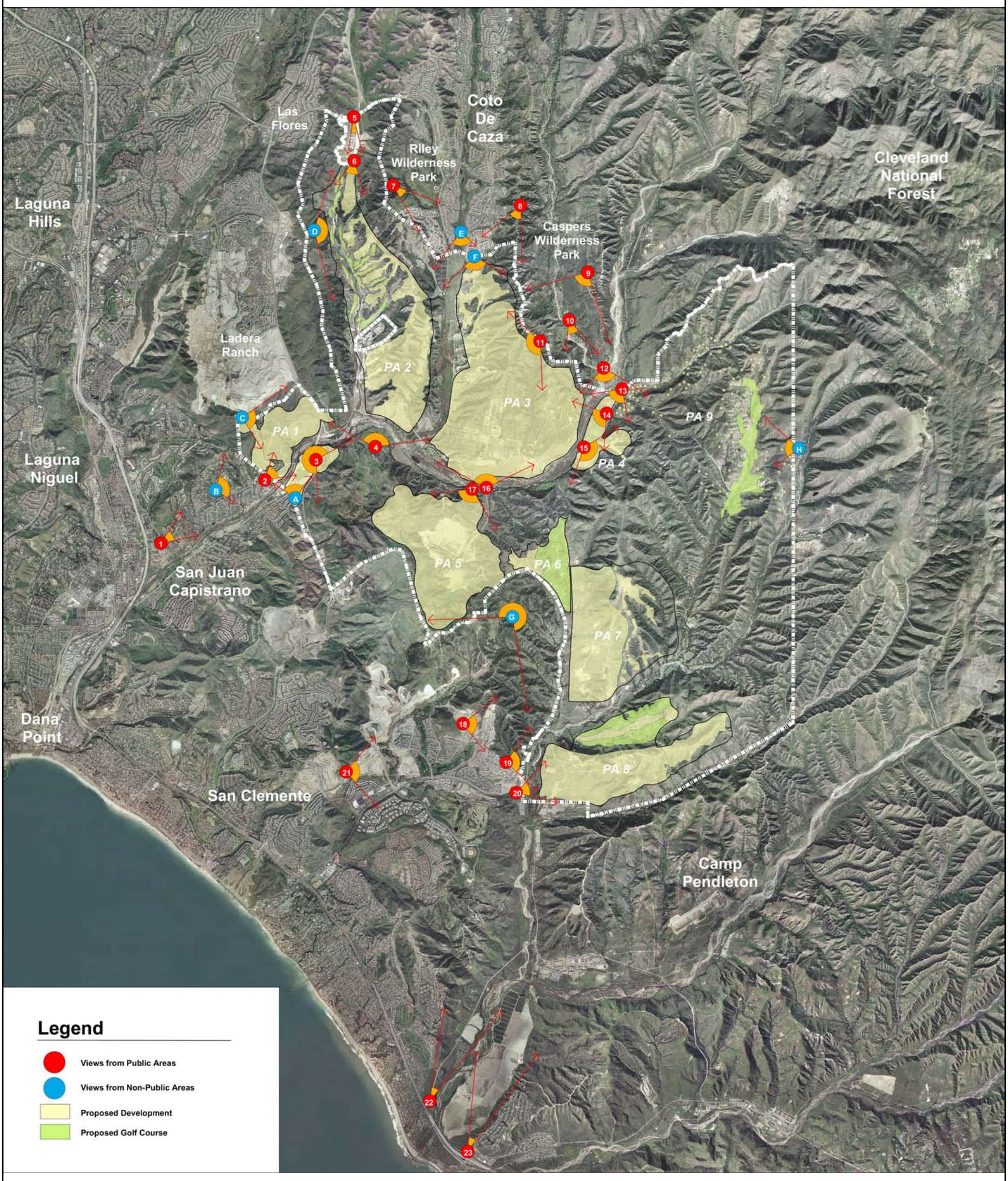


Viewshed Analysis Key Map

Exhibit 4.10-2

The Ranch Plan

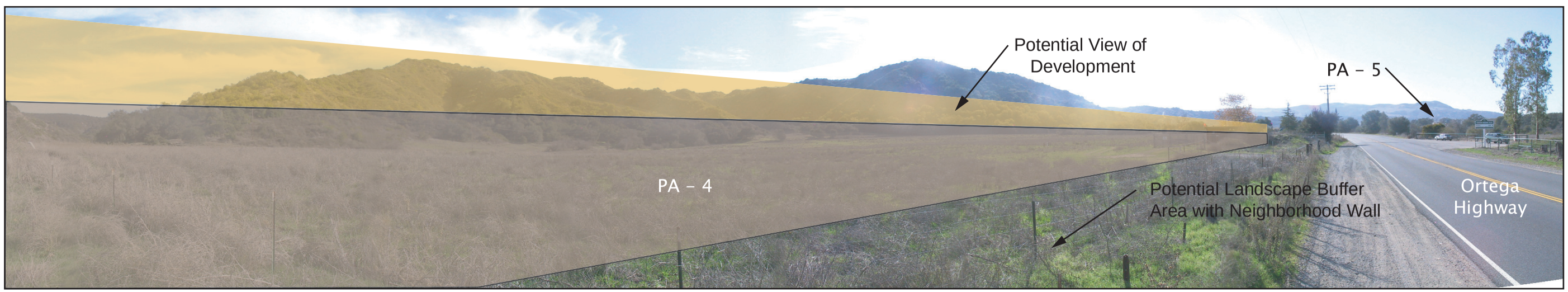
1" = 6,500'

N W E S

Source: EDAW

R:\Projects\RMVJ008\Ex4.10-2_Viewshed_060704.pdf

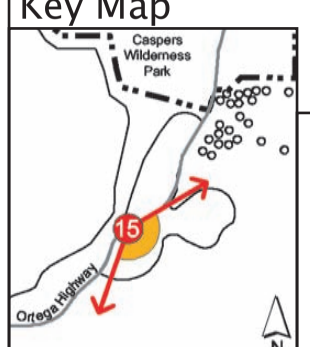
Existing



Proposed

Reflects a Conceptual Example of Proposed Project Development Area

Key Map



Viewshed Analysis

The Ranch Plan

Exhibit 4.10-20

View 15:

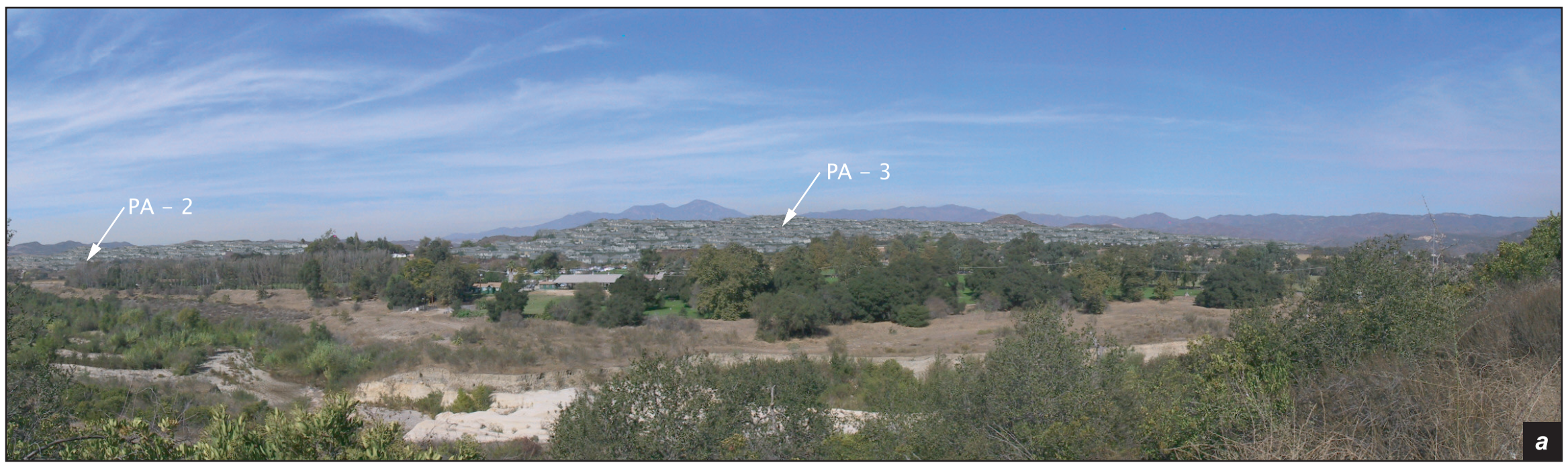
Ortega Highway South of Verdugo Canyon

View Southeast Towards PA-4

Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-20_View15_060704.pdf

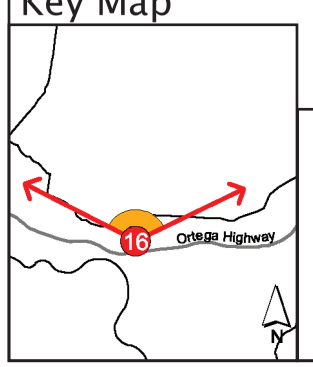
Existing



Proposed

Reflects a Conceptual Example of Proposed Project Development

Key Map



Viewshed Analysis

The Ranch Plan

Exhibit 4.10-21

View 16: a

Ortega Highway at Cristianitos Road

View North to PA-2 and PA-3

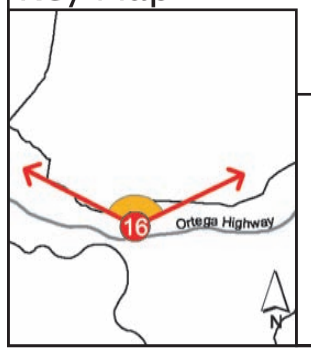
Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-21_View16a_060104.pdf

Existing

Proposed

Key Map



Legend

Proposed Development Footprint

Proposed New Ortega Road

Proposed Bridge Crossing

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-22

View 16: b

Ortega Highway

View Northeast Towards PA-3

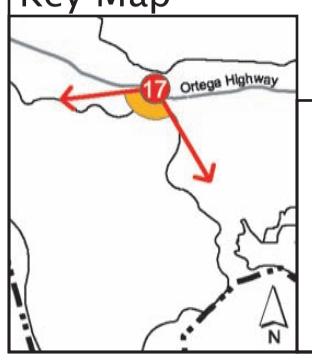
Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-22_View16b_060704.pdf

Existing

Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Cristianitos Road

Proposed Bridge Crossing

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10–23

View 17: a

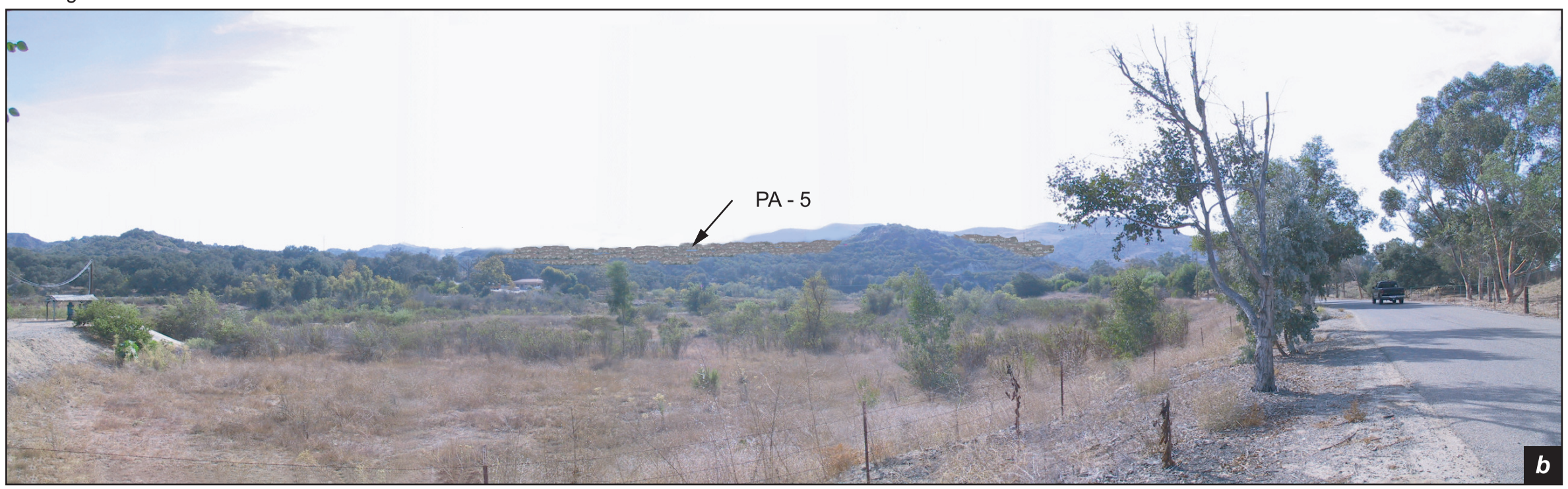
Ortega Highway at Cristianitos Road

View South Towards PA–5

Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-23_View17a_060704.pdf

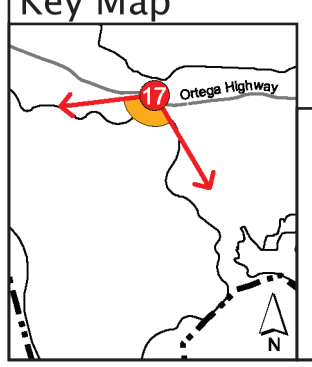
Existing



Proposed

Reflects a Conceptual Example of Proposed Project Development

Key Map



Viewshed Analysis

The Ranch Plan

Exhibit 4.10-24

View 17: b

North of Ortega Highway at San Juan Creek

View South Towards PA-5

Source: EDAW Inc.

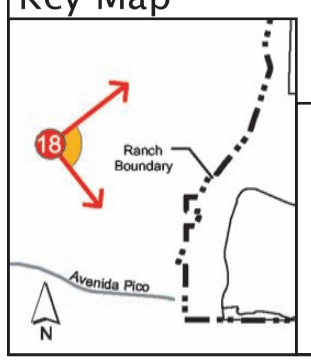
R:\Projects\RMVJ008\Ex4.10-24_View17b_060104.pdf

Existing

Proposed

Reflects a Conceptual Example of Proposed Project Development

Key Map



Viewshed Analysis

The Ranch Plan

Exhibit 4.10-25

View 18:

San Clemente: Talega

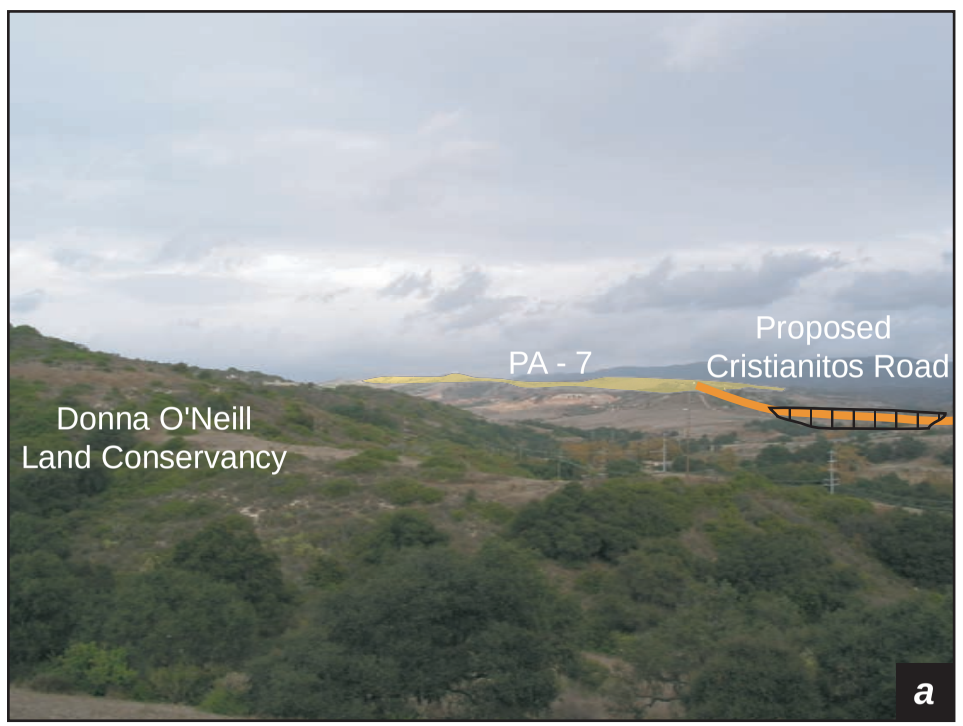
View East Towards Talega and PA-7

Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-25_View18_060804.pdf

Existing

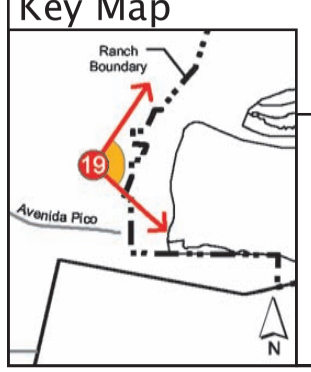
Existing



Proposed

Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Arterial Road

Proposed Bridge Crossing

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-26

View 19: a,b

Talega Cul-de-Sac

View East Towards PA-7 and PA-8

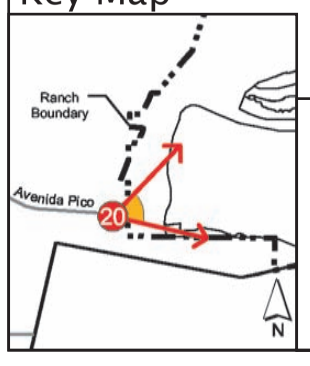
Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-26_View19ab_060804.pdf

Existing

Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Cristianitos Road

Proposed Bridge Crossing

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Source: EDAW Inc.

Exhibit 4.10-27

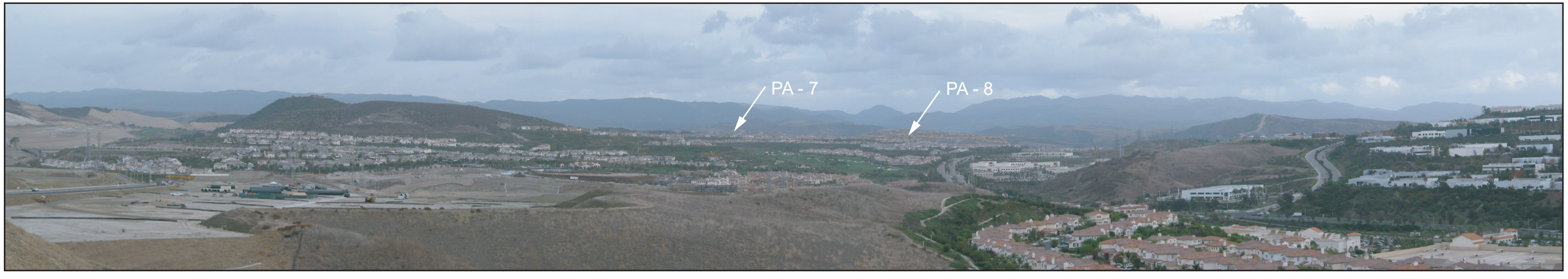
View 20:

San Clemente: End of Avenida Pico

View East Towards PA-8

R:\Projects\RMVJ008\Ex4.10-27_View20_060804.pdf

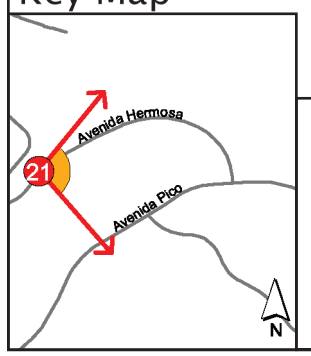
Existing



Proposed

Reflects a Conceptual Example of Proposed Project Development

Key Map



Viewshed Analysis

The Ranch Plan

Exhibit 4.10-28

View 21:

San Clemente: Avenida Vista Hermosa

View East Towards PA-7 and PA-8

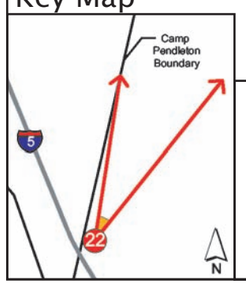
Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-28_View21_060104.pdf

Existing

Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-29

View 22: a

I-5 Freeway at Cristianitos Road

View Northeast Towards PA-8

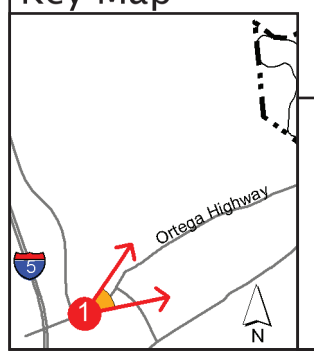
Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-29_View22a_060804.pdf

Existing

Proposed

Key Map



Viewshed Analysis

The Ranch Plan

Exhibit 4.10-3

View 1:

San Juan Capistrano: Ortega Highway, at I-5 Freeway

View East Toward The Proposed Project

Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-3_View1_060104.pdf

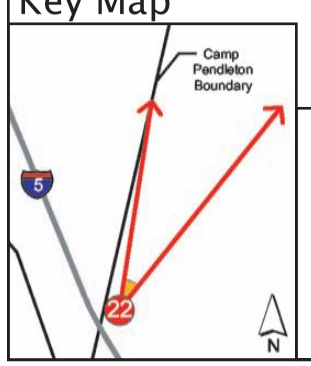
Existing

Proposed

Existing

Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Cristianitos Road

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-30

View 22: b, c

I-5 Freeway at Cristianitos Road

View North Towards PA-7 and PA-8

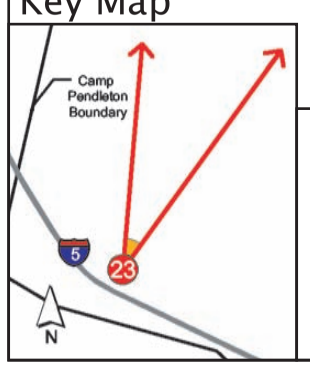
Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-30_View22bc_060804.pdf

Existing

Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-31

View 23:

I-5 Freeway

View North Towards PA-8

Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-31_View23_060804.pdf

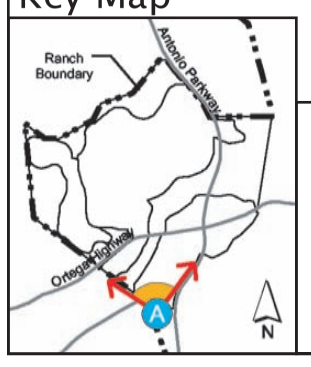
Existing

Proposed

Existing

Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Source: EDAW Inc.

Exhibit 4.10-32

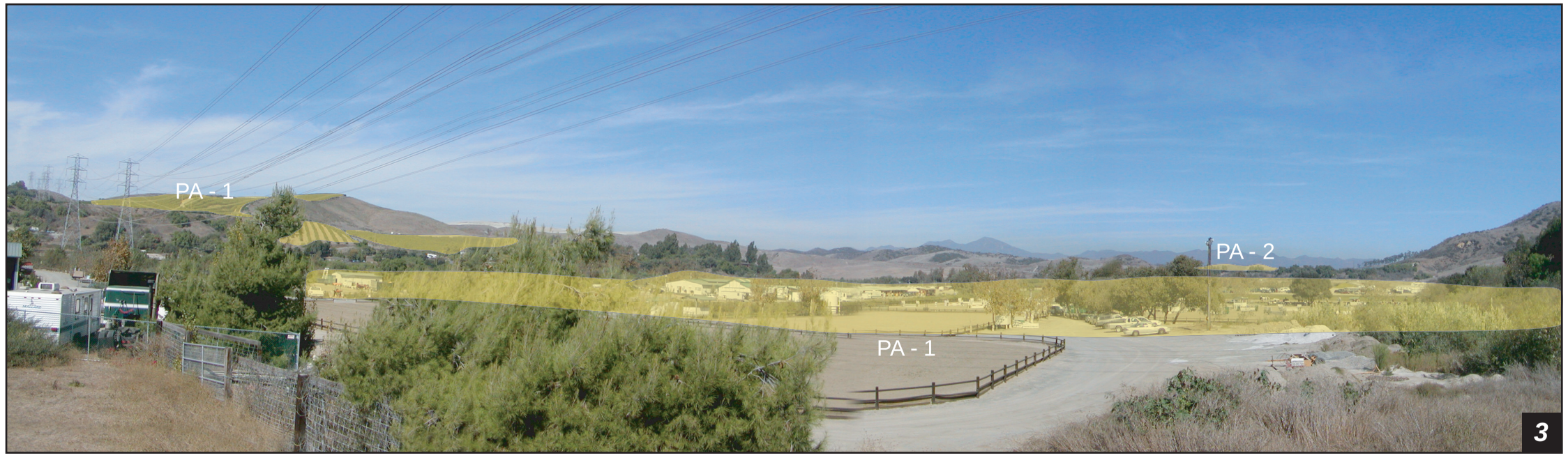
View A: 1, 2

San Juan Capistrano: San Juan Estates

View Northeast Toward PA-1

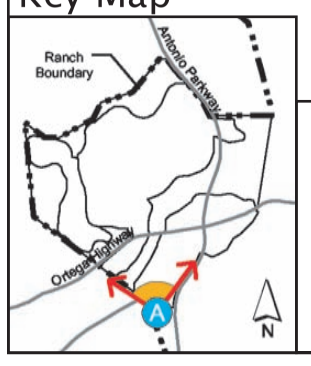
R:\Projects\RMVJ008\Ex4.10-32_ViewA12_060804.pdf

Existing



Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Source: EDAW Inc.

Exhibit 4.10-33

View A: 3

San Juan Capistrano: San Juan Estates

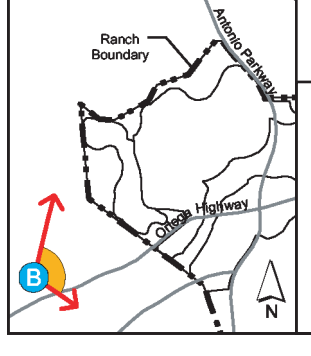
View Northeast Toward PA-1

R:\Projects\RMVJ008\Ex4.10-33_ViewA3_060804.pdf

Existing

Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Source: EDAW Inc.

Exhibit 4.10-34

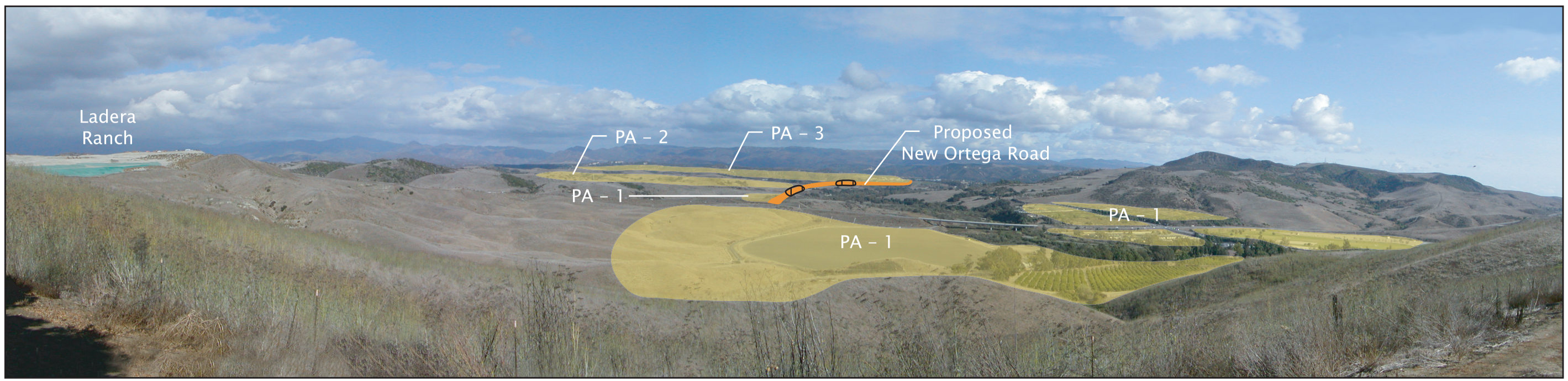
View B:

San Juan Capistrano: Private Estates

View Southeast Toward PA - 1

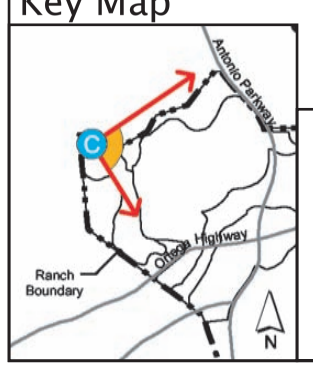
R:\Projects\RMVJ008\Ex4.10-34_ViewB_060804.pdf

Existing



Proposed

Key Map



Legend

Proposed Development Footprint

Proposed New Ortega Road

Proposed Bridge Crossing

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-35

View C:

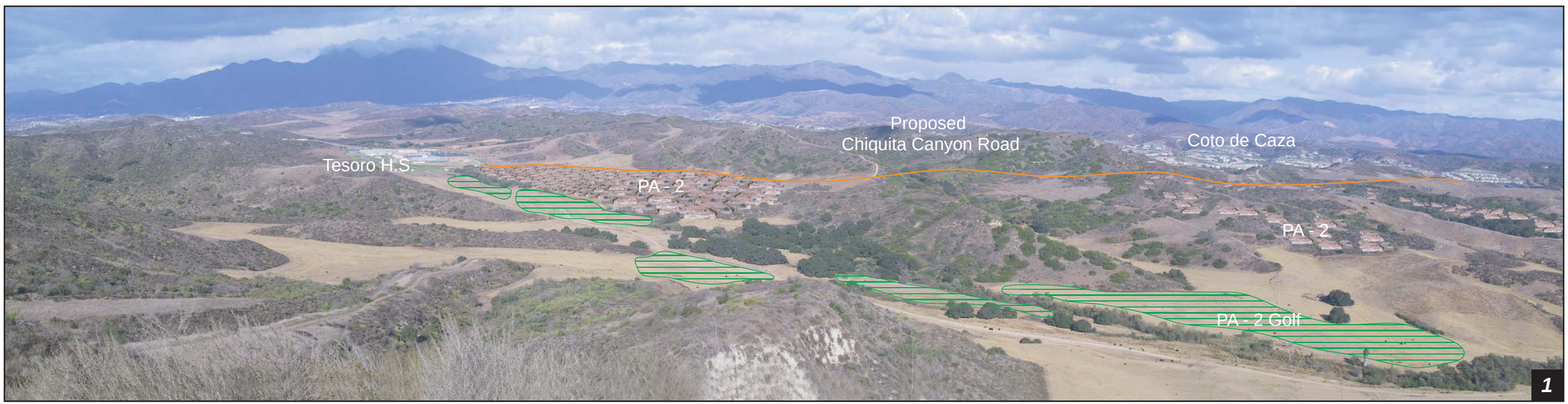
Ladera Ranch: Covenant Hills

View Southeast Toward PA-1 and PA-3

Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-35_ViewC_060804.pdf

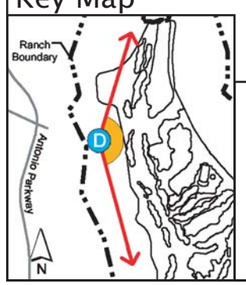
Existing



Proposed

Reflects a Conceptual Example of Proposed Project Development

Key Map



Legend

Proposed Chiquita Canyon Road

Proposed Golf Course

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-36

View D: 1

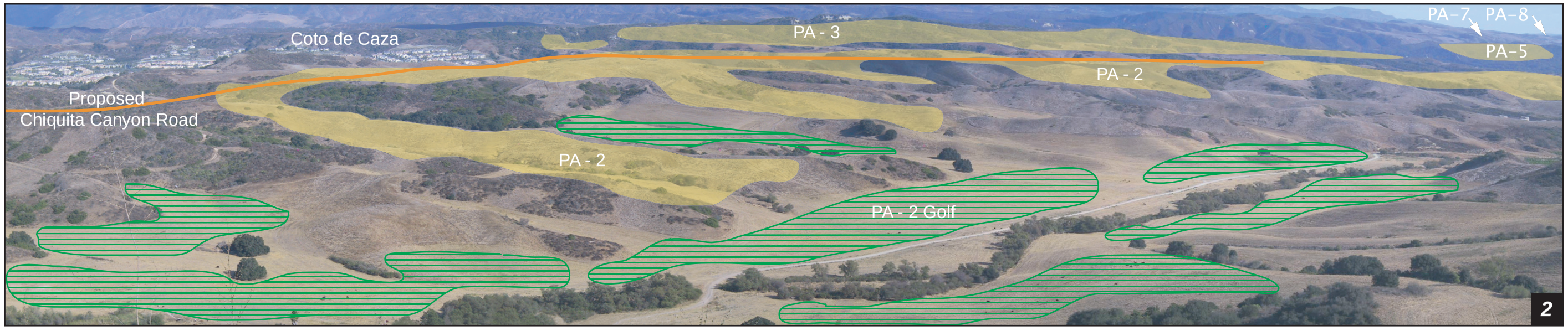
Ladera Open Space

View Northeast Towards PA-2

Source: EDAW Inc.

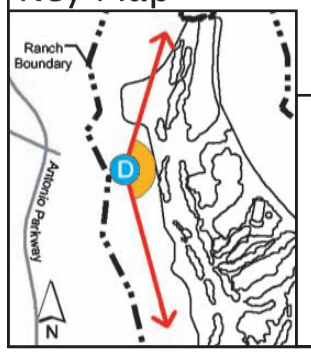
R:\Projects\RMVJ008\Ex4.10-36_ViewD1_060704.pdf

Existing



Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Golf Course

Proposed Chiquita Canyon Road

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-37

View D: 2

Ladera Open Space

View South Towards PA-2, PA-3, PA-5, PA-7, and PA-8

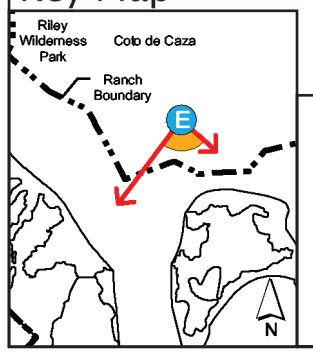
Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-37_ViewD2_060804.pdf

Existing

Proposed

Key Map



Viewshed Analysis

The Ranch Plan

Exhibit 4.10-38

View E:

Coto de Caza: Bend Road

View South Towards PA-3

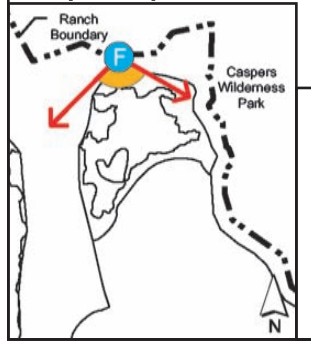
Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-38_ViewE_060104.pdf

Existing

Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-39

View F:

Coto de Caza Southern Berm

View South Towards PA-3

Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-39_ViewF_060804.pdf

Existing

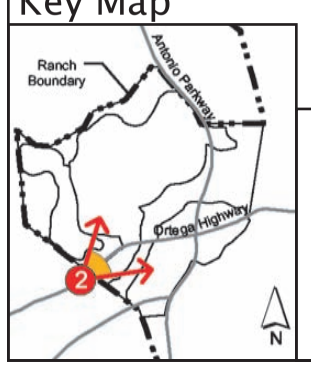
Existing

Proposed

Proposed

* Work will include road widening, traffic calming, and landscape improvements

Key Map



Legend

Proposed Development Footprint

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-4

View 2: a,b

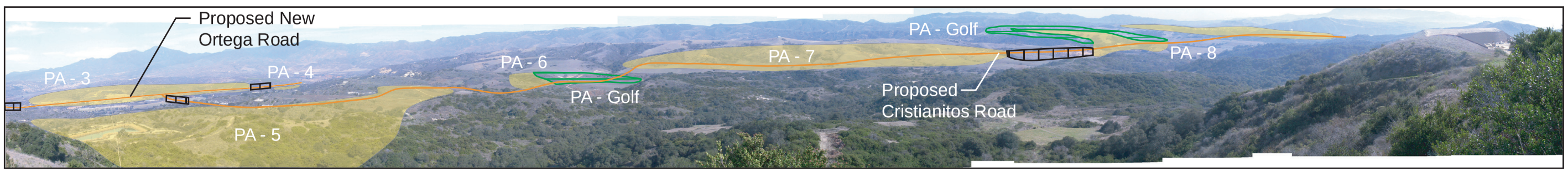
San Juan Capistrano Entrance to Project: Ortega Highway

View East to Entrance of PA-1

Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-4_View2ab_060704.pdf

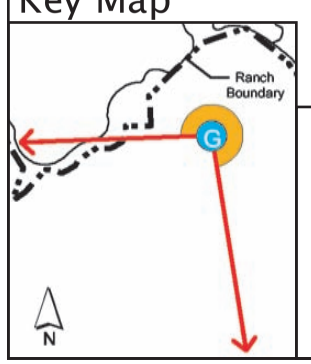
Existing



Proposed

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Key Map



Legend

Proposed Development Footprint

Proposed Golf Course

Proposed Cristianitos Road and New Ortega Road

Proposed Bridge Crossing

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-40

View G:

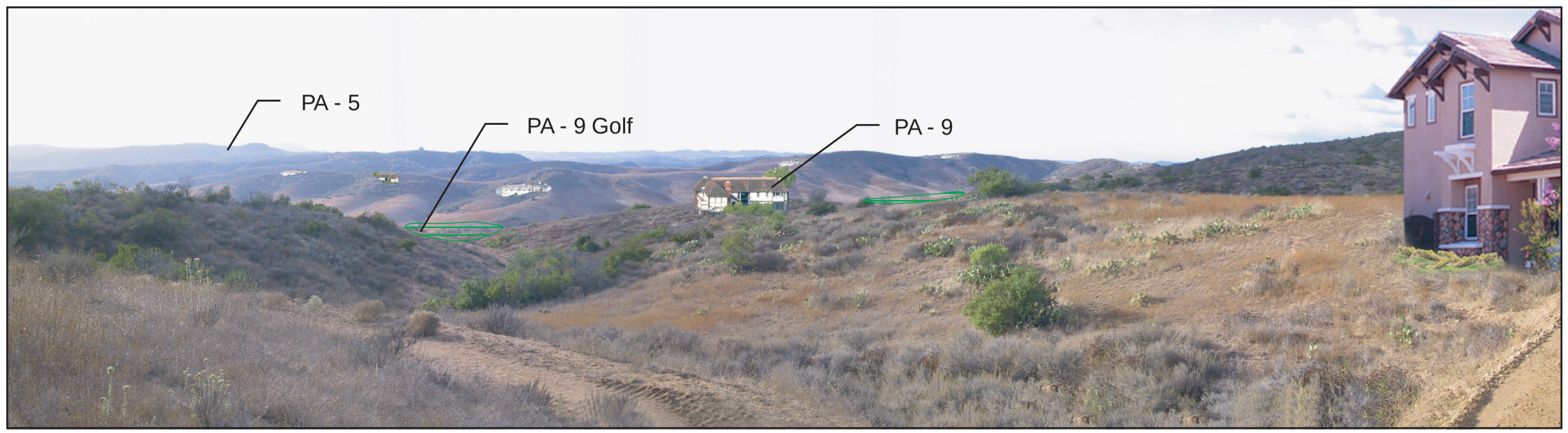
Donna O'Neill Land Conservancy

View West Towards PA-3, PA-4, PA-5, PA-6, PA-7, and PA-8

Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-40_ViewG_060804.pdf

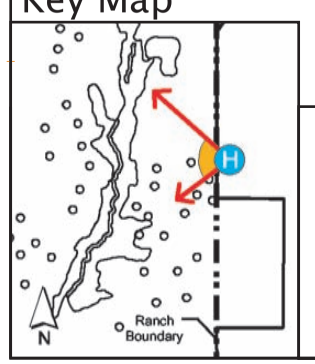
Existing



Proposed

Reflects a Conceptual Example of Proposed Project Development

Key Map



Legend

Proposed Golf Course

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-41

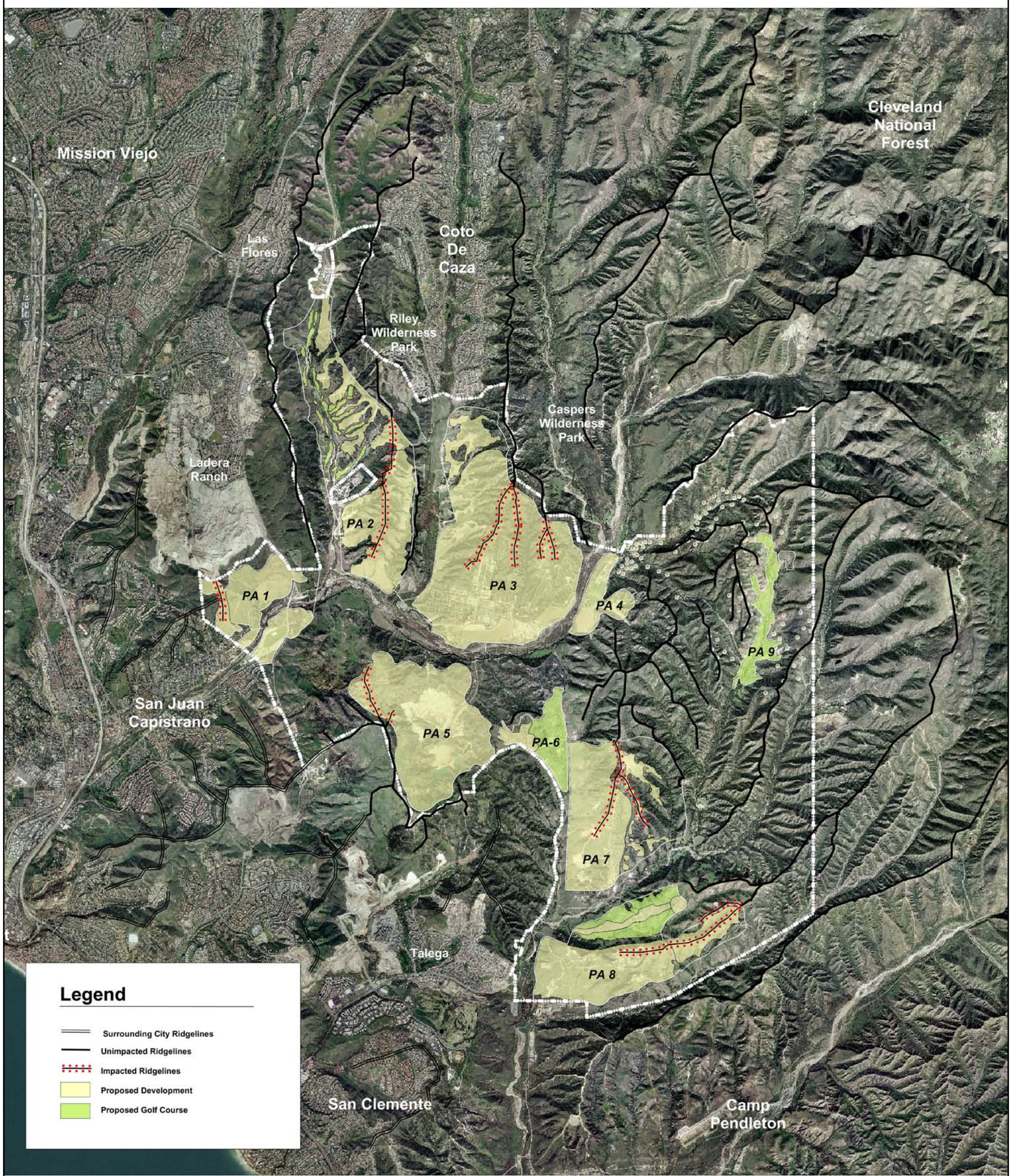
View H:

East of Property Boundary: Private Estates

View West Toward PA-5 and PA-9

Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-41_ViewH_060804.pdf



Ridgeline Impacts

Exhibit 4.10-42

The Ranch Plan

1" = 6,500'

N W E S

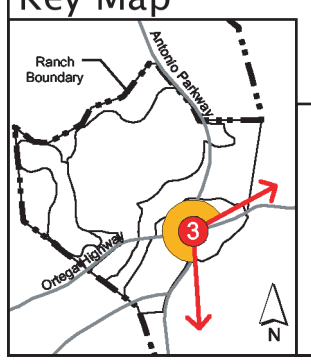
Source: EDAW

R:\Projects\RMVJ008\Ex4.10-42_Ridgelines_060704.pdf

Existing

Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-5

View 3:

Ortega Highway and Antonio Parkway

View Northwest Over PA-1

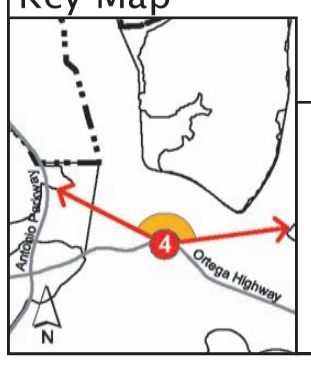
Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-5_View3_060704.pdf

Existing

Proposed

Key Map



Legend

Proposed Development Footprint

Proposed New Ortega Road

Proposed Bridge Crossing

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-6

View 4: a

Ortega Highway

View North Toward PA-1 and PA-2

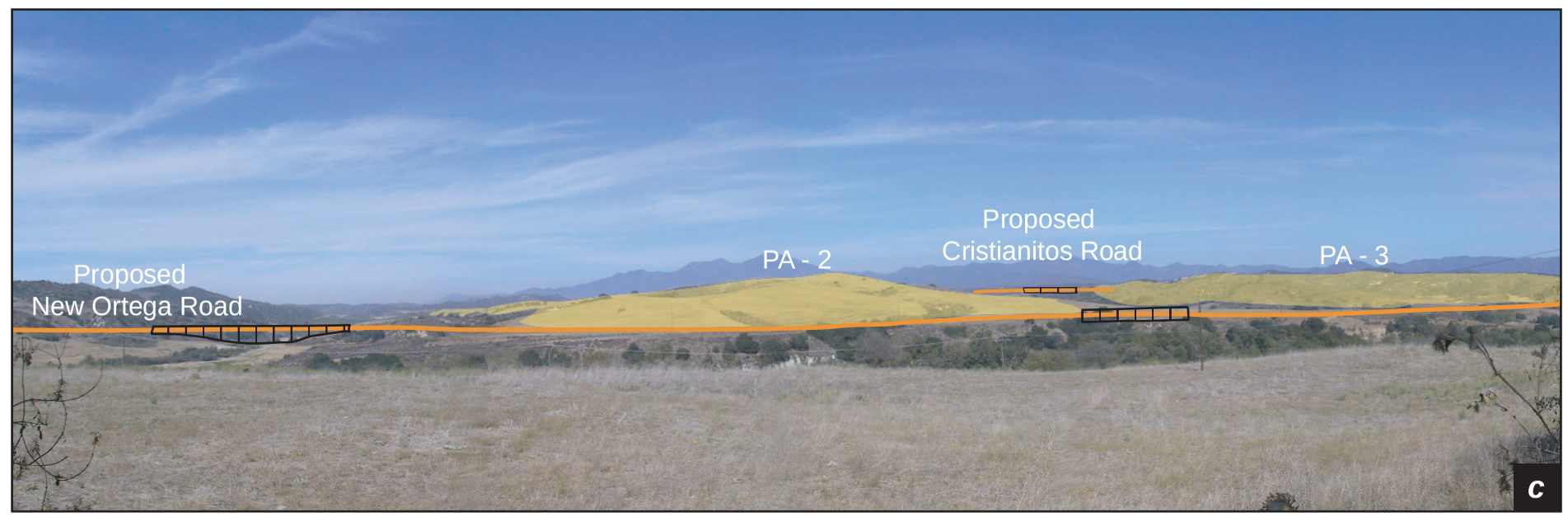
Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-6_View4_060704.pdf

Existing

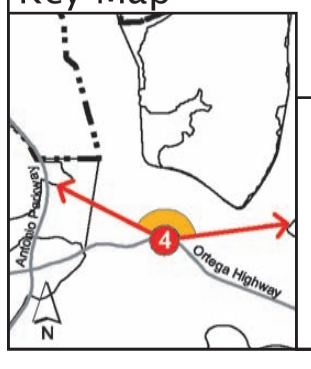
Existing

Proposed



Proposed

Key Map



Legend

Proposed Development Footprint

Proposed New Ortega and Cristianitos Roads

Proposed Bridge Crossing

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-7

View 4: b,c

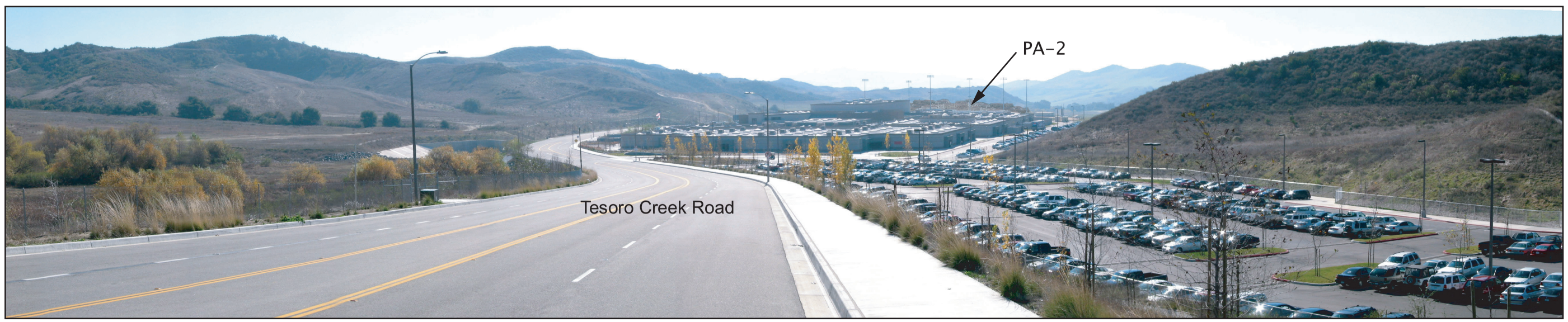
Ortega Highway

View North Toward PA-2 and PA-3

Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-7_4bc_060704.pdf

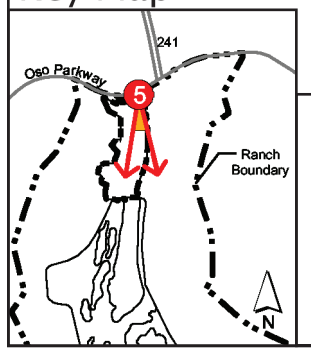
Existing



Proposed

Reflects a Conceptual Example of Proposed Project Development

Key Map



Viewshed Analysis

The Ranch Plan

Exhibit 4.10-8

View 5:

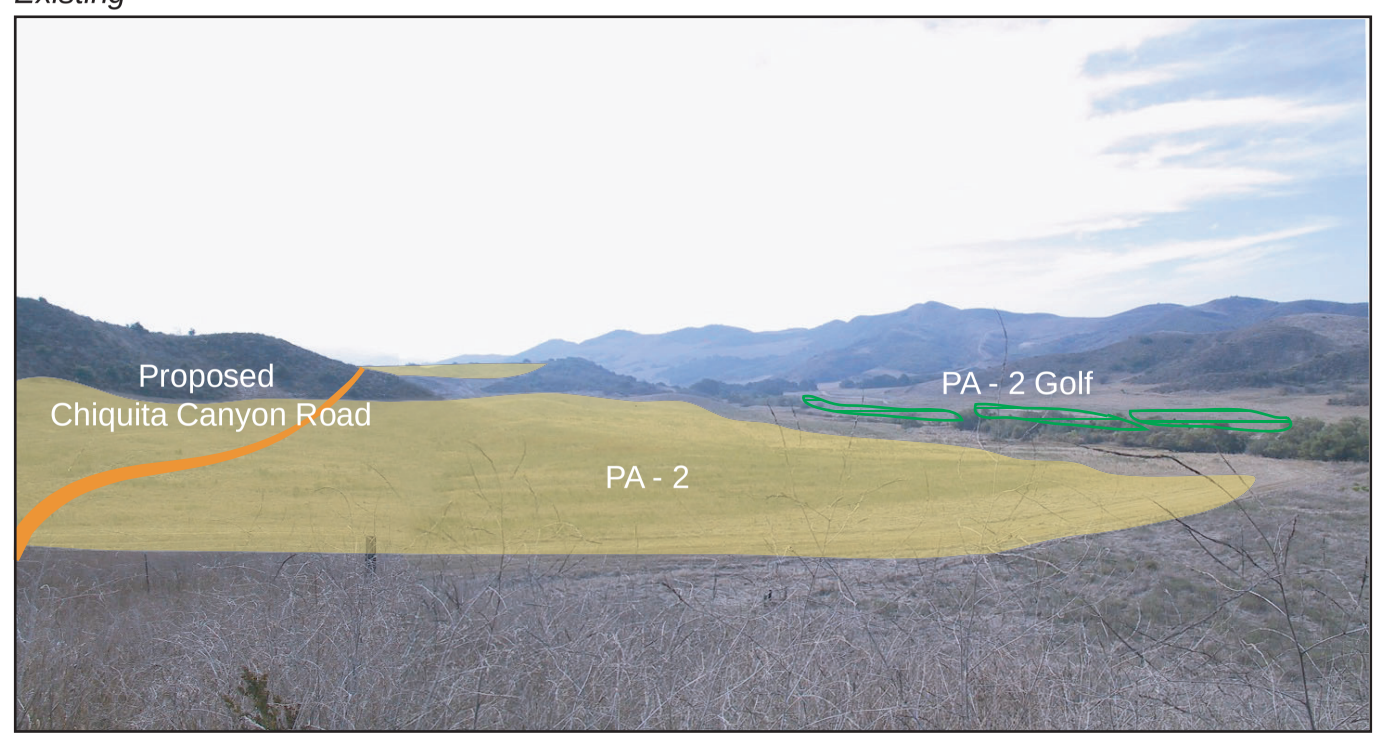
Oso Parkway at Tesoro Creek Road

View South Toward PA-2

Source: EDAW Inc.

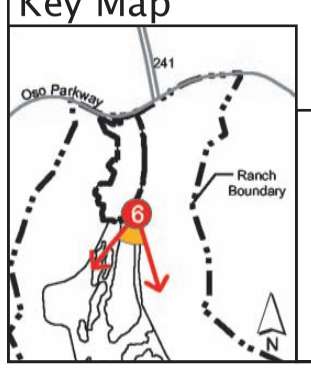
R:\Projects\RMVJ008\Ex4.10-8_View5_060104.pdf

Existing



Proposed

Key Map



Legend

Proposed Development Footprint

Proposed Golf Course

Proposed Chiquita Canyon Road

Proposed Development footprint(s) show development horizontal areas only. Vertical development heights and finished elevations are not generally depicted, unless specifically designated in the view.

Viewshed Analysis

The Ranch Plan

Exhibit 4.10-9

View 6:

Tesoro High School – Southeast Corner

View South Toward PA-2

Source: EDAW Inc.

R:\Projects\RMVJ008\Ex4.10-9_View6_060704.pdf

4.11 CULTURAL AND PALEONTOLOGICAL RESOURCES

Information in this section is based on the archaeological and paleontological studies for the Ranch Plan, prepared and compiled by Archaeological Resource Management Corporation (ARMC). This compilation of reports is included in Appendix H of this Program EIR. Because of the sensitivity of archaeological resources, in accordance with CEQA Guidelines §15120(d), no information about the location of archaeological sites is included in this Program EIR.

4.11.1 INTRODUCTION

Methodology

The archaeological and paleontological resources reports were prepared in June 2000. The reports include a records and literature search, in addition to a field walkover survey and field checking of all recorded sites on or immediately adjacent to the project boundaries. Subsequent site testing was conducted in 2002 and 2003.

For archaeology, a literature search was conducted in 1999, which revealed only a small portion of the study area had been surveyed in the past five years. Therefore, most of the study area was resurveyed. In general, fully-disturbed areas such as orchards and sand and gravel plants were not surveyed due to the extreme levels of disturbance. Field walkover surveys were conducted from March 31 to June 1, 2000. Ground visibility varied through the site based on vegetative cover. In Chiquita Canyon, much of the land had been recently disced allowing for excellent ground visibility. Elsewhere in the canyon, thick vegetative cover resulted in limited ground visibility, ranging from 10 to 20 percent. In the remaining area, riparian vegetation allowed for ground inspection (30 to 50 percent) in the center of the drainages; scrub and other vegetation permitted only limited inspection (10 to 20 percent) of the low hills and peaks surrounding the drainages. Narrow, elevated ridgelines in the interior of the study area north and south of Ortega Highway were thick with vegetation that precluded close ground inspection.

As part of the Archaeological Resources Survey dated June 15, 2000, consultation with the Juaneño Band of Mission Indians, Acjachemen Nation, was conducted. Maps and letters regarding the project were sent to three representatives of the Juaneño Band in February and March 2000. Consultation was also conducted as a part of the Section 106 process to determine the significance of resources.

Phase II testing was conducted at 24 sites. These sites were determined to have a high likelihood of being impacted by the proposed project or project alternatives. Because of the number of sites to be tested, the 24 test sites were evaluated and documented in two groups: Phase II-A in 2002 and Phase II-B in 2003.

Field work for paleontological resources was conducted between March 21 and April 26, 2000. For paleontology, records and literature searches were conducted at the Los Angeles County Museum of Natural History, Vertebrate Paleontology Section. Additional information was gathered using maps and records prepared by and available to ARMC. An older records search conducted by Diveley in 1994 was also consulted.

The cultural resources analysis prepared for the Ranch Plan addresses the resources for purposes of the entitlement process for the proposed project. Because the environmental documentation may be used for the subsequent NCCP/HCP and SAMP/MSAA programs, the cultural resources analysis has been prepared pursuant to NEPA and CEQA, and to meet the requirements of Section 106 of the National Historic Preservation Act and CEQA. For purposes of Section 106, any property listed on or eligible for the National Register of Historic Places

(NRHP) is considered historic. Eligibility is determined in a formal process of review in which a resource is proposed for listing and the U.S. Department of the Interior, for the NRHP, or the California Office of Historic Preservation, for the California Register of Historic Resources (CRHR), determines eligibility. A resource deemed eligible for the NRHP is typically deemed eligible for the CRHR. The NRHP is an inventory of historic resources and is maintained by the U.S. Secretary of the Interior. The California Register of Historic Resources (CRHR) is an authoritative guide to California's significant historical and archaeological resources to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state, and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change. The CRHR is maintained by the State Historic Preservation Officer (SHPO) of the California Office of Historic Preservation (OHP).

The following criteria are used to determine eligibility and significant effects:

Prehistoric Archaeological Resources

A significant prehistoric archaeological impact would occur if grading and construction activities would result in a substantial adverse change to archaeological resources determined to be "unique" or "historic." "Unique" resources are defined in Public Resources Code §21083.2; "Historic" resources are defined in Public Resources Code §Section 21084.1 and the state CEQA Guidelines §15126.4.

Public Resources Code §21083.2(g) states:

> As used in this section, "unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> 1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
>
> 2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
>
> 3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

For determining the historical significance of a prehistoric archaeological resource, the eligibility for the NRHP or the CRHR was considered. The criteria for determining if a site is eligible for the NRHP are stated in 36 CFR 60.4:

> "The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:
>
> a. that are associated with events that have made a significant contribution to the broad patterns of our history;
>
> b. that are associated with the lives of persons significant in our past;

c. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack the individual distinction; or

d. that have yielded, or may be likely to yield, information important in prehistory or history."

With respect to Criterion d. (stated above), Bulletin 15 (National Park Service, no date; 46) states the following:

> "For properties eligible under Criterion D, integrity is based upon the property's potential to yield specific data that addresses important research questions…"

If an archaeological site is found to be eligible for inclusion on the NRHP under Criterion D, the site is considered eligible strictly for the information it contains. The preparation of a treatment plan and data recovery program is sufficient mitigation to render a determination of "No Adverse Effect."

Criteria for eligibility for the CRHR are very similar to those that qualify a property for the NRHP. Under CEQA, a historical resource (these include built-environment, historic, and prehistoric archaeological resources) is considered significant if it meets the criteria for listing on the CRHR. Any property that is eligible for the NRHP is also eligible for the CRHR. The criteria for the CRHR are set forth in CEQA Guidelines §15064.5, and include the following:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2. Is associated with lives of persons important in our past;

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

4. Has yielded, or may be likely to yield, information important in prehistory or history.

Using the information outlined above, the first level of evaluation was to determine if a site within a development area is considered eligible for the NRHP or the CRHR, and therefore, is historically significant.

Historic Resources

In accordance with CEQA Guidelines §15064.5:

> "A project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.
>
> - Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.

The significance of an historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources...unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA."

A "Unique" resource is defined in Public Resources Code Section 21083.2 and is noted above under prehistoric archaeological resources.

Paleontological Resources

An impact to paleontological materials would be considered a significant impact if the project results in the direct or indirect destruction of a unique or important paleontological resource or site. The following criteria are used to determine if a resource is unique or important: the past record of fossil recovery from the geologic unit(s); the recorded fossil localities in the project area; observation of fossil material on site; and, type of fossil materials previously recovered from the geologic unit (vertebrate, invertebrate, etc.).

Project Study Area

The project study area for the purposes of archaeological and paleontological analysis is the project site boundary. The study area covers portions of four USGS 7.5' Quadrangle maps: Canada Gobernadora, Santiago Peak, San Juan Capistrano, and San Clemente Quadrangles. Any impact to an identified cultural resource is generally a site-specific impact; therefore, the proposed project site has been identified as the study area.

4.11.2 EXISTING CONDITIONS

Cultural Setting

Prior to the first Spanish contact in the mid 18th century, aboriginal populations that sustained themselves primarily through hunting and gathering occupied much of Orange County, including the project site. The majority of the he project area is situated in what was the domain of the Juaneño Indians. Like that of most California Indians, the Juaneño culture focused on religion, ritual, and social hierarchy.

According to a general chronology developed by Wallace (1955) and Warren (1968), the local cultural sequence throughout Orange County was characterized as follows:

Early Millingstone Horizon: 6,000 to 1,000 B.C. or about 8,000 to 3,000 years ago. During the Early Millingstone Horizon, or Encinitas Tradition, much of the population adapted to a littoral, or coastal, environment characterized by smaller, more mobile groups compared to later periods. People survived by gathering food and small game hunting, and also collected

shellfish along the coast and embayments. Basic implements used during this time period was primarily millingstones and mullers (the mano and metate used to grind seeds and grain). Common hunting tools included wide, thick, and heavy projectile points.

***Intermediate Horizon: 1,000 B.C. to A.D. 650 or 3,000 to 1,350 years ago*.** During the Intermediate Horizon, or the Campbell Tradition, local populations expanded their resource base. Hunting and fishing assumed greater importance in the economy, and the mortar and pestle, tools associated with the processing of acorns and other fleshy plant foods were added to the existing plant processing equipment. Settlement patterns during this time are not well understood. The semi-sedentary settlement pattern characteristic of the Later Horizon may have begun during the Intermediate Horizon, although lower population densities may have limited local territoriality.

***Late Horizon: A.D. 650 to 1769 or 1,350 to 235 years ago*.** In the Late Horizon Cultures, or the time of the Shoshonean and Hokan speakers, there is evidence of an expansion of local economies. During this time, the Native American population throughout the southern California region experienced greater cultural expansion and population growth. With population growth came task specialization. Non-utilitarian items such as beads and ornaments were more evident during this period. Local groups continued to rely upon small game hunting and gathering as their primary means of sustenance. Small amounts of pottery, steatite, and obsidian were traded into the area.

The first efforts of extending Spanish control into southern California occurred in 1769 with the arrival of the Portolá Expedition. Missions, presidios, and pueblos were established throughout the area and Native Americans were brought under the control of the mission fathers. In 1775, the Mission San Juan Capistrano was started. On October 4, 1778, the mission was moved to its present location closer to the Arroyo Trabuco because of its dependable water sources. This mission is believed to be the oldest building in California. Native Americans were converted to Catholicism and taught to grow crops, tend cattle, and make wine, pottery, and other crafts.

In 1833, following the Mexican Revolution and with the passage of the Secularization Act, mission lands were seized and turned over to Mexican citizens of the Catholic faith and of good character. Mission San Juan Capistrano was sold to John Forster and James McKinley. Following the end of the Mexican-American War in 1848, most of the previous land claims were confirmed by the courts. However, Mission San Juan Capistrano was returned to the Catholic Church in 1865 when the U.S. Government denied Forster's claim to the property. In the 1860s, severe drought, smallpox, and torrential rains alternately impacted landowners in southern California. The 1880s witnessed the transition from ranching to farming in the area. At the end of the Civil War, a real estate boom occurred in the west facilitated by the railroads. The area developed rapidly into the 20th century; the citrus industry and beekeeping were the most successful enterprises in the area. Explosive urbanization continued into post-World War II, pushing development of the last remaining ranchos.

The Ranch project site lies within the old Rancho Santa Margarita y Las Flores, a 46,500-acre rancho that was granted to Jose Estudillo in 1841. Juan Forster acquired the rancho in 1845 after grazing cattle on the rancho for at least one year. In 1882, Forster's heirs sold the rancho to Richard O'Neill and James C. Flood, thus beginning the O'Neill Ranch. Under Jerome O'Neill, Richard's son, the land holding increased to 260,000 acres at the turn of the 20th century. Over the next hundred years, portions of the rancho were developed and sold. The project site is proposed on the last remaining portion of this land.

Prehistoric Archaeological Resources

Unless otherwise noted, the project site was divided into five segments for the field walkovers, from northwest to southeast. The general boundaries of these survey segments are depicted in Exhibit 4.11-1. Segment 1 encompasses Upper Chiquita Canyon; Segment 2 includes Lower Chiquita Canyon and western San Juan Creek; Segment 3 is Gobernadora Canyon and eastern San Juan Creek; Segment 4 is the area from La Pata Drive to Trampas Canyon Road; and Segment 5 is Cristianitos, Talega, Blind, Gabino, and La Paz Canyons. A brief description of each archaeological site is provided, as well as a determination of eligibility for the NRHP. As previously addressed, most resources deemed eligible for the NRHP would be considered eligible for the CRHR. Such a final determination would need to be made by the SHPO.

Segment 1: Upper Chiquita Canyon

CA-ORA-1559: [1] This site was first recorded during the 2000 survey and was described as a 60 x 50-meter moderate scatter of ground stone and chipped stone tools. The depth of the site could not be determined during the 2000 survey. In 2002, Phase II testing produced 40 chipped stone artifacts and 10 ground stone artifacts. The site has been determined to be NRHP and CRHR eligible under Criterion D by the SHPO. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1560: This site was first recorded during the 2000 survey and was described as a 40 x 30-meter moderate scatter of ground and chipped stone tools. It was determined to be an early base camp site with no later period indicators. The depth of the site could not be determined during the 2000 survey. In 2002, Phase II testing produced 12 chipped stone and 25 ground stone artifacts. The site has been determined by the SHPO to be NRHP and CRHR eligible under Criterion D. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1561: This site was first recorded during the 2000 survey and described as a sparse lithic scatter occupying an approximate 30 x 5-meter area. Depth of the site could not be determined during the 2000 survey. The site appears to be a special purpose camp associated with CA-ORA-1559 and CA-ORA-1560. In 2002, Phase II testing produced one chipped stone artifact and two ground stone artifacts. The site has been determined ineligible by the SHPO for NRHP and CRHR listing. (Source: Office of Historic Preservation letter dated January 27, 2004)

Segment 2: Lower Chiquita Canyon and Western San Juan Creek

CA-ORA-26: The site was first recorded in 1935 and officially recorded in 1949. In 1977, the record was updated to indicate that the site was heavily disturbed and to report a wide scatter of ground stone artifacts on the site. The site record was again updated in 1980 and three loci were delineated: Locus A–main site area; Locus B–small knoll located due east of main area; and Locus C–small possible quarrying area located on upper knoll southeast of site. During site testing in 1986, it was determined that the northern part of the site had been substantially

[1] CA-ORA-xxxx refers to the numbering of prehistoric archaeological sites. CA refers to California; ORA refers to Orange County. The site number does not have a hierarchical meaning.

destroyed as a result of nursery operations and only the southern remnant was partially intact. The site was described as a possible extensive base camp, seasonal village, or processing location related to a major village in the area. Because of the minimal recovery from field investigations, it was concluded that Locus A lacked research potential and integrity and that would not qualify for the NRHP or CRHR. The western edge of Locus A was tested in 1996 with limited recovery from surface finds and excavation units. The deposit was found to be heavily disturbed. It was restated that Locus A lacked integrity and failed to qualify for the NRHP. In 1997, Locus B was tested and produced a single surface artifact, a core. Locus C produced a few pieces of debitage. Both loci were previously determined to possess little data potential and would not be NRHP or CRHR eligible. During the 2000 survey, no cultural items were found. Note: A portion of this site is located within Segment 4.

CA-ORA-27: The site was initially recorded in 1935 and officially recorded in 1949. The site was described as being part of Camp 26 (CA-ORA-26). The record was updated in 1980 as a substantial scatter of milllingstone assemblage artifacts and a small amount of abalone shell. Three loci (A-C) were delineated: Locus A–original site area north of Ortega and adjacent to Rancho Mission Viejo headquarters; Locus B–smaller area south of Ortega; and Locus C–area along dirt road at end of orange grove west of Locus A. Loci A and B were tested in 1985. Locus C could not be relocated. Three 1 x 1-meter test pits produced only three tools and 34 pieces of debitage; no midden was present. Maximum depth of the units was 30 centimeters below datum. During the 1985 testing, Locus B produced more than 150 surface artifacts. Two excavation units produced minimal recovery; a third was more productive with a maximum deposit of 30 centimeters. The site was retested in 1987 and was described as a base camp with several activity areas that had been disturbed since the 1930s by various activities such as road construction and agriculture. The research potential of the site has been exhausted as a result of these multiple investigations. During the 2000 survey, no cultural items were found. The site was determined at that time to not be eligible for the NRHP or CRHR.

CA-ORA-29: CA-ORA-29, La Casa de la Misión Vieja was first recorded in 1935 and officially recorded in 1949. During the 20th century, many assumed that CA-ORA-29 was the site of the Old San Juan Mission. In 1967, Reverend Geiger and historian Don Meadows provided substantial evidence that the original mission site had been on the southern side of San Juan Creek and more than one mile downstream from CA-ORA-29. The early history of CA-ORA-29 (known as La Casa de la Mission Vieja site) is obscure. Originally a rancho of Mission San Juan Capistrano, buildings may have existed in the vicinity as early as 1800. Following mission secularization in the mid-1830s, the area became a privately owned rancho. By the early 1840s, it had been granted to Augustin Olvera who probably built a house on the site. In 1845, Olvera sold Mission Vieja (the ranch) to Juan Forster who built a large adobe house at the location of the present ruins. The building was used by ranch employees and Basque and French sheep herders until the end of the 19th century when it fell into ruin. On various visits to the site and during

the 2000 survey, roof tile fragments, brick fragments, glass, and historic ceramics were located. During the 2000 field check, the site was capped with fill dirt except for the elevated area closest to the creek. Phase II testing in September 2001 consisted of 20 trenches and 11 hand excavated units. The majority of the artifacts appear to represent Basque sheep herders who occupied the adobe in the late 1870s and early 1880s. Remains of two separate and distinct adobe structures were identified. The site has determined by the SHPO to be eligible for the NRHP and CRHR under Criteria B and D. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-880: The site was first recorded in 1980 as a thin scatter of chipped stone artifacts encompassing a 100 x 40-meter area. During 1996, testing of the site did not reveal any artifacts and because of the limited presence of resources, it was determined at that time that the site lacked research potential and was not eligible for NRHP or CRHR listing.

CA-ORA-881: The site was first recorded in 1980 as a scatter (300 x 100 meters) of millingstone assemblage artifacts. In 1996, a subsequent test revealed surficial chipped and ground stone artifacts with no subsurface component. The site was determined at that time to not be eligible for the NRHP or CRHR.

CA-ORA-882: The site was first recorded in 1980 as a flake scatter with one flake and two utilized flakes. Area could not be determined because of heavy vegetation. The site was tested and salvaged in 1987. It was surface collected and five 1 x 1-meter units were excavated to a maximum depth of 200 centimeters. A hearth feature was recorded and dated by shell and bone to A.D. 1750 ±70 and A.D. 1460 ±60, respectively. Additional samples from the same level of another unit were dated to A.D. 1710 ±60 and A.D. 1670 ±70. The site is interpreted as a small, Late Period base camp. The site possesses considerable research potential and is considered NRHP and CRHR eligible.

CA-ORA-902: The site was first recorded in 1980 as a small lithic scatter of chipped stone and ground stone tools with a possible midden. The site was tested in 1996 and produced debitage, waste flakes and cores, and no subsurface deposit. The site was determined to lack research potential and does not qualify for the NRHP or CRHR. The 2000 survey revealed no artifacts at this location.

CA-ORA-997: The site was first recorded in 1984 as a 20 x 20-meter lithic scatter described as a possible seasonal camp. The site was resurveyed in 1988 and the site area was expanded to 240 x 130 meters. During monitoring in 1987, no subsurface deposits were observed. The site was monitored again in 1993 and 27 artifacts were collected. Subsequent testing in 1997 revealed an additional deposit and the site area was further expanded to 300 x 180 meters. The site was determined at that time to be NRHP and CRHR eligible in a formal review process. During the 2000 survey, the site was disced revealing a dense scatter of ground and chipped stone tools, debitage, and fire-affected rocks.

CA-ORA-1042: The site was first recorded in 1984 as a small (25 x 50 meter) lithic scatter, described as a collecting and processing camp associated with the adjacent freshwater marsh (Chiquita Creek). A test and salvage program was conducted in 1987. No subsurface artifacts were recovered; 20 surface artifacts were collected and the site was again described as a plant processing station. The site was resurveyed in 1988 and determined to have been mitigated. Later in 1988, the site area was revised to 80 x 35 meters to include an additional deposit of artifacts. During monitoring in 1993, one flake tool, two scrapers, two metate fragments, one complete metate, and one mano fragment were recovered. During a test program in 1997, consisting of 14 shovel pits and surface collection, the site was expanded to 80 x 120 meters. Two surface artifacts were recovered and no subsurface deposit was found. The site was determined at that time to have limited data potential and not eligible for the NRHP or CRHR. During the 2000 field survey, no artifacts were discovered.

CA-ORA-1043: This site was first recorded in 1984 as a small, habitation site with a well developed midden (occupational detritus mixed with soil) containing shellfish, chipped and ground stone tools. Testing in 1986 uncovered a deep midden (130 centimeter). Recovered items included flakes, chipped stone tools, charcoal, and fire-affected rocks. The site underwent boundary testing in 1989 when 78 auger holes and one test pit were excavated. The site was revised to 6,050 square meters. Data recovery was conducted in 1995 from a midden reaching a depth of 150 centimeters. The site, interpreted as a Late Period semi-permanent or permanent village, was determined at that time to be NRHP and CRHR eligible in a formal review process. Human remains encountered during construction of the South Orange County Pipeline were reburied following a Native American ceremony.

CA-ORA-1447: This site was first recorded in 1988 as a 605 x 50-meter ground stone scatter. The site was subsequently tested in 1997 and was determined ineligible for the NRHP and CRHR in a formal review process. During the 2000 survey, one core tool and one ground stone fragment were revealed.

CA-ORA-1048: The site was first recorded in 1984 as a milling stone scatter of moderate density, consisting of scraper planes, flakes, core, manos, a large metate fragment, and fire-affected rock; depth was unknown. The site was subsequently tested and salvaged in 1989 for the South County Pipeline. The site contained an extensive scatter. Excavated depth was a maximum of 60 centimeters below datum. Locus B, an apparent base camp, was delineated south of the ranch road that bisects the site. The site was determined to be NRHP and CRHR eligible in a formal review process. During the 2000 survey, the ground was disced and multiple artifacts were noted. The site was approximately 80 percent complete, consisting of three fragments. The pieces were collected and mapped.

CA-ORA-1049 and CA-ORA-1050: The sites were first recorded in 1984. Artifacts were observed over a wide area, artificially separated by a small drainage. Therefore, three site numbers were established. However, only one continuous scatter or site

(CA-ORA-1048) existed. During the 2000 survey, no artifacts at the recorded locations for the other two sites were identified and none were noted when CA-ORA-1048 was tested and salvaged in 1989 and 1995. Neither of these recorded sites has research potential. At that time, it was determined that the sites do not qualify for the NRHP or CRHR.

CA-ORA-1104: The site was first recorded in 1986 as a small lithic scatter (10 x 20 meters) that consisted of chipped and ground stone artifacts. Five flakes and one mano fragment were observed. The 2000 survey did not disclose any artifacts at this site.

CA-ORA-1105: The site was first recorded in 1986 as a small lithic scatter (20 x 20 meters) consisting of two core scrapers, one small mano fragment, one ground stone fragment, and one fire-affected rock. No artifacts were found during the 2000 survey. The site has been determined ineligible by the SHPO for listing on the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1106: The site was first recorded in 1986 as a large (30 x 100 meter) lithic scatter of chipped and ground stone artifacts. The site was tested in 1997 and the site boundaries were expanded to 20 x 230 meters. The site was determined to have very limited research potential that was exhausted with the test phase. At that time, the site was determined ineligible for NRHP and CRHR listing. During the 2000 survey, the freshly disced site revealed a moderate scatter of chipped and ground stone tools.

CA-ORA-1121: The site was first recorded in 1988 as a midden deposit encompassing 5,600 square meters. It was noted that the midden might be in excess of one meter in depth. The site contained debitage, flake and core tools, metate fragments, and manos. In 1989 and 1995, the site was tested and salvaged. An intact and well developed midden soil; a diverse assemblage of ground stone and chipped stone tools; and other evidence of a prehistoric base camp that was occupied into the historic period were discovered. The site was determined to be NRHP and CRHR eligible in a formal review process. Monitoring during construction of the South County Pipeline in 1993 resulted in the recovery of a very late Sonoran-style artifact. During the 2000 survey, a whole pestle was collected at the site.

CA-ORA-1562 This site was first recorded during the 2000 survey. It was described as a moderate scatter of ground and chipped stone tools and debitage on the east side of Chiquita Canyon. Ground visibility at the time of the survey was excellent because of recent discing. The site is interpreted as a small base camp dating to the pre-late to late period in prehistory because of the presence of a pestle. In 2002, Phase II testing revealed two chipped stone and five ground stone artifacts. The site has been determined ineligible by the SHPO for listing on the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1563 The site was first recorded during the 2000 survey and was described as a sparse lithic scatter. The site measured 100 x 25 meters and appeared to be a chipping station; depth was unknown. In 2002, Phase II testing

revealed a scatter of 12 ground stone and 4 chipped stone artifacts. The site has been determined ineligible by the SHPO for listing on the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

Segment 3: Gobernadora Canyon and Eastern San Juan Creek

CA-ORA-984 This site was first recorded in 1981 and consisted of a light scatter measuring 20 x 30 meters. A subsequent field check and site update in 1992 recorded mano fragments, a hammerstone, chopper, and flakes. During the 2000 survey, a mano fragment, core tool, core fragment, and flake were observed. Artifacts were visible in the road only. The site was not tested during Phase II or evaluated for eligibility for NRHP or CRHR listing. However, it should be noted that this site is outside the boundaries of the development areas associated with the proposed Ranch Plan project.

CA-ORA-1122 The site was first recorded in 1988 as an 80 x 60-meter scatter of flakes and cores. A field check in 1989 did not reveal any cultural items. The survey in 2000 found no cultural items.

CA-ORA-1123 The site was first recorded in 1988 as a 35 x 20-meter light scatter of chipping waste, cores, mano, and metate fragments. The site was tested in 1989 and a surface collection was conducted. Recovery from the two 1 x 1-meter test units included 4 utilized flakes, 22 flakes, one mano, and one metate fragment. Maximum depth was 50 centimeters below datum. A few fragments of shell and bone were also recovered subsurface, as well as few flecks of charcoal. The site was interpreted as a satellite camp of one of the larger habitation sites along San Juan Creek. A flake scraper was recovered from the site during 1993 construction monitoring. The site was determined at that time to be ineligible for the NRHP and CRHR.

CA-ORA-1446 The site was first recorded in 1988 as a light scatter of ground and chipped stone tools measuring 93 x 121 meters. During the 2000 survey, no artifacts were observed. Surface visibility was very good. In 2002, Phase II testing of the site revealed six chipped stone and three ground stone artifacts. The site has been determined ineligible by the SHPO for the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1564: The site was first recorded in 2000 as a light scatter of ground and chipped stone tools on the east side of Gobernadora Canyon. The site measured 100 x 60 meters and is a probable plant processing station. A ranch road cuts through the site on the northwest. In 2002, Phase II testing revealed 12 chipped stone and 1 ground stone artifacts. The site has been determined ineligible by the SHPO for the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1565: The site was first recorded in 2000 as a light scatter of ground and chipped stone tools on the east side of Gobernadora Canyon. This extensive scatter occupies an area 280 x 140 meters and is a probable plant processing station. Depth of the deposit is unknown. In 2002,

Phase II testing revealed 30 chipped stone and three ground stone artifacts. The site was determined by the SHPO to be NRHP and CRHR eligible under Criterion D. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1566: The site was first recorded in 2000 as a probable plant processing station measuring 60 x 10 meters. This light scatter of ground and chipped stone artifacts includes six manos/fragments, one metate fragment, one flake tool, and one hammer-abrader. A ranch road cuts through the south side of the site. Depth could not be determined. In 2000, Phase II testing revealed five chipped stone and nine ground stone artifacts. The site has been determined ineligible by the SHPO for the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

Segment 4: La Pata Drive to Trampas Canyon Road

CA-ORA-28: The site was first recorded in 1935 and officially recorded in 1949 as a large site with plenty of water and other resources. The site record was updated in 1977. Surveyors were unable to inspect the site because of the construction of a private residence at the location. The survey team concluded that the construction of the house and roads had destroyed the site. A subsequent field check confirmed that the site had been completely destroyed by the house's construction. Therefore, the site lacks research potential and integrity, and does not qualify for the NRHP or CRHR. The 2000 survey did not uncover any artifacts.

CA-ORA-653: The site was first recorded in 1973 as a scatter of indeterminate area (approximately 61 x 91 meters) south of Ortega Highway and east of a sand and gravel operation. The site was heavily damaged by bulldozing. During the 2000 survey, it was confirmed that the site had been bulldozed. Piles of dirt surrounded the recorded site area. No artifacts were sighted. In 2002, Phase II testing did not reveal any artifacts. The site has been determined ineligible by the SHPO for the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-654: The site was first recorded in 1973 as a small (approximately 9 x 24 meters) scatter of core tools, manos, and flakes on a ridge overlooking Trampas Canyon. Some midden was present and was identified as a probable occasional use site. During the 2000 survey, no artifacts were found. In 2002, subsurface Phase II testing revealed one mano broken into two halves. The site has been determined ineligible by the SHPO for the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-655: The site was first recorded in 1973 as a small (approximately 9 x 15 meters), open site interpreted as a probable occasional use site. During the 2000 survey, no artifacts were found. In 2002, Phase II testing did not reveal any artifacts. The site has been determined ineligible by the SHPO for the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-656: The site was first recorded in 1973 as a large, deep shell midden measuring approximately 244 x 61 meters. Flakes, cores, and core tools were observed on the surface. During a 1985 survey, the site's depth was estimated at 100 centimeters, and its area as 200 x 90 meters. The site was subsequently tested in 1986 at which time the site had been impacted by the construction of Ortega Highway, Trampas Canyon Road, and by a haul road on the west. Testing revealed a large, multi-component site totaling 14,520 square meters with a maximum depth of 120 centimeters. The two components were found to be stratigraphically distinct. The upper component contained sparse remains of a Late Prehistoric occupation with arrow points and pottery. The assemblage from the upper component suggests a temporary or seasonal camp for hunting or plant processing. The lower component indicates a more intensive occupation as evidenced by greater frequencies of artifacts and ecofacts, the presence of a well-developed midden soil, and greater frequencies of fire-affected rocks. A radiocarbon date of 915 ±80 years B.P. (before present) and thermoluminescence dates 540 ±40 and 730 ±70 years B.P. suggest an Intermediate Period occupation for the lower component. The large numbers of fire-affected rocks suggested the presence of a sweat lodge. A human cremation consisting of several burnt skull fragments was uncovered in the lower component in an excavation unit on the north side of Ortega Highway. The site was determined to be NRHP and CRHR eligible in a formal review process. During boundary testing on the site in 1989, recovery from a 1 x 2-meter test pit (maximum depth of 90 centimeters), auger holes, and a test trench included a whole basket-hopper mortar with asphaltum attached, 32 flakes, one flake tool, one core tool, and one biface. Charcoal from the 40 to 50 centimeter level of the test pit resulted in a radiocarbon date of A.D. 1720 ±80. A few ecofacts (bone and shell fragments) were also recovered. Some modern debris (glass, asphalt, and wood) was present in the test trench. No artifacts were found at the site during the 2000 survey.

CA-ORA-657: The site was first recorded in 1973 as a small (approximately 4.6 x 6 meters) scatter of one core tool and one flake. It was interpreted as a probable occasional use site. The 2000 survey failed to discover any artifacts at this location. The area has been bulldozed, perhaps for fire control. Dirt piles ring the recorded site area. In 2002, Phase II testing did not reveal any artifacts. The site has been determined ineligible by the SHPO for the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-658: The site was first recorded in 1973 noting the presence of one core tool. There was no evidence of a midden. The site was interpreted as a campsite. No artifacts were found during the 2000 survey or Phase II testing in 2002. The site has been determined ineligible by the SHPO for the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1102: The site was first recorded in 1986 as a scatter consisting of ground stone artifacts (manos and metates), flakes, and core tools. The site measured 200 x 40 meters. Testing consisted of a surface collection and excavation of seven 1 x 0.5-meter units. The units revealed a cultural

deposit no deeper than 70 centimeters. The site was not considered NRHP or CRHR eligible. No artifacts were found during the 2000 survey.

CA-ORA-1567: The site was first recorded in 2000 as a light scatter of ground and chipped stone tools and debitage. Artifacts at CA-ORA-1567 consist of three core tools, one whole mano, one mano fragment, and one flake.

Segment 5: Cristianitos, Talega, Blind, Gabino, and La Paz Canyons

CA-ORA-362: The site was first recorded in 1972 as a scatter of approximately 30 x 15 meters. Artifacts included one core and some flakes. The site was field checked in 1980 and re-surveyed in 1988. The estimated site area was 173 x 77 meters with an unknown depth. In 1997, a boundary test of the site was conducted that judged that the site was smaller or possibly farther to the south than previously indicated. Subsurface depth reached 40 centimeters in one of the test pits. Two flakes were observed on-site during the 2000 survey. The site was not tested during Phase II or evaluated for eligibility for NRHP or CRHR listing. However, it should be noted that this site is outside the proposed development areas associated with the proposed Ranch Plan project and would therefore not be impacted.

CA-ORA-363: The site was first recorded in 1972 based on the presence of two scraper-planes and one core hammer that were collected in the field. The site was described as a limited and special use area. Area was estimated as approximately 46 meters in diameter with limited depth. The site was field checked in 1980 and 1988. Considerable disturbance was noted associated with road grading through the site. Test pits revealed a subsurface deposit to 60 centimeters (flakes and cores) and the site area was recalculated as 160 x 80 meters. The 2000 survey noted that the site has been mostly graded.

CA-ORA-535: The site was first recorded in 1976 as a small (50 square meter) scatter of flakes and cores along both sides of Ortega Highway near Caspers Regional Park. The site had been largely destroyed. During the 2000 survey, a few flakes were noted at this location. The site was not tested during Phase II or evaluated for eligibility for NRHP or CRHR listing.

CA-ORA-753: The site was first recorded in 1978 as a small lithic scatter (40 x 25 meter); depth could not be determined. During the 2000 survey, crews failed to relocate the site. The site has not been evaluated for eligibility for NRHP or CRHR listing.

CA-ORA-754: The site was first recorded in 1978 as small lithic scatter (15 x 10 meter) with an unknown depth. During the 2000 survey, a few flakes were found at this location. The site was not tested during Phase II or evaluated for eligibility for NRHP or CRHR listing.

CA-ORA-913: The site was first recorded in 1980 as a light scatter of flakes, cores, and core tools encompassing 50 x 75 meters. Its depth was indeterminate. An update in 1988 noted three flake tools and one flake. The 2000 survey found one flake. The site was not tested during Phase II or evaluated for eligibility for NRHP or CRHR listing. It should be noted that

this site is outside of the development areas proposed as a part of the Ranch Plan project and would therefore not be disturbed.

CA-ORA-916: The site was first recorded in 1980 as a lithic scatter measuring 200 x 75 meters. In 1988, the site was field checked and expanded to 400 x 200 meters. The site was tested in 1989 and revealed only 13 artifacts. It was concluded that the site lacked sufficient research potential to necessitate a data recovery program. Because the report was not submitted to the South Central Coastal Information Center at the University of California at Los Angeles, the site was retested in 1997. The site was determined to be NRHP and CRHR ineligible in a formal review process. The 2000 survey revealed that the site has been largely (estimated 70 percent) graded as a part of home construction and the realignment of the TRW access road. At that time, the site was confirmed to be ineligible for the NRHP and CRHR.

CA-ORA-1021: The site was first recorded in 1983 as a small (10 x 15 meters) specialized campsite consisting of 15 to 20 flakes and one scraper-plane. A field check in 1988 extended the site's area to 100 x 100 meters. The resource was relocated during the 2000 survey. The site has been severely disturbed by the cutting of an erosion control ditch and by flooding. A pipeline was installed along a road that bisects the site. The site was not tested during Phase II or evaluated for eligibility for NRHP or CRHR listing. It should be noted that this site is outside of the development areas proposed as a part of the Ranch Plan project and would therefore not be disturbed.

CA-ORA-1023 and CA-ORA-1024: The sites were first recorded in 1983 as small lithic scatters. CA-ORA-1023 measured 70 x 30 meters and CA-ORA-1024 was 5 x 5 meters. During the 1988 field check, the sites were combined as a continuous scatter, expanding the total area to 470 x 170 meters. A possible hearth in the center of the site was noted. During the 2000 survey, a few flakes were identified. The site was not tested during Phase II or evaluated for eligibility for NRHP or CRHR listing. It should be noted that this site is outside of the development areas proposed as a part of the Ranch Plan project and would therefore not be disturbed.

CA-ORA-1103: The site was first recorded in 1986 as a sparse scatter of manos, metates, flakes, pottery, core tools, and an arrow point, along with a few fragments of bone and shell. Site testing revealed a cultural deposit from 20 to 40 centimeters in depth. The site was not considered NRHP or CRHR eligible. No artifacts were revealed during the 2000 survey.

CA-ORA-1111: The site was first recorded in 1986 as a light scatter of flakes and core fragments in a graded road. The area of the site could not be determined. No artifacts were revealed during the 2000 survey. In 2003, Phase II testing revealed 18 chipped stone and 1 ground stone artifacts. The site has been determined ineligible by the SHPO for the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1184: The site was recorded in 1988 as a sparse lithic scatter (two manos). The site was estimated as 100 square meters in area; its depth was unknown. The 2000 survey did not reveal any artifacts, and subsequent Phase II-A testing did not produce any artifacts or subsurface deposit at this site. The site has been determined to be ineligible by SHPO for the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1222: The site was first recorded in 1989 as a small (20 x 20 meters) scatter of flakes, scrapers, and a drill. A field check and test in 1997 revealed a much more extensive deposit, measuring 220 x 185 meters. Shovel test pits and excavation units revealed a maximum subsurface deposit of 70 centimeters. No diagnostic artifacts were recovered. The site was interpreted as a short-term camp used for lithic production and seed processing. The site was determined to be NRHP and CRHR eligible in a formal review process. During the 2000 survey, one mano was found on the site; four additional sites were recorded (CA-ORA-1550, -1554, -1555, and -1556) in the vicinity of CA-ORA-1222 and are likely associated with the original site.

CA-ORA-1124: The site was first recorded in 1988 as an apparent quarry. The recorded scatter consisted of flakes and cores. The 2000 survey located a few flakes and cores. Phase II testing in 2002 recovered one felsite flake from the subsurface. The site has been determined ineligible by the SHPO for the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1125: The site was first recorded in 1988 as a scatter (80 x 70 meters) of flakes, cores, a metate, and flake tools with an estimated depth of 40 centimeters. A test/data recovery program was subsequently performed in 1989. The site was further evaluated in 1997 and its boundaries were expanded to 200 x 90 meters. A maximum depth of 70 centimeters was recorded for the cultural deposit. The site's research potential was determined to be high and testing for NRHP and CRHR significance was recommended. During the 2000 survey, a few flakes were identified. In 2003, Phase II testing revealed 58 chipped stone and 9 ground stone artifacts. The site has been determined to be eligible by the SHPO for the NRHP and CRHR under Criterion D. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1452/1126: In 1988, CA-ORA-1126 was recorded as a small (50 x 50 meters) temporary or seasonal camp with an approximate depth of 30 centimeters. The scatter included flakes, cores, a manos, and flake tools. Upon review of the location of Locus C of that site, it was concluded that it was the same as the southern portion of CA-ORA-1452. The total area encompasses 21,565 square meters. A test program at the combined site revealed a maximum depth of 50 centimeters for cultural material. The site was determined to be NRHP and CRHR ineligible in a formal review process. No artifacts were found during the 2000 survey.

CA-ORA-921 and CA-ORA-1127: These sites are mapped as one site. CA-ORA-921 was first recorded in 1980 as a large scatter (estimated 250 x 150 meters) with an estimated

depth at 40 to 50 centimeters. The site was field checked in 1988 with an estimated site area of 125 x 90 meters. An apparent flood has destroyed the site. In 1988, a new site, CA-ORA-1127, was recorded as a small (50 x 50 meter) specialty use area. A limited test (surface collection, test pits, and surface scrape) was conducted in the area. Most of the test pits were sterile; the remainder produced small amounts of shell, bone, and fire-affected rocks. The site was monitored during construction in 1991 and two buried cultural deposits (hearths) were discovered between the two sites in an area thought to be culturally sterile. This finding determined that the two sites formed a continuous deposit. The site was tested in 1997 and the site boundaries were estimated as 315 x 140 meters. The test included an intensive surface survey and surface scrapes, excavated test pits, augering, and mechanical trenching to create block exposures. A series of 2 x 2-meter units was excavated. One revealed a cairn feature that overlay a human cranium fragment and distal end of a radius. The human remains and overlying cairn were reburied after a Native American ceremony. Depending on the selected alignment of the SR-241 extension, the remains would be left undisturbed or relocated. The site was determined to be NRHP and CRHR eligible in a formal review process. No artifacts were observed during the 2000 survey.

CA-ORA-1132: The site was first recorded in 1988 as a light scatter of chipped stone consisting of cores, flakes, and flake and core tools. Its area was estimated as 10 x 20 meters of unknown depth. The 2000 survey revealed several flakes and cores. The site was not tested during Phase II testing; NRHP and CRHR eligibility has not been determined. It should be noted that this site is outside of the development areas proposed as a part of the Ranch Plan project and would therefore not be disturbed.

CA-ORA-1133: The site was first recorded in 1988 as a dense scatter of ground and chipped stone artifacts. The site measured 130 x 90 meters; depth was estimated to at 40 to 50 centimeters. Many flakes and cores were found on-site during the 2000 survey. The site was not determined for NRHP or CRHR eligibility.

CA-ORA-1134: The site was first recorded in 1988 as a dense scatter of chipped and ground stone tools. The site measured 125 x 75 meters with a site depth estimated at 40 to 50 centimeters. During the 2000 survey, an extensive scatter of ground and chipped stone tools, cores, and flakes was noted. The site area was redefined as 400 x 15 meters with a depth of approximately 50 centimeters. A ranch road with erosion channels cuts through the site. The site was not tested during Phase II or evaluated for eligibility for NRHP or CRHR listing.

CA-ORA-1135: The site was first recorded in 1988 as a possible seed processing camp containing a light scatter of chipped and ground stone tools. During the 2000 survey, a metate and a few flakes were found. In 2003, Phase II testing revealed one core, three plano-convex tools, one ecrude biface, one mano fragment, and one metate fragment. The site has been determined ineligible by the SHPO for listing on the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1136: The site was first recorded in 1988 as a light scatter of chipped and ground stone artifacts in a 50 x 40-meter area. The site's depth was not determined. During the 2000 survey, no evidence of a site was found. The site was not tested during Phase II testing; NRHP and CRHR eligibility was not determined.

CA-ORA-1137: The site was first recorded in 1988 as a small (100 x 55 meters) scatter of chipped stone; depth was not determined. Artifacts were limited to flakes and cores. A few flakes were noted during the 2000 survey. The site was not tested during Phase II testing; NRHP and CRHR eligibility was not determined.

CA-ORA-1138: The site was first recorded in 1988 as a small scatter (20 x 45 meters) of chipped stone tools, flakes, and cores. Depth was not determined. A few flakes and cores were identified during the 2000 survey. The site was not tested during Phase II testing; NRHP and CRHR eligibility was not determined.

CA-ORA-1139: The site was first recorded in 1988 as a small (20 x 45 meters) scatter of chipped and ground stone tools and debitage; depth was estimated at 20 to 30 centimeters. A few flakes and a flake tool were noted during the 2000 survey. The site was not tested during Phase II testing; NRHP and CRHR eligibility was not determined. It should be noted that this site is outside of the development areas proposed as a part of the Ranch Plan project and would therefore not be disturbed.

CA-ORA-1140: The site was first recorded in 1988 as a small (35 x 50 meters) scatter of chipped stone tools and debitage; depth was estimated at 20 to 30 centimeters. Artifacts included flakes, cores, and flake tools. A few flakes and one core were noted during the 2000 survey. The site was not tested during Phase II testing; NRHP and CRHR eligibility was not determined. It should be noted that this site is outside of the development areas proposed as a part of the Ranch Plan project and would therefore not be disturbed.

CA-ORA-1141: The site was first recorded in 1988 as a small (55 x 50 meters) scatter of chipped stone tools and debitage; depth was estimated at 20 to 30 centimeters. One flake, one core, and two utilized flakes were noted during the 2000 survey. The site was not tested during Phase II testing; NRHP and CRHR eligibility was not determined. It should be noted that this site is outside of the development areas proposed as a part of the Ranch Plan project and would therefore not be disturbed.

CA-ORA-1142: The site was first recorded in 1988 as a small (30 x 35 meters) scatter of chipped stone tools and debitage; depth was estimated at 20 to 30 centimeters. One flake was noted during the 2000 survey. The site was not tested during Phase II testing; NRHP and CRHR eligibility was not determined. It should be noted that this site is outside of the development areas proposed as a part of the Ranch Plan project and would therefore not be disturbed.

CA-ORA-1143: The site was first recorded in 1988 as a small (30 x 35 meters) scatter of flakes and cores; depth was not determined. Two flakes were noted

during the 2000 survey. The site was not tested during Phase II testing; NRHP and CRHR eligibility was not determined. It should be noted that this site is outside of the development areas proposed as a part of the Ranch Plan project and would therefore not be disturbed.

CA-ORA-1144: The site was first recorded in 1988 as a large (300 x 135 meters) scatter in/around a Rancho Mission Viejo metal corral. The depth of the midden was estimated at 50 centimeters. The site was tested in 1997 and the area was determined to be 270 x 240 meters with a deposit of 90 centimeters its maximum depth. The site was surface collected and surface scraped; 23 test pits and five test units were excavated. The area inside the corral was surface collected, but not excavated because of the applicant's concern for possible injuries to cattle. Recovery outside the corral concluded that the site lacked the research potential for inclusion in the NRHP and CRHR. During the 2000 survey, over 80 flakes, three cores, one mano, two metate fragments, and one hammerstone were observed in the internal corral area. Grass cover limited visibility elsewhere on the recorded site area.

CA-ORA-1185: The site was first recorded in 1988 as an extensive scatter of ground and chipped stone items. Its area was estimated to be 100 x 70 meters, but depth could not be determined. Artifacts included a metate, mano/ hammerstone, fire-affected rock, seven cores/tools, and a flake. During the 2000 survey, a few flakes were observed. The site was not tested during Phase II or evaluated for eligibility for NRHP or CRHR listing. It should be noted that this site is outside of the development areas proposed as a part of the Ranch Plan project and would therefore not be disturbed.

CA-ORA-1448: The site was first recorded in 1988 as a light to moderate scatter of ground stone tools and debitage measuring 245 x 105 meters. Depth was estimated as approximately 70 centimeters. Several flakes and cores were found at the site in 2000. The site was not tested during Phase II or evaluated for eligibility for NRHP or CRHR listing. It should be noted that this site is outside of the development areas proposed as a part of the Ranch Plan project and would therefore not be disturbed.

CA-ORA-1449: The site was first recorded in 1988 as a light scatter of debitage and tools and interpreted as a possible hunting camp. Size was estimated as 190 x 170 meters with an unknown depth. In 2003, Phase II testing revealed 160 chipped stone and five ground stone artifacts. The site has been determined by the SHPO to be NRHP and CRHR eligible under Criterion D. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1450: The site was first recorded in 1988 during a survey for the SR-241 extension. The area of lithic scatter was estimated as 68 x 60 meters; depth was unknown. Artifacts included six flakes and one chopper. No artifacts were found at this location during the 2000 survey. The site has been determined ineligible by the SHPO for NRHP and CRHR listing. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1550: The site was first recorded in 2000 as a light scatter measuring approximately 50 x 30 meters; its depth could not be determined. A seep (spring) and unnamed drainage are present proximate to the site. The site appears to be a limited use area (possibly ceremonial) associated with CA-ORA-1222. In 2002, Phase II testing revealed one chipped stone and three ground stone artifacts. The site has been determined ineligible for NRHP and CRHR listing by the SHPO. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1551: The site was first recorded in 2000 as a moderate scatter of ground stone tools, chipped stone tools, and debitage. The site measures 100 x 50 meters with an unknown depth. The flake and core tools are unusually large for this region; the site is a probable plant processing station. In 2003, Phase II testing revealed 213 chipped stone and 14 ground stone artifacts. The site has been determined by the SHPO to be NRHP and CRHR eligible under Criterion D. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1552: The site was first recorded in 2000 as an extensive scatter of ground stone tools, chipped stone tools, and debitage. The scatter occurs over an area of 300 x 40 meters. The depth is estimated at 30 centimeters, but may deeper. A modern pond, 1930s water trough, and metal water tank are proximate to the site. This appears to be a base camp or village where stone tool production was a major activity. The site was not tested during Phase II testing; NRHP and CRHR eligibility was not determined.

CA-ORA-1553: The site was first recorded in 2000 as a light scatter of ground stone tools, chipped stone tools, and debitage. The site measures 75 x 20 meters and depth could not be determined. This is a probable plant processing station associated with CA-ORA-1552. In 2003, Phase II testing revealed 48 chipped stone and 18 ground stone artifacts. The site has been determined ineligible by the SHPO for listing on the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1554: The site was first recorded in 2000 as a light scatter of ground stone tools, and chipped stone tools, and debitage. The scatter measured approximately 400 x 15 meters; depth could not be determined. In 2002, Phase II testing revealed 33 chipped stone and 11 ground stone artifacts. The site was determined to be eligible by the SHPO for the NRHP and CRHR under Criterion D. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1555: The site was first recorded in 2000 as a light to moderate scatter measuring 80 x 60 meters with an unknown depth. The site is a probable base camp associated with CA-ORA-1222. In 2002, Phase II testing revealed 80 chipped stone and 12 ground stone artifacts. The site was determined to be NRHP and CRHR eligible under Criterion D by the SHPO. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1556: The site was first recorded in 2000 as a light to moderate scatter measuring approximately 100 x 30 meters; its depth could not be

determined. The site is a possible satellite camp associated with CA-ORA-1222. In 2002, Phase II testing revealed 92 chipped stone and 9 ground stone artifacts. The site was determined to be NRHP and CRHR eligible under Criterion D by the SHPO. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1557: The site was first recorded in 2000 as a light scatter of ground stone tools, chipped stone tools, and debitage over an area of approximately 70 x 30 meters. Depth could not be determined. A ranch road bisects the site. This appears to be a plant processing station. In 2003, Phase II testing was conducted. The site has been determined ineligible by the SHPO for the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-ORA-1558: The site was first recorded in 2000 as a light scatter with a site area of 100 x 50 meters. A dirt access road runs along the western boundary of the site. The site is a probable plant processing station. The site was not tested during Phase II testing; NRHP and CRHR eligibility was not determined. It should be noted that this site is outside of the development areas proposed as a part of the Ranch Plan project and would therefore not be disturbed.

CA-ORA-1573 The site was first recorded in 2000 as a light scatter with an estimated area of 30 x 10 meters; depth could not be determined. The site is a probable plant processing station. In 2003, Phase II testing revealed a small lithic scatter including six flakes, two felsite artifacts, and four site artifacts. The site has been determined ineligible by the SHPO for the NRHP and CRHR. (Source: Office of Historic Preservation letter dated January 27, 2004)

CA-SDI-5925: The site was recorded in 1978 as a 20 x 20-meter medium intensity scatter of about 25 flakes; a few bone fragments were also sighted. No artifacts were noted at this location during the 2000 field check.

CA-SDI-5926: The site was first recorded in 1978 as a moderately intense lithic scatter. Site area was estimated as 50 x 40 meters with an unknown depth. Some erosion of the site was noted. In 1997, only four flake fragments were found at this location in a field check of the site. No artifacts were found during the 2000 survey of the site. The site may have been washed away.

CA-SDI-9571: The site was first recorded in 1981 as a lithic scatter consisting of seven flakes. Neither the area nor the depth of the site could be determined. No artifacts were found at this location during the 2000 survey.

Historic Resources

Historical items were found during the survey of the project site. These items date to various time periods and reflect different uses of ranch land. These items can be characterized as ranch water systems and corrals (windmills, water troughs, water tanks, and corrals) and recent historic camps (campfire rings, flagpole, Gobernadora Canyon, Amantes Camp, Portola Camp, and Upper Gabino Canyon). None of these historical items, as well as the following site located in Segment 3, is NRHP or CRHR eligible.

30-176632: The site was first recorded in 2000 as a moderate scatter of historic items in two concentrations: 1) bricks, lumber, metal, and a fence post; and 2) three fragments of farm equipment. Piles of cobbles and bricks may be a feature, such as a fire pit or possibly a burial. The site measures approximately 80 x 10 meters. In 2002, Phase II testing revealed a historic scatter consisting of brick, glass, metal objects, wood, and charcoal. The site has been determined ineligible by the SHPO for NRHP or CRHR listing. (Source: Office of Historic Preservation letter dated January 27, 2004)

The eligibility of the following sites for listing on the NRHP and CRHR has not been determined.

Segment 2: Lower Chiquita Canyon and Western San Juan Creek

30-176631: The site was first recorded in 2000 as an historic site located adjacent to Ortega Highway. The telephone switching station dates to World War II. The station, built during wartime, is camouflaged as a house of Modified Colonial style. The house has a facade of apparent colored concrete blocks with a brick interior. The 1½-story structure has false windows, ground floor vents, and wooden shutters with no hinges. A wooden outhouse, missing its door, adjoins the structure to the west. The structure is operated by Pacific Bell and is surrounded by a chain link fence. The site has not been evaluated for eligibility for NRHP or CRHR listing.

Segment 5: Cristianitos, Talega, Blind, Gabino, and La Paz Canyons.

30-176633: The site was first recorded in 2000 as an historic scatter consisting of a wood and metal wagon, possible derrick segment, and assorted pieces of lumber on a knoll south of and adjacent to Gabino Canyon Creek. A large clay pit is located immediately down slope and is presently filled with water, forming a freshwater marsh habitat. The wagon, fabricated from old wagon parts and 1900s to 1930s auto and truck parts (Stephen Van Wormer, pers. comm.), is held fast by a toyon bush. The site has not been evaluated for eligibility for NRHP or CRHR listing.

RMV-13H (30-176634): The site was first recorded in 2000 as a military bunker associated with Camp Pendleton, whose northern boundary is located 450 meters to the south of this structure. The structure is found on a small knoll north and east of the confluence of Talega Creek and Cristianitos Creek and on leased land occupied by the TRW Capistrano Test Site. The concrete building has wooden roof and wall supports. The concrete blocks have been poured and roughly finished. Imprints from the wooden forms are clearly visible on the blocks. The structure stands 3.5 meters high, 2.5 meters wide and 4.5 meters long. The walls are 22 centimeters thick. Sentry openings are cut into the walls facing to the northwest and southeast. Graffiti from the 1950s and 1960s are scattered along the interior walls. A few rusted tin cans are also present, as well as a wooden frame that may have been part of a field telephone installation. The word "Tel" appears on the northwest wall near the entrance and "62-MU-1" appears in larger letters on the rear wall. The site has been evaluated for eligibility for NRHP and CRHR listing; a final determination has not been

made by the SHPO. (Source: Office of Historic Preservation letter dated January 27, 2004)

RMV-14/H (**30-176635**): The site was first recorded in 2000 as a military bunker associated with Camp Pendleton to the south. It is on a small knoll on the leased land occupied by the TRW Capistrano Test Site. The building is constructed of concrete blocks, poured and roughly finished. Graffiti dates to the 1940s. The earliest date is 1944, two years after the first troops arrived at Camp Pendleton (Reddy, 2000). The structure measures 2.3 meters high, 5.05 meters long, and 1.95 meters wide, with walls 22 centimeters thick. The expression "62-M-U2" appears on the rear wall of the structure. A wooden frame with hooks attached and colored numbers below the hooks is fastened to one wall. There is a large opening to the northeast, and smaller slit openings to the east and west. The site has been evaluated for eligibility for NRHP and CRHR listing; a final determination has not been made by the SHPO. (Source: Office of Historic Preservation letter dated January 27, 2004)

Paleontological Resources

According to the records and literature search, there is no record of any vertebrate localities within the project area; however, many significant vertebrate localities have been discovered within the same formations just outside the survey area.

The project site is underlain by 12 different sedimentary rock units which range in age from Late Cretaceous to Holocene. These units include the Trabuco, Ladd, Williams, Silverado, Santiago, Sespe, Topanga, San Onofre Breccia, Monterey, Capistrano, and Quaternary alluvium and colluvium. Exhibit 4.11-1 depicts the relative sensitivity of these formations within the Ranch Plan project site. A summary of each rock unit specific to the project site follows:

Trabuco Formation. The early Late Cretaceous Trabuco consists of reddish-brown conglomerate and sandstone. Although relatively rare on the project site, large boulders scattered in the overlying colluvium suggest its subsurface presence. No fossils were discovered during the 2000 field survey.

Ladd Formation-Baker Canyon Member. This rock consists of non-fossiliferous, greenish-gray, poorly bedded conglomerate. The upper part consists of yellow-brown beds of conglomerate and very coarse sandstone, as well as finely laminated sandstone with scattered mollusk shells. The Baker Canyon Member is very rare in the project area and boulders scattered in the overlying colluvium suggest its subsurface presence. No fossils were discovered during the 2000 field survey.

Williams Formation-Schulz Ranch Member. Two members of the Late Cretaceous Williams Formation were studied extensively during the ARMC survey. The Schulz Ranch Member is sparsely fossiliferous and consists of brownish-gray to gray, massive, coarse-grained sandstone and conglomerate. A large number of trace fossils were discovered in this formation during the 2000 survey.

Williams Formation-Pleasants Sandstone Member. The Pleasants Sandstone Member of the Late Cretaceous Williams Formation consists of light-brown to gray, fine-grained marine sandstone and siltstone. Extensive pelecypos, gastropod, and ammonite faunas have been discovered in 42 areas in the northern Santa Ana Mountains. Additional invertebrates have

been reported in the proposed SR-241 extension alignment, as well as the northern part of Cristianitos Canyon. Many pieces of petrified tree trunks and pelecypod shells were found during the 2000 survey.

Silverado Formation. The Paleocene Silverado Formation consists of interbedded siltstone, sandstone, as well as massive marine pebble and cobble conglomerates of marine and terrestrial origin. The mostly marine upper part is brownish-yellow to greenish-gray. The predominantly non-marine lower part includes coarse-grained sandstone, conglomerate, clay, and lignite. Marine and brackish mollusk assemblages and plant remains have been reported in this formation. Pieces of petrified wood were discovered during the 2000 survey.

Santiago Formation. The lower part of the Eocene Santiago Formation consists of thin-bedded brown to gray sandstone, sandy siltstone, and conglomerate. The upper part includes white to brownish-yellow, massive coarse-grained sandstone and conglomerate. The upper part includes white to brownish-yellow, massive coarse-grained sandstone and conglomerate. Outside the survey area, diverse marine mollusk fauna, silicified logs, fish, non-marine fish, lizard, turtle, insectivore, marsupial, rodent, oromerycid, oreodont, protoceratid, hypertragulid, rhinoceros, and primate species are recorded. Within the proposed project survey area, silicified logs, a marine vertebrate fauna, and fossil leaves have been recorded. No fossils were identified during the 2000 survey.

Sespe Formation. This formation consists of coarse sandstone and conglomerate, as well as minor amounts of mudstone. The Sespe has historically yielded only a few well-documented fossils, including remains of a horse, entelodont, camel, and oreodont. No fossils were identified during the 2000 survey.

Topanga Formation. This formation has yielded a diverse molluscan fauna of Middle Miocene age as well as locally abundant vertebrates such as shark, fish, and marine mammals. Identified fossils have included remains of brachiopods, pelecypods, gastropods, sharks, fish, desmostylians, dolphins, whales, turtles, birds, sea lions, and walruses. Abundant remains of pelecypods, gastropods, and mammal bone debris were discovered during the 2000 survey.

San Onofre Breccia. The San Onofre Breccia is a coarse, angular deposit derived from the Catalina Schist. This poorly fossiliferous rock unit represents rapidly deposited debris flows. In the study area, small fragments of whalebone and possible pinniped remains were previously discovered. No fossils were identified during the 2000 survey.

Monterey Formation. The Late Miocene Monterey Formation is a correlative of the Clarendonian North American Land Mammal Age. This lithologic unit consists of gray siltstone, shale, and thin-bedded sandstone. Historically, fossils occurring in this formation have included worms, bryozoans, pelecypods, gastropods, barnacles, and ostracodes. Aquatic vertebrates such as walruses, sea lions, and whales, as well as fishes and aquatic birds have been discovered in this formation. In addition to animal remains, there have been reports of algae, leaves, and petrified wood fossils. During the 2000 survey, remains of fish bones and scales, and coprolites were discovered.

Capistrano Formation. The Late Miocene to Early Pliocene Capistrano Formation, a correlative of the Blancan North American Land Mammal Age, is a highly fossiliferous marine deposit. The unit consists of fine sandstone and shale with local limestone concretions, conglomerate, and breccia lenses. The deposit yields diverse marine invertebrate and vertebrate faunas, as well as many types of sea birds.

Quaternary Non-marine Terrace Deposits. Late Pleistocene and Holocene alluvial terrace deposits are composed of poorly consolidated gravel and sand. These deposits are typically poorly fossiliferous. In the vicinity of the survey area, an extensive land mammal assemblage has been discovered. During the 2000 survey, no fossils were discovered.

Quaternary Alluvium and Colluvium. Alluvia and colluvia of mostly Holocene age include soil and slope wash, as well as sand and gravel deposits from creek beds. No fossils were discovered during the 2000 survey.

4.11.3 IMPACTS

Thresholds of Significance

For the purpose of this analysis, the project is considered to have a significant impact on cultural or paleontological resources if any of the following occurs:

Archaeological Resources

A significant impact would occur if grading and construction activities would result in a substantial adverse change in the significance of an archaeological resource determined to be "unique" or "historic." "Unique" resources are defined in Public Resources Code Section 21083.2; "Historic" resources are defined in Public Resources Code Section 21084.1 and CEQA Guidelines §15064.5.

Historical Resources

In accordance with CEQA Guidelines §15064.5,

> "A project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.
>
> - Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.
>
> The significance of an historical resource is materially impaired when a project:
>
> - Demolishes or materially alters in an adverse manner those physical characteristics or an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
> - Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources...unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
> - Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA."

Paleontological Resources

An impact to paleontological materials would be considered a significant impact if the project results in the direct or indirect destruction of a unique or important paleontological resource or site. The criteria used determine if resource is unique or important are: the past record of fossil recovery from the geologic unit(s); the recorded fossil localities in the project area; observation of fossil material onsite; and, type of fossil materials previously recovered from the geologic unit (vertebrate, invertebrate, etc.).

Impacts

Prehistoric Archaeological Resources

Impact 4.11-1: *Grading and construction activities would have a significant impact on the following NRHP- and CRHR-eligible/potentially eligible archaeological sites: CA-ORA-535, -656, -753, -754, -882, -997, -1043, -1048, -1121, -1222, -1134, -1136, -1137, -1138, -1449, -1551, -1552, -1555, -1556,-1559, -1560, and -1565 have been determined to be eligible for the NRHP and CRHR.*

As previously indicated, a significant impact would occur if grading and construction activities would result in a substantial adverse change in the significance of an archaeological resource determined to be “historic” or “unique.” To assess, the limits of disturbance for the proposed project were overlaid on the location of the identified archaeological resources to determine if the project would have an effect on the known sites. Under a worst-case scenario, it is assumed that any archaeological resources located within the development areas of the Ranch Plan project would be eliminated through grading and construction activities. However, the significance of the impact would be based upon the criteria presented in the thresholds of significance (i.e., is archaeological resource determined to be “historic” or “unique”). If a site is not in a development area, there would be no direct impact.

The proposed project would directly impact 53 archaeological sites through development of the Ranch Project. As indicated in Table 4.11-1, 21 of the 53 sites are either eligible or potentially eligible for the NRHP and CRHR. They are prehistoric sites: CA-ORA-535, -656, -753, -754, -882, -997, -1043, -1048, -1121, -1222, -1134, -1136, -1137, -1138, -1449, -1551, -1552, -1555, -1556, -1559, -1560, and -1565. Inclusive of these identified sites are sites that have not had their eligibility determined: CA-ORA-535, -753, -754, -1134, -1136, -1137, -1138, and -1552. Because the significance of these sites has not yet been determined, any impacts to these sites would be considered significant until proven otherwise.

Planning Areas 10 through 12 are not addressed in Table 4.11-1 because the limited improvements that would be implemented as a part of the project in the planning areas would be designed to avoid all impacts to known resources. These planning areas would be retained as open space. The applicant has proposed the continuation of cattle ranching in Planning Areas 10, 11, and 12, as well as citrus operations in Planning Areas 11 and 12. In Planning Area 10, the only improvement would be a community trail connecting to the existing Ladera Ranch Community Trail. Public access would be restricted by fencing to the trail. Planning Area 11 would contain a segment of the Prima Deshecha Riding and Hiking Trail. As with Planning Area 10, the trails would be sited away from any known archaeological resources with public access limited to the trails. Planning Area 12 would include some water and wastewater facilities to provide service to adjacent planning area developments. These facilities would be sited to avoid all direct and indirect impacts to known resources.

For those sites determined not to be eligible for the NRHP or the CRHR, the sites were further evaluated to determine if they meet the criteria as a unique resource. A unique archaeological resource implies an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one of the following criteria:

TABLE 4.11-1
ARCHAEOLOGICAL AND HISTORIC RESOURCES SIGNIFICANCE

Planning Area	Segment	Site Number	NRHP/CRHR Eligible (Criteria)	Potential Significant Impact?[a.]
1	**Archaeological Resources**			
	2	CA-ORA-26	No	No
	2	CA-ORA-27	No	No
	2	CA-ORA-880	No	No
	2	CA-ORA-881	No	No
	2	CA-ORA-902[b.]	No	No
2	**Archaeological Resources**			
	2	CA-ORA-997	Yes (Criterion D)	**Yes**[a.]
	2	CA-ORA-1048	Yes (Criterion D)	**Yes**
	2	CA-ORA-1049	No	No
	2	CA-ORA-1050	No	No
	2	CA-ORA-1105	No	No
	2	CA-ORA-1106	No	No
	2	CA-ORA-1447	No	No
	1	CA-ORA-1559	Yes (Criterion D)	**Yes**
	1	CA-ORA-1560	Yes (Criterion D)	**Yes**
	2	CA-ORA-1562	No	No
	2	CA-ORA-1563	No	No
3	**Archaeological Resources**			
	3	CA-ORA-1122	No	No
	3	CA-ORA-1123	No	No
	3	CA-ORA-1564	No	No
	3	CA-ORA-1565	Yes (Criterion D)	**Yes**
	3	CA-ORA-1566	No	No
5	**Archaeological Resources**			
	4	CA-ORA-653	No	No
	4	CA-ORA-654	No	No
	4	CA-ORA-655	No	No
	4	CA-ORA-657	No	No
	4	CA-ORA-658	No	No
6	**Archaeological Resources**			
	5	CA-ORA-1124	No	No
	5	CA-ORA-1184	No	No
	5	CA-ORA-1222	Yes (Criterion D)	**Yes**[d.]
	5	CA-ORA-1450	No	No
	5	CA-ORA-1550	No	No
	5	CA-ORA-1555	Yes (Criterion D)	**Yes**[d.]
	5	CA-ORA-1556	Yes (Criterion D)	**Yes**
7	**Archaeological Resources**			
	5	CA-ORA-1126/-1452	No	No
	5	CA-ORA-1137	Undetermined[c.]	**Yes**
	5	CA-ORA-1138	Undetermined[c.]	**Yes**

TABLE 4.11-1 (Continued)
ARCHAEOLOGICAL AND HISTORIC RESOURCES SIGNIFICANCE

Planning Area	Segment	Site Number	NRHP/CRHR Eligible (Criteria)	Potential Significant Impact?[a.]
	5	CA-ORA-1449	Yes (Criterion D)	**Yes**
8	**Archaeological Resources**			
	5	CA-ORA-753	Undetermined[c.]	**Yes**
	5	CA-ORA-754	Undetermined[c.]	**Yes**
	Historic Resources			
	5	30-176633	Undetermined[c.]	**Yes**
	5	30-176634	Potentially Eligible (Criterion D)[e.]	**Yes**
	5	30-176635	Potentially Eligible (Criterion D)[e.]	**Yes**
	5	CA-ORA-1573	No	No
9	**Archaeological Resources**			
	5	CA-ORA-535	Undetermined[c.]	**Yes**
	5	CA-ORA-1134	Undetermined[c.]	**Yes**
	5	CA-ORA-1135	No	No
	5	CA-ORA-1136	Undetermined[c.]	**Yes**
	5	CA-ORA-1552	Undetermined[c.]	**Yes**
	5	CA-ORA-1553	No	No
	5	CA-ORA-1557	No	No
	5	CA-ORA-1551	Yes (Criterion D)	**Yes**[d.]
13	**Archaeological Resources**			
	4	CA-ORA-656	Yes (Criterion D)	**Yes**
	2	CA-ORA-882	Yes (Criterion D)	**Yes**
	2	CA-ORA-1043	Yes (Criterion D)	**Yes**
	4	CA-ORA-1102	No	No
	3	CA-ORA-1103	No	No
	2	CA-ORA-1121	Yes (Criterion D)	**Yes**
	Historic Resources			
	2	CA-ORA-29	Yes (Criteria B and D)	**Yes**
	2	30-176631	Undetermined[c.]	**Yes**
Roads	**Archaeological Resources**			
	5	CA-ORA-916	No	No
	3	CA-ORA-1111	No	No

a. All sites identified are within the proposed area of disturbance for the Ranch Plan project.
b. A portion of CA-ORA-902 is also located in Planning Area 13.
c. Eligibility of these sites has not yet been determined for listing on the NRHP or CRHR; therefore, any impacts to these sites would be considered significant until proven otherwise.
d. Final design of the golf courses in Planning Area 2, Planning Area 6, and Planning Area 9 may result in avoidance of CA-ORA-997 (Planning Area 2), -1555, and -1222 (Planning Area 6) and -1551 (Planning Area 9), thereby potentially eliminating the potential impact to these archaeological sites.
e. A final determination has not been made by the SHPO.

Note: In accordance with CEQA Guidelines §15120(d), no information about the location of archaeological sites is included in this Program EIR.

Source: Archaeological Resource Management Corporation, 2003.

1. Contains information needed to answer important scientific questions and there is a demonstrable public interest in that information; or

2. Has a special and particular quality, such as being the oldest of its type or the best available example of its type; or

3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

None of the sites not previously identified as eligible for the NRHP and CRHR qualify as unique archaeological sites. Therefore, impacts to these remaining sites would not be considered significant.

Increased on-site population would result in increased pedestrian traffic into areas of the project site not proposed for development. The increased access to these portions of the project site can result in greater risks to cultural deposits associated with vandalism, inadvertent damage, and illegal collecting. However, because there would be limited access to these areas (trails would be fenced) and the location of known archaeological resources would not be public information, increased access into these areas would not result in significant impacts to resources.

Historic Resources

Impact 4.11-2: *Implementation of the project would have a significant impact on historic sites CA-ORA-29, 30-176631, 30-176633, 30-176634, and 30-176635, which have been determined to be eligible or potentially eligible for the NRHP or CRHR.*

Based on the thresholds of significance set forth in this Program EIR, prior to mitigation, a historic resource located in the development areas of the Ranch Plan project is assumed to be significantly impacted by grading and construction activities if the site(s) cannot be avoided. As identified in Table 4.11-1, there are five historic sites which would be directly impacted through project implementation. Historic site CA-ORA-29, located in Planning Area 13, has been determined to be eligible for listing on the NRHP and CRHR. Historic sites 30-176634 and -176635, located in Planning Area 8 are considered potentially eligible for the NRHP and CRHR; a final determination has not been made by the SHPO. Therefore, impacts related to these sites would be considered significant. The eligibility of historic site 30-176633, located in Planning Area 8, and historic site 30-176631, located in Planning Area 13, has not been determined. Any impacts to these sites would be considered significant unless subsequent evaluation determines otherwise.

Paleontological Resources

Impact 4.11-3: *The proposed project would result in the disturbance and destruction of certain rock units identified as having a high likelihood of containing fossils. This disturbance would potentially result in the destruction of unique or important paleontological resources and is considered a significant impact.*

Paleontological resources anywhere in the study area have the potential to be adversely impacted by anticipated ground-disturbing activities, including brush clearing and grading. As indicated in the thresholds of significance, an impact is significant if there is a direct or indirect destruction of a unique or important paleontological resource on the site. Past record of fossil

recovery from the geologic unit(s), the recorded fossil localities in the project area, observation of fossil material on site, and type of fossil materials previously recovered from the geologic unit are all used as criteria to determine if resource is unique or important. Given that the existence of fossil material can often not be determined until there is some disturbance, rock types are categorized by the likelihood of producing fossils and thereby ranked by their sensitivity.

The Natural History Museum of Los Angeles County considers all sedimentary rock units occurring in the survey area to rank high in paleontological sensitivity. Not all paleontologists agree with ranking all formations as high in sensitivity because differences exist among the formations. Some rock units are sparsely fossiliferous, but the known fossils are extremely important. For example, the Ladd Formation contains Late Cretaceous sharks and bony fish, but has also produced one of the very rare examples of a dinosaur from California. The Paleocene Silverado Formation has produced rare West coast marine turtles. The Eocene Santiago Formation has produced a diverse assemblage of turtles, crocodiles, and terrestrial mammals. The Oligocene Sespe/Vaqueros undifferentiated Formation has produced an assemblage of mixed terrestrial and marine vertebrates. The Topanga, Monterey, and Capistrano Formations have produced abundant and highly diverse assemblages of marine vertebrates including sharks, bony fish, sea turtles, sea birds, and marine mammals. Quaternary surface deposits throughout the Los Angeles basin have produced Late Pleistocene vertebrates such as those found at Rancho La Brea. For purposes of this report, sensitivity rankings are based on ARMC's professional experience with sedimentary rocks in the site.

The paleontologic importance of a rock unit reflects its potential paleontologic productivity and the scientific importance of the fossils it has produced locally. The potential paleontologic sensitivity (high, moderate, low, none, or undetermined) of a rock unit is based on the densities of fossil specimens and sites in exposures of the unit in or near a project site. Exposures of on-site specific rock unit in a site are most likely to yield fossils similar in number and kind to those previously recorded from on the site or in the vicinity. The criteria for establishing the potential paleontologic productivity of a rock unit are described below.

- **High potential:** rock unit contains comparatively high density of recorded fossil sites, has produced numerous fossil remains in the site and/or vicinity, and is very likely to yield additional similar remains in the site.

- **Moderate potential:** rock unit contains relatively moderate density of recorded fossil sites, has produced some fossil remains in tract and/or vicinity, and is somewhat likely to yield additional similar remains on the site.

- **Low potential:** rock unit contains no or comparatively low density of recorded fossil sites, has produced very few or no fossil remains in the site, and is not likely to yield any remains in the site.

- **Undetermined potential:** rock unit has limited exposure in the site, is poorly studied, and contains no recorded fossil site in the site and vicinity. However, in the region, same or correlative and/or lithologically similar rock unit contains sufficient sites to suggest that the rock unit in the site has at least a moderate potential for yielding fossil remains and sites.

- **No potential:** unfossiliferous igneous and high-grade metamorphic rock units with no potential for yielding any fossil remains.

Any fossil site containing identifiable fossil remains and the fossiliferous bed are considered highly important paleontologically, regardless of the paleontologic importance of the rock unit in

which the site and bed occur. A fossil specimen is considered scientifically highly important if it is: identifiable; complete; well preserved; age diagnostic; useful in environmental reconstruction; a type or topotypic specimen; a rare taxon; and/or part of a diverse assemblage.

Identifiable marine mega-invertebrate remains, for example, are considered scientifically highly important because they allow very accurate age determinations and environmental reconstructions for the rock units in which they occur.

Using the definitions presented above, the paleontologic importance of a rock unit exposed in the project site has been assessed using the following criteria.

- **High importance:** rock unit has comparatively high potential for yielding scientifically important fossil remains in the site similar to those previously recorded from rock unit in the site and/or vicinity.

- **Moderate importance:** rock unit has relatively moderate potential for yielding scientifically important fossil remains in the site similar to those previously recorded from rock unit in the site and/or vicinity.

- **Low importance:** rock unit has comparatively low potential for yielding any scientifically important fossil remains.

- **Unknown importance:** rock unit for which too few data are available from the site and vicinity to allow an accurate assessment of its potential for yielding scientifically important fossil remains in the site.

- **No importance:** unfossiliferous igneous and high-grade metamorphic rock units having no potential for containing any fossil remains.

It should also be noted that some formations can be very fossiliferous in one geographic area and lacking fossils in another. Fossils do not occur evenly scattered throughout a rock formation, but are at times found in concentrations known as horizons or bone beds. Unless a bone bed is directly exposed, a formation in which it occurs may appear as lacking fossils.

The sensitivity rankings for each formation and the location of these formations within the development areas are identified in Table 4.11-2 (please refer to Exhibits 4.4-2 through 4.4-6 in Section 4.4, Geology and Soils, which depict the rock formations within each of the planning areas proposed for development). Therefore, as indicated in the thresholds of significance, the implementation of the proposed Ranch Plan project would result in significant impacts to unique or important paleontological resource.

4.11.4 MITIGATION PROGRAM

Project Design Features

PDF 4.11-1 The Ranch Plan project has been designed to avoid/minimize significant impacts to known archaeological and historic resources.

Standard Conditions and Regulations

Many of the standard conditions and regulations are enacted at subsequent levels of approval. The following are the County of Orange Standard Conditions associated with cultural resources that would apply to the project. These are listed because they would be applicable at

subsequent levels of approvals (i.e., grading permits and tract maps). The number of the standard condition is listed in parentheses at the end of each condition.

TABLE 4.11-2
PALEONTOLOGICAL IMPACTS

Formation	Sensitivity	Area Within Project Boundaries	Probability of Impact[a.]	Impacts by Planning Area[a.]	Significant Impact
Trabuco Formation (Kt)	Low	Small	Low	9	No
Baker Canyon Member–Ladd Formation (Klb)	Low to Moderate	Small	Low	9	No
Schulz Ranch Member–Williams Formation (Kws)	Moderate	Large	High	4, 7, 8, 9	No
Pleasants Sandstone Member–Williams Formation (Kwp)	High	Large	High	3, 4, 7, 8	Yes
Silverado Formation (Tsi)	High	Large	High	3, 6, 7, 8	Yes
Santiago Formation (Tsa)	High	Large	High	2, 3, 5, 6, 7, 8	Yes
Sespe Formation (Ts)	Low to Moderate	Large	High	2	No
Topanga Formation (Tt)	High	Small	Very High	1, 5	No
San Onofre Breccia (Ttso)	Low to Moderate	Small	Low	1, 5	No
Monterey Formation (Tm)	High	Small	High	1, 5	Yes
Capistrano Formation (Tc)	High	Small	Very High	1	Yes
Quaternary Terrace Deposits (Qt)	Low to Moderate	Moderate	Moderate	1, 2, 3, 4, 6, 7, 8, 9	No
Alluvium and Colluvium (Qac)	Low	Large	High	1, 3, 4, 5, 8, 9	No

a. This reflects only the areas proposed for development within the planning areas (the limits of the development/grading area).

Source: *Report of Paleontological Resources Survey for the Ranch Plan, Rancho Mission Viejo, South Orange County, California*; prepared by Archaeological Resource Management Corporation, June 15, 2000.

Prehistoric and Historic Archaeological Resources

SC 4.11-1 Prior to the issuance of any grading permit, the applicant shall provide written evidence to the County or Orange Manager, Subdivision and Grading, that applicant has retained a County-certified archaeologist to observe grading activities and salvage and catalogue archaeological resources as necessary. The archaeologist shall be present at the pre-grade conference; shall establish procedures for archaeological resource surveillance; and shall establish, in cooperation with the applicant, procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of the artifacts as appropriate. If the archaeological resources are found to be significant, the archaeological observer shall determine appropriate actions, in cooperation with the project applicant, for exploration and/or salvage.

Prior to the release of the grading bond, the applicant shall obtain approval of the archaeologist's follow-up report from the Manager, Harbors, Beaches & Parks HBP/Coastal and Historical Facilities. The report shall include the period of inspection, an analysis of any artifacts found and the present repository of the artifacts. Applicant shall prepare excavated material to the point of identification. Applicant shall offer excavated finds for curatorial purposes to the County of

Orange, or its designee, on a first refusal basis. These actions, as well as final mitigation and disposition of the resources shall be subject to the approval of the Manager, HBP/Coastal and Historical Facilities. Applicant shall pay curatorial fees if an applicable fee program has been adopted by the Board of Supervisor, and such fee program is in effect at the time of presentation of the materials to the County of Orange or its designee, all in a manner meeting the approval of the Manager, HBP/Coastal and Historical Facilities. (County of Orange Standard Conditions of Approval, A04)

Paleontological Resources

SC 4.11-2 Prior to the issuance of any grading permit, the project contractor shall provide written evidence to the Manager, Subdivision and Grading, that contractor has retained a County certified paleontologist to observe grading activities and salvage and catalogue fossils as necessary. The paleontologist shall be present at the pre-grade conference, shall establish procedures for paleontological resources surveillance, and shall establish, in cooperation with the contractor, procedures for temporarily halting or redirecting work to permit sampling, identification, and evaluation of the fossils. If the paleontological resources are found to be significant, the paleontologist shall determine appropriate actions, in cooperation with the contractor, which ensure proper exploration and/or salvage.

Prior to the release of any grading bond, the contractor shall submit the paleontologist's follow up report for approval by the County Manager, HBP/Coastal and Historical Facilities. The report shall include the period of inspection, a catalogue and analysis of the fossils found, and the present repository of the fossils. The contractor shall prepare excavated material to the point of identification. The contractor shall offer excavated finds for curatorial purposes to the County of Orange, or its designee, on a first-refusal basis. These actions, as well as final mitigation and disposition of the resources, shall be subject to approval by the HBP/Coastal and Historical Facilities. The contractor shall pay curatorial fees if an applicable fee program has been adopted by the Board of Supervisors, and such fee program is in effect at the time of presentation of the materials to the County of Orange or its designee, all in a manner meeting the approval of the County Manager, HBP/Coastal and Historical Facilities. (County of Orange Standard Condition of Approval, A07)

<u>Mitigation Measures</u>

Prehistoric and Historic Archaeological Resources

MM 4.11-1 Prior to the approval of final plans and specifications for the development of Area Plans, the project applicant shall prepare a Cultural Resources Management (CRM) Plan to address the presence of cultural resources, evaluate the significance of any resource finds, provide final mitigation and monitoring program recommendations, and determine proper retention or disposal of resources. The CRM Plan shall be reviewed and approved by the County Director of Planning in Consultation with the County Manager, Harbors, Beaches & Parks HBP/Coastal and Historical Facilities.

MM 4.11-2 Based on the mitigation standards set forth in the California Environmental Act (CEQA) Guidelines §15126.4(b) and Public Resources Code §21083.2, prior to the approval of any Area Plan for Planning Areas 7 and 9, as applicable, the

applicant shall provide the County of Orange with evidence regarding the determination of eligibility of prehistoric sites CA-ORA-535, -753, -754, -1134, -1136, -1137, -1138, and -1552, and historic sites 30-176631, -176633, -176634, and -176635. Should a site(s) be deemed ineligible for listing on the National Register of Historic Places (NRHP) or California Register of Historic Places (CRHR), no further mitigation is required. Should a site(s) be deemed eligible, the County of Orange standard conditions and requirements and subsequent Mitigation Measure 4.11-3 shall apply.

MM 4.11-3 As applicable, the following archaeological sites shall be mitigated to a less than significant level: CA-ORA-535, -656, -753, -754, -882, -997, -1043, -1048, -1121, -1222, -1134, -1136, -1137, -1138, -1449, -1551, -1552, -1555, -1556, -1559, -1560, and -1565, and historic sites CA-ORA-29, 30-176631, 30-176633, 30-176634, and 30-176635. Based on the mitigation standards set forth in the California Environmental Act (CEQA) Guidelines §15126.4(b) and Public Resources Code §21083.2, mitigation shall be accomplished through implementation of one of the following mitigation options consistent with the Cultural Resources Management Plan:

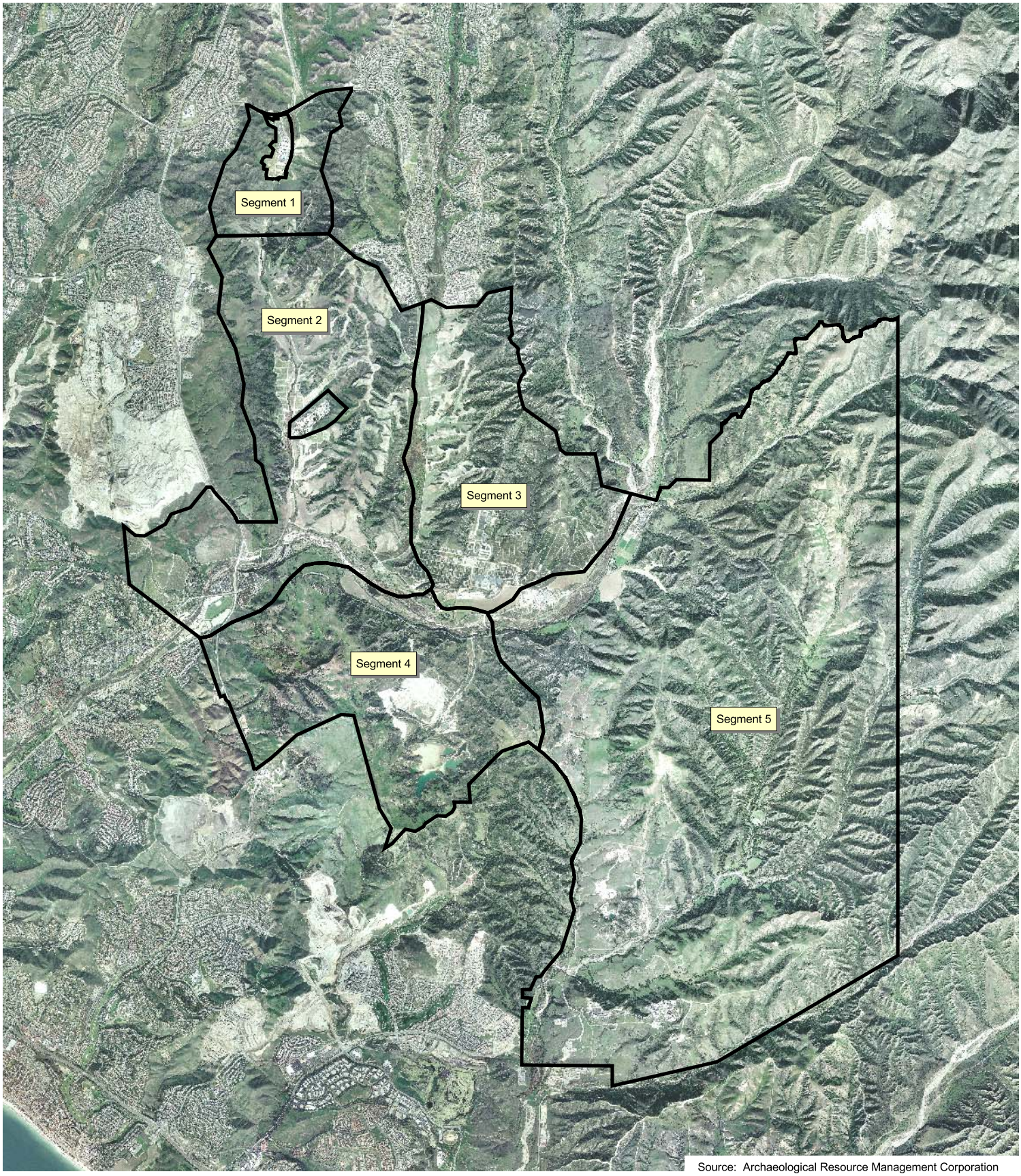
a. Relocation of grading boundaries/fuel modification zones to completely avoid disturbance to the site(s). Should the boundary relocation be infeasible, an archaeological monitor shall be present during grading and fuel modification brush clearance in the vicinity of archaeological resources (note: confidential archaeological mapping is on file at the County of Orange). Fencing or stakes shall be erected outside of the sites to visually depict the areas to be avoided during construction.

b. Prior to grading in the vicinity of archaeological resources (note: confidential archaeological mapping is on file at the County of Orange), Phase III data recovery (salvage excavations) shall be conducted for these archaeological sites or any other sites within the potential impact area of development that cannot be avoided. The Phase III work shall provide sufficient scientific information to fully mitigate the impacts of development on these sites and be performed in accordance with standards of the State Office of Historic Preservation.

In accordance with California Health and Safety Code Section 7050.5, if human remains are found, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined the appropriate treatment and disposition of the human remains. The County Coroner shall make such determination within two working days of notification of discovery. The County Coroner shall be notified within 24 hours of the discovery. If the County Coroner determines that the remains are or believed to be Native American, the County Coroner shall notify the Native American Heritage Commission in Sacramento within 24 hours. In accordance with California Public Resources Code Section 5097.98, the Native American Heritage Commission must immediately notify those persons it believes to be the most likely descended from the deceased Native American. The descendents shall complete their inspection within 24 hours of notification. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

4.11.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of the mitigation program listed above, potential impacts to prehistoric archaeological, historical, and paleontological resources would be reduced to a level considered less than significant.



Source: Archaeological Resource Management Corporation

Archaeological Survey Segment Boundaries

Exhibit 4.11-1

The Ranch Plan

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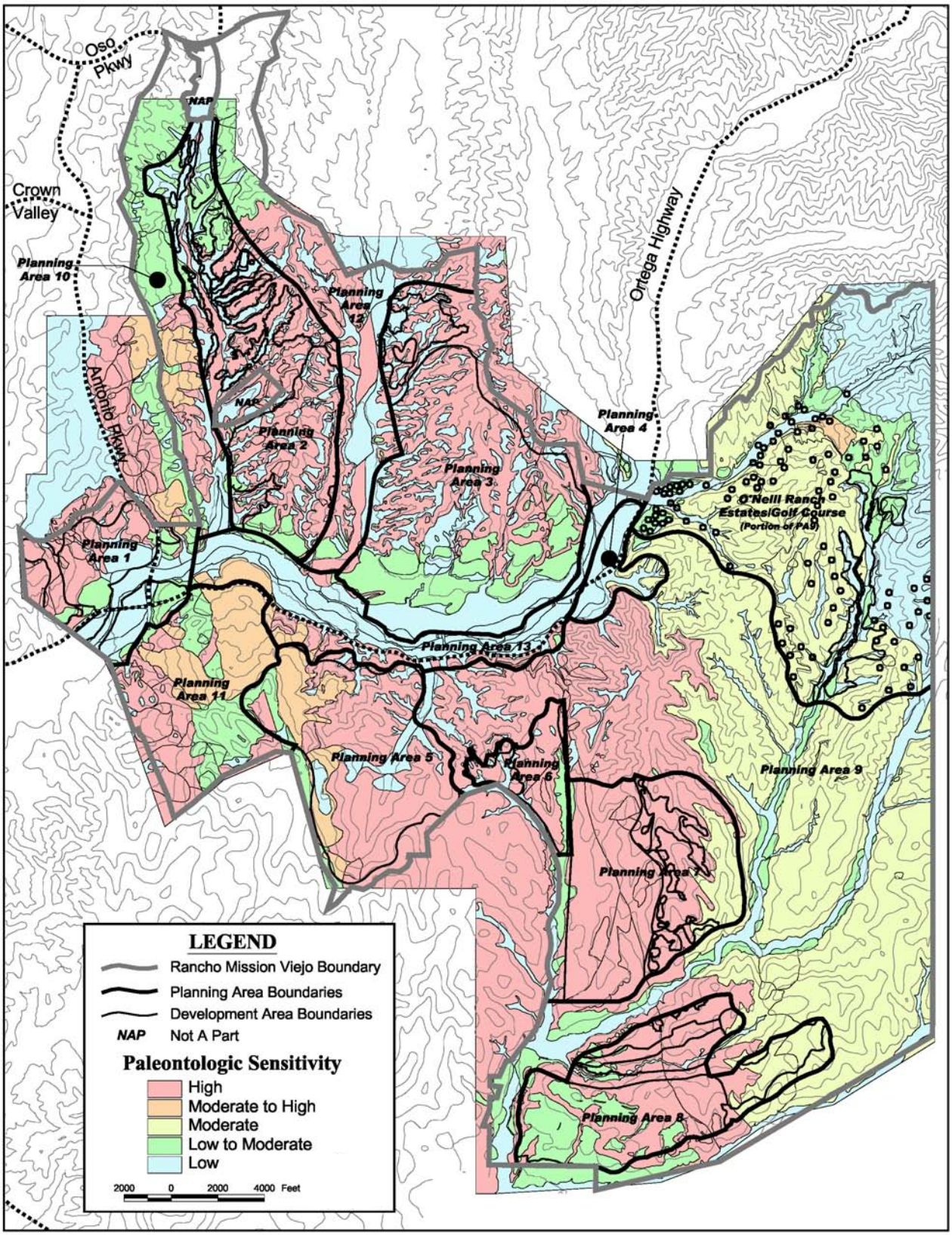

Paleontological Sensitivity

Exhibit 4.11-2

The Ranch Plan

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4.12 RECREATION

4.12.1 INTRODUCTION

This section discusses the potential park and recreation impacts associated with the proposed project. It examines the existing and future parks and recreation opportunities in the project vicinity and the potential impacts of the proposed project on these resources.

Methodology

The information in this section is based on the Recreation Element, the Resources Element, and the Transportation Element of the Orange County General Plan. Information concerning off-site recreational facilities involved a review of the City of San Juan Capistrano General Plan, Recreation Element; the City of San Clemente website; the San Onofre State Beach Revised General Plan; internet research relating to the various private and public recreational facilities in the project area; and personal communication with various state, county and city personnel.

Study Area

Parks and recreational facilities within a two-mile radius of the proposed project were included for review in this EIR.

4.12.2 EXISTING CONDITIONS

Offsite Recreational Uses

There are over 11,000 acres of County regional parks, a number of public parks, and recreation areas surrounding the project area. A variety of parks are located within a two-mile radius of the project site. In addition to these nearby park sites, residents can enjoy a variety of other recreational opportunities within a two-mile radius, such as hiking and golfing on both public and private courses. These facilities are discussed below and their location depicted in Exhibit 4.12-1.

Parklands

State Parks

San Onofre State Beach

San Onofre State Beach is located within the County of San Diego on MCB Camp Pendleton property; the Orange/San Diego County line serves as its western and northern boundary. The City of San Clemente (in Orange County) lies immediately to the west.

- The California Department of Parks and Recreation prepared a Revised General Plan for the San Onofre State Beach in June 1984. The 1984 Revised General Plan is the most current, and it is not in the process of being updated at this time (personal communication, C. Valdez). It identifies four distinct areas within the park boundaries: Cristianitos, Trestles Beach (also known as the San Mateo Creek), Surfers Beach, and San Onofre Bluffs. Only Cristianitos and Trestles Beach would be potentially affected by the Ranch Plan project.

San Onofre State Beach is a state beach operated by the California Department of Parks and Recreation under a lease agreement with the United States of America, specifically the

Department of the Navy. The 50-year lease agreement was signed in 1971 and is set to expire in 2021. The following provisions regarding state beaches, as found in Section 5019.56c of the Public Resources Code (PRC) include the following guidance pertinent in plan formulation for resource management and recreational development:

> "State beaches...consist...of areas with frontage on the ocean, or bays designed to provide swimming, boating, fishing, and other beach-oriented recreational activities. Coastal areas containing ecological, geological, scenic, or cultural resources of significant value shall be preserved within state wildernesses, state reserves, state parks, or natural or cultural preserves…"

San Onofre State Beach was established to make available to the public the natural beach, bluffs, and related geological, ecological, and cultural features along the northern coast of San Diego County, including important uplands east of the I-5 freeway in the valley of San Mateo Creek; and to provide for the enjoyment and use of these areas in ways that take full advantage of the recreational opportunities thus afforded, while protecting the natural and cultural values of the region (Department of Parks and Recreation, 1984).

The portion of San Onofre State Beach northeast of I-5 is composed of the Cristianitos area. Cristianitos lies immediately adjacent (approximately 500 feet) to the southern boundary of the Ranch Plan. It is the only area within a two-mile radius of the proposed project, and as such, the focus of this evaluation. As described in the Revised General Plan, approximately 1,000 acres of scenic open space at the northwest end of Cristianitos were recommended for development with hiking trails, primitive camps, a primitive group camp, and a natural preserve. Currently, in the northern portion of Cristianitos, the hiking trails have been constructed, though the rest of the facilities have not yet been developed. The San Mateo Campground is located approximately one-third mile from the beach and 3.3 miles from the Ranch Plan boundary. The campground offers facilities for tent and recreational vehicles.

San Mateo Canyon, where San Onofre State Beach is located, is the last remaining undeveloped coastal canyon southerly of Crystal Cove State Park available for public recreational use. Its value as a recreational resource stems from the relative lack of urban development. The undeveloped nature of the State Beach, and especially Cristianitos, which is the largest parcel (1,182.7 acres), provides for a variety of recreational experiences. Cristianitos offers the public access to undisturbed natural resources, including biological resources, which they can enjoy as part of nature study programs or while hiking or bike riding. The topography surrounding the State Beach provides a natural barrier to much of the urbanized areas in the adjacent City of San Clemente.

<u>Existing Regional Parks</u>

The countywide system of regional parks provides about 16,000 acres of land dedicated to park and recreation uses in Orange County. Three regional parks, General Thomas F. Riley Wilderness Park, Caspers Wilderness Park and O'Neill Regional Park, fall within a two-mile radius of the proposed project boundaries. Each of these parks is part of the County's overall park system and provides large expanses of area for active and passive recreational uses. Although facilities are planned as part of the County of Orange Master Plan of Riding and Hiking Trails, there are no existing trails that link these regional parks. These parks are discussed below.

General Thomas F. Riley Wilderness Park

The General Thomas F. Riley Wilderness Park is located in unincorporated Orange County south and west of the community of Coto de Caza and east of the communities of Rancho Santa Margarita, Las Flores, and Wagon Wheel Canyon. The entrance of the park is located at the corner of Oso Parkway and Coto de Caza Drive. The park boundary is adjacent to Planning Area 12 of the Ranch Plan.

In January 1983, 524 acres for the park were irrevocably offered by the Coto de Caza Development Corporation to the County of Orange and accepted the same day. The property was offered for public park and recreational purposes and was named Wagon Wheel Canyon Wilderness Park. This park is a regional wilderness park that is defined in the Recreation Element of the Orange County General Plan as:

> "A regional park in which the land retains its primeval character with minimal improvements and which is managed and protected to preserve natural processes. The park (1) generally appears to have been affected primarily by forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude of a primitive and unconfined type of recreation; (3) is sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic or historical value." (Section VII)

The Wagon Wheel Canyon Wilderness Park, which was renamed the General Thomas F. Riley Wilderness Park, was formally opened to the public and dedicated to Supervisor Riley on December 10, 1994. The park covers an area of mostly rolling hills and major oak groves. There is no General Development Plan (GDP) for the park; however, the Orange County Board of Supervisors approved an interim operations plan on September 27, 1994. This interim operations plan currently remains in place (personal communication, H. Huggins). As part of the interim phase, the park offers low impact recreational activities including hiking, mountain biking and horseback riding. There are also two vista points within the park. The County also offers a variety of programs to the public including, but not limited to: junior ranger, college internships, programs for school classes, nature/educational hikes, and stargazing. The park is used by the Boy Scouts for completing work associated with earning their badges. Informal picnicking is available.

The natural setting of the park is an important component of this resource. Plant communities known to occur at this park include scrub, grassland, riparian, and woodland. The plant communities present provide suitable habitat for a variety of plant and wildlife species, some of which are considered sensitive by state and federal resource agencies. Sensitive species known to occur within the General Thomas F. Riley Wilderness Park include the orange-throated whiptail, San Diego horned lizard, red diamond rattlesnake, coastal California gnatcatcher, and southern California rufous-crowned sparrow.

The General Thomas F. Riley Wilderness Park is of sufficient size to make practicable its preservation and use in an unimpaired condition; however, it should be noted that urban views and noise are experienced along portions of the trails and vista points. In an effort to preserve natural resources as this park, the County has imposed access restrictions to certain areas of the park that have high quality coastal sage scrub supporting California gnatcatchers (primarily in the north/northwestern portion of the park).

Ronald W. Caspers Wilderness Park

The Ronald W. Caspers Wilderness Park encompasses approximately 8,500 acres. It is immediately adjacent to Planning Area 3 of the Ranch Plan. Existing facilities at the park include various multiple use, pedestrian and equestrian trails; an equestrian day use area; Starr Mesa Equestrian Campground; Live Oak Flats Campground; and a Visitor Center. Existing development at the park is primarily west of Ortega Highway, which bisects the park. Access is provided via Ortega Highway.

In 1973 the Starr Foundation deeded the northern 3,779 acres of the Starr Ranch to the National Audubon Society for use as a wildlife sanctuary. In late 1973 and early 1974 the Orange County Board of Supervisors, under the direction of Chairman Ronald W. Caspers voted to purchase the southern 5,500 acres of the ranch for use as a public recreation facility. On April 12, 1974 the Starr Viejo Regional Park was opened as a primitive, wilderness day use and camping facility. On August 20, 1974 the Orange County Board of Supervisors changed the name of the park to Ronald W. Caspers Wilderness Park in honor and recognition of his foresight in acquiring and preserving this area of quality wilderness. In 1984, an additional 2,100 acres was dedicated by RMV bringing the park's total acreage to 8,500. However, presently not all the park is accessible to the public.

Caspers Wilderness Park provides recreational uses such as camping, picnicking, hiking, horseback riding, mountain biking, photography, nature study and astronomy. The park has campgrounds, restrooms and showers, picnic areas, an equestrian campground, hiking and equestrian trails. Activities include guided nature walks, naturalist programs, and telescope observations.

O'Neill Regional Park

The O’Neill Regional Park encompasses over 3,358 acres of oak/sycamore woodlands, grassy meadows, riparian, chaparral and coastal sage scrub habitats. Located in the foothills of the Santa Ana Mountains, O'Neill Park offers picnic facilities, and overnight camping. At its closest point the park is located approximately one mile west of Planning Area 2.

In 1948, the O'Neill family donated the initial 278 acres of Trabuco Canyon to the County of Orange for use as a regional park. Throughout the years, the O'Neill family donated additional acreage. Other neighboring owners, such as the Ramakrishna Monastery, wishing to preserve native habitat, donated property to the park. In 1982, Rancho Mission Viejo dedicated an additional 935 acres in the Arroyo Trabuco. An additional 735 acres in Tijeras Canyon was dedicated in 1996, and 258 acres were dedicated as mitigation for the Arroyo Trabuco Golf Course. Today O'Neill Regional Park is over 3,358 acres in size.

Recreation opportunities at the park include wildlife observation, bird watching, hiking, mountain biking and horse back riding on park trails. The park is heavily wooded with coast live oak and sycamore trees. The hillsides surrounding the park are filled with cactus, wild buckwheat, sagebrush and chaparral of scrub oak, buckthorn and mountain mahogany.

O'Neill Park offers both day use and overnight camping facilities. The Oak Grove offers a shaded area, a turf area, and a playground for children. The Featherly area stretches along Trabuco Creek, a seasonal waterway that flows from the Trabuco Peak to the Pacific Ocean. The mile long Mesa area includes viewpoints of Trabuco Canyon. The West area presents scenic trails. In each area facilities include picnic tables, barbecues, water and restrooms. Individual tent and R.V. camping is available year round along Trabuco Creek in the main campground. Interpretive programs are frequently conducted Saturdays and Sundays. Ranger

led nature hikes present local history and instruction on native wildlife. Campfires programs are hosted at the amphitheater after sunset throughout the year.

Proposed Regional Park

Proposed Prima Deshecha Regional Park

Prima Deshecha is included on the Orange County General Plan Master Plan of Regional Parks as a planned regional park. Currently, the site is used as a sanitary landfill, with 1,000 acres permitted for refuse disposal. The landfill was opened in 1976 and is scheduled to close in approximately 2067. Although full closure of the landfill is not expected until 2067, portions will be closed prior to 2067. Currently, there are no recreational activities or facilities available at the Prima Deshecha site.

The proposed Prima Deshecha Regional Park is located south of Ortega Highway within the jurisdictional boundaries of the County of Orange, City of San Clemente, and City of San Juan Capistrano. The site encompasses approximately 1,530 acres that includes 570 acres in the City of San Juan Capistrano, 133 acres in the City of San Clemente, and 827 acres in unincorporated Orange County. The landfill is located at the southern terminus of existing La Pata Avenue.

A Supplemental Environmental Impact Report (SEIR) is currently being prepared to address certain modifications to the 2001 GDP needed to ensure physical site stability, required by landfill operations, or needed to ensure the stability and success of the environmental mitigation and restoration components of the overall GDP. At this time, there are no post-use recreation concepts being developed.

Local Parks

Local parks provide active and/or passive open space areas at non-regional levels, specifically neighborhoods and communities. Local parks are further categorized according to area and purpose: community parks, neighborhood parks, view/lookout parks, and mini-parks. The Orange County Recreation Element Master Plan of Local Parks component identifies goals, objectives, and policies, and provides implementation programs to meet the local recreational needs of unincorporated Orange County. The Master Plan of Local Parks, in conjunction with the Local Park Code, is intended to provide for comprehensive local park planning and programming (i.e., acquisition, development, operation, maintenance, and financing). The Local Park Code requires 2.5 acres of land per 1,000 persons when residential dwelling units are proposed. The code also allows for the payment of in lieu fees or a combined provision of parkland and payment of in lieu fees when the community is better served through the provision of parkland outside but near the property served. The County acts as a steward for local parkland dedication, holding the land or in lieu fees until acceptance by individual cities.

Community parks are defined as a 20- to 50-acre local park designed to meet the active recreational needs of several neighborhoods. The following is a list of community parks within a two-mile radius of the proposed project.

Ladera Ranch County Sports Park

The Ladera Ranch Sports Park is located in the Ladera Ranch Planned Community. It is a 24-acre county sports park shared by surrounding Orange County neighborhoods. Activities include four softball and baseball diamonds for youth and adult leagues, six league-standard soccer fields, a tot lot play areas, night lighting at all venues, and group picnic areas,

concessions and restrooms. The County of Orange and DMB Ladera built the Sports Park, which is located on the western edge of Ladera Ranch and is bounded by Crown Valley Parkway to the south, O'Neill Drive to the east and the Arroyo Trabuco to the west.

On December 19, 2000, the Orange County Board of Supervisors approved an agreement between the County and the Saddleback Unified School District Recreation and Community Services Department to provide supervision and scheduling of the sports park. The Harbors, Beaches and Parks Division of the Orange County Resources and Development Management Department is responsible for the overall operation and maintenance of the facility. Building and landscape maintenance is provided through administration of contracted services. The park was designed to meet the needs of residents of Ladera Ranch and the surrounding cities, and is open to the public from 7am to 10pm daily (personal communication, B. Buchman).

C. Russell Cook Park

C. Russell Cook Park is one of two major community parks owned and operated by the City of San Juan Capistrano. Cook Park is linear and consists of three parcels totaling 17 acres. All three phases of development are now complete (personal communication, B. Ramsey). The three parcels comprising C. Russell Cook Park are:

- Cook Park (Cordova) consists of 9.0 acres on the east side of Calle Arroyo between Via Entradero and Via Solana. Park amenities and uses include BBQ and fire rings, bike paths, equestrian/hiking trails, multipurpose fields, grassy area, parking, restrooms, softball and soccer fields and scenic views.

- Cook Park (Del Campo) consists of 1.5 acres on Calle Arroyo and Del Campo. Park amenities and uses include bike paths, children's play area, equestrian/hiking trails, grassy area, and scenic views.

- Cook Park (La Novia) consists of 6.5 acres on the east side of Calle Arroyo between La Novia and Paseo Tirador. Park amenities and uses include automatic irrigation, BBQs and fire rings, basketball courts, bike paths, children's play area, drinking fountains, equestrian/hiking trails, grassy area, multi-purpose fields, parking, picnic areas, restrooms and volleyball courts.

Forster Ranch Community Park

Forster Ranch Community Park is located at 3207 Camino Vera Cruz and 1291 Sarmentoso in the City of San Clemente, California. Currently, the Forster Ranch Community Park contains 8.3 acres of developed park space.

The Master Plan of City Facilities for the City of San Clemente states, "A community center, gymnasium, pool complex is proposed at Forster Ranch Community Park." The Forster Community Park is proposed to include a total of 22.0 acres. The proposed Forster Ranch Community Park Expansion Phase II includes several amenities that will be jointly utilized by the adjacent schools. Amenities will include lighted tennis courts, children's play area, an amphitheater, on-site parking, a maintenance building, lighted soccer fields, restrooms, a group and individual picnic area, lighted sand volleyball courts, and baseball fields.

A neighborhood park ranges from two to 20 acres in size and is intended to serve the active recreation needs of a particular neighborhood within a community. The following is a list of neighborhood parks within a two-mile radius of the proposed project.

- Acu Canyon Park, San Juan Capistrano
- Descanso Park, San Juan Capistrano
- Four Oaks Park, San Juan Capistrano
- Talega Park #1, San Clemente, California
- Talega Park #2, San Clemente, California
- Blufftop Park, Ladera Ranch
- Chaparral Park, Ladera Ranch
- Township Plunge, Ladera Ranch
- Hilltop Park, Ladera Ranch
- Weatherwood Park, Ladera Ranch
- Poet's Park, Ladera Ranch
- Founders Park, Ladera Ranch
- Oso Grande Park, Ladera Ranch
- Creighton Plunge, Ladera Ranch
- Village Green, Ladera Ranch
- Wagsdale Park, Ladera Ranch

Riding and Hiking Trails

The County's regional riding and hiking trails link the harbors, beaches, parks, open space, and recreational areas. The Countywide regional trail network includes 348 miles of existing and proposed trails, including areas regulated by governmental agencies other than the County of Orange. These riding and hiking trails include equestrian, pedestrian, and mountain biking use.

The following is a list of riding and hiking trails either within the project boundary or within a two-mile radius of the proposed project. Their descriptions are illustrated on the Regional Riding and Hiking Trails Maps in the Orange County General Plan, Recreation Element. It should be noted that the following alignments described herein are conceptual. Precise alignments will be determined when the trail is actually developed and factors such as public safety, environmental impacts and development cost are considered. The Regional Riding and Hiking Trail Map is depicted in Exhibit 4.12-2.

San Juan Creek Trail

The San Juan Creek Trail is proposed to commence at the Los Piños Trail, San Juan Trail and Sitton Peak Trail at San Juan Hot Springs. The trail would travel west for approximately one-half mile and extend along San Juan Creek through Ronald W. Caspers Regional Park. The trail would enter the Ranch Plan boundary and continue in a southerly direction running parallel to Ortega Highway until it reaches Antonio Parkway, at which point it crosses under Antonio Parkway and then under Ortega Highway. The trail would travel southwesterly, exiting the Ranch Plan boundary and enter into the City of San Juan Capistrano. The trail would continue to parallel San Juan Creek. At La Novia Bridge the trail would cross at-grade and head south until it crosses under the I-5 Freeway. It would then head southwesterly under the Camino Capistrano Bridge and proceed over the Atchison, Topeka & Santa Fe Railroad tracks. The trail would head south and cross to the east side of San Juan Creek at Descanso Park. The trail would continue downstream on the east levee of the creek to Pacific Coast Highway near Doheny State Beach. The portion that runs through Caspers Regional Park is only accessible to hikers and equestrians. The trail is close to several staging areas and connects to many trails and parks.

The completed trail, which is currently partially developed, is approximately 15 miles long, with 12 miles being located within unincorporated Orange County and three miles within the City of

San Juan Capistrano of which 2.25 miles are complete (personal communication, T. Foster). The San Juan Creek Trail would traverse the Ranch Plan and be contained in the proposed Rancho Mission Viejo Regional Park (Planning Areas 1 and 13). Approximately six miles of the proposed trail would be located within the project boundary.

Trail design provides for the trails to be setback from roads, buildings and walls to allow space for trees and landscaping.

Prima Deshecha Trail

As proposed, the Prima Deshecha Trail would extend northerly from the San Onofre State Park expansion and just south of Avenida Pico where it would connect with the Cristianitos Trail. It would travel in a westerly direction along the Southern California Edison easement. At Avenida Vista Hermosa, the trail would make a proposed at-grade crossing and continue west along the northern side of Avenida Pico. Just east of La Pata, the trail would begin to travel north along the open space to the proposed Prima Deshecha Regional Park. The trail continues through the proposed park and along the northeastern ridgeline to the entrance. At the entrance the trail would cross La Pata and then again follows along the Edison power line easement, heading north to Ortega Highway. The trail would terminate at the highway where it would connect with the San Juan Creek Trail. This trail is approximately six miles long, with the majority of the trail located in unincorporated Orange County.

The 2001 GDP for Prima Deshecha reflects a conceptual alignment for the trail. The precise alignment and timing for implementation of the trail through the landfill would be based on the ability of the trail to open to the public while avoiding conflicts with the on-going landfill operation. An approximately two miles segment of the proposed Prima Deshecha Trail in close proximity to the Talega Planned Community is currently under development (personal communication, L. Bubert). Upon completion, the trail would be located immediately west of Planning Areas 5 and 11 and would enter the Ranch Plan boundary in Planning Area 1. Slightly less than one mile of the proposed trail would be located within the project boundary.

Cristianitos Trail

As proposed, the Cristianitos Trail would commence north of the San Onofre State Park expansion at approximately Avenida Pico and Cristianitos Road. Also at this approximate location, Cristianitos Trail would connect with the Prima Deshecha Trail at the proposed Avenida Pico Undercrossing. It then would travel in a northbound direction, gently winding along the outskirts of the Talega Valley/Rolling Hills Planned Community and along the westerly boundary of the Talega Valley Open Space Reserve until it reaches Cristianitos Road. At Cristianitos Road, the trail would travel north, paralleling the road on the west side for about one-half mile. The trail would then cross Cristianitos Road to the east side and continue traveling north until it terminates at Ortega Highway. At Ortega Highway it is proposed that the Cristianitos Trail connect with the San Juan Creek Trail. Presently, the trail is undeveloped, but 90 percent of the trail has been dedicated. If Cristianitos Road is incorporated as part of the SR-241, there is a possibility of the trail crossing the corridor along the northern part of Cristianitos Road. This trail is approximately five miles long. Approximately two miles of the proposed Cristianitos Trail is currently under development. The portion under construction lies in close proximity to the Talega Planned Community (personal communication, L. Bubert)

As previously indicated, the trail would enter the Ranch Plan boundary in Planning Area 6 and extend north through undeveloped portions of Planning Area 9. Slightly more than four miles of the proposed trail would be located within the project boundary.

Wagon Wheel Trail

Located on the boundary of the project, the Wagon Wheel Trail commence in General Thomas F. Riley Wilderness Park, and follows an existing ranch road south through Wagon Wheel Canyon. The trail crosses Coto de Caza Drive and Vista del Verde, and continues south through a sliver of the park to the southern boundary of Coto de Caza. The trail turns east and follows an existing ranch road along the property line of Coto de Caza for one-half mile. The trail enters Rancho Mission Viejo property and continues east on an existing ranch road. This ranch road ascends to the west ridge of Bell Canyon and connects to the Bell Canyon Trail within Caspers Regional Park. The trail is approximately three miles long.

Other Trails Outside of the Ranch Plan Boundary

Additional trails that fall within two miles of the proposed project include the Arroyo Trabuco Trail and the Bell Canyon Trail. The Bell Canyon Trail runs for approximately four and a half miles in a north-south trending direction through Caspers Wilderness Park and the Arroyo Trabuco Trail extends approximately seven miles along Trabuco Creek.

Staging Locations

Staging areas typically provide parking and amenities such as watering troughs, drinking fountains, horse tie-ups, benches, and shade trees. The General Plan intent is that each staging area will be studied for trail route implementation once planning is accomplished and adjacent land is developed. The following staging areas are shown on the Regional Riding and Hiking Trails Map within the vicinity of the project (see Exhibit 4.12-2):

- At or near San Juan Hot Springs adjacent to the San Juan Creek Trail and other trails leading into the Cleveland National Forest;
- Along the Prima Deshecha Trail near Avenida Pico;
- Near the San Juan Creek Trail junction with the Prima Deshecha Trail.

The staging area proposed near the San Juan Creek Trail junction with the Prima Deshecha Trail would fall within the boundaries of the proposed project. The other two proposed staging areas would not. None of these proposed staging areas are currently under development (personal communication, L. Bubert).

<u>Bikeways</u>

Bicycle routes provide an alternative transportation mode for all trips, including commuting, shopping, school and recreation. The Orange County Bikeways Plan also addresses the recreational objectives of bicycling. This is done in concert with other County-wide recreational programs such as regional parks and riding and hiking trails. The Orange County General Plan identifies three types of bikeways. A Class I bicycle trail is a paved facility, which is physically separated from a roadway and designated primarily for the use of bicycles. Crossflows by pedestrians and motorists are to be minimized. A Class II Bicycle lane is a facility featuring a striped lane on the paved area of a road for preferential use by bicycles. It is located along the edge of the paved area outside the motor vehicle travel lanes. Parking is restricted within a Class II bike lane. Where sufficient pavement width exists, it may be located between a parking lane and the outside motor vehicle travel lane. A Class III bicycle route is a facility typically identified by green and white (Type "G93") "Bike Route" guide signing only. There are usually no special lane designations, and parking may be permitted. Bicycle traffic may share either the roadway with motor vehicles or a sidewalk with pedestrians and, in either case, bicycle usage is considered secondary. Bike routes are a means to connect otherwise discontinuous segments

of Class I or Class II bikeways. A bikeway route designated on the Bikeways Plan map as "undetermined" indicates that the ultimate trail category or classification, and/or its alignment has not yet been determined or officially adopted due to topographical or right-of-way constraints, or other considerations.

Within the project limits, there are two designated bikeways as shown on Exhibit 4.12-3. A Class I Bikeway is designated along San Juan Creek and a Class II bikeway is shown on Antonio Parkway. The San Juan Creek Bikeway is also on the OCTA's *Strategic Plan* for regional bikeways. The San Juan Creek Bikeway is proposed to follow San Juan Creek and connect Caspers Wilderness Park to Doheny State Beach. It is described as a "mountains-to-sea" bikeway.

Golf Courses

The following is a list of public and private golf courses within a two-mile radius of the proposed project.

Arroyo Trabuco Golf Club

Arroyo Trabuco Golf Club is currently under construction and is scheduled to open in mid-2004. The course will be located east of the City of Mission Viejo and west of the community of Ladera Ranch. The course will be an 18-hole daily-fee public golf club.

Coto de Caza Golf & Racquet Club

Coto de Caza Golf & Racquet Club is a private 36-hole country club located in the Coto de Caza private gated community and is open to residents, as well as members from surrounding communities.

Tijeras Creek Golf Club

The Tijeras Creek Golf Club consists of an 18-hole golf course located at 29082 Tijeras Creek, Rancho Santa Margarita. It is open to the public.

Mission Viejo Golf Course

The Mission Viejo Golf Course is a public golf course operated by the City of Mission Viejo. It is located at 26200 Country Club Drive, Mission Viejo, California.

Marbella Golf Course and Country Club

Marbella Golf Course and Country Club is a private club which provides golf, tennis and social facilities. It is located at 300 Golf Club Drive in San Juan Capistrano, California.

Talega Golf Club

The Talega Golf Club is an 18-hole public golf course located at 990 Avenida Talega in San Clemente, California.

Pacific Golf Club and Country Club

The Pacific Golf and County Club is a "three nine's" private golf club located at 200 Avenida La Pata in San Clemente, California.

4.12.3 IMPACTS

Thresholds of Significance

The project would result in a significant impact if it would:

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

Impacts

No significant impacts on recreation facilities were identified.

Aesthetics issues, including view shed analysis from locations within the existing parks, have been provided have been addressed in Section 4.10, Aesthetics, as well as being discussed below.

Increased Use of Recreation Facilities Resulting in Physical Deterioration

The proposed project would result in a substantial increase in population in the project area. Based on preliminary estimates using the type of housing proposed, the 14,000 dwelling units would generate a population of approximately 32,823 residents. Associated with this increase in population would be an increased demand for recreational resources. This increased demand would be served through the development of neighborhood and community parks that would be provided to serve the proposed development.

The proposed Rancho Mission Viejo Regional Park would be a 1,034-acre facility. Additionally, a 20- to 25-acre regional sports park is proposed for Planning Area 3. The precise location and size of other neighborhood and community parks would be determined at the Area Plan level of approval. To comply with the required 2.5 acres of parkland for every 1,000 residents, the Ranch Plan would have to provide an estimated 82 acres of local parkland. The Rancho Mission Viejo Regional Park would not be applied to the local parkland requirements. Through the provisions of both active and passive parkland in compliance with the Local Park Code and the dedication of the regional park, spill over demand on other park facilities is not expected. In addition, the project would provide for private recreational facilities, including five private golf courses.

As previously indicated, the project proposes a new regional park. The Rancho Mission Viejo Regional Park would encompass approximately 1,034 acres and extend along San Juan Creek from the City of San Juan Capistrano boundary to the existing Caspers Wilderness Park. The park would include areas both north and south of the Creek. It would provide passive and active recreational opportunities. A Class I (paved off-road) bike path is proposed to extend along the north side of the creek and a regional riding and hiking trail along the south side of the creek. In addition, areas for picnicking would be provided throughout the park.

The County of Orange RDMD/HBP Division has indicated that the proposed location of the park, encompassing San Juan Creek and the floodplain, is not the desired location for a regional

park. RDMD/HBP has indicated that the Rancho Mission Viejo Regional Park would not function as a viable park within the regional park system. Concerns/constraints cited that the County wishes to avoid include the narrow configuration of the park, operational safety ingress-egress impediments associated with roads traversing the park, noise, flood control requirements, and park interface with endangered species, including compatibility with active recreation. Ortega Highway would provide primary access to the park. Should Caltrans permit the abandonment of the segment of existing Ortega Highway that parallels the proposed New Ortega Highway, Ortega Highway would serve as a park road and as access between ranch lands to facilitate ranching operations. If Caltrans does not permit the abandonment of the segment of Ortega Highway, the existing roadway would be expected to serve limited traffic because New Ortega Highway would have a greater design speed and would be expected to attract a substantial portion of the trips. Chiquita Canyon Road, which is proposed to traverse the park, would not be at grade. This would limit the physical intrusion into the proposed park. Development would occur outside the boundary of the park in the development planning area; however, New Ortega Highway would provide separation of the uses. The Rancho Mission Viejo Regional Park would not be considered a wilderness park and views of adjacent development would not diminish the recreational opportunities of the facility. Having the park in close proximity to the development would encourage the use of the facility. Should the County decide not to accept the proposed Rancho Mission Viejo Regional Park as part of the regional park system, it would not diminish the ability of the project to meet its Orange County Local Park Code park acreage requirements because proposed regional park acreage cannot fulfill, by ordinance, local parkland requirements. There is no adopted requirement to provide for regional parks by ordinance; however, regional parks fulfill an important role in helping to provide for the recreational needs of the public countywide per the Regional Recreational Facilities Component goals, objectives and policies of the Orange County Recreation Element. There would be no significant impacts with or without the proposed Rancho Mission Viejo Regional Park.

Effect on the Recreational Use of Existing Parks

The following provides an overview of the potential effect on the recreation facilities in the two-mile radius of the project site.

<u>State Parks</u>

San Onofre State Beach

As previously indicated, existing uses within the Cristianitos area include a network of trails and the San Mateo Campground. The development of the Ranch Plan would not have direct impacts on San Onofre State Beach. Planning Area 8 would be the closest development area. There would be an approximately 500-foot setback between the development area and the park boundary. There is a very gradual elevation change from the San Mateo Campground to the Ranch Plan. The campground sits at an elevation of about 50 feet. Traveling north to the southern edge of the Ranch Plan boundary, the elevation gradually rises to about 300 feet. The terrain throughout the Ranch Plan rises and falls between approximately 500 feet to about 1300 feet with peaks reaching approximately 2,000 feet.

The visual character of the Cristianitos area is generally undeveloped; however, urban influences are visible within the State Beach, particularly in the southern portion of the park. I-5 is located in the southern portion of Cristianitos, the high power lines from the San Onofre Nuclear Generating Station traverse the lower portion of the Cristianitos area and development in San Clemente and base housing is visible in the southern edge as well. Agricultural areas are adjacent to the State Beach within MCB Camp Pendleton. The area surrounding the San Mateo Campground and the area proposed for hiking trails, primitive camps, and a primitive

group camp is mostly undeveloped and natural. Views from San Mateo Campground would not be significantly altered because of the distance between the campground and the proposed Ranch Plan development. There would be no direct impact on proposed hiking trails and camps. Indirect impact associated with viewshed would be dependent on the timing of the park improvements relative to the timing of the Ranch Plan development. Additionally, the design and orientation of the facilities would be a factor. There is the potential that the trails and camps would have mid-range views of development, rather than views of undeveloped canyons. Given the uncertainty of the timing and design of these future facilities and the limited affect the development would have, this would not be considered a significant impact.

Regional Parks

The countywide regional park system has been designed to serve the existing and future needs for the residents of Orange County. The project would increase usage of the nearby facilities because it would introduce more people into the region. However, as part of General Plan, the Master Plan of Regional Parks has been designed to meet the needs associated with the projected growth in the County. Based on information from the County's website (www.ocparks.com), the County currently has approximately 9,000 acres of existing regional parks, of which 3,300 acres are within the two-mile radius of the project site (O'Neill Regional) this does not account for the proposed Prima Deshecha Regional Park or the Rancho Mission Viejo Regional Park proposed as part of this project. The six County designated wilderness parks comprise approximately 23,600 acres, of which slightly more than 9,000 acres are within the two-mile radius of the project site (Caspers and Riley Wilderness Parks). With approximately 37 percent of the regional parks and wilderness parks designed to service the entire County within two miles of the project site, it is not anticipated the project would result in the over use of these regional facilities such that a substantial physical deterioration of the facilities would occur or be accelerated.

General Thomas F. Riley Wilderness Park

The Ranch Plan would not have any direct impacts on General Thomas F. Riley Wilderness Park. Indirect impacts due to the proximity of development to the park could potentially occur. A wilderness park is defined in the Recreation Element of the Orange County General Plan as:

> "A regional park in which the land retains its primeval character with minimal improvements and which is managed and protected to preserve natural processes. The park (1) generally appears to have been affected primarily by forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude of a primitive and unconfined type of recreation; (3) is sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic or historical value."

The wilderness park designation requires that the undeveloped character not be substantially degraded, so as to not impact the park's function. The topography of the park helps to serve as a buffer between General Thomas F. Riley Wilderness Park and the surrounding area. The ridgelines along the perimeter of the park help to shield the interior portion of the park from surrounding development. As previously indicated, existing development is seen upon the approach to the park, as well as at the higher elevations within the park. Development surrounds the park on three sides. Planning Area 12, designated for open space, would abut the park on its western boundary. This would provide an approximately 2,000-foot buffer between development and the park boundary. Additionally, lower density estate development is proposed in the northern portion of Planning Areas 2 and 3, which would be the development in

closest proximity to General Thomas F. Riley Wilderness Park. Further, the lower density residential estate development this would minimize the intrusion of urban development on the park. There would not be a significant impact on the park's wilderness experience for park visitors from urban development associated with the Ranch Plan.

Ronald W. Caspers Wilderness Park

The Ranch Plan would not have any direct impacts on Ronald W. Caspers Wilderness Park. The project does have the potential to have indirect impacts due to the proximity of development in relationship to the park. As previously indicated, Caspers is designated as a wilderness park, so the undeveloped character of the park is integral to its function. The topography of the park helps to serve as a buffer between Caspers Wilderness Park and the surrounding area. The ridgeline along the western edge of the park would generally minimize any views of the Ranch Plan development from within the park. As discussed in Sections 4.10, Aesthetics, views of the development from within Caspers Wilderness Park would be limited to various vantage points, such as points along the Eastridge Trail and the parking lot for the observation deck. From these locations, there would be limited views of the proposed estate units in Planning Area 4. Similarly, along the Westridge Trail there would be views of development in Planning Area 3. Along this trail there would be mid-range views of development to the west. A 500-foot setback is proposed along the boundary of Planning Area 3 and Caspers Wilderness Park to serve as a buffer. More distant views would be possible along Oso Trail. Trail elevations rise from approximately 700 feet above mean sea level to approximately 1,450 feet above mean sea level. While the trail is located in the northern portion of the park, at the peak elevations there would be distant views of the Ranch Plan. The distance between the development and these vantage points would reduce the impact on the park to less than significant. Overall, the Ranch Plan would introduce an urban component into the open space surrounding the park. However, the wilderness character of the park would be preserved. Camping activities are in valley areas and no views of urbanization would be visible. Given the limited scale of visible development, and the protection of the surrounding areas in open space, there would be minimal impacts on the character of the park as a result of development.

O'Neill Regional Park

O'Neill Regional Park is approximately one mile west of the western boundary of the Ranch Plan. Given intervening topography and other development (Las Flores Planned Community and Ladera Ranch), the project would have limited influence on O'Neill Regional Park. The development would not be visible from any locations within the park. There is no drainage from the development area to Arroyo Trabuco, located in O'Neill Regional Park. The Ranch Plan does provide for a wildlife corridor connection between O'Neill Regional Park, General Thomas F. Riley Wilderness Park and Caspers Wilderness Park. The wildlife corridor would utilize the open space area adjacent to O'Neill Regional Park, which was established for wildlife movement between Las Flores and Ladera Ranch. Across Chiquita Ridge, Planning Areas 10 and 12 would provide open space for wildlife. The golf course and estate housing in Planning Area 2 and open space corridor in the northern portion of Planning Area 3 would provide wildlife connectivity between the three regional parks. This is further discussed in Section 4.9, Biological Resources. There would be no significant impacts on O'Neill Regional Park.

Proposed Prima Deshecha Regional Park

Given the uncertain nature of the development of the proposed Prima Deshecha Regional Park, it is not possible to address specific uses within the park. However, given the topography and proposed uses adjacent to the proposed Prima Deshecha Regional Park, there would be limited opportunity for impacts. The proposed park would be adjacent to Planning Areas 5 and 11.

Planning Area 11, along the northern boundary of the proposed park, would be retained in open space. A ridgeline separates the proposed park from proposed residential development uses in Planning Area 5. This ridgeline effectively limits views of the development from the park. Additionally, the proposed park is in a different drainage sub-basin from Planning Area 5. The Ranch Plan would not limit the park development options or otherwise have a significant impact on the proposed Prima Deshecha Regional Park.

Local Parks

Three community parks were identified as being within two miles of the Ranch Plan boundary: the Ladera Ranch County Sports Park, C. Russell Cook Park, and the Forster Ranch Community Park. All of these facilities are designed to provide active recreation for the surrounding community. The Ranch Plan would neither directly nor indirectly impact any of these park facilities. These parks are urban use parks surrounded by other development. Though not view sensitive, the viewshed of these park facilities would not be altered by implementation of the Ranch Plan. It is unlikely that substantial numbers of residents from the Ranch Plan would frequent these community parks because similar facilities are proposed for the Ranch Plan area (e.g., a Sports Park is proposed in Planning Area 3). Residents would be more inclined to utilize the park within their own development. There would be no significant impacts on the community parks.

Sixteen neighborhood parks were identified within the two-mile radius of the Ranch Plan boundary. Three of the parks are in the City of San Juan Capistrano, two are in the City of San Clemente, and 11 are in the community of Ladera Ranch. Additional neighborhood parks will be developed within Ladera Ranch as build-out of the community continues. The neighborhood parks are designed to serve the local community immediately surrounding the park. As with the community parks, the neighborhood parks would not be directly or indirectly impacted by the Ranch Plan. The Ranch Plan would not alter the viewsheds of the parks or change their characters. The relatively small size and limited facilities of the neighborhood parks would limit the number of Ranch Plan residents that would visit the surrounding neighborhood parks. Similar parks would be provided within the Ranch Plan boundary, which would serve the new community. Neighborhood parks are generally phased with the development. Precise locations and sizes of the parks would be determined at the time of Area Plan approval. No significant impact to neighborhood parks would occur.

The neighborhood and community parks that would be developed in conjunction with the Ranch Plan would be located within the development areas. These parks would serve the local communities and would not have adverse impacts on any existing facilities. Additionally, since these proposed facilities would be located within development areas, their construction would not result in adverse physical impacts beyond what has been addressed for the Ranch Plan development.

Riding and Hiking Trails

The following regional trails are identified within the project vicinity on the current Master Plan of Riding and Hiking Trails, a component of the Recreation Element: San Juan Creek Trail, Prima Deshecha Trail, Cristianitos Trail, Wagon Wheel Trail, the Arroyo Trabuco Trail, and the Bell Canyon Trail. At this level of project approval (General Plan and zoning), community trails have not been identified. Community trails provide additional recreational opportunities within planning areas and provide for connection to trails that have been developed in nearby communities. The location of community trails would be identified in conjunction with approval of the Area Plans. These trails would not replace or diminish the regional trail system. Generally, these trails would be located within development area; therefore, there would not be

adverse physical impacts beyond what has been addressed for the Ranch Plan development. However, to provide for connectivity to other community trails and/or recreational facilities, the trails would traverse areas designated for open space. The trails would generally use existing ranch roads to reduce the impact on natural resources within the open space areas. There would be no significant recreation impacts associated with future community trails.

San Juan Creek Trail

As previously indicated, the San Juan Creek trail would traverse the Ranch Plan and, within the project limits, would be contained in the proposed Rancho Mission Viejo Regional Park (Planning Areas 1 and 13). Approximately six miles of the proposed trail would be located within the project boundary. Should the County determine that the Rancho Mission Viejo Regional Park would not function well as a regional park and elects not to amend the *Recreation Element* to reflect the proposed park on the Master Plan of Regional Recreational Facilities, the San Juan Creek Trail would still be able to be implemented in the this area. The project would not conflict with the implementation of the implementation of the San Juan Creek Trail.

Prima Deshecha Trail

The majority of the Prima Deshecha Trail would be located outside of the project limits. The Master Plan of Riding and Hiking Trail depicts the trail immediately west of Planning Areas 5 and 11; however, at its northern end the trail would enter the Ranch Plan boundary in Planning Area 1. Slightly less than one mile of the proposed trail would be located within the project boundary. Provisions would be made for the trail within the project limits. The precise alignment for the trail within the project limits would be determined in conjunction with the Area Plan for Planning Area 1. The project would not conflict with the implementation of the Prima Deshecha Trail.

Cristianitos Trail

The Cristianitos Trail would enter the Ranch Plan boundary in Planning Area 6 and extend north through undeveloped portions of Planning Area 9. Slightly more than four miles of the proposed trail would be located within the project boundary. Within the development areas, the project would provide for construction of the trail. This would be demonstrated at the Area Plan level of approval.

Wagon Wheel Trail

The majority of the Wagon Wheel Trail would be located outside of the project limits. As stated previously, a small portion of the trail would be located within the project site in designated Open Space. The trail would not enter into an area proposed for development. Therefore, project implementation would not conflict with the implementation of the Wagon Wheel Trail.

Other Trails Outside of the Ranch Plan Boundary

As stated above, additional trails that fall within two miles of the proposed project are the Arroyo Trabuco Trail and the Bell Canyon Trail. Neither of these trails would be directly affected by project implementation, as they are not located within the boundaries of the project. The project would not preclude their future implementation or limit their planned connectivity to other trails and resources. These trails may experience an increase amount of use due to the project population; however, this increase would be negligible.

Staging Locations

As previously mentioned, the precise locations and design of staging areas are to be studied in conjunction with trail route implementation. The staging area depicted near the San Juan Creek Trail junction with the Prima Deshecha Trail would be located in Planning Area 1. It is anticipated that the staging area would be located within the portion of Planning Area 1 proposed as a regional park. The precise location would be determined at the Area Plan level of approval. This use would be consistent with the surrounding land uses. No significant impacts related to siting of this staging area would occur.

The other two staging areas depicted in the General Plan in proximity to the project are at or near San Juan Hot Springs adjacent to the San Juan Creek Trail and at the Prima Deshecha Trail near Avenida Pico. Both of these staging areas are shown outside the project limits and would not be affected by implementation of the Ranch Plan. The first of these staging areas is in Caspers Wilderness Park. The second staging area at Prima Deshecha and Avenida Pico is depicted as being in San Onofre State Beach.

Bikeways

There are two designated bikeways within the project limits. Both bikeways would be provided for as part of the development of the Ranch Plan. The Class II bikeway on Antonio Parkway would be constructed in conjunction with the widening of the roadway. The Class I San Juan Creek Bikeway is proposed to follow San Juan Creek and would be a component of the Rancho Mission Viejo Regional Park. Approximately six miles of the San Juan Creek bikeway would fall within the boundaries of the proposed project area. The project would facilitate the implementation of the San Juan Creek Bikeway within the development areas of the Planning Areas. Should the County determine that the Rancho Mission Viejo Regional Park would not function well as a regional park and elects not to amend the *Recreation Element* to reflect the proposed park on the Master Plan of Regional Recreational Facilities, the Class I San Juan Creek Bikeway would still be able to be implemented in the this area. The project would not conflict with the implementation of the implementation of the San Juan Creek Trail.

Golf Courses

The Ranch Plan would not impact any of the existing golf courses. With the exception of the Mission Viejo Golf Course that is municipally owned, the golf courses within the two-mile radius of the project are privately owned commercial facilities. The project proposes the construction of up to five golf courses. The project would provide sufficient opportunities to serve the increased demand generated by the project; therefore, increased demand on local golf courses would be negligible.

Require the Construction or Expansion of Recreational Facilities Resulting in Adverse Physical Effects on the Environment

The project would be required to construct new parks and recreational facilities, such as trails and bikeways. With the exception of the proposed Rancho Mission Viejo Regional Park, the facilities would be constructed within the development areas. Therefore, the impacts on the environment have been addressed as part of the development impacts. The proposed Rancho Mission Viejo Regional Park is proposed as a passive park. No improvements are proposed as part of this project. Trails and bikeways where the *Recreation Element* and the *Transportation Element* identify components of the facilities within the open space areas would not be the responsibility of the project to implement; however, recognizing that these facilities would likely be constructed in conjunction with the segments within development areas, consideration has

been given to the likely environmental impacts. Trails and bikeways would use existing ranch roads to the extent feasible to reduce the potential impact associated with implementing master planned facilities. Where this is not feasible, new trail construction would be required. The impacts associated with the new segments of new construction would primarily be associated with the removal of habitat and minor landform modification. This is further discussed in Section 4.9, Biological Resources. Should the impacts associated with trail and bikeway implementation exceed the level of impact addressed in this EIR, subsequent CEQA documentation would be required at the time of an alignment has been established and construction is proposed. Recognizing that the project is at the GPZ/ZC detailed alignment plans and park general development plans have not been developed. At this level of approval the provision of recreational facilities would not result in any significant impacts beyond those associated with the development proposal that are addressed in this EIR.

4.12.4 MITIGATION PROGRAM

Project Design Features

PDF 4.12-1 The design has incorporated the development of Rancho Mission Viejo Regional Park, a 1,034-acre regional facility located north and south of San Juan Creek.

PDF 4.12-2 The project incorporates a 20- to 25-acre sports park.

PDF 4.12-3 The project provides for 15,121 acres of open space within the Ranch Plan boundaries. The large amount of open space would provide for protection of many of the major ridgelines. Specifically, the open space in Planning Areas 2, 3, 9, and 12 would provide a buffer with the General Thomas F. Riley and Ronald W. Caspers Wilderness Parks. This minimizes indirect impacts on the existing parks.

PDF 4.12-4 The project provides for trail linkages between the Ladera Ranch and the Ranch Plan community trails, which provides connection to the regional trail system.

PDF 4.12-5 The project would facilitate implementation of the Master Plan of Regional Riding and Hiking Trails, through the construction of portions of the San Juan Creek, the Cristianitos, and the Prima Deshecha trails.

PDF 4.12-6 The project would facilitate implementation of the Master Plan of County Bikeways through construction of portions of the San Juan Creek Bikeway.

PDF 4.12-7 The project proposes the construction of up to five golf courses.

PDF 4.12-8 Local park sites will be provided in accordance with the provisions of the Orange County Local Park Code as contained in the Park Implementation Plan for the Ranch Plan PC Area. Park sites will also be identified at the Master Area Plan level per Section II.B.3.a.6.

Standard Conditions and Regulations

Many of the standard conditions and regulations are enacted at subsequent levels of approval. The following are the County of Orange Standard Conditions associated with recreational resources that would apply to the project. These are listed even though they may not be applicable at the GPA/ZC level of approval, but because they would be applicable at subsequent levels of approvals (i.e., grading permits and tract maps). These standard conditions often identify lots that would be provided for public purposes. This level of

information cannot be known until tract maps are proposed. However, as previously indicated, the identification of the standard conditions at this time is to allow the reader an understanding of conditions that are applicable to the project at subsequent levels of approval. The number of the standard condition is listed in parentheses at the end of each condition.

SC 4.12-1 A. Prior to the recordation of any subdivision map that creates building sites and is immediately adjacent to or contains a public park lot, the subdivider shall make an irrevocable offer of fee dedication for local park purposes to the County of Orange or its designee over Lot(s)_____[1]. The form of the offer shall be suitable for recordation as approved by the Manager, Current Planning Services. Said offer shall be free and clear of money and all other encumbrances, liens, leases, fees, easements (recorded and unrecorded), assessments and unpaid taxes except those meeting the approval of the Manager, Current Planning Services.

B. The subdivider applicant shall grade Lot(s) _____, the public park site(s), to provide a minimum acres of creditable local park land and shall secure the park site(s) against erosion and shall stub out sewer, water, gas, electricity, telephone, storm drain, etc., connections to the property lines.

C. The developer, or his assigns, and successors in interest shall maintain the offered park site(s) until such time as the County or its designee accepts the offer of dedication. (Standard Condition CP01 Public Park Dedication)

SC 4.12-2 A. Prior to the recordation of an applicable subdivision map which creates building sites, the subdivider shall make an irrevocable offer to dedicate an easement over Lot(s) ____for private local park purposes to the County of Orange in a form approved by the Manager, the Manager, Current Planning Services. The subdivider shall not grant any other easement over the private park easement which is inconsistent with the local park uses, unless that easement is made subordinate to said local park easement in a manner meeting the approval of the Manager, Current Planning Services.

B. Prior to the recordation of an applicable final subdivision map, the subdivider shall submit a preliminary concept plan of the proposed private recreation facilities to the Manager, Current Planning Services, for review and approval. (Standard Condition CP02 Private Park Dedication)

SC 4.12-3 A. Prior to the recordation of the first subdivision map, the subdivider shall make an irrevocable offer of dedication in fee to the County of Orange, or its designee, of Lot(s) _____ for regional park purposes in a form approved by the Manager HBP/ Program Management suitable for recording. Said offer shall be free and clear of money and all other encumbrances, liens, leases, fees, easements (recorded and unrecorded), assessments and unpaid taxes, except those meeting the approval of the Manager, HBP/Program Management. The subdivider, or assigns, and successors shall be responsible for maintenance and upkeep of the above-referenced lot(s), until the County or its designee accepts the offer.

[1] The lot numbers would be tied to specific lots identified on the tentative tract map when it is filed. At the GPA/ZC there is no tentative tract map; therefore, the precise lot numbers or letters are unknown and a placeholder is provided.

B. Prior to recordation of any subdivision map, the subdivider shall survey and monument all lots dedicated or offered for dedication for regional park purposes. Applicant shall stake the property line of the dedication area(s) with durable, long lasting, high visibility markers at all angle points and line of sight obstructions to the satisfaction of the Manager, Program Management. (Standard Condition HP01 Regional Park Dedication)

SC 4.12-4 Prior to the recordation of each applicable subdivision map, the subdivider shall reserve open space Lots _____ for granting in fee to a homeowner's association who shall be responsible for their maintenance and upkeep in a manner meeting the approval of the Manager HBP/Program Management. (Standard Condition HP02 Open Space Dedications)

SC 4.12-5 The subdivider shall provide an easement for a recreational trail for riding and hiking trail purposes in accordance with the following:

A. Prior to the recordation of an applicable subdivision map, the subdivider shall:
   1. Irrevocably offer a recreation easement for riding and hiking trail purposes in a location and in a manner meeting the approval of the Manager HBP/ Program Management. The subdivider shall not grant any easement(s) over the property subject to the recreation easement unless such easements are first reviewed and approved by the Manager HBP/Program Management.
   2. Design the necessary improvements for the trail, including, but not limited to grading, erosion control, signage, fencing, and a grade-separated crossing, as applicable, in a manner meeting the approval of the Manager HBP/ Program Management, in consultation with the Manager, Subdivision and Grading. Trail design shall also avoid affecting areas known to contain sensitive biological resources as identified in Section 4.9, Biological Resources.
   3. Enter into an agreement, accompanied by financial security, with the County of Orange, to insure the installation of the necessary improvements.

B. Prior to the issuance of precise grading permits, applicant shall obtain approval from the Manager HBP/ Program Management, that the proposed grading provides for and will not interfere with or preclude the installation of the recreational riding and hiking trail.

C. Prior to the issuance of final certificates of use and occupancy and the release of financial security guaranteeing the riding and hiking trail improvements, the applicant shall install the riding and hiking trail improvements in a manner meeting the approval of the Manager HBP/ Program Management, in consultation with the Manager, Construction. (Standard Condition HP03 Recreation Easement for Regional Trail)

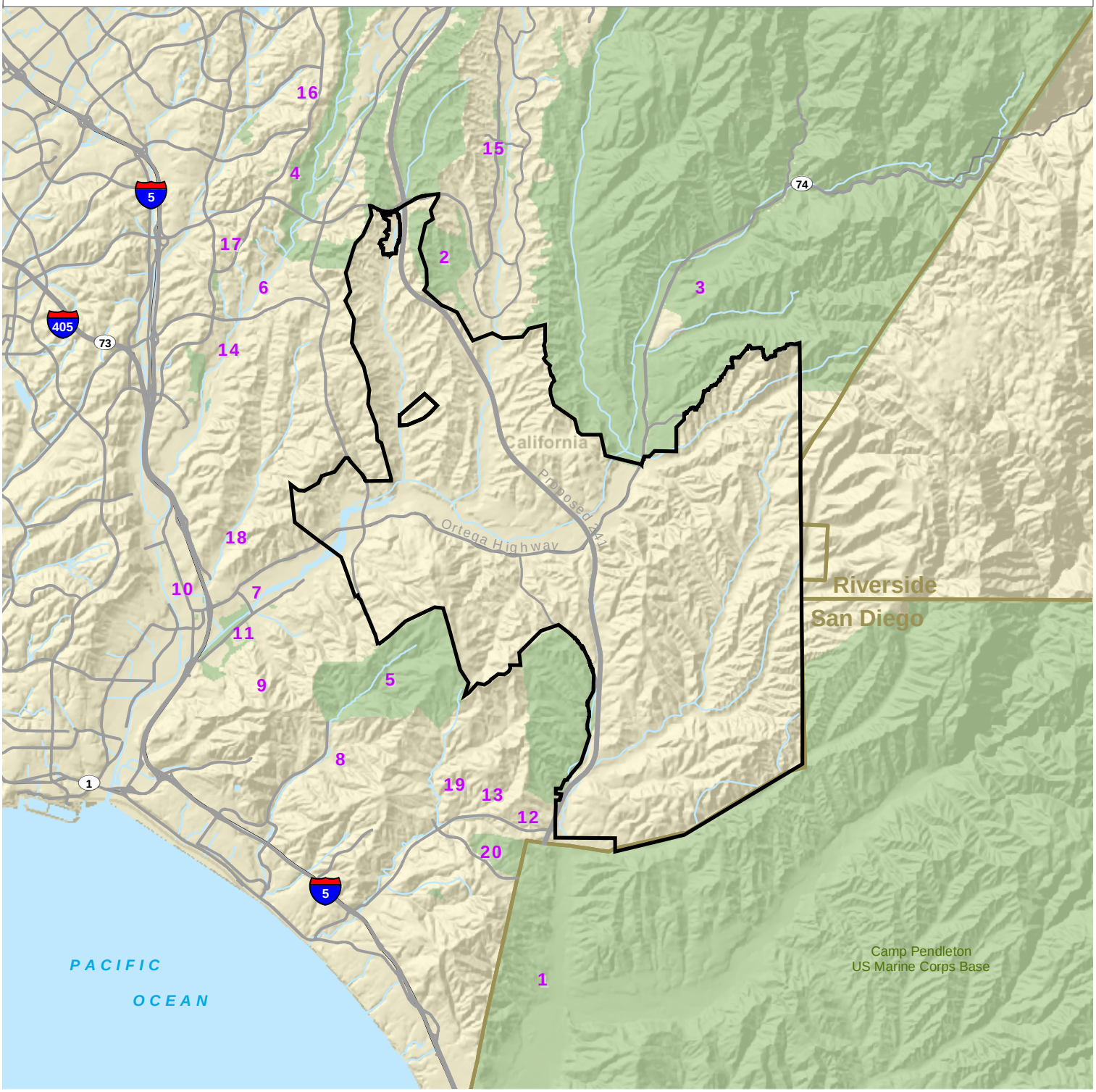
<u>Mitigation Measures</u>

MM 4.12-1 In conjunction with approval of the first Master Area Plan, the applicant shall develop a Master Trail and Bikeways Implementation Plan for the Ranch Plan that would establish viable routes for trails and bikeways to provide connectivity to community trails and bikeways in adjacent developments and with existing and proposed recreational facilities. The Master Trail and Bikeways Implementation Plan shall meet with the approval by the Director of PSD in consultation with the Manager, Harbors Beaches and Parks/Program Management.

4.12.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The project would not have any significant physical impacts on recreational resources. The implementation of the project mitigation program provides measures to better protect resources. There would be no significant unavoidable impacts on recreational resources.

1. San Onofre State Beach
2. General Thomas F. Riley Wilderness Park
3. Ronald W. Caspers Wilderness Park
4. O'Neill Regional Park
5. Proposed Prima Deshecha Regional Park
6. Ladera Ranch County Sports Park
7. C. Russell Cook Park
8. Forster Ranch Community Park
9. Acu Canyon Park
10. Descanso Park
11. Four Oaks Park
12. Talega Park 1
13. Talega Park 2
14. Arroyo Trabuco Golf Course
15. Coto de Caza
16. Tijeras Creek Golf Club
17. Mission Viejo Golf Course
18. Marbella Golf Course and country Club
19. Talega Golf Club
20. Pacific Golf Club and Country Club



Location of Recreation Facilities

Exhibit 4.12-1

The Ranch Plan

N W E S

2 1 0 2 Miles

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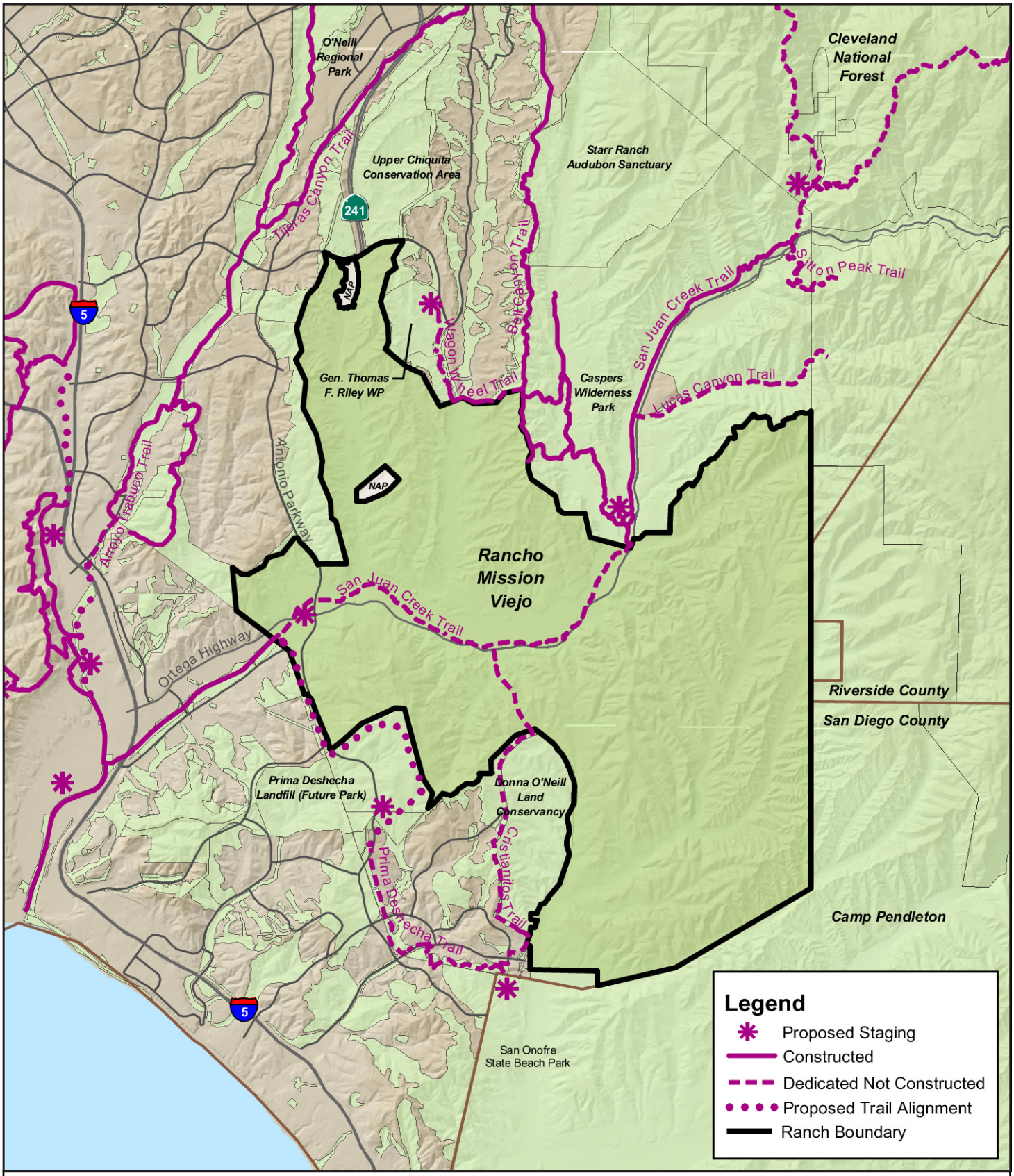

Riding and Hiking Trails

Exhibit 4.12-2

The Ranch Plan

1" = 9,000'

N
W E
S

Source: County of Orange General Plan

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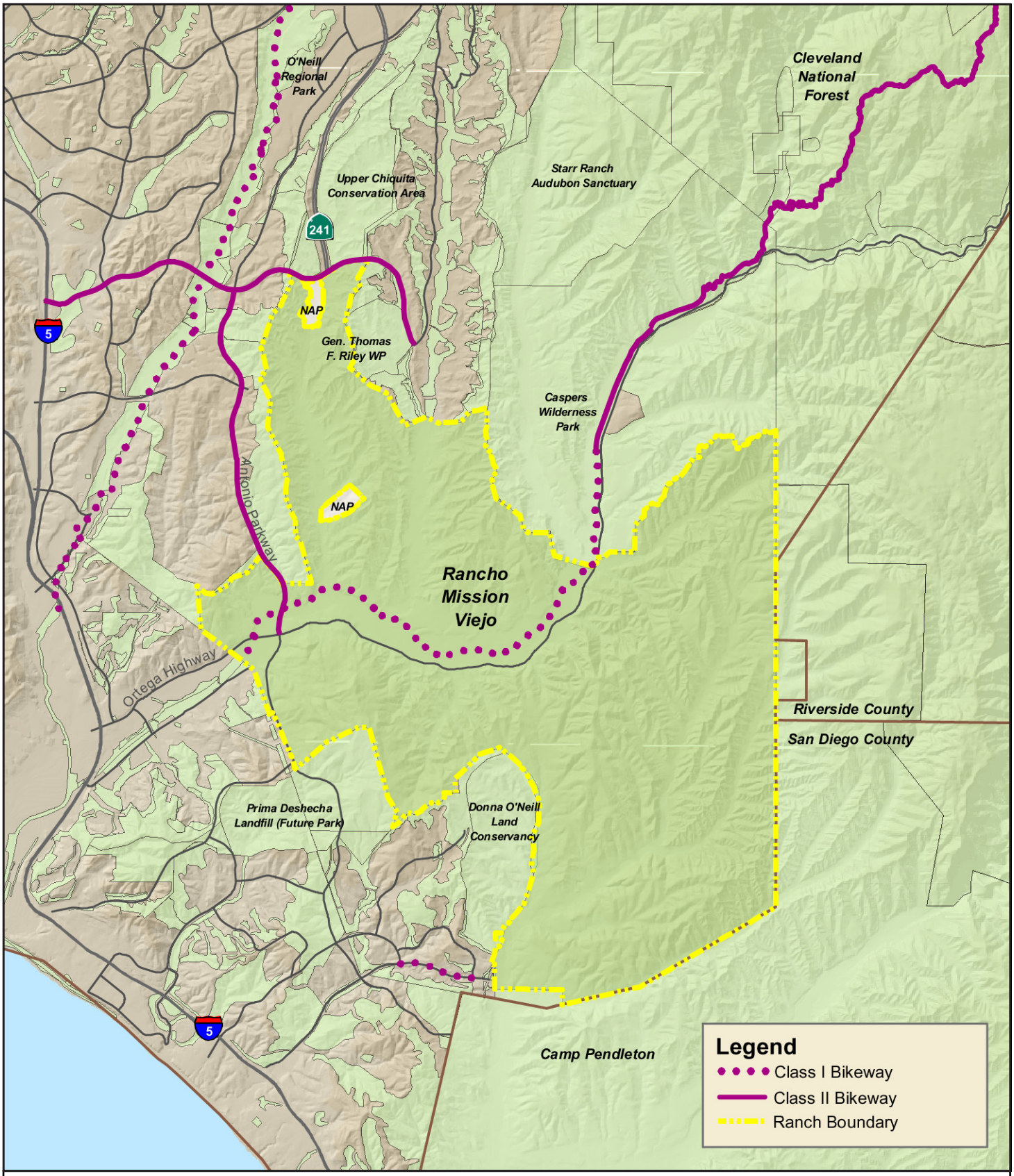

Bikeways

Exhibit 4.12-3

The Ranch Plan

1" = 9,000'

N
W E
S

Source: County of Orange General Plan

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4.13 MINERAL RESOURCES

4.13.1 INTRODUCTION

Orange County has limited amounts of mineral resources of sufficient quality and quantity that can be mined commercially. Of particular importance are those mineral resources necessary to meet the County's existing and future development needs, such as construction aggregate. Neither, the Orange County General Plan nor the California Geological Survey identifies other mineral resources in Orange County; therefore, the analysis is limited to aggregate resources.

Methodology

The information in this section is based on the Resources Element and the Land Use Element of the Orange County General Plan, as well as the Orange County Zoning Code. This analysis also utilizes information from the State of California's Mineral Land Classification/Designation Program for the assessment of county mineral resources. Data from the California Geological Survey and the State Mining and Geology Board was also researched for inclusion in this document, as was the Surface Mining and Reclamation Act (SMARA).

Study Area

The project study area is defined as the Ranch Plan project site. Mineral resources are site-specific resources. The development of the Ranch Plan would not alter or impact resources offsite.

4.13.2 EXISTING CONDITIONS

Mineral Extraction Opportunities

There are three existing and former mineral resource recovery operations on the proposed project site. Planning Area 5 (1,350 acres) has been used by California Silica/Oglebay Norton Industrial Sands since 1984 as a silica sand mining and processing facility. Approximately 500,000 tons of silica sand is processed annually for building materials such as stucco, grouts, and mortars, as well as for use in golf courses, playing fields and playgrounds (source: www.oglebaynorton.com). Exploration and mining of feldspar, clay, and ancillary minerals and substances also occurs at this location. The facility includes an open pit mine, a large earthen dam and associated reservoirs, a processing plant, office complex, scale house, fueling facility, maintenance shop, several storage buildings, sheds and trailers, and open vehicle/equipment storage areas. This site is zoned S&G, Sand and Gravel, but is not identified on the General Plan as an important mineral resource area.

Planning Areas 6 and 7 are located north and west of the proposed SR-241 alignment and the 1,200-acre Donna O'Neill Land Conservancy at Rancho Mission Viejo (previously known as the Rancho Mission Viejo Land Conservancy). Abandoned clay mines are located in this portion of the Ranch Plan site. Mining activities for this area ended in the 1980's.

The third site is in Planning Area 13, which encompasses the San Juan Creek area. In 1994 the California Department of Conservation, California Geological Survey, published an updated report identifying significant sand and gravel resources for the Orange County region. These resource areas are located in portions of the Santa Ana River, Santiago Creek, San Juan Creek, the Arroyo Trabuco and other areas. The specific mineral areas classified and designated are indicated as "resource sectors." A resource sector is an area judged to contain a significant deposit of construction-quality aggregate that is available, from a general land use

perspective, to meet the future needs of the Production-Consumption region. Of the sites identified by California Geological Survey, only the San Juan Creek site is located within the Ranch Plan boundaries. The Arroyo Trabuco is to the west of the project site. Mining activities in the San Juan Creek ended in the 1980's. Reclamation of the mining areas has been accomplished.

The boundaries of each resource sector generally encompass fairly uniform deposits. For example, sector boundaries would be established between that part of a natural deposit formed on an alluvial fan and that part with the confines of an adjacent modern stream channel and its floodplain. The use of these resource sectors provides a reliable method of estimating the tonnage of material available in each mineral deposit. Table 4.13-1 lists the resource areas that have been identified in Orange County.

TABLE 4.13-1
AGGREGATE RESOURCES OF THE ORANGE COUNTY REGION

Resource Area	Million Short Tons[a.]
Santa Ana River[b.]	42
Lower Santiago Creek [b.]	187
Upper Santiago Creek [b.]	26
San Juan Creek	120
Arroyo Trabuco [b.]	78
GRAND TOTAL	**453**

[a.] Includes reserves as well as all potential usable aggregate materials that may be mined in the future.
[b.] Offsite
Source: California Geological Survey Updated Special Report 143, 1994.

Using a variety of data, such as regional population projections and historic aggregate production estimates, the State Mining and Geology Board calculated the 50-year demand for aggregate resources for the Orange County Region. These projections are provided in Table 4.13-2.

TABLE 4.13-2
PROJECTED AGGREGATE CONSUMPTION: ORANGE COUNTY REGION

Year	Aggregate Consumption (Million Tons)
1994-1999	84
2000-2004	73
2005-2009	75
2010-2014	76
2015-2019	77
2020-2024	78
2025-2029	79
2030-2034	79
2035-2039	80
2040-2044	80

Source: California Geological Survey Updated Special Report 143, 1994.

4.13.3 IMPACTS

Thresholds of Significance

The project would result in a significant impact if it would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Impacts

Mineral Extraction Opportunities

Impact 4.13-1 *The inability to extract the resources at the ONIS site beyond 2013 would be a loss of a resource of value to Orange County.*

Impact 4.13-2 *Implementation of the Ranch Plan would result in the inability to extract the sand and gravel within San Juan Creek. The Orange County General Plan, as well as by the California California Geological Survey, have identified this resource as a locally important mineral resource recovery site.*

As previously identified, there are four locations within the Ranch Plan boundary where mineral resources have been identified. These are Planning Areas 5, 6, 7, and 13. The development proposed as part of the Ranch Plan would preclude the extraction of these resources. The following provides an evaluation of each of these resource areas utilizing the thresholds of significance.

The Olgebay-Norton Industrial Sands (ONIS) operation in Planning Area 5 would be displaced with residential development and a neighborhood commercial center. The lease/license on this property extends to 2013. The grading concept phasing plan for the Ranch Plan, shown in Section 3.5, Project Phasing, identifies Planning Area 5 as being graded as part of Phase 6 between 2013 and 2016. This would allow this use to continue through the end of the lease/ license period. Based on discussions with Michael Miclette, Director of Production for Building Materials at ONIS, mining operation are planned to continue through the end of the lease/ license period. There are sufficient resources onsite that would allow continued mining operation past the 2013 lease; however, with the expiration of the lease/license and the anticipated phasing of the Ranch Plan these resources would not be available for extraction. The resources at the ONIS location have not been identified by the General Plan or California Geological Survey as being an important resource. However, given the local demand for building materials, this resource would be considered of value to the region.

As previously shown in Table 4.13-2, the demand for aggregate resources in Orange County is projected to be between 73 and 80 million tons annually for the next 40 years. The inability to extract the resources at the ONIS site beyond 2013 would be considered a significant impact. Though the lease with ONIS is scheduled to end in 2013, the proposed project would preclude the future extraction of resources by ONIS or other entity. However, it should also be noted a permissible interim use for the project is the extraction and processing of sand and gravel material in conjunction with grading operations. Suitable material has been identified in

Planning Areas 3 and 4, though the full extent of these resources has not been delineated. A beneficial effect of the project would be to allow these materials to be extracted and utilized as building materials for the project. This would reduce the dependence on imported materials, as well as reduce the number of miles traveled for transport of building materials.

Abandoned clay mines are located on vacant land within Planning Areas 6 and 7. The resources from these clay-mining operations were used primarily for pottery items such as dinnerware and clay cookware. The demand for this resource was not sufficient to make it economically viable to continue the mining operation. The mining of clay within this area ended in the 1980s**.** Additionally, neither the General Plan nor the California Geological Survey have identified this resource as an important commodity. Therefore, even though the Ranch Plan would eliminate the potential for future extraction of this resource, this would not be considered a significant impact because it is not considered a value to the region nor identified as a locally important mineral resource recovery site on a local general plan, specific plan or other land use plan.

Planning Area 13 consists of 912 acres and is currently undeveloped. The San Juan Creek traverses the planning area in a generally east-west direction. According to the California California Geological Survey Updated Special Report 143, prepared in 1994, the San Juan Creek contains aggregate resources equaling 120 million short tons. It should be pointed out that currently there are no aggregate extraction activities in San Juan Creek. The depiction of a Mineral Resource Zone (MRZ) in the California Geological Survey report is not intended to represent a commitment to mineral extraction for those areas, but rather as a response to SMARA's mandate to recognize mineral resource areas. Resources include reserves as well as all potentially usable aggregate materials that may be extracted in the future, but for which no permits allowing extraction have been granted or for which marketability has not been established. This important resource is also identified in the Resources Element of the General Plan. The Rancho Mission Viejo Regional Park is proposed in Planning Area 13. Extraction of sand and gravel resources within San Juan Creek would be incompatible with the regional park use and the project would remove the S&G, Sand and Gravel Extraction zoning district on this portion of the site. Though the project would not result in the loss of the resource (they would still be located onsite), the use of the site as a regional park would preclude the future extraction of this resource. This would be considered a significant impact. However, it should be noted that there would also be significant biological impacts, specifically to the arroyo toad, if the sand and gravel resources in San Juan Creek were to be mined.

4.13.4 MITIGATION PROGRAM

Project Design Features

PDF 4.13-1 The project would provide for the ONIS surface mining to continue within Planning Area 5 as an interim use until such time as development is proposed.

PDF 4.13-2 Temporary excavation/extraction of construction aggregate or construction-related materials extraction shall be allowed during construction grading and on-site earthmoving activities to promote project construction efficiencies and limit long distance transportation of construction aggregate and construction related material.

Standard Conditions of Approval

There are no standard conditions of approval that would reduce impacts to mineral resources.

Mitigation Measures

No mitigation measures have been identified that would reduce the impact to mineral resources.

4.13.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The project would result in significant unavoidable impacts by precluding the extraction of mineral resources in San Juan Creek, an area designated as a MRZ by the state. There are no mitigation measures that can reduce this impact to a level of less than significant. Additionally, the project would curtail the extraction of resources at the ONIS site, a locally important resource. In this latter instance, a PDF can help to reduce the level of impact, though not to a level of less than significant.

4.14 HAZARDS AND HAZARDOUS MATERIALS

The impact associated with hazards and hazardous materials including an evaluation pertaining to hazardous materials and evaluation pertaining to safety issues associated with wildland fires.

4.14.1 HAZARDOUS MATERIALS

Introduction

Methodology

Phase I Environmental Site Assessments (ESAs) were prepared by Environmental Equalizers, Inc. (EEI) in order to assess the possible presence of recognized environmental conditions within the project site boundary where development is proposed. The full reports are contained in Technical Appendix I.

Recognized environmental conditions include those property uses that may indicate the presence or likely presence of an existing, historical, or threatened release of any hazardous substances or petroleum products into structures, soil, and/or groundwater beneath the property. The term "recognized environmental conditions" is not intended to include *de minimus* conditions that generally do not present a material risk of harm to public health or the environment.

The Phase 1 ESAs were performed in conformance with the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: *Phase I Environmental Site Assessment Process*, designation E1527-00. The following services were performed:

- A review of available documents for topographic, geologic, and hydrogeologic data affecting the site.
- A review of available maps, aerial photographs and other documents to estimate historical site usage and development.
- A review of previous investigations conducted by EEI Services.
- A review of federal, state, county, and city documents concerning hazardous material storage, generation and disposal, active and inactive landfills, nearby environmental concerns, and associated permits.
- Interviews with individuals having knowledge of the site.
- A site reconnaissance to ascertain the current condition of the site.

The federal, state, and regional databases, and other relevant sources listed below were searched for each of the development planning areas. If no text is provided, no environmental concerns were identified. The records search reports are also available for review at the County of Orange. The records searched not only addressed the Planning Areas, but a half-mile area surrounding the Planning Areas.

- National Priority List (NPL) – Federal Superfund database.
- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)
- Resource Conservation and Recovery Act (RCRA) TSD Facility List (RCRA-D)
- RCRA COR (Corrective Action Sites)
- RCRA Generators (RCRA-G)
- RCRA NLR (No Longer Regulated)

- Emergency Response Notification System (ERNS)
- State Listings
- Spills 1990
- Solid Waste Landfill (SWL) Sites
- Permits
- Permitted Underground Storage Tanks (UST)
- Orange County Groundwater Cleanup List (Other)
- California State Leaking Underground Storage Tanks (LUST)
- Releases (Air/Water)
- PCB Activity Database System (PADS)
- Aerial Photograph Review
- Historic Maps Review
- Review of City and County Directories

Orange County generally relies on site-specific action levels, particularly for soil contamination issues. These are based on perceived threat to groundwater quality, human health, and/or the environment. There are no specific standards that can be applied across the board, and cleanup standards are usually generated only after extensive investigation and assessment of potential impacts. This means that, all things being equal, a site in a residential area with shallow groundwater is going to require a greater level of attention and cleanup than a site perched on top of a mountain, where groundwater several hundred feet below the surface.

With groundwater contamination the state publishes Maximum Contaminant Levels (MCLs) for individual chemicals that are typically used for setting cleanup standards. However, these are subject to interpretation as well, and isolated sites, far from streams or drinking water sources are often allowed higher action levels than sites close to drinking water sources or human/environmental receptors.

EPA publishes screening levels for soil and groundwater called the Preliminary Remedial Goals or PRGs. These are health-based standards typically used at sites where there is no direct oversight from the County (i.e., self-directed cleanups). PRGs are widely used as a screening tool to determine if sites require additional investigation or cleanup.

Asbestos-containing materials, lead-based paint and radon are other environmental issues that were examined by EEI. It should be pointed out that based on such factors as indoor radon measurements; geology; aerial radioactivity; soil permeability; and foundation types; EPA has identified Orange County as having a low potential for radon gas (i.e., Zone 3) (EPA's Map of Radon Zones, EPA-402-R-93-071).

Study Area

The study area for hazardous materials is the Ranch Plan boundary. The focus of the analysis was the planning areas where development is proposed (Planning Areas 1 through 9).

Existing Conditions

The status of the project site with regard to hazardous materials has been established through several methods including a database search, review of previous Phase I Assessments and a field reconnaissance for the areas proposed for development. Information obtained from each of the planning areas where development is proposed has been summarized below. More detailed information and the interviews with individuals familiar with the sites are contained in Technical Appendix I.

To avoid unnecessary repetition, the following are points that apply to multiple planning areas; therefore, they are not discussed below for each applicable planning area.

- Agricultural operations have been ongoing in Planning Areas 1, 2, 3, 4, and 7. Therefore, there is the potential for pesticides in these areas.
- Planning Areas 1, 3, 4, 5, and 8 have structures that were constructed prior to 1980 that may contain asbestos and lead based paint.
- None of the Planning Areas contain hazardous waste sites compiled pursuant to Government Code Section 65962.5.
- The project site is not located in the administrative boundaries of any oil field.

Planning Area 1

Within Planning Area 1, sites under routine inspection by Orange County Fire Authority (OCFA) include The Oaks, D&M Nursery, and Rancho Mission Viejo. These sites are permitted to store a variety of materials that are regulated by multiple agencies under various codes and provisions.

Database Searches

A review of the databases did not reveal issues of environmental concern. There were no indications of violations, hazardous materials spills, or emergency responses in OCFA files. There are several underground storage tanks on site. There is record of a leaking underground storage tank in 1992 at the Chiquita Water Reclamation Plant. Only minor soil contamination was reported. The site was remediated and the case closed in October 2001. Also within Planning Area 1 (28675 Ortega Highway), a gasoline release was identified in 1992. The site was deemed remediated and then was closed by Orange County Health Care Agency in May 2002. The Orange County Groundwater Clean Up List did not provide any additional data and it was not cited as a hazard.

Previous Assessments

Other Phase I Site Assessments were previously prepared for portions of Planning Area 1 associated with other projects or previous actions. These are listed below. The findings of the previous assessments are summarized in the appendices to Technical Appendix I. Phase I Environmental Site Assessment – Antonio Parkway Alignment

- *Rancho Mission Viejo Field Office (28672 Ortega Highway) LUST Case (September 1998)*
- *Phase I Environmental Site Assessment – The Oaks Polo Field/Creekside Pasture (May 2001)*
- *Phase I Environmental Site Assessment – D&M Color Express (June 2001)*
- *Phase I Environmental Site Assessment – Miramar Nursery (June 2001)*
- *Phase I Environmental Site Assessment – C.O.W. Site at Miramar Nursery (November 2001)*
- *Phase I Environmental Site Assessment – Les Thompson Transportation Lease (December 2001)*

- *Phase I Environmental Site Assessment – Joan Irvine-Smith Pasture (January 2002)*
- *Phase I Environmental Site Assessment – The Oaks Corrals (July 2002)*

No substantial environmental concerns were identified as part of these Site Assessments. The details of the actual findings are provided in the technical report contained in Appendix I. The Phase I ESA of the property occupied by Les Thompson Transportation did identify substances such as new and used oil, diesel, solvent, compressed gases, paint, welding materials, truck tires, and vehicle batteries. In addition, several small surface spills of oil were noted on soils in this area. As part of the follow up, in November 2002, a limited soil investigation was performed. The reported levels were well below regulatory action levels. The Phase I for Miramar Nursery identified the discharge of irrigation runoff into downstream waters.

Site Reconnaissance for Planning Area 1

On March 31, 2003, EEI personnel conducted a reconnaissance of the entire site. The western portion of the property is predominately developed as lemon groves, with some areas of vacant (undisturbed) open space. Based on the results of the site reconnaissance, evidence of minor petroleum-hydrocarbon staining was noted. No environmental concerns were noted.

Planning Area 2

There are no facilities that are subject to routine inspection by OCFA. There are no hazardous material permits issued for uses in the Planning Area.

Database Searches

A review of the regulatory databases did not identify any issues of environmental concern associated with Planning Area 2. The adjacent Chiquita Water Reclamation Plant is identified as a closed LUST case (gasoline – File No. 00UT7). The case was issued closure on October 19, 2001. According to the previous ESA completed for Sea Tree Nursery (EEI, 2002), only limited contamination was reported in the vicinity of the tank pit; however, this was minor and no existing environmental concerns were identified.

Previous Assessments

In April 2002, a Phase I Environmental Site Assessment was completed for the former Sea Tree Nursery, located in the central portion of planning area, now occupied by lemon groves. No evidence of contamination, distressed vegetation, petroleum-hydrocarbon staining, waste drums, illegal dumping, or improper waste storage/handling were noted during the site reconnaissance.

Site Reconnaissance for Planning Area 2

On March 31, 2003, EEI personnel conducted a driving reconnaissance around the perimeter of the Planning Area. No environmental concerns were noted during the site reconnaissance.

Planning Area 3

The sites within this planning area currently under routine inspection by OCFA include Catalina Pacific Concrete, Cemex/City Concrete, Color Spot Nursery), Olsen Pavingstone, Inc., St. Augustine's Training Center, Ewles Materials, CR&R/Solag Disposal, and Cow Camp. These sites are permitted to handle a variety of regulated materials.

Database Search

There were no indications of code violations, hazardous materials spills or emergency responses in OCFA files. Cow Camp (RMV storage/shop), located in the southern portion of Planning Area 3, is currently permitted to operate two underground storage tanks (UST). The most recent inspection available for review in the Orange County Health Care Agency (OCHCA) files was performed in March 2001. Several minor violations were noted. Hazardous waste annual inspections by OCHCA have occurred at the same irregular periods. No violations were noted at the site during the inspection.

Catalina Pacific Concrete (CPC) was identified as the location of a closed Leaking Underground Fuel Tank (LUFT) case. The case received regulatory closure on February 5, 1991.

Based on file data, one petroleum exploration well (Exxon, "O'Neill Estate") was installed in the central portion of the property in 1959 to a total depth of approximately 4,100 feet, and one petroleum exploration well (Texaco Inc., "O'Neill") was installed south of the subject property, along Ortega Highway, in 1964 to a total depth of approximately 3,730. Both wells are marked as "Plugged and Abandoned – Dry Hole." Being appropriately closed, these wells present no environmental risk.

Previous I Assessments

Phase I Site Assessments were previously prepared for portions of Planning Area 3 associated with other projects or previous actions. These are listed below. Findings are summarized in the technical report.

- *Phase 1 Environmental Site Assessment – Color Spot Nursery (March 2000)*
- *Phase 1 Environmental Site Assessment – CR&R/Solag Disposal Company, Inc. (January 2002)*
- *Phase 1 Environmental Site Assessment – Olsen Pavingstone (January 2002)*
- *Phase 1 Environmental Site Assessment – Cemex (January 2002)*
- *Phase 1 Environmental Site Assessment – Ewles Materials (January 2002)*
- *Phase 1 Environmental Site Assessment – Catalina Pacific Concrete (February 2002)*
- *Phase 1 Environmental Site Assessment – O'Connell Landscaping (April 2002)*
- *Phase 1 Environmental Site Assessment – St. Augustine Training Center (July 2002)*
- *Phase 1 Environmental Site Assessment – Cellular on Wheels Site (November 2001)*

As part of the site assessments, minor surficial oil spills and surface staining was noted in several locations. At Ewles Materials, the January 2002 OCFA inspection report noted a housekeeping violation and a permit-related violation, with no specific details. However, the OCHCA did not identify violations in 2001 when the most recent inspection report was prepared. No other evidence of environmental concern was observed at the property during the time of the assessment.

At the O'Connell Landscaping site in April 2002, the presence of an non-permitted 100-gallon AGT was noted, as well as materials storage and housekeeping violations.

Site Reconnaissance for Planning Area 3

On March 31, 2003, EEI personnel visited the portion of the planning area not covered by the previous assessments. In the Cow Camp maintenance area, a variety of chemicals are stored. Oil-stained concrete in and around the shop areas was noted. No other evidence of evidence of contamination, distressed vegetation, petroleum-hydrocarbon staining, waste drums, illegal dumping, or improper waste storage/handling were noted during the site reconnaissance.

Based on conversations with Rancho Mission Viejo personnel, at least one 500-gallon underground fuel tank was removed in the mid 1980s from the Cow Camp area. No information was available with the Orange County Health Care Agency regarding the tank removal. Additionally, based on conversations with Rancho Mission Viejo personnel, the area east of the Cow Camp maintenance shop area was historically used to bury old materials and discarded scraps.

In May 2003, one 500-gallon underground waste oil tank and one 10,000-gallon underground diesel tank were removed from the Cow Camp maintenance area. These tanks were removed under permit by Orange County Health Care Agency. No evidence of contamination was noted in any of the soil samples collected during the removal activities.

Planning Area 4

Historical tenants on the site include the Tree of Life Nursery. According to OCFA records, the subject property currently holds operating permits for a motor vehicle fuel dispensing station, as well as a permit to operate flammable/combustible liquid vehicles, equipment, tanks, and plant.

Database Search

Planning Area 4 was not listed in any of the databases.

A review of Division of Oil, Gas and Geothermal Resources files shows one exploratory well was drilled in 1964 to 3,730 feet adjacent to Planning Area 3. The well is listed as an abandoned plugged hole (no production). No environmental concerns were noted.

Previous Assessments

Three Phase I Site Assessments were previously prepared for portions of Planning Area 4 associated with other projects or previous actions. These are listed below. Findings are summarized in the technical report.

- *Phase I Environmental Site Assessment Tree of Life Nursery (April 2002)*
- *Phase I Environmental Site Assessment RJO Horse Ranch (April 2002)*
- *Phase I Environmental Site Assessment Verdugo Canyon Trailer Site (April 2002)*

With all the ESAs, no evidence of environmental concern was observed. At the Tree of Life Nursery the overall housekeeping was good and no spills were noted on the property.

Site Reconnaissance for Planning Area 4

On April 9, 2003, EEI personnel conducted a field review of those portions of the study area not addressed in the previous evaluations in 2002 (list above). No evidence of contamination, distressed vegetation, petroleum-hydrocarbon staining, waste drums, illegal dumping, or improper waste storage/handling were noted.

Planning Area 5

Oglebay Norton Industrial Sands (ONIS), which currently occupies the site, operates a sand and gravel surface mining operation on the property. The operation consists of mining and processing of silica sand for use in building materials such as stucco, grouts, and mortars and for use in golf courses and playing fields. The facility includes an open pit mine, a large earthen dam and associated reservoir, a processing plant, office complex, a scale house, fueling facility, maintenance shop and other storage facilities. Historically, the tenants include Owens-Illinois, Dalton Trucking, Inc, and California Silica Products Company.

Database Search

The site was noted as having three closed LUFT cases. The leaks occurred between the 1960's and June 1997. These cases are closed.

The most recent OCFA inspection report, dated March 25, 2003, indicated no code violations, hazardous materials spills or emergency responses in OCFA files.

OCHCA files identified two permitted Underground Storage Tanks. Annual UST inspection reports from 1996 through 2001 indicate a variety of minor violations, all related to record keeping. As of September 2001, all of the violations have been corrected. OCHCA records showed a 10,000-gallon underground diesel storage tank was removed from the site in October 1990. No groundwater or visible signs of contamination were noted by the inspector. Samples collected during removal operations indicated contamination to the east and west of the tank excavation. OCHCA closed the case in June 1991.

A 10,000-gallon underground diesel storage tank and a 1,000-gallon underground gasoline storage tank were removed from the site in February 1992. Physical signs of contamination were noted by the inspector (staining and gasoline odor). Excavated soil was transported offsite for disposal. Confirmation samples collected after excavation indicated that the majority of contamination had been removed. OCHCA granted site closure in March 1994.

A 10,000-gallon underground diesel storage tank was removed from the site in June 1997. Physical signs of contamination were noted by the inspector. Additional tank pit excavation was directed by OCHCA and performed in July 1998. Approximately 35 cubic yards of soil were removed and buried onsite 10 feet below grade in an overburden area. OCHCA granted site closure in April 2001.

Previous Assessments

The *Draft Report: Phase II Assessment of Conditions, Trampas Canyon Dam, Orange County California*, prepared by URS Greiner Woodward Clyde (URS) in July 1999 was reviewed. The purpose of the report was to summarize an investigation into potentially impacted tailings within the retention dam, related to prior use of chemicals at the quarry site. The work performed included the collection of groundwater samples from two onsite monitoring wells, the drilling of three boreholes within the tailings, and analysis of selected soil and groundwater.

Analytical results of samples collected from soil and groundwater indicated no detectable concentrations of VOC's (volatile organic compounds) or SVOC's (semi-volatile organic compounds). Trace metals were reported in concentrations below EPA's PRGs for residential use. Groundwater concentrations of arsenic were reportedly above the Maximum Contaminant Level (MCL) for drinking water. Based on the results of their investigation, URS stated that there appeared to be "no significant environmental limitations to the re-use of tailings materials."

Site Reconnaissance for Planning Area 5

On March 31, 2003, EEI personnel walked the entire site. Regulated chemicals, such as compressed gases, oil, diesel, and gasoline, are stored/used in the shop area. Strip mining operations take place to the northwest of the plant. Surface staining was noted around the base of the diesel tank. An earthen dam and large reservoir/tailing storage area are present to the south of the plant/mining area. After completing the reconnaissance for the plant, mining and reservoir areas, EEI conducted a drive-by inspection along the perimeter road, which runs along the ridgelines on the western, southern, and eastern margins of the property. This road allows relatively unobstructed vistas of the entire property. No evidence of environmental concerns was noted along the outlying portions of the property.

Planning Area 6

Planning Area 6 is currently unoccupied; however, old abandoned clay mines are located in the central and southern portions of the site. Unpaved roads traverse the site. The site does not have an official address or hazardous materials permit file.

Database Search

OCFA records indicate the site is not currently under a regular inspection schedule and they are not aware of any violations, hazardous materials spills, or emergency responses at the property. OCHCA does not list any environmental concern or operating permits associated with the site.

Previous Assessments

Due to the lack of development or ongoing activities in Planning Area 6, there are no previous assessments on file.

Site Reconnaissance for Planning Area 6

On March 31, 2003, EEI personnel visited the entire planning area site. The majority of the property is vacant, although several areas that had previously been mined for clay were noted in the central and southern areas of the property during the site visit. No evidence of contamination, petroleum-hydrocarbon staining, waste containers, or improper waste storage/ handling were noted.

Planning Area 7

The planning area is undeveloped and vacant except for a single storage structure located in the southeast portion of the property. Citrus is grown in the northeastern portion of the Planning Area. The eastern half of the Planning Area was previously occupied by Ford Aerospace, which operated a weapons research and testing facility from 1969 to 1993. Riverside Cement/ California Portland Cement conducted a limited clay mining operation from 1988 to 1993 on the western half of the planning area. One 16-inch underground jet fuel pipeline operated by Kinder Morgan was identified.

Database Research

Within Planning Area 7, the databases identified one LUST, identified by Ford Aerospace, the former tenant of the property, on January 1, 1965. Reportedly, only the surrounding soil was impacted. The contaminated soil was removed and the case was closed March 19, 1992. As such, this site is not considered an environmental concern at this time.

Previous Assessments

Two Phase I Site Assessments were previously prepared for portions of Planning Area 7 associated with other projects or previous actions. These are listed below. Findings are summarized in the technical report.

- *Phase I Environmental Site Assessment - Riverside Cement/CPC South (August 2001)*
- *Phase I Environmental Site Assessment - Former Ford Philco Lease (January 2003)*

No evidence of recognized environmental concerns was revealed in connection with the Riverside Cement/CPC South site.

The report for the Ford Aerospace site identified the LUFT, discussed above. Neither OCFA nor OCHCA records identified other concerns. Several previous environmental assessment reports performed at the site were reviewed as a part of the ESA. These described investigative and decommissioning activities conducted at the site, and included:

1. Radiological decontamination and decommissioning of the gun range;
2. Underground Storage Tank (UST) closures;
3. Asbestos assessments for the various structures;
4. Demilitarization of range impact areas;
5. Environmental site investigation and remediation of contaminated areas; and
6. Explosive ordinance disposal (EOD) range closure.

Based on the information reviewed and the fact that regulatory closure of the facility had been granted by the DTSC in 1995, no further investigation was recommended.

Site Reconnaissance for Planning Area 7

On March 31, 2003, EEI personnel conducted a drive-by reconnaissance of the portion of the property not covered by the previous assessments. Clay pit mining is evident in six locations on the western half of the property, principally in the central portion along a distinctive ridgeline. A large graded area was noted along the southern margin of the property, along Talega Creek. This area corresponds to the former impact area of the gunnery range. No evidence of spent ordinance was noted. A second graded area was noted along the southern margin of the property, at the intersection with the central paved road, in the location of the former maintenance shop. No evidence of stained soil or waste storage/handling was noted in this area. Signs indicating the presence of a buried petroleum pipeline were noted in the southwest portion of the site. No evidence of contamination, distressed vegetation, petroleum-hydrocarbon staining, waste drums, illegal dumping, or improper waste storage/handling were noted during the site reconnaissance.

Planning Area 8

Planning Area 8 has been occupied by TRW, now Northrop Grumman Space Technology, since 1963. The site is used to develop and test directed energy systems, spacecraft and rocket propulsion systems, and antennas. Prior site uses have also included the development and testing of "clean coal" technology. Facilities at the property include office and research facilities, a chemical laboratory (Chen Lab), fossil energy test site (FETS), a number of testing and monitoring facilities including the high energy propulsion test site (HEPTS), vertical engine test site (VETS) and high altitude test stand (HATS), and various maintenance and support structures. According to OCFA inspection records, TRW (33000 Avenida Pico) currently holds hazardous materials operating permits for eight separate site locations.

Database Search

The site was identified as a permitted UST facility. There were no other listings within a one-mile radius. As previously indicated, TRW currently holds hazardous materials operating permits for eight separate site locations. These include the administration area, FETS, ChemLab, Drum Farm, VETS Plate, HEPTS Plateau, Alpha Plateau, and a general (unspecified) location. The most recent inspection report, dated March 25, 2003, identified no indications of code violations, hazardous materials spills or emergency responses in OCFA files.

OCHCA files address a number of the facilities onsite. Annual inspection reports for the Underground Storage Tank Facility from 1995 through 2001 indicate no violations have been issued. Hazardous Waste Inspection Reports for the facility dating from June 1995 through August 2001 were reviewed. No violations were noted in the inspections. The OCHCA files indicate that an AGT containing approximately 300 gallons of hydrogen peroxide exploded and destroyed another tank containing sodium hydroxide in August 1999. Cleanup of the accident site was performed by TRW.

San Diego RWQCB file data from December 1988 and January 1989 indicated the closure of surface impoundments at the subject facility. In a letter dated December 9, 1988, the San Diego RWQCB indicates that all hazardous substances have been completely removed from surface impoundments at the facility and there was no presence of contamination in soil or groundwater beneath the impoundments. The letter states that closure of the impoundments has been completed, and that TRW had complied with the requirements of the Toxic Pits Cleanup Act.

The TRW Capistrano Test Site has a permit from the San Diego RWQCB for the operation of a sewage treatment system at the facility. A Facilities Inspection Form for the sewage treatment system, dated June 2000, indicated that the aeration pond was in service and appeared to be working properly. Mosquito larvae were noted in the pond. Aside from the mosquito larvae, the system was deemed to be in satisfactory compliance. The Semi-Annual Aeration Pond Effluent Monitoring Report dated January 2003 indicates that pond effluent analysis results exceeded requirements for Total Dissolved Solids (TDS). The reported value was 1,400 milligrams per liter (mg/l). The maximum allowable limit stated was 1,000 mg/l.

Previous Assessments

There have been several investigations and decommissioning activities conducted at the site. These include: 1) Investigation and clean closure of seven surface impoundments; 2) inventory of underground tanks; 3) removal and closure of other underground storage tanks; 4) remediation of diesel contaminated soils; and 5) soil investigations at various locations.

The impoundments were considered clean closed by the RWQCB in a letter dated December 8, 1988 to TRW and no post closure monitoring was required. Based on the above reports it appears that the seven surface impoundments did not contaminate the soil or groundwater in these areas.

In 1987, an inventory of all existing in-ground and underground storage tanks was conducted. The report indicated the underground storage tanks (and related facilities) appeared to be in compliance with state underground storage tank requirements, with the exception of six locations, which were brought into compliance.

Four additional reports were reviewed regarding the removal and closure of an underground gasoline storage, wastewater sump, and concrete tanks. The concrete and soils were classified as non-hazardous and could be disposed of as non-hazardous materials. The closure report recommended no further investigation and a memo (dated April 10, 1989) indicated that Orange County Environmental Health Agency concurred that closure was complete.

In January 1990, a leak was discovered in a 1.5-inch diameter underground diesel fuel pipeline at FETS. Soil samples adjacent to the pipeline were collected in the attempt to determine the amount of diesel soil contamination. In April 1990, additional subsurface investigations were performed to delineate the extent of soil contamination. To meet the RWQCB investigation requirements, a work plan for the remediation of the contaminated soil was prepared in November 1990. Soil excavation was conducted, with soil sampling and analyses for TPH. The analytical results determined that the soil could be taken to the nearby Prima Deshecha Class III Landfill, where it was disposed of in January 1991. The excavated areas, which met the RWQCB cleanup criteria, were backfilled with clean native soil. On May 23, 1991, TRW was issued a letter from the San Diego RWQCB stating that Board staff had determined that soils at the site exceeded cleanup objectives established by the Board.

In 2002, soil investigations were conducted at 14 different investigation areas on the TRW property. Laboratory analysis results indicated that a majority of the analyzed constituents of concern (VOCs, SVOCs, PAHs, metal, PCBs, and hydrazines) were not detected at concentrations above their respective analytical method detection limits and none were detected above their respective EPA PRGs. In the case of TRW, residential PRGs were used for comparison sake. Residential PRGs represent the most conservative category of PRGs for soil.

<u>Site Reconnaissance for Planning Area 8</u>

On April 7 and April 11, 2003, EEI personnel conducted a reconnaissance of the entire site. EEI personnel conducted a driving inspection on accessible roads and then attempted to obtain vistas of backcountry areas by walking along ridgetops and river terraces in the northern, eastern, and southeastern portions of the property. EEI was not able to access the eastern or southeastern property boundaries, although these areas are undeveloped and there has been no historic use of this area. No evidence of contamination, distressed vegetation, petroleum-hydrocarbon staining, illegal dumping, or improper waste storage/handling were noted in backcountry areas during the site reconnaissance.

Planning Area 9

The property is open space/grazing land. There are no structures, other than a windmill onsite. A medium-sized pond exists in Gabino Canyon. No hazardous materials are stored or handled onsite.

Records Review for Planning Area 9

Based on Division of Oil, Gas and Geothermal Resources file data, one exploratory well was drilled in 1964 to approximately 3,370 feet below ground surface adjacent to Planning Area 9. The well is listed as an abandoned plugged hole (no production), and is not considered as an environmental concern at this time.

Previous Assessments

Due to the lack of development or ongoing activities in Planning Area 9, there are no previous assessments on file.

Site Reconnaissance for Planning Area 9

On April 9, 2003, EEI personnel visited the entire site and conducted a driving inspection around the perimeter of the subject property, before traversing the site from east to west and north to south. The site is an undeveloped and unoccupied area. A windmill was noted along Verdugo Canyon Road, within one of the one-acre parcels. No evidence of contamination, distressed vegetation, petroleum-hydrocarbon staining, waste drums, illegal dumping, or improper waste storage/handling were noted during the site reconnaissance.

Remainder of Study Area

The Ranch Plan proposes the remainder of each of the study area to be retained in open space uses. Each of the Phase I Assessments completed for the development area identified known spills and releases of hazardous materials within a mile. Since no portion of the Ranch Plan boundary is more than a mile from the development areas, the record search covered the entire project site. No known hazards were identified in the adjacent open space planning areas. There are no hazardous material permits issued for these areas.

Project Impacts

Thresholds of Significance

Significant impacts would occur if the proposed project would:

- Locate future sensitive uses in areas potentially containing contaminants that have not received proper clean-up/remediation
- Exceed applicable local, state or federal environmental standards concerning releases of hazardous substances by proposed onsite land uses
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
- Be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5

Impacts

Impact
4.14-1 *Because of present and past agricultural use, there is the potential of exposing future uses to health risks if residual pesticides exceed levels established state and federal*

standards for health-sensitive uses (e.g., schools, child care facilities, etc.) (Planning Area 1, 2, 3, 4, and 7). Additionally, where agriculture is proposed as an interim or future use, impacts would occur if runoff containing fertilizer or pesticide was allowed to enter downstream waters untreated.

Impact 4.14-2 *Buildings and other improvements built before 1980 have the potential of containing asbestos-containing materials and lead-based paint. The demolition of these buildings has the potential of introducing contaminants into the air, soil, or water if residue is not properly handled (Planning Area 1, 3, 7, and 8).*

Impact 4.14-3 *There is the potential of contamination in the vicinity of AGT and UGT within Planning Areas 1, 3, 4, 5, and 8. Testing, and remediation if necessary, in conjunction with removal of the tanks prior to implementation of the Ranch Plan, would reduce these impacts to less than significant. This would also apply to tanks previously removed where there are not records of prior soil testing (Planning Area 3).*

Impact 4.14-4 *Evidence of minor surface soil staining was identified in Planning Areas 1, 3, and 5. The possibility of contamination does exist, though given the limited nature of the stains, this is considered an insignificant adverse impact.*

Impact 4.14-5 *There is the possibility of chemical contamination in the truck washout recycling pond and site operations area within the Catalina Pacific Concrete (CPC) lease vicinity (Planning Area 3).*

Impact 4.14-6 *East of the Cow Camp maintenance shop area (Planning Area 3) old equipment and discarded scraps were buried. Dependent on the materials buried, soil contamination may have occurred.*

Impact 4.14-7 *Contamination was reported and only partially removed when UST's were removed in 1990, 1991, and 1997. In one case, the contamination was relocated to the overburden storage area of the property. The project proposes future residential development in these areas. Given the uncertainty of the actual level of contamination in this area, this would be considered a potential adverse impact. (Planning Area 5)*

Impact 4.14-8 *The chemical composition of the tailings within Trampas Dam has not been conclusively determined. Given the uncertainty of the actual level of contamination, this would be considered a potential significant impact because the proposed project could locate future sensitive uses in the area.*

Impact 4.14-9 *Two pistol ranges are present within Planning Area 8. These sites represent a potential lead and/or copper hazard in that the proposed project could propose sensitive uses in these areas.*

Impact 4.14-10 *Grading may result in the damage or disturbance to abandoned oil wells. This could result in the release of methane gas.*

Impact 4.14-11 *Grading activities will require the relocation of a portion of the Santa Fe Pipeline, which traverses Planning Areas 1, 5, 6, 7, and 8. Relocation would be required in Planning Areas 1 and 8. During relocation there is an increased potential for soil contamination.*

Impact 4.14-12 *The above-ground tank installed by O'Connell Landscaping without permits and the housekeeping violations may result in contamination of surrounding soil.*

The following are points that apply to multiple planning areas:

- Agricultural operations have been ongoing in Planning Areas 1, 2, 3, 4, and 7. Therefore, there is the potential for pesticides in these areas.

The past use of pesticides may result in residual levels in those areas previously used for agriculture. If residual pesticides exceed levels established in state and federal standards for health-sensitive uses (e.g., schools, child care facilities, etc.), there would be a potentially significant impact. Testing of the soils prior to grading and enacting appropriate remediation in compliance with state, federal, and local requirements would reduce this impact to a level of less than significant.

Additionally, should irrigation runoff be allowed to directly enter downstream waters there would be the potential of introducing pollutants associated with fertilizers and pesticides offsite. Since the proposed project would allow the continuation of existing uses as an interim use, containment of the runoff for natural treatment prior to being released into downstream waters is a project design feature. This would reduce potential impacts to less than significant.

- Planning Areas 1, 3, 4, 5, and 8 have structures that were constructed prior to 1980 that may contain asbestos and lead based paint.

Should any of the structures identified as being constructed prior to 1980 contain asbestos or lead based paint, the improper handling of these materials during demolition may result in a significant impact. Compliance with applicable regulations for the removal of these materials would reduce the impact to a level of less than significant.

- Planning Areas 1, 3, 4, 5 and 8 contain AGT and USTs, which would be removed during construction.

There are no indications that these tanks have leaked or any contamination is present. Removal of the tanks in accordance with appropriate regulatory guidance would ensure proper monitoring and remedial actions are taken, if necessary. No significant impacts would occur.

- Surficial soil staining in Planning Areas 1, 3, and 5 has been noted.

As a result of past uses, there are several locations where surface soil staining has been noted. These are generally from minor oil or fuel spills that have occurred during operation of the ranching and/or commercial activities. None of the stained areas are extensive in size. There appears to be no immediate threat to soil and/or groundwater beneath the subject property. The possibility of contamination does exist, though given the limited nature of the stains this is

considered an insignificant adverse impact. Soil testing, and remediation if necessary, is proposed as a mitigation measure to further reduce the potential impact.

None of the Planning Areas contain hazardous waste sites listed pursuant to Government Code Section 65962.5.

- There are four plugged and abandoned wells onsite[1]. Two have been identified within development areas that would be disturbed by grading (Planning Areas 3 and 9). The other two (Planning Areas 11 and 13) would be avoided. Where wells would be disturbed there would be a need to re-abandon the wells in compliance with applicable State standards.

Prior to any well abandonment or re-abandonment, a permit must be obtained from State Division of Oil, Gas, and Geothermal Resources (DOGGR), which has the oversight responsibility for the well abandonment process (Cal. Pub. Res. Code §3200 et seq.). As a part of the permit application process, a Construction Site Plan Review Program must be developed and approved by DOGGR. Following inspections by DOGGR and the proper abandonment or re-abandonment of the oil well(s), DOGGR issues an approval letter indicating that the well(s) has been properly abandoned in accordance with applicable laws and regulations. A well abandonment or re-abandonment is considered to be properly completed when it has been demonstrated that adequate steps have been taken to prevent oil or gas releases from the well to the surface, and to protect groundwater from the infiltration of detrimental substances (Cal. Pub. Res. Code §3208).

- The Santa Fe Pipeline, which carries jet fuel to Marine Corps Air Station (MCAS) Miramar traverses Planning Areas 1, 5, 6, 7, and 8. Grading activities would result in the need to relocate the pipeline in Planning Areas 1 and 8. During relocation of the line there is an increased potential for leaks and/or spills.

The need to relocate the Santa Fe Pipeline is discussed in Section 4.15, Public Services and Facilities. During the relocation process there is an increased potential for leaks and/or spills that would result in soil contamination.

<u>Planning Area 1</u>

The agricultural activities within this planning area use and store chemicals such as fuels, insecticides, fertilizers, herbicides, and compressed gas. There have been occurrences of LUST and spills. However, many of these occurrences have been already been remediated or the contaminant level was low enough not to be considered a hazard. Soil testing conducted at the Miramar Nursery for D&M Color Express in 2001, the Les Thompson Transportation lease site, and at the Rancho Mission Viejo Field Office area did not identify contamination that would be considered a hazard. These cases were closed by the OCHCA. Based on the status of these sites, no significant impact is anticipated. Other potential impacts associated with agricultural operations, soil staining, lead-based paint, asbestos in buildings to be demolished, and removal of tanks are identified above.

[1] The State Division of Oil, Gas, and Geothermal Resources in response to the revised NOP indicated there were nine abandoned oil wells onsite. The nine sites were on the RMV property; however, only four of them are within the Ranch Plan limits. Two wells were located in Ladera Ranch and three are located on the Donna O'Neill Land Conservancy at Rancho Mission Viejo site.

Planning Area 2

An adjacent property, Chiquita Water Reclamation Plant, was identified as a closed LUFT case. However, only limited soil contamination was reported, and the case was issued closure by OCHCA on October 19, 2001. Therefore, no significant impacts are anticipated. Potential impacts associated with agricultural operations are identified above.

Planning Area 3

Based on conversations with Rancho Mission Viejo personnel, at least one 500-gallon underground fuel tank was removed in the mid-1980s from the Cow Camp area. No information was available from the Orange County Health Care Agency regarding the tank removal, or any soil sampling performed. There is the possibility of contaminates existing in the tank pit area or in surrounding areas. Without the evaluation of soil sampling, it is unknown if surrounding soil is contaminated. Should there be any development of sensitive uses in this area, this may be a potentially significant impact. However, at this time no development is proposed for this area. There is the possibility of chemical contamination in the truck washout recycling pond and site operations area within the Catalina Pacific Concrete (CPC) lease area. This area would be disrupted by construction resulting in a potential adverse impact if future sensitive uses are located in this area. Water and soil testing prior to removal of the recycling pond is recommended to ensure contaminants receive proper clean-up/remediation. This impact would be reduced to less than significant. Other potential impacts associated with agricultural operations, soil staining, lead-based paint, asbestos in buildings to be demolished, and removal of tanks are identified above.

Planning Area 4

The previously mentioned potential impacts associated with past agricultural activity and an AGT are the only identified issues for Planning Area 4. There would be no other significant impacts.

Planning Area 5

UST's have been removed from the site on at least three previous occasions; in 1990, 1991, and 1997. In each case, contamination was reported and only partially removed. In one case, the contamination was relocated to the overburden storage area of the property with permission from OCHCA. The rationale used at the time was there would be no impact associated with the current land use, rural setting, lack of impact to groundwater, and lack of human/environmental receptors. The project proposes changes to these factors with future residential development in these areas. Additional investigation and/or remediation may be required to comply with regulations associated with the new use. Given the possibility of contamination in this area, this would be considered a potentially adverse impact because future sensitive uses may be proposed in these areas. Testing and if necessary, remediation is a recommended mitigation measure.

The tailings within Trampas Dam were sampled in three locations by URS-Greiner Woodward Clyde in 1999. The unconsolidated and saturated nature of the tailings limited the sample locations to areas close to the shoreline. Approximately four soil samples were analyzed from each of these borings to characterize the approximately 110,500,000 cubic feet of sediment. Given the limited number of samples and sample locations, the results of this sampling may not accurately represent the chemical composition of the tailings. Given the uncertainty, but possible contamination in this area, this would be considered a potentially significant impact

because sensitive uses may be located in these areas. This would be reduced to a level of less than significant with implementation of a remediation plan.

The project has been designed to address impacts from the Prima Deshecha landfill by incorporating setbacks from fill activities to avoid any potential exposure to potential hazardous materials impacts that may be associated with landfill activities.

Planning Area 6

There is no evidence of recognized environmental conditions in Planning Area 6. As such, there are no potential significant impacts.

Planning Area 7

Based on a review of documentation, potential environmental concerns associated with past uses by Ford Aerospace have been addressed, and the site has been remediated in accordance with applicable regulatory action levels. Therefore, no further investigation related to these issues appears to be warranted.

Planning Area 8

Two pistol ranges are present on land within the planning area. One, no longer in use, is located near the main gate. The second is located along the road to the 10,000-foot receiver site. These sites represent a potential lead and/or copper hazard. This would be a significant impact because the proposed project could locate future sensitive uses in areas potentially containing contaminants. A mitigation measure requiring proper clean-up/remediation would reduce this impact to a level of less than significant.

Operations at the Northrop Grumman Space Technology (TRW) leasehold involve the use of highly toxic, flammable, and oxidizing chemicals. Conditions onsite do not indicate hazardous conditions. Furthermore, any past releases have been appropriately remediated. However, when operations are terminated prior to implementation of the Ranch Plan, there would be the need to transport these hazardous materials offsite. Preparation of a comprehensive closure plan in compliance with applicable regulatory guidance would provide sufficient safeguards to reduce the potential impact to less than significant.

Planning Area 9

There is no evidence of recognized environmental conditions in Planning Area 9. As such, there are no potential adverse impacts.

Remainder of Study Area

The project does not propose any development in Planning Areas 10 through 13. However, there would be trails constructed to connect open space areas. While it is intended that trails would utilize existing ranch roads to the extent feasible, some new construction may be involved. Based on the Phase I ESAs conducted for the development areas, there would be no known hazardous materials in these areas and therefore, no significant impacts. Additionally, SC 4.14-1 requires a Hazardous Materials Assessment and Disclosure Statement for lands being dedicated to the County. If as part of those studies any hazardous materials were identified, clean up to meet regulatory standards would be required prior to dedication. Given that there are established federal, state, and local regulations that address contamination standards and clean up methodologies this would not be a significant impact.

The following are potentially impacts because the project proposes to locate future sensitive uses in areas potentially containing contaminants.

Mitigation Program

The Orange County Site Mitigation Program encompasses two programs: (1) Local Oversight Program (LOP), and (2) Voluntary Industrial Cleanup (IC) Program. The purpose of the LOP is to investigate and oversee the cleanup of contaminated sites in Orange County from fuel leaks from underground storage tank (UST) systems. This is a contract program that the County has with the State Water Resources Control Board. Contaminated sites in the LOP program follow the State's Corrective Action Guidelines, which mandate that work be performed under the direction of the LOP using approved work plans and corrective action plans for the investigation and cleanup of UST contamination. Sites are issued a No Further Action letter only after the corrective action plans have been successfully implemented and site-specific cleanup objectives are achieved.

Project Design Features

PDF 4.14-1 The project has been designed to address potential impacts from the Prima Deshecha landfill by incorporating setbacks from fill activities to avoid any potential exposure to potential hazardous materials impacts that may be associated with landfill activities.

Standard Conditions and Regulations

Many of the standard conditions and regulations are enacted at subsequent levels of approval. The following are the County of Orange Standard Conditions associated with hazardous materials that would apply to the project. These are listed even though they may not be applicable at the GPA/ZC level of approval, but because they would be applicable at subsequent levels of approvals (i.e., grading permits and tract maps). However, as previously indicated, the identification of the standard conditions at this time is to allow the reader an understanding of conditions that are applicable to the project at subsequent levels of approval. The number of the standard condition is listed in parentheses at the end of each condition.

SC 4.14-1 Prior to the recordation of a subdivision map, the subdivider shall submit a "Hazardous Materials Assessment" and a "Disclosure Statement" covering the property (both fee and easement) which will be offered for dedication or dedicated to the County of Orange or the Orange County Flood Control District, for review and approval by the Manager, Subdivision and Grading, in consultation with the Manager, PFRD/Environmental Resources. (Orange County Standard Condition of Approval HM-01)

SC 4.14-2 Prior to the issuance of a grading or building permit, the contractor shall submit to the Fire Chief a list of all hazardous, flammable and combustible liquids, solids or gases to be stored, used or handled on site. These materials shall be classified according to the Uniform Fire Code and a document submitted to the Fire Chief with a summary sheet listing the totals for storage and use for each hazard class.

Mitigation Measures

MM 4.14-1 Prior to the issuance of a grading permit, the contractor shall develop an approved Health and Safety Contingency Plan (HSCP) in the event that

unanticipated/unknown environmental contaminants are encountered during construction. The plan shall be developed to protect workers, safeguard the environment, and meet the requirements of the California Code of Regulations (CCR), Title 8, General Industry Safety Orders – Control of Hazardous Substances.

The HSCP should be prepared as a supplement to the Contractor's Site-Specific Health and Safety Plan, which should be prepared to meet the requirements of CCR Title 8, Construction Safety Orders.

Specifically, the HSCP must:

1. Describe the methods, procedures, and processes necessary to identify, evaluate, control, or mitigate all safety and health hazards associated with any soil, groundwater and/or air contamination that may be encountered during field construction activities.
2. Apply to all site construction workers, on-site subcontractors, site visitors, and other authorized personnel who are involved in construction operations.
3. Be approved by the Manager of Subdivision and Grading Services (PDS) in consultation with the Manager of Environmental Resources (PFRD) and/or their appointed consultant team.

The HSCP will take effect only if materials affected by environmental contaminants are exposed during construction. This includes undocumented waste materials, contaminated soils, affected groundwater, and related substances that may be classified as hazardous or regulated materials, and/or materials that could endanger worker or public health. If affected materials are encountered, the HSCP will be implemented to reduce the potential exposure to the environment and workers at the site. All site workers will be required to perform work in a prescribed manner to reduce the potential that they will endanger themselves, others, or the general public.

MM 4.14-2 During construction, if environmentally affected soil, groundwater, or other materials are encountered on-site, the project engineer shall be quickly mobilized to evaluate, assess the extent of, and mitigate the affected materials. The contractor or owner's consultant shall be responsible for implementing all applicable sampling and monitoring of the project. At present, applicable sampling and monitoring activities are expected to include air monitoring (both for personal protection and SCAQMD Rule 1166 compliance), collecting soil and groundwater samples for analysis, and documenting mitigation activities. Specific applicable sampling and monitoring requirements will vary, depending upon the nature, concentration, and extent of affected materials encountered.

MM 4.14-3 Prior to approval of Area Plan for areas within Planning Areas 1, 2, 3, 4, and 7, that have been used for agricultural activities where pesticides or herbicides have been used, the applicant shall conduct an investigation to assess the possible presence of residual pesticides and herbicides in accordance with applicable Department of Toxic Substance Control (DTSC) Guidance for Sampling Agricultural Soils. If necessary, a remediation program shall be developed and implemented for those areas where the soils testing program has identified that residual pesticides and herbicides exceed DTSC Guidance, to ensure soils meet standards for proposed uses within previous agricultural

areas. If significant contamination is encountered, the results of the testing/ investigation, etc. will be provided to OCHCA, or other appropriate agency, for direction and oversight.

MM 4.14-4 Prior to issuance of a grading permit or a demolition permit for any on-site building constructed prior to 1973, the building shall be screened for lead-based paint prior to demolition. If lead-based paint is identified, it shall be mitigated in accordance with all applicable federal, state and local regulatory requirements.

MM 4.14-5 Prior to issuance of a demolition permit for any structure constructed before 1980, the applicant shall test for asbestos containing materials. Should the building being demolished contain asbestos, the applicant shall comply with notification and asbestos removal procedures outlined in SCAQMD Rule 1403 to reduce asbestos related health risks.

MM 4.14-6 Prior to issuance of grading permits for Planning Areas 1, 3, 4, 5, and 8, respectively, the applicant shall remove, or require the leaseholder to remove, all storage tanks (UST and AGT), fuel dispensers, clarifiers and crushing equipment in compliance with OCHCA regulations. This shall include soil and groundwater sampling in and around any existing UST's, dispensers, clarifiers, crushing operations, and maintenance areas, with analysis for petroleum hydrocarbons, heavy metals, and PAH's to determine if any contaminates exist in the tank pit area or in surrounding areas. If contaminates exist, the level of impact shall be assessed and a remediation plan shall be developed, if required pursuant to applicable laws and regulations. If significant contamination is encountered, the results of the testing/investigation, etc. will be provided to OCHCA, or other appropriate agency, for direction and oversight.

MM 4.14-7 Prior to approval of Area Plan for areas within Planning Areas 1, 3, and 5, respectively, where soil staining has been identified, the applicant or leaseholder shall test the test the contaminated soils to assess their level of impact and a remediation plan shall be developed, if required pursuant to applicable laws and regulations. If significant contamination is encountered, the results of the testing/investigation shall be provided to OCHCA, or other appropriate agency, for direction and oversight of the remediation.

MM 4.14-8 Prior to issuance of grading permits for the portion of Planning Area 3 currently occupied by Catalina Pacific Concrete (CPC), the applicant or leaseholder shall provide verification to OCHCA that the truck washout recycling pond and related chemicals within the CPC lease area have been dismantled/removed and the pond contents removed/disposed in compliance with applicable regulations.

MM 4.14-9 Prior to approval of an Area Plan for those locations within Planning Area 5 where the UST's were removed, and the overburden storage area where previously contaminated soil was relocated, the applicant or leaseholder shall conduct further investigation regarding the level of contamination. If contamination exists at a level that requires action pursuant to applicable laws and regulations, a remediation plan shall be prepared. If significant contamination is encountered, the results of the testing/investigation shall be

provided to OCHCA, or other appropriate agency, for direction and oversight of the remediation.

MM 4.14-10 Prior to approval of Area Plan for the Trampas Dam area of Planning Area 5, a Phase II testing program shall be developed and implemented to more precisely determine the chemical composition associated with the tailings within Trampas Dam. Once the nature of the tailings is known, a removal program shall be developed to ensure the proper handling and disposal of the material. If the testing program identifies a violation of applicable standards, a remediation program shall be developed and verification of remediation to adopted standards will be submitted to OCHCA prior to issuance of grading permits.

MM 4.14-11 Prior to issuance of a grading permit for the two areas within Planning Area 8 previously used for pistol ranges, the applicant or leaseholder shall provide verification of soil sampling and testing. If significant contamination is encountered, the results of the testing/investigation, etc. will be provided to OCHCA, or other appropriate agency, for direction and oversight (this may be the water board) that spent ammunition have been removed and soils tested to assess residual lead and copper concentrations. Soil with residual lead or copper concentrations exceeding US EPA's PRGs shall be removed from the property and disposed of at an appropriate facility.

MM 4.14-12 Prior to approval of Area Plans for the Northrop Grumman Space Technology Test Site (TRW) lease portion of Planning Area 8, the applicant or leaseholder shall develop a comprehensive closure plan to assess, monitor, and mitigate any residual threats to human health or the environment which may remain as a result of site operations and closure. This plan shall address any existing, historical, or threatened releases of any hazardous substances or petroleum products into structures, soil, and/or groundwater beneath the property at any of the locations where these chemicals have been/are used. The comprehensive closure plan shall comply with regulations put forth by the California Department of Toxic Substances (DTSC) which is tasked with enforcing the California Health and Safety Code, Title 22 of the California Code of Regulations and Title 40 of the Code of Federal Regulations and the San Diego Regional Water Quality Control Board (SDRWQCB) which is tasked with enforcing the Water Code (Porter-Cologne Water Quality Control Act). If the comprehensive closure plan identifies the need for remediation, verification of completion of the remediation program shall be submitted to OCHCA, or other appropriate agency prior to issuance of grading permits for those areas subject to remediation.

MM 4.14-13 Prior to issuance of grading permits within each Planning Area, the Environmental Site Assessments (ESAs) will be updated for that grading permit area. If the Phase I Update identifies new actual or potential impacts, a Phase II ESA will be completed as necessary for the grading area by the landowner or subsequent project applicant. During the Phase II ESA, samples from potential areas of concern will be collected and submitted for laboratory analysis to confirm the nature and extent of potential impacts. If hazardous materials are identified during the site assessments, the appropriate response/remedial measures will be implemented including directives of the OCHCA and/or Regional Water Quality Control Board (RWQCB), as appropriate. If soil is encountered during site development that is suspected of being impacted by

hazardous materials, work will be halted and site conditions will be evaluated by a qualified environmental professional. If requested by the qualified environmental professional, the results of the evaluation will be submitted to OCHCA and/or RWQCB, and the appropriate remedial measures will be implemented, as directed by OCHCA, RWQCB, or other applicable oversight agency, until all specified requirements of the oversight agencies are satisfied and a no-further-action status is attained.

MM 4.14-14 The Master Area Plan prepared for those Planning Areas containing oil wells (Planning Areas 3 and 9) shall graphically depict the location of all oil wells. Prior to issuance of building permits for those locations with oil wells, the applicant shall submit verification that final building plans have undergone review by the Department of Conservation, Division of Oil, Gas, and Geothermal Resources and remedial action in compliance with well abandonment procedures has been completed.

Level of Significance After Mitigation

With implementation of the project design feature, standard condition of approval, and the mitigation measures, impacts due to hazardous materials would be reduced to a level of less than significant.

4.14.2 WILDLAND FIRE HAZARD

Introduction

The Orange County *Safety Element* of the General Plan states, "A major objective of wildland fire defense planning is to prevent wildland fires from starting and, if unsuccessful, to minimize the damage to natural resources and structures once a wildland fire starts." Throughout Orange County, homes, businesses, and industries are being built further into wildland environments, increasing the wildland/urban interface areas.

Methodology

The methodology used to assess the potential danger from wildland fire was to evaluate factors such as proximity of development area to wildland, implementation of fuel modification, and anticipated response times for fires. Standard fire suppression and response time is addressed in Section 4.15, Public Services and Facilities.

Study Area

The evaluation for wildland fire considers the project area in context with its surroundings.

Existing Conditions

The *Safety Element* of the General Plan identifies a number of natural conditions that might increase the possibility of wildland fires. Three of the primary conditions are the type and condition of wildland vegetation, topography of the area, and weather elements. While adverse weather conditions, such as dry winds, cannot be predicted or controlled, Orange County is known for dry, hot summers and periods of high Santa Ana winds; therefore, these conditions have to be anticipated. Other factors such as quantities of vegetation that serves as fuel, water supply, and inaccessible terrain can be evaluated.

The project site is generally undeveloped with large areas covered by natural vegetation. The *Safety Element* identifies the project area as being located in a Special Fire Management Zone. This is predominately due to the amount of vegetation onsite, the type of terrain, and that large portions of the project site have limited accessibility. Portions of the site have been used for agricultural uses, including crops, orchards and grazing (see Section 4.2, Agricultural Resources). In these areas, natural vegetation has been removed for crops and orchard areas, or reduced by grazing activities. Additionally, in other areas such as Planning Areas 5 and 8, industrial activities (ONIS and TRW) also have removed vegetation. In these disturbed locations, the fuel loading has been reduced.

Since the 1940s, the California Department of Forestry and Fire Protection and later OCFA have documented all wildland fire events for the entire county. The locations of historic fires in the area are depicted on Exhibits 4.14-2A through 4.14-2J. On a Countywide level, most of these events were of human origin. Historically, most of the fires on the project site have initiated either on the Cleveland National Forest or MCB Camp Pendleton and have been driven through the Ranch Plan property by Santa Ana winds.

The County of Orange and OCFA have adopted fuel modification requirements to reduce the potential loss of structures during wind driven wildfires. A fuel modification zone is an area of land where combustible vegetation has been removed and/or modified by the partial or total replacement with drought-tolerant, fire-resistant plants to reduce risks to structures associated with wildland fires. In April 2001, OCFA adopted the *Fuel Modification Plans and Maintenance* plan, which specifies that the standard fuel modification zone required by OCFA is 170 feet. This typically includes a 20-foot setback zone, a 50-foot minimum irrigation zone and an additional 100-foot vegetation-thinning zone. OCFA does take into consideration other factors such as the size of the lots (i.e., if the 170-foot zone would extend beyond the property line) and if sensitive and/or endangered species are located within the fuel modification ones. In their response to the Notice of Preparation, OCFA indicated that the fuel modification program was being updated. Other measures that have been adopted to reduce the risk with wildland fires involves the type of building materials required, such as roofing and siding.

There are different ways to determine the amount of fuel modification that is required to provide sufficient protection from wildland fires. The Intermountain Forest & Range Experiment Station of the USDA Forest Service has been categorizing fuel complexes into fuel models since 1964. The National Forest Fire Laboratory System (NFFLS) is used to predict site-specific fire predictions. The fuel model is used to estimate fire behavior such as intensity, rate of spread, flame length, fire size and perimeter estimates under varying weather conditions. Based on the type of vegetation, the model distinguishes 13 fuel models, which are divided into four groups: grass, shrub, timber, and slash. The predominate vegetation over most of the Ranch is scattered coastal sage scrub over cured grass. Using the NFFLS model, this vegetation type would be categorized as a Fuel Model (FM) 2. The Ranch has stayed in an FM 2 because of the high frequency of wildland fire burning over the Ranch property and ongoing activities that reduce the fuel loading. This fuel group exhibits some of the fastest rates of spread of all the fuel model groups, though the intensity of the fires are not as severe as most of the other fuel groups. Based on the modeling, an FM 2 would require 100 feet of fuel modification/treatment between structures and undisturbed native vegetation.

Impacts

Thresholds of Significance

Significant impacts would occur if the proposed project would:

- Expose people or structures to a significant risk or loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Impacts

When evaluating the likelihood and severity of wildland fires that may affect the Ranch Plan area, the following conditions are considered:

- The amount of natural vegetation that would provide fuel for a wildland fire,
- The topography of the area and accessibility for firefighting equipment,
- Water availability, and
- Weather elements.

The project would introduce more people and urban activities into an area that currently has limited accessibility. This can have a positive influence by improving accessibility, reducing fuel loading in the area, and providing improved water availability to the area. However, it also increases the number of structures and people that would be affected by a wildland fire and the potential losses should there be a fire. Additionally, the project proposes to maintain approximately 66 percent of the site in open space. Unless human activities are limited in open space areas, the risk of fire would be increased.

Natural vegetation would be reduced in the planning areas where development is proposed. Development areas with natural brush that could fuel a wildland fire would be removed as part of the grading for the project. Additionally, within the development area, a 110-foot fuel modification zone would be provided, subject to OCFA review and approval. This would reduce the impact of wildland fires on developed areas and provide a defendable space for urban interface areas.

The improved accessibility provided by the project would overall have a beneficial effect on the potential of wildland fires. The project would provide improved access for firefighting equipment and staging areas within development areas should a wildland fire occur. Additionally, the increased number of stations and fire fighting equipment that would be available to serve the standard fire and emergency response needs of the development would also be available for wildland fires. The project would limit access to the natural open space. Ranch roads that provide access into the interior of the open space would not be open to public. Similar to existing conditions, these roads would be fenced and gated. OCFA currently is able to access these areas for fire fighting. The width and grade for all roadways would be constructed to County and OCFA requirements.

The project would also increase the water availability for fire fighting purposes. Fire protection services were considered by SMWD when the water supply assessment was prepared for the project (this is discussed in Section 4.15, Public Services and Facilities).

The project site would likely remain as a Special Fire Management Zone area because of the extensive amount of open space associated with the project. Based on modeling done as part of the *Wildland Fire Management Plan*, which is contained in the Adaptive Management Program (Appendix J), the vegetation on the project site is currently categorized as FM 2[2], which would require a 100-foot fuel modification zone. However, it is recognized that is the fire frequency is reduced the vegetation could become denser and the species composition would change. This would result in the fuel model evolving into an FM 6 and eventually into an FM 4. This means that fires would burn with more intensity and would potentially be more destructive. Based on an FM 4 rating, the treatment for fuel modification would increase to 110 feet. This site-specific fuel modeling evaluation has been reviewed by OCFA; however, it has not been accepted (or rejected) as being adequate for the project. OCFA will accept less than the 170 feet that is recommended only if it can be demonstrated with fire modeling less than 170 feet will protect the home from loss.

As discussed in Section 4.9, Biological Resources, the *Wildland Fire Management Plan* is a component of the Adaptive Management Plan (Appendix J), which has been developed to address meeting fire objectives while maintaining and increasing net habitat values. Implementation of the Plan would provide measures intended to reduce the incidence and severity of wildfires (e.g., the use of prescribed burns to reduce fuel loads) and includes a "Strategic Fire Suppression Plan" intended to guide fire suppression actions that protect sensitive habitat areas from repeated wildfires (e.g., by identifying high priority "aggressive" fire suppression areas) and that minimize physical impacts from fire protection activities (e.g., the use of heavy fire suppression equipment).

Due to the number of homes that have been lost to wildland fires over the past decade, fire codes have been strengthened to provide better protection. Construction would be in compliance with the Unified Building Code and OCFA ordinances dealing with the wildland/ urban interface would govern the installation of non-combustible roofing and siding materials, building design, landscaping, and street layouts. With implementation of the provisions in the OCFA ordinances, together with improved accessibility and water availability, impacts associated with wildland fires would be less than significant.

There are no designated evacuation routes within the project boundaries; therefore, the project would not impair an evacuation route.

<u>Mitigation Program</u>

Fire protection is also addressed in Section 4.15. Mitigation measures for standard fire protection are provided in that section.

Project Design Features

PDF 4.14-2 The project provides for a minimum 110-foot fuel modification zone surrounding all development areas.

PDF 4.14-3 A *Wildland Fire Management Plan* in contained in the Adaptive Management Program provided in Appendix J. The Adaptive Management Program is further discussed in Section 4.9, Biological Resources.

[2] Fuel modeling and the type of vegetation in each fuel category is described in the *Fire Management Plan*.

Standard Conditions and Regulations

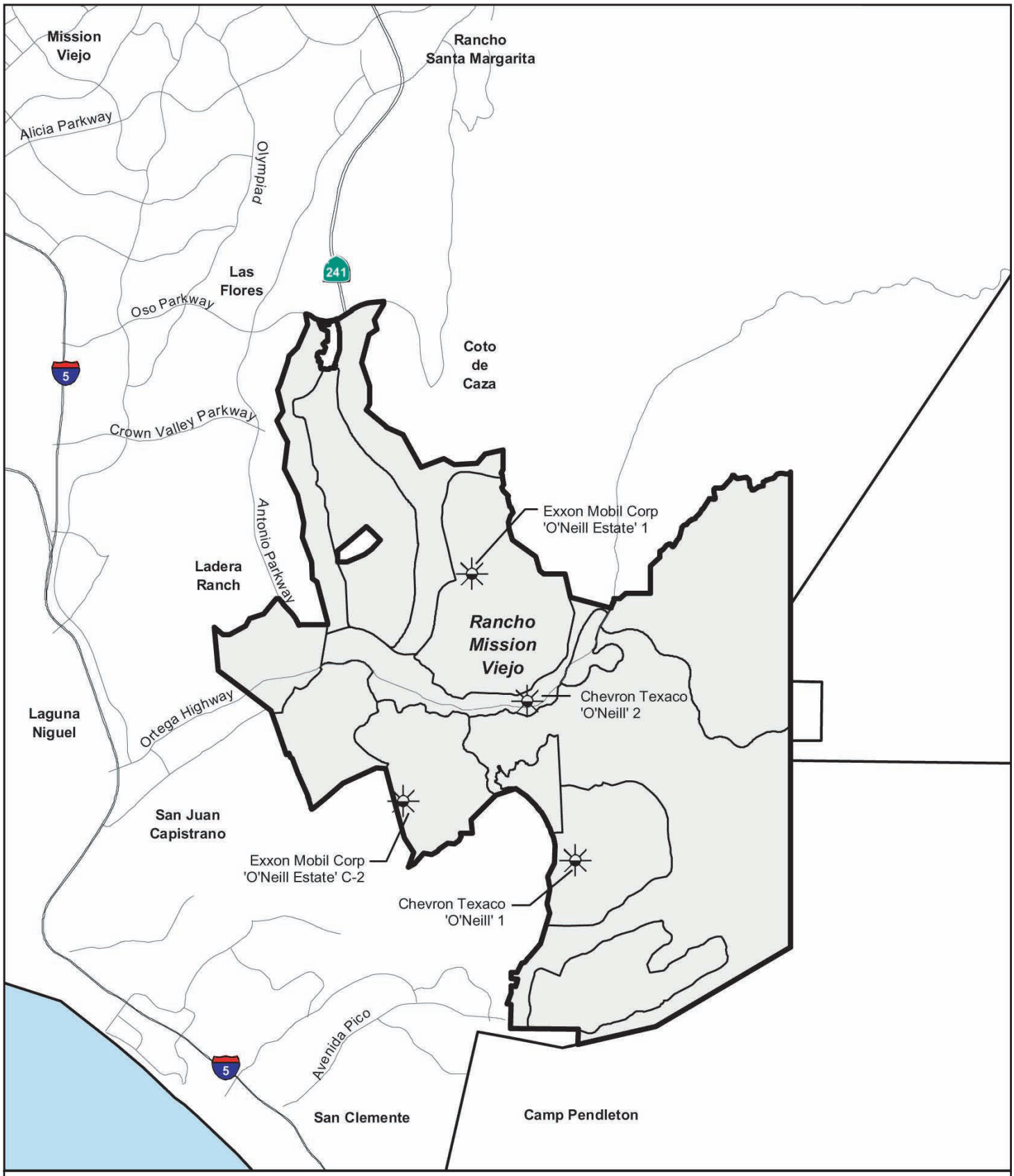
There are no standard conditions of approval associated with wildland fires.

Mitigation Measures

MM 4.14-15 Prior to approval of tentative subdivision maps and site-specific development projects with the project area, the landowner or subsequent project applicant shall submit evidence demonstrating compliance with all applicable OCFA conditions for development projects within a Special Fire Protection Area.

Level of Significance After Mitigation

With implementation of the project design feature and the mitigation measures, impacts due to wildland fires would be reduced to a level of less than significant.



Abandoned Oil Wells

Exhibit 4.14-1

The Ranch Plan

1" = 9000'

N
W E
S

Source: Department of Conservation DOGGR, Mapped by EDAW, Inc.

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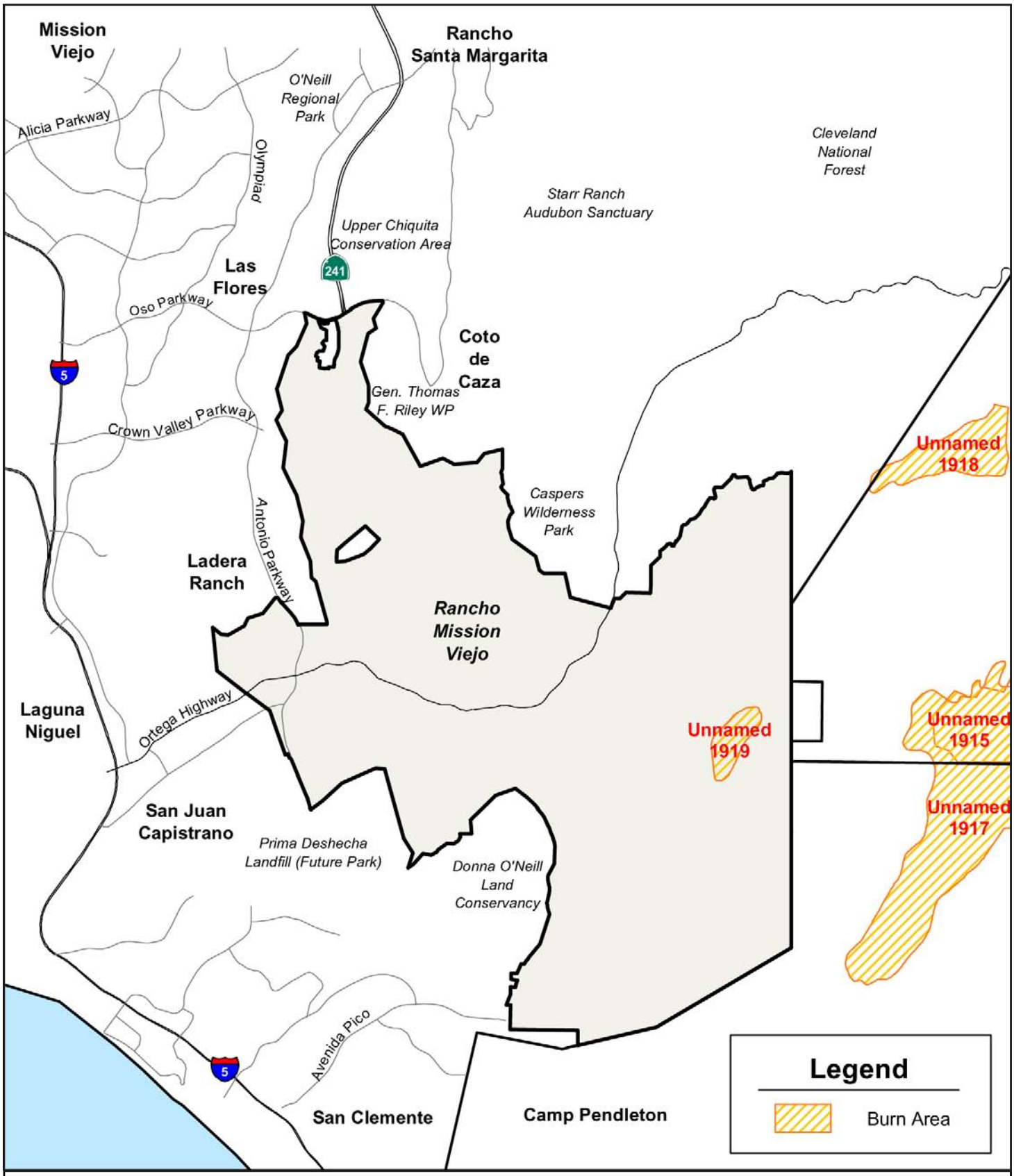

Wildfire History 1911 - 1920

Exhibit 4.14-2a

The Ranch Plan

1" = 9,000'

N
W E
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Source: Orange County Fire Authority (OCFA)

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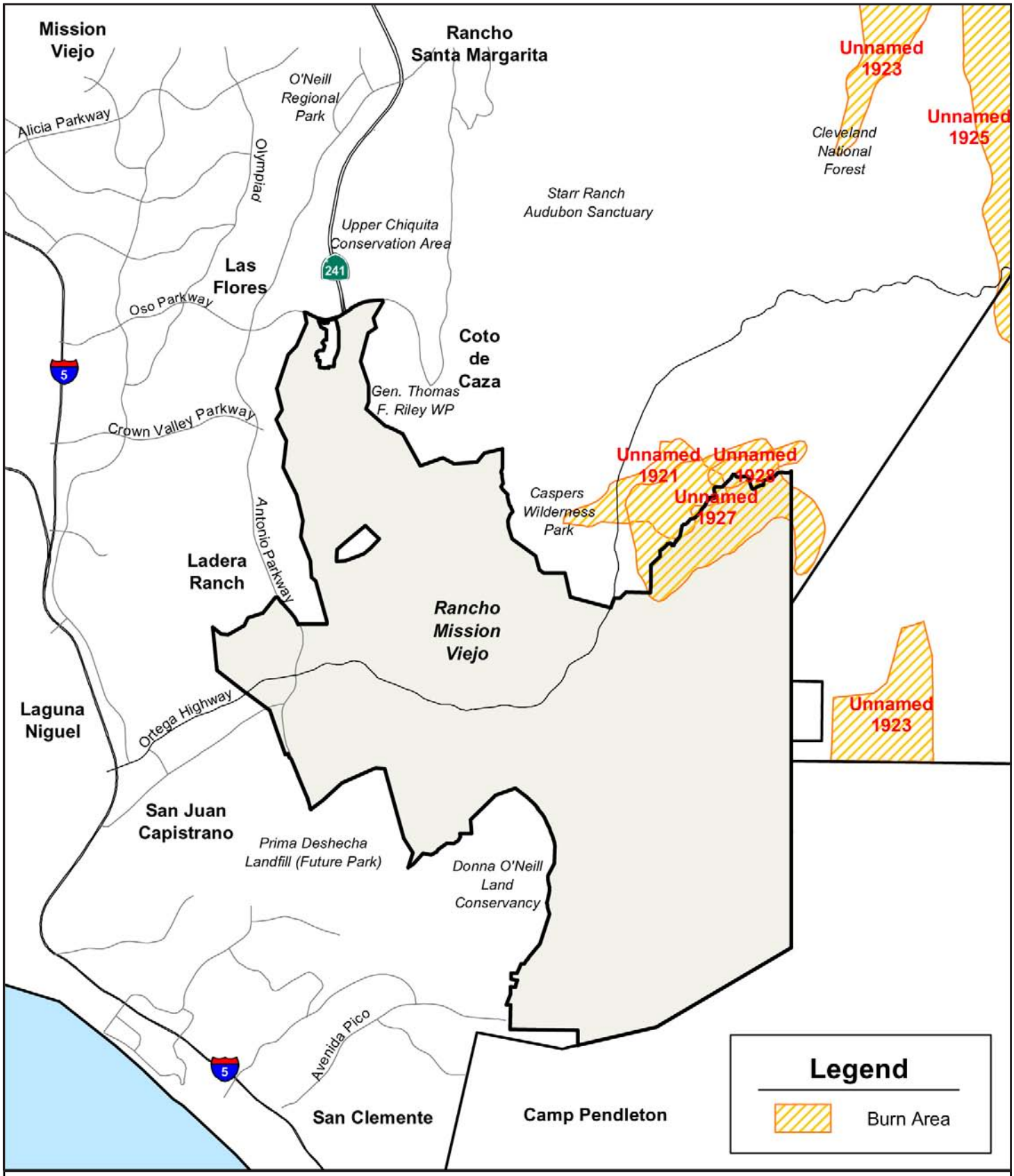

Wildfire History 1921 - 1930

Exhibit 4.14-2b

The Ranch Plan

1" = 9,000'

N
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Source: Orange County Fire Authority (OCFA)

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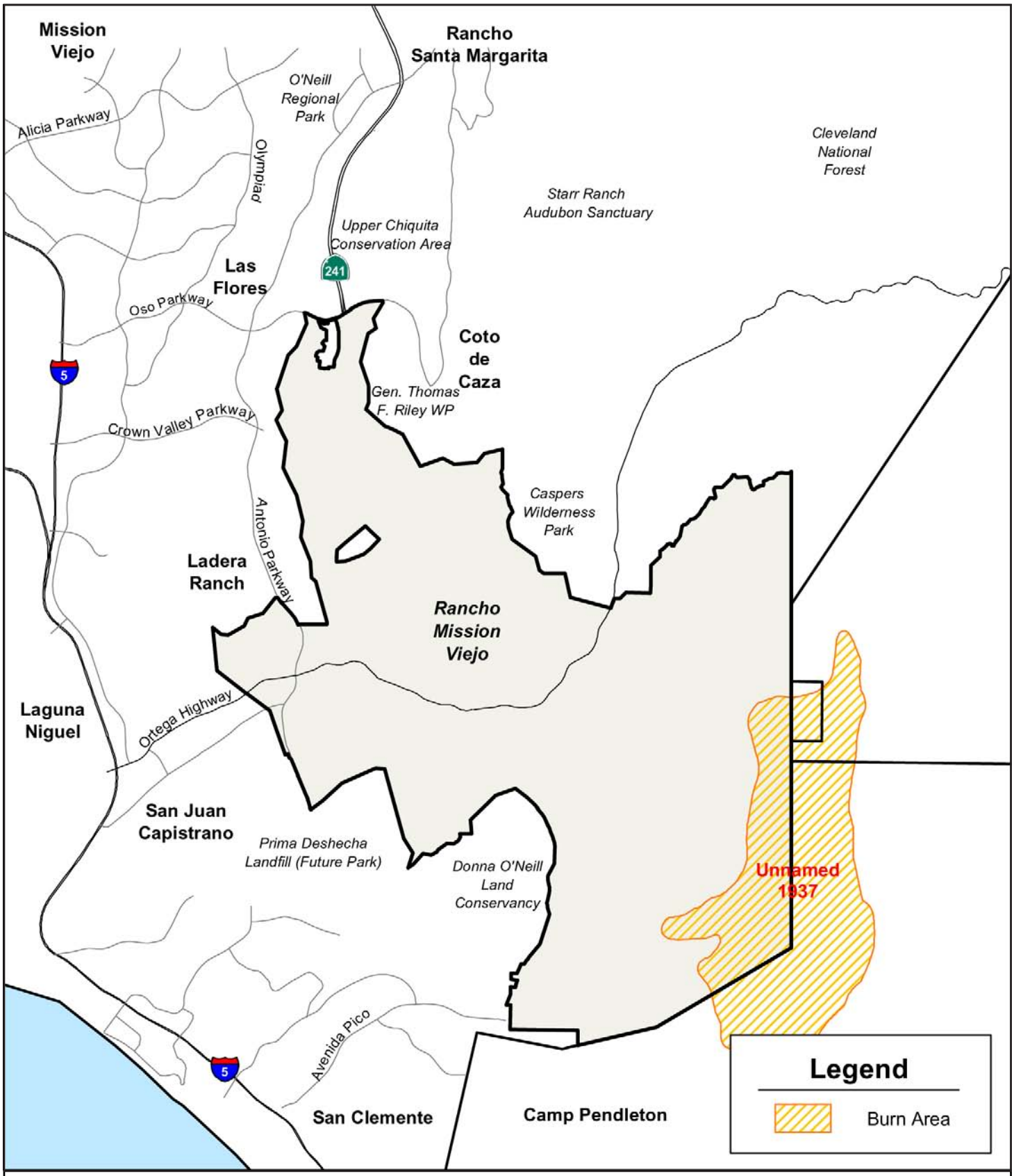

Wildfire History 1931 - 1940

Exhibit 4.14-2c

The Ranch Plan

1" = 9,000'

N W E S

Source: Orange County Fire Authority (OCFA)

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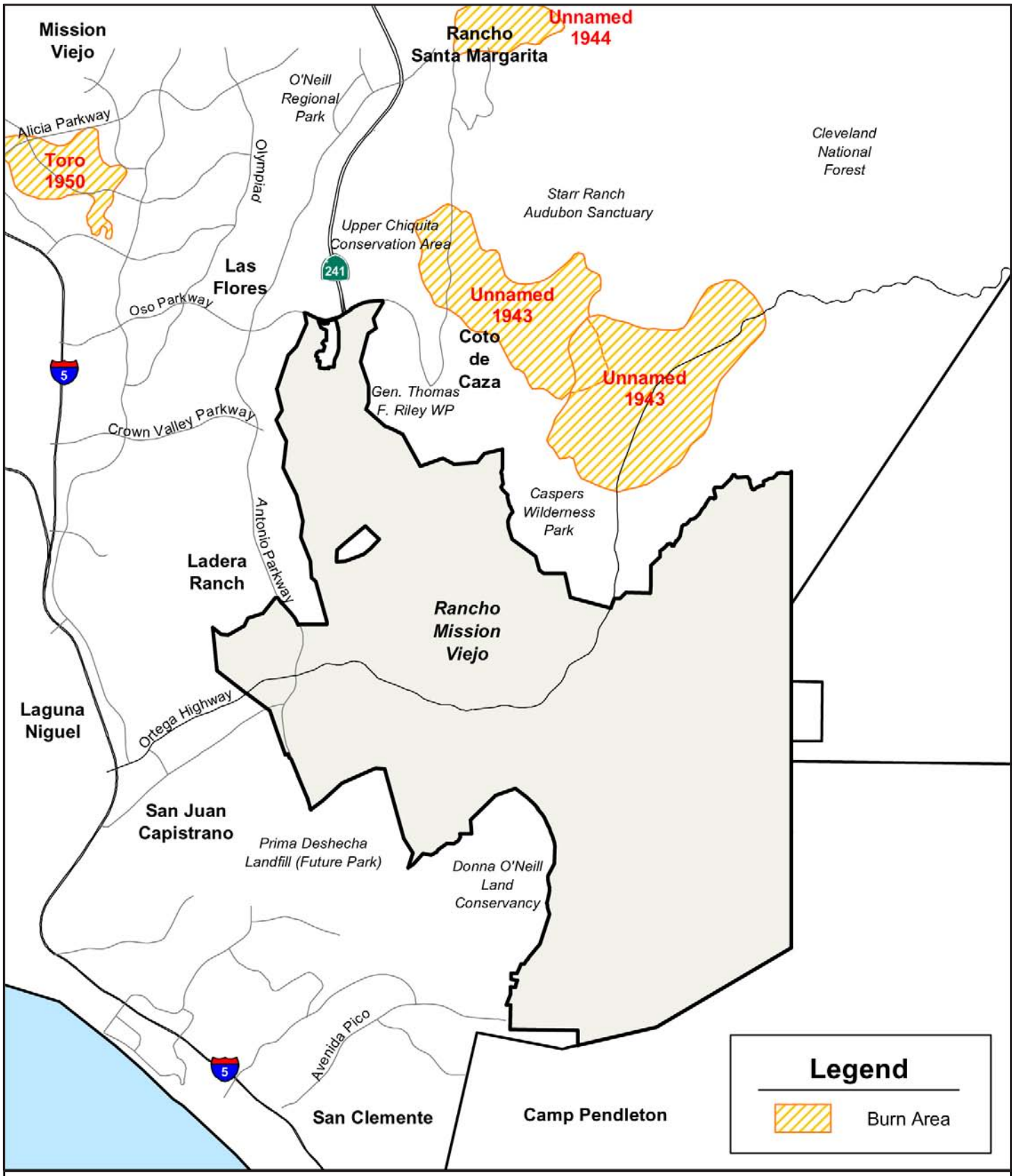

Wildfire History 1941 - 1950

Exhibit 4.14-2d

The Ranch Plan

1" = 9,000'

N
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S

Source: Orange County Fire Authority (OCFA)

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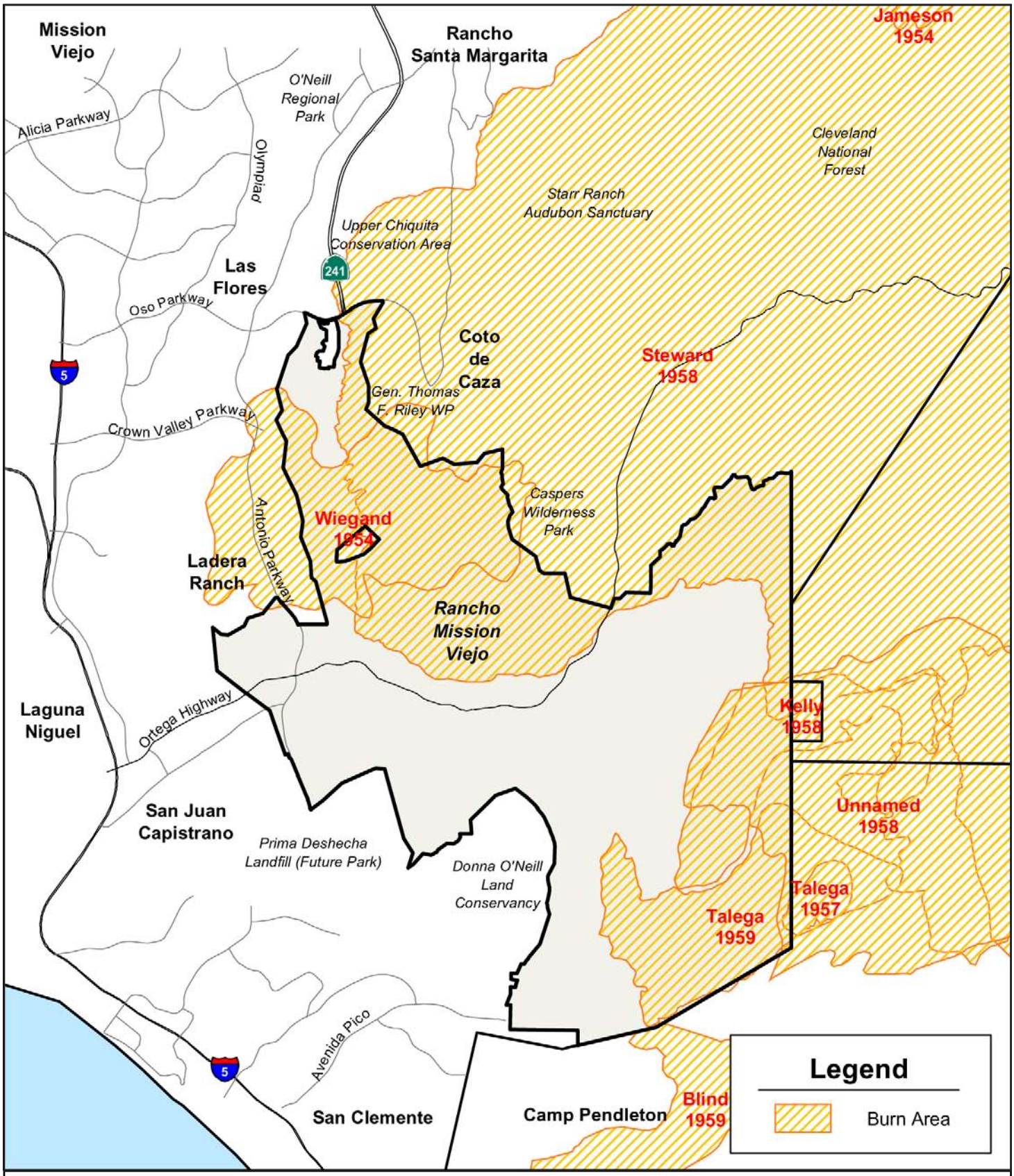

Wildfire History 1951 - 1960

Exhibit 4.14-2e

The Ranch Plan

1" = 9,000'

N W E S

Source: Orange County Fire Authority (OCFA)

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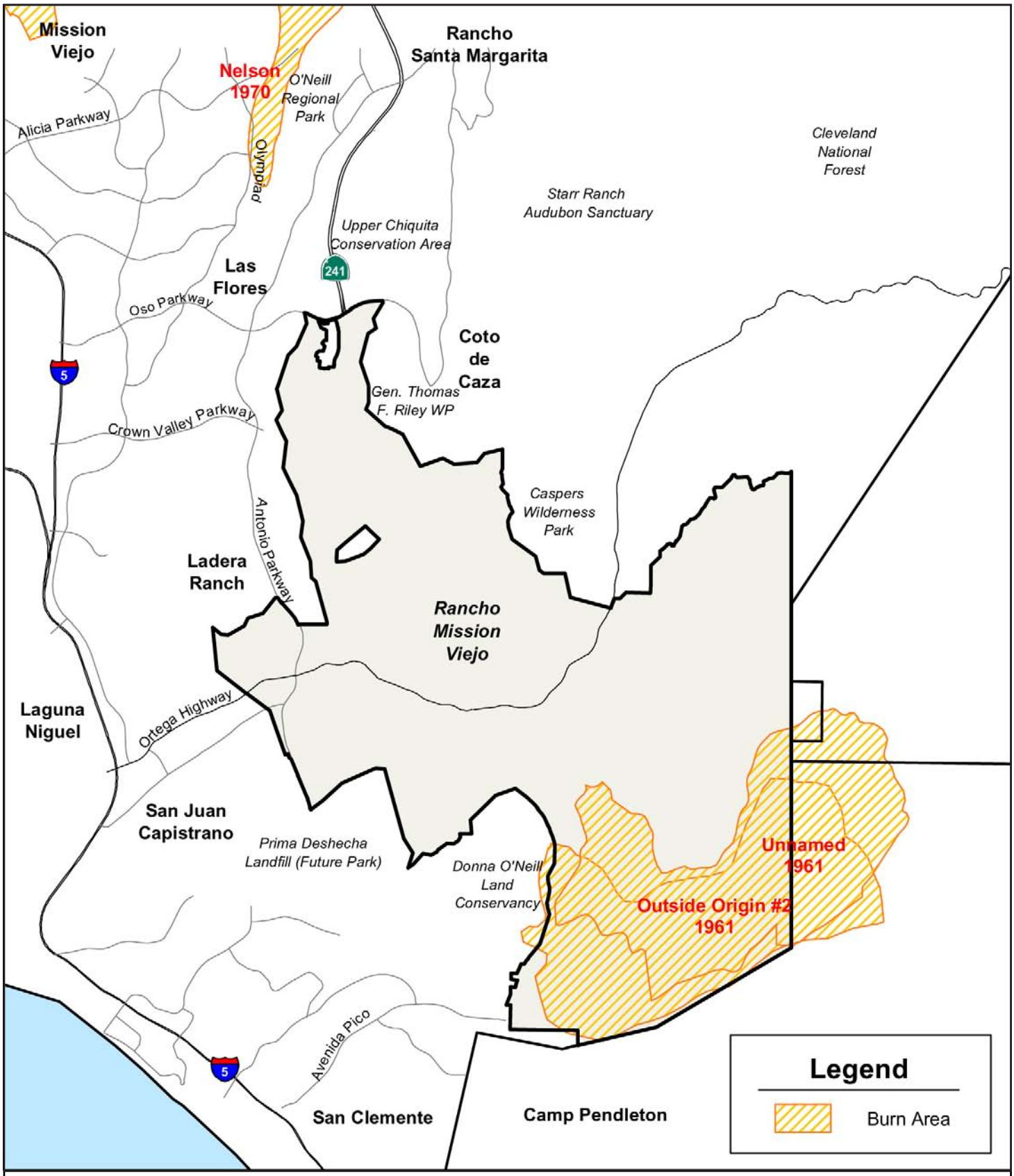

Wildfire History 1961 - 1970

Exhibit 4.14-2f

The Ranch Plan

1" = 9,000'

N W E S

Source: Orange County Fire Authority (OCFA)

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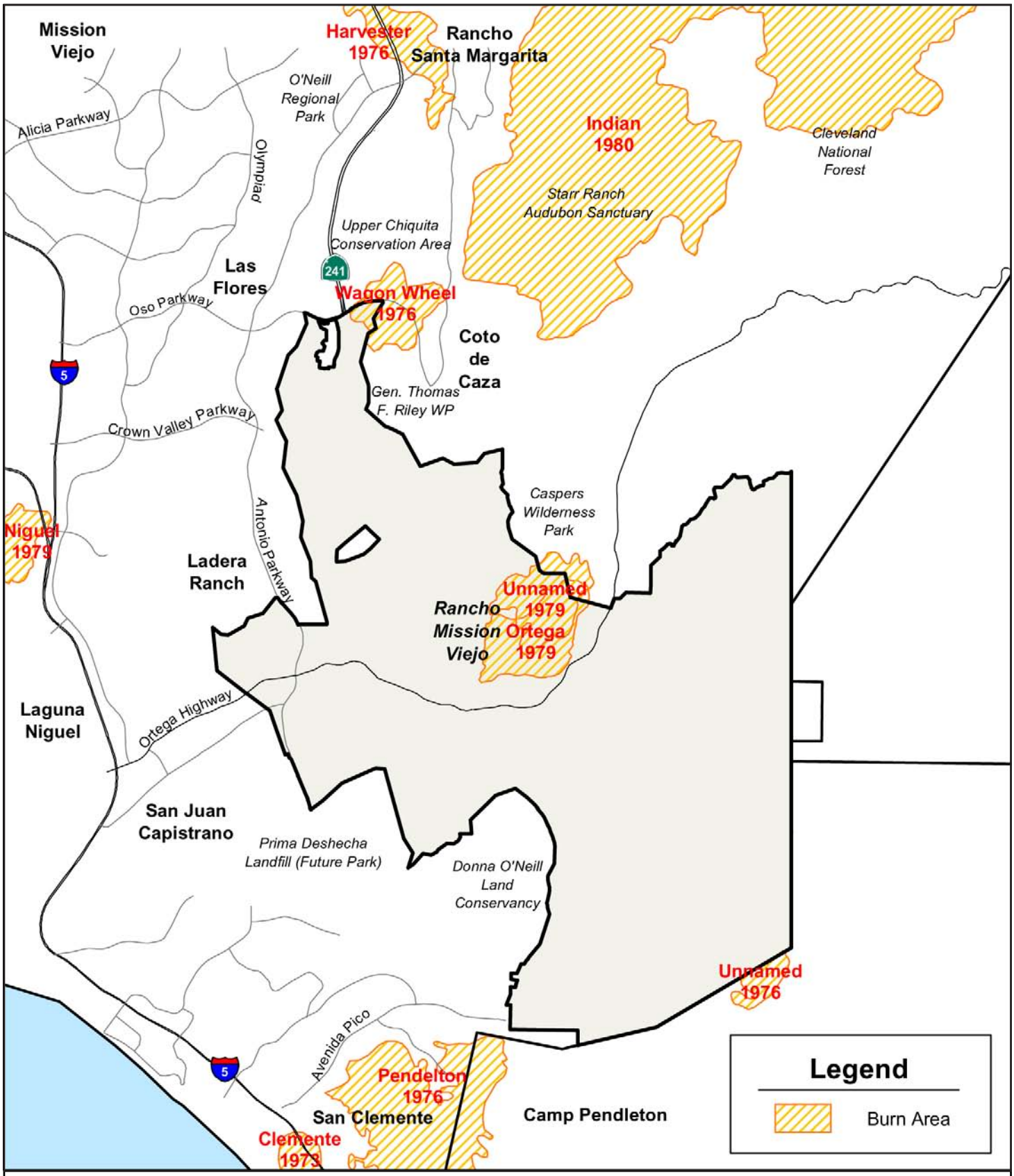

Wildfire History 1971 - 1980

Exhibit 4.14-2g

The Ranch Plan

1" = 9,000'

N W E S

Source: Orange County Fire Authority (OCFA)

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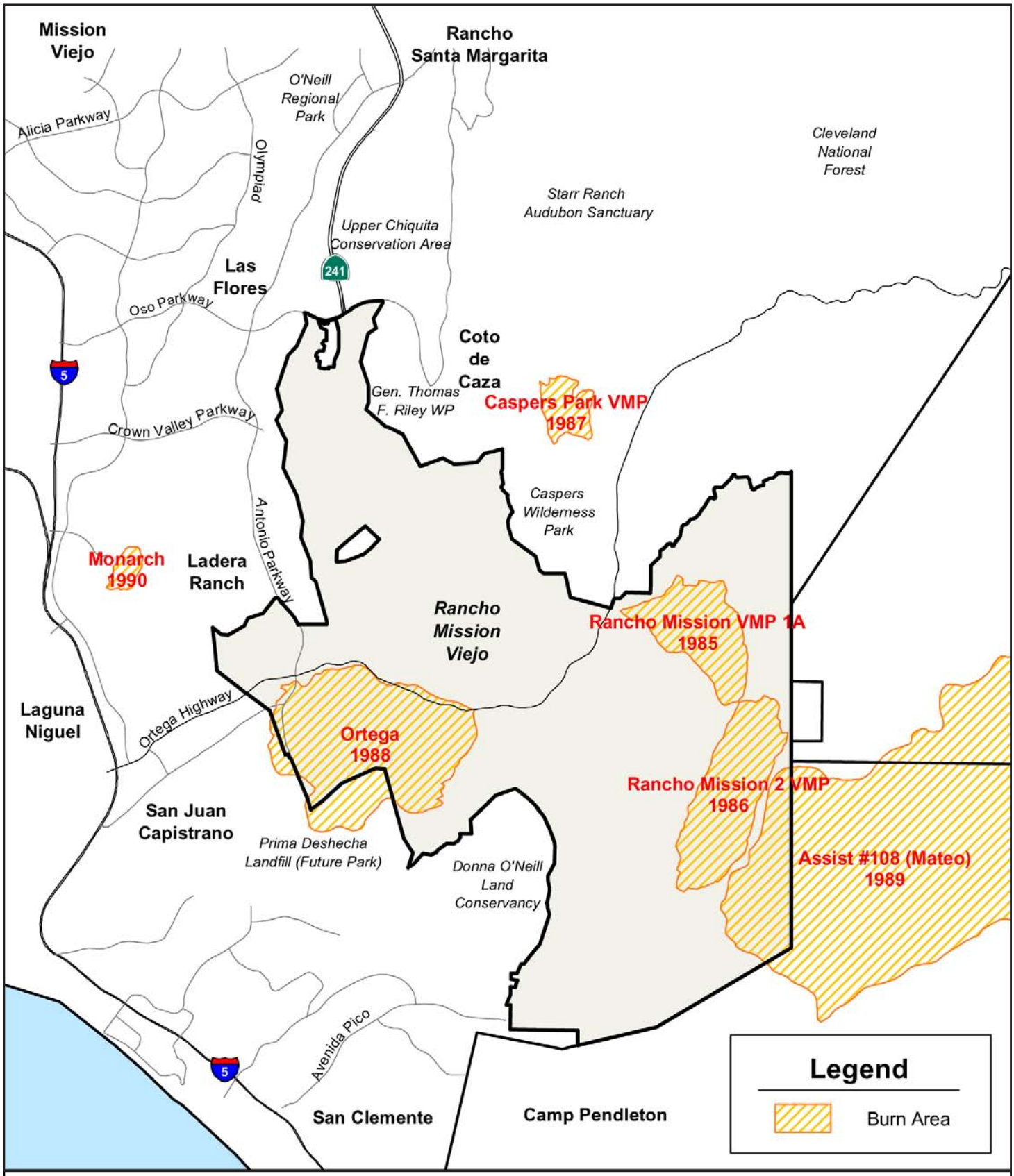

Wildfire History 1981 – 1990

Exhibit 4.14-2h

The Ranch Plan

1" = 9,000'

N W E S

Source: Orange County Fire Authority (OCFA)

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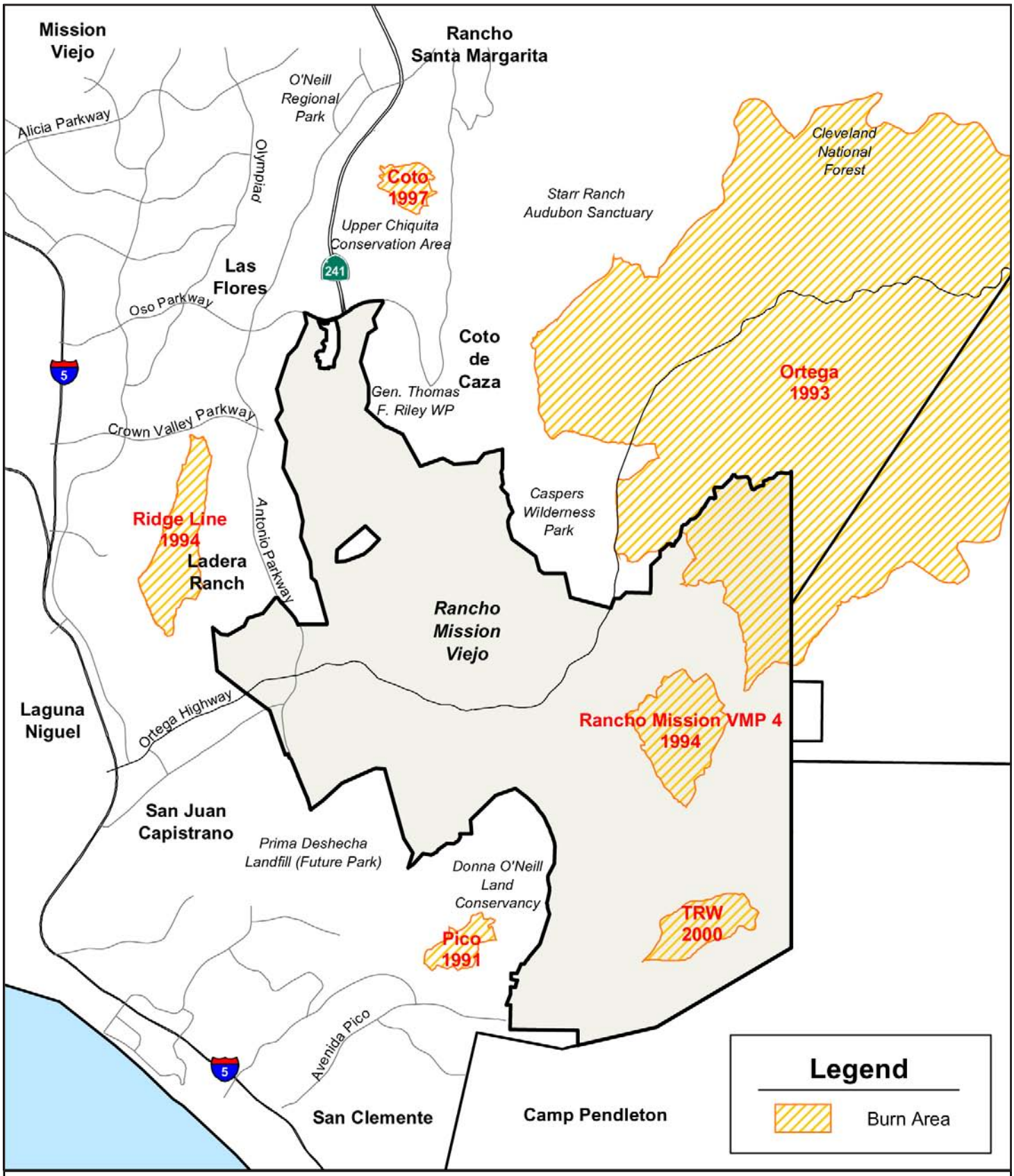

Wildfire History 1991 – 2000

Exhibit 4.14-2i

The Ranch Plan

1" = 9,000'

N W E S

Source: Orange County Fire Authority (OCFA)

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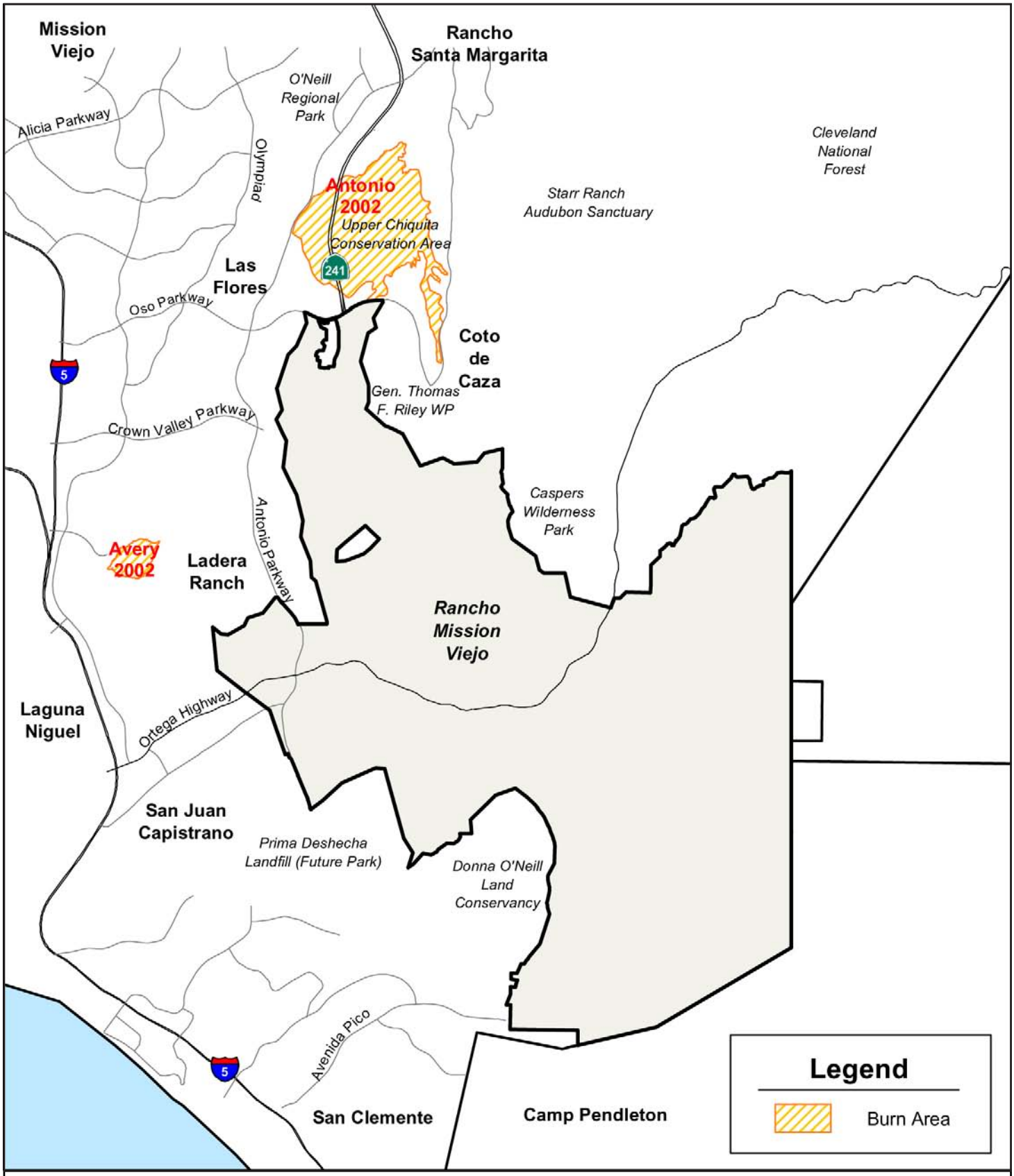

Wildfire History 2001 - 2002

Exhibit 4.14-2j

The Ranch Plan

1" = 9,000'

N
W E
S

Source: Source: Orange County Fire Authority (OCFA)

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4.15 PUBLIC SERVICES AND FACILITIES

4.15.1 FIRE PROTECTION SERVICES

Methodology

The fire services analysis was based upon information collected from the Orange County Fire Authority (OCFA), Strategic Services Division. Current numbers of facilities, locations, manpower, and response times were also provided by OCFA. Information regarding future fire service and facility needs is based on Deccan International's CAD-based Fire/EMS ADAM modeling software, which evaluates the effectiveness of current and proposed stations.

Study Area

OCFA serves unincorporated areas of the County and 22 cities within the County. These include the cities of Aliso Viejo, Buena Park, Cypress, Dana Point, Irvine, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, La Palma, Los Alamitos, Mission Viejo, Placentia, Rancho Santa Margarita, San Clemente, San Juan Capistrano, Seal Beach, Stanton, Tustin, Villa Park, Westminster, and Yorba Linda. OCFA's service area spans approximately 552 square miles, and OCFA serves nearly half a million housing units and 1.275 million residents. The Ranch Plan project site is located within the unincorporated area served by OCFA.

OCFA is divided into four divisions and 8 battalions. The project site is located within Battalion 6 of Division 3 of the OCFA service areas. Division 3, which encompasses the project site, covers the southern portion of Orange County. Division 3 includes portions of the cities of Lake Forest, Mission Viejo, Rancho Santa Margarita, Laguna Beach, Laguna Niguel, Dana Point, San Juan Capistrano, and San Clemente, as well as a large area of unincorporated Orange County. Division 3 is divided into two Battalions. Battalion 6 encompasses the southern half of Division 3, as well as the project site. It includes portions of the cities of Laguna Beach, Laguna Niguel, San Juan Capistrano, Dana Point, and San Clemente, as well as unincorporated areas.

Existing Conditions

Existing and proposed fire stations adjacent to the project site are listed below in Table 4.15-1. Exhibit 4.15-1 depicts the locations of the existing, as well as proposed, fire stations. The table also shows the number of calls for service received by the existing stations; Fire Station 56 received no calls because it is a proposed station and has not been constructed. A discussion of each station's location, labor resources, and equipment follow. There are no existing fire stations within the project site and the project site is not located within the service area of any existing fire station; however, these stations would respond to a fire within the project site if one were to occur. The U.S. Forest Service fire service only responds to wildland fires within the National Forest areas to the east of the project site. Their fire station is not staffed on a 24-hour basis. OCFA responds to medical emergencies and provides structural fire protection.

TABLE 4.15-1
FIRE STATIONS SERVING THE PROJECT STUDY AREA

Station Number	Station Name & Address	Calls for Service in 2003
Existing Station Number and Name		
Station 7	San Juan Capistrano – 31865 Del Obispo, San Juan Capistrano	4,860
Station 9	South Mission Viejo – 9 Shops Boulevard, Mission Viejo	2,380
Station 24	Mission Viejo – 25862 Marguerite Parkway, Mission Viejo	3,352
Station 40	Coto de Caza – 25082 Vista del Verde, Coto de Caza	451
Station 58	Ladera Ranch – 58 Station Way, Ladera Ranch	1,486
Station 59	San Clemente – 1030 Calle Negocio, San Clemente	991
Proposed Station		
Station 56	Near the intersection of New Ortega Highway & SR-74, Ladera Ranch	NA[2]

[1] Although the address for Station 58 is within Rancho Santa Margarita, the area is actually within unincorporated Orange County, and not the incorporated City of Rancho Santa Margarita.

[2] No calls were received by Fire Station 56 because it is a proposed station.

Source: Michelle Hernandez, Orange County Fire Authority Strategic Services Division, 2004

Station 7 is located west of I-5 at the corner of Del Obispo and Forrester Lane in San Juan Capistrano. The station is approximately three miles from the project site, and Planning Area 1 would be the closest Ranch Plan development area to the fire station. The station houses the following equipment: (1) a Type 1 Basic Life Support fire engine with three personnel; (2) a two-person paramedic van; and (3) a reserve patrol unit staffed by volunteers. The station is two bays wide and accommodates six personnel as currently configured.

Station 9 is located on Shops Boulevard, east of I-5 and south of Crown Valley Parkway, near the Shops at Mission Viejo, in the City of Mission Viejo. The station is located approximately five miles from the project site; Planning Area 2 would be the closest Ranch Plan development area to the fire station. The station houses the following equipment: (1) a Type 1 Paramedic Life Support fire engine with three personnel, one of whom is a paramedic; and (2) an Urban Search and Rescue Truck Company with four personnel. The station is two bays wide and accommodates seven personnel as currently configured.

Station 24 is located on Marguerite Parkway north of Oso Parkway, in the City of Mission Viejo. The station is located approximately seven miles from the project site, and Planning Area 2 would be the closest Ranch Plan development area to the fire station. The station houses the following equipment: (1) a Type 1 Advanced Life Support fire engine with four personnel, two of whom are paramedics; and (2) a reserve patrol unit staffed by volunteers. The station is two bays wide and accommodates six personnel as currently configured.

Station 40 is located on Vista del Verde between Niblick and Hidden Oaks Lanes, in Coto de Caza. The station is located approximately eleven miles from the project site via existing roadways. Planning Areas 2 and 3 would be the closest Ranch Plan development areas to the fire station. The station houses the following equipment: (1) a Type 1 Paramedic Assessment Unit fire engine with three personnel, one of whom is a paramedic; and (2) a reserve patrol unit staffed by volunteers. The station is three bays wide and accommodates eight personnel as currently configured.

Station 58 is located near the intersection of Antonio Parkway and Crown Valley Parkway in unincorporated Orange County (Ladera Ranch). The station is located approximately five miles from the project site, and Planning Areas 1 and 2 would be the closest Ranch Plan development area to the fire station. The station houses a Type 1 Advanced Life Support fire engine with four personnel, two of whom are paramedics. The station is three bays wide and accommodates twelve personnel as currently configured.

Station 59 is located on Calle Negocio near the intersection of Avenida Pico and Avenida La Pata, in the City of San Clemente. The station is currently located slightly more than one mile from the project site. Planning Area 8 would be the closest Ranch Plan development area to the fire station. The station houses a Ladder Truck Paramedic Assessment Unit with three personnel, one of whom is a paramedic. This station is in the process of being relocated to Avenida La Pata between Avenida Pico and Avenida Vista Hermosa in the City of San Clemente. The new location would also be approximately one mile from Planning Area 8. The station is a converted industrial building of approximately 9,000 square feet, and is being constructed to house eight personnel.

Proposed Station 56 is currently planned to be located near Antonio Parkway and Ortega Highway. At this location, the station would be responsible for calls within the southern portion of Ladera Ranch, as well as areas to the south. Though the precise location has not been determined, the anticipated location would be adjacent to Planning Area 1.

The National Fire Protection Association (NFPA) 1710 Standard, establishes a goal of a five minute response goal from the time of dispatch to arrival on the scene, whenever possible. According to NFPA, response time is a measure of the time it takes fire and emergency staff to prepare, or “turn out” for the call, until the vehicle arrives at the scene of the fire or emergency. Response times can vary, depending on such factor as the time of day, traffic and conditions, whether vehicles are at the station to respond or a call must be forwarded to another, nearby station. OCFA is able to achieve the NFPA 1710 Standard 71 percent of the time, with an average NFPA response time of five minutes 17 seconds.

The County of Orange General Plan Public Services and Facilities Element requires fire/paramedic facilities to be sited in central locations to ensure efficient fire rescue and paramedic response for the service area. General criteria for a fire station site selection include: (1) a call-response for 80 percent of the project site of 5 minutes or less for the first engine and eight minutes or less for the first paramedic unit; (2) compatible land uses; and (3) controlled access to arterial highways with traffic signalization. Other siting criteria include density and population of the service area, land use patterns, and actual emergency response statistical data. In addition, the element requires land use proposals to maximize fire protection and prevention through consideration of structure types and densities, emergency fire flow and fire hydrant distribution, street patterns, emergency fire access, and other considerations.

In addition to the County of Orange General Plan Public Services and Facilities Element, OCFA also has criteria for the location of fire stations. In general, each fire station serves a circular-shaped area with a two-mile radius from the station. Using the Insurance Services Office (ISO) formula for speed calculation, a unit would travel 1.97 miles in four minutes. This is the area in which a fire truck travel at an average speed of 30 miles per hour can travel within the five-minute response time. Within southern Orange County communities, this generally results in a fire station serving approximately 5,000 to 8,000 homes. OCFA also has site selection criteria for fire stations. These include the following: (1) size and shape of the parcel; (2) type of and proximity to adjoining land uses; (3) soils and topography; (4) hydrology; (5) past usage and condition of site; (6) traffic and access; (7) restrictions due to easements, heights, size,

architecture, parking, and landscaping, to name a few; (8) type of existing infrastructure; (9) cost of the parcel, improvement, mitigation, and construction; and (10) security of the site.

A Secured Fire Protection Agreement was entered into for Ladera Ranch. That agreement also covers the area within Planning Area 1.

Impacts

Thresholds of Significance

The proposed project would result in a significant impact to fire protection services if the project:

- Results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities.
- Would substantially reduce acceptable service ratios, or other adopted performance objectives, or substantially increase response time of the Orange County Fire Authority.
- Creates a substantial amount of emergencies that cannot be adequately serviced by either available OCFA personnel or equipment or through provisions provided by the project.
- Water pressure for fire protection flow is less than required.
- Fire access does not meet adopted standards.

Impacts to Fire Protection Services and Facilities

The first three impacts identified for fire protection services pertain to achieving the adopted performance objectives. These impacts have been identified based on the preliminary input from OCFA with regard to potential location of new fire stations and without the benefit of knowing the internal road network of the future development. The fourth impact is associated with fire access. No significant impacts were identified due to physical impacts associated with proposed facilities, creation of emergencies, or insufficient water pressure.

Impact 4.15-1: *Due to the remoteness of the low density development in the eastern portion of Planning Area 7 and the estates in Planning Area 9, OCFA would not be able to provide adequate fire protection to these areas and meet adopted performance objectives.*

Impact 4.15-2: *The removal of Crown Valley Parkway from the MPAH would reduce the effectiveness of Fire Station 58 and result in service levels below adopted performance objectives for the northern portion of Planning Area 2.*

Impact 4.15-3 *The distance to the nearest hospital would cause delays in transport and greater use of OCFA staff. As a result, staff would not be available at the stations for other emergency calls. This may have an adverse effect on meeting adopted performance objectives.*

Impact 4.15-4*: Use of the existing ranch roads for access in Planning Area 9 may not meet OCFA standards for emergency access.*

Physical Impacts Associated with Facilities

Development of the Ranch Plan site would introduce people and structures into currently undeveloped areas. The construction of 14,000 dwelling units and over 5.0 million square feet of non-residential uses would exceed the capacity of existing stations. Due to expected increases in the number of responses and the likelihood of simultaneous and greater alarm incidents from a large, newly populated area, implementation of the Ranch Plan would place significant service burdens upon the OCFA fire protection and emergency response services. These burdens would thereby necessitate the construction of several new fire stations, as well as the hiring and training of additional firefighters.

Preliminary analysis by OCFA shows the need for approximately additional four new fire stations with five and a half companies (i.e., four engines and one truck and a paramedic van). A final determination of fire station needs and locations would be made at a future date when more information is available regarding project design, development phasing, and internal circulation and access. At this time, OCFA recommends that fire stations be located within Planning Areas 3, 6, and 8, with two new stations in Planning Area 3. Additionally, proposed Station 56 would move from its currently planned location at Ortega Highway and Antonio Parkway to an area near New Ortega Highway and Antonio Parkway adjacent to the southern portion of Planning Area 1.

The County of Orange General Plan Public Services and Facilities Element has requirements for the siting of fire/paramedic facilities are enumerated in the discussion of existing conditions. Implementation of the proposed project would be consistent with these requirements in that fire station would be constructed on site in conjunction with the project proponent's provision of pro-rata funding for additional fire protection services and facilities (station, staff, equipment, etc.) to adequately provide for the future fire protection needs associated with the proposed land development area. Moreover, the location of the proposed fire stations would be sited so as to be compatible with surrounding land uses. The construction of these fire stations would occur within areas already proposed for development, so there would be no additional physical impacts resulting from the construction of these fire stations. The funding for the hiring and training of additional firefighters is derived from property taxes that would be generated by the project. The fiscal matters are addressed in a separate and independent Fiscal Impact Report. CEQA does not consider fiscal matters; and, therefore, they are not addressed as part of this Program EIR. There would be no significant impact associated with provision of new facilities, beyond those already addressed as part of project implementation.

Acceptable Service Ratios, or Adopted Performance Objectives

The majority of the project development would be conventional development and fuel modification zones would be incorporated for all development areas. The construction of new fire stations would ensure adequate service ratios for the majority of the project site. However, due to the remoteness of development in Planning Area 9 and the low density development in the easternmost portion of Planning Area 7 service to these areas would not meet adopted performance standards. This would be a significant impact.

In accordance with the NFPA Fire Protection Handbook, the OCFA requires that residences 5,500 square feet and larger be constructed with residential fire sprinkler systems. This requirement is based upon the demonstrated historical effectiveness of fire sprinkler systems

within residences. Because low-density and estate development within Planning Areas 7 and 9, respectively, would be anticipated to be at least 5,500 square feet, residential fire sprinklers systems would be required.

The proposed amendment to the MPAH to delete the proposed extension of Crown Valley Parkway east of Antonio Parkway would reduce the effectiveness of Station 58, which was assumed to have a larger service area encompassing Ladera Ranch, the northern portion of Planning Area 2, and Coto de Caza. Fire station placement in the area was developed with the understanding that the Crown Valley Parkway extension would be provided. The deletion of the Crown Valley Parkway segment would reduce the ability of this station to respond to calls in the upper portion of Planning Area 2, and further east in a time effective manner. Instead of accessing the upper portion of Planning Area 2 directly via Crown Valley Parkway, trucks would need to travel north on Antonio Parkway, and access Planning Area 2 via Oso Parkway and Chiquita Canyon Road. The deletion of Crown Valley Parkway would not reduce service levels below existing conditions for any existing development; however, it would not allow Station 58 to be utilized to its planned capacity.

OCFA believes that because the extension of Crown Valley Parkway is not proposed as part of the project, construction of an additional fire station may be required to serve the upper portion of Planning Area 2. No final determination has been made regarding the precise location of fire stations within the project site. As a result, when a final determination regarding project design, development phasing, and internal circulation and access is made, and the precise placement of project fire stations are chosen, a fire protection plan would need to be developed to adequately service the upper portion of Planning Area 2. This level of planning would be done through a Secured Fire Protection Agreement. Prior to implementation of the Agreement demonstrating that adequate fire protection can be provided to the northern portion of Planning Area 2, the impact would be considered significant.

OCFA has also expressed concern that development within Ranch Plan would be too far from the nearest hospital, Mission Hospital. The distance in transporting patients to the hospital and traveling back to the stations would cause both delays in transport and greater use of OCFA staff. When staff spends a greater amount of time on the road than typical, they are not available for other emergencies, and service time is reduced. This would have adverse implications on meeting adopted performance objectives.

The remoteness of portions of development, the deletion of Crown Valley Parkway, and anticipated delays in the transport of patients would all contribute to impacts on meeting performance objectives. This would be considered a significant impact.

<u>Adequate Service of Emergencies</u>

The project would introduce a substantial population into an area that currently has limited development. Although the increased population would result in more emergencies than are currently experienced, the project would also provide new facilities that would respond to the emergencies. However, one factor to consider is the number of senior units that are proposed a part of the project. Slightly over 40 percent of the residential development would be senior housing. With the higher number of seniors comes the potential for a higher ratio of medical emergencies compared to the general population.

As previously indicated, OCFA has expressed concern on the distance to the nearest hospital. Although the distance would have a potential impact on delays for OCFA staff (addressed above), local medical facilities and Mission Hospital would be able to accommodate future residents of the Ranch Plan. Additionally, it is anticipated that as the population grows a

hospital or a emergency medical facility may locate within the project limits. The UAC designation allows the development of hospitals or other medical facilities. No significant impact associated with the creation of emergencies that cannot be accommodated with existing and proposed facilities is anticipated.

Water Pressure for Fire Protection Flow

The OCFA requires fire flows of 1,000 gallons per minute (gpm) for single-family residential structures less than 3,600 square feet and 1,500 gpm for commercial structures. A 50 percent reduction in fire flow may be allowed when buildings are protected by an approved fire sprinkler system; however, both a fire sprinkler and fire hydrant system would be required in those instances, and other specific project criteria must also be met. The *Plan of Works for Improvement Districts 4C, 4E and 5 and* 6, prepared by Tetra Tech Inc., and approved by SMWD in November 2003, incorporated the required fire flows when evaluating water demand for the proposed project.

SMWD has identified design standards for all water distribution facilities within the OCFA jurisdictional boundary, which reflects OCFA standards for fire-flow requirements. Accordingly, proposed distribution systems shall be designed to accommodate the applicable land uses identified in Table 4.15-2, below.

TABLE 4.15-2
MAXIMUM FIRE FLOW SERVICE LEVELS WITHIN OCFA SERVICE AREA

Land Use	Maximum Fire Flow (gpm)	Flow Duration (hrs)	Fire Flow Volume (gal)	Number of Hydrants
Single-Family Detached Residential	2,500	3	450,000	2
Multi-Family Attached Residential	3,000	3	540,000	2
Elementary, Intermediate and High Schools	3,500	4	840,000	3
Neighborhood/Local Commercial	5,000	5	1,500,000	4
Regional Shopping Centers, Business/Industrial Parks	6,000	6	2,160,000	4
Source: Draft SMWD Plan of Works for Improvement Districts 4C, 4E, 5 and 6, November 2003				

Additionally, engineering designs of all proposed reservoirs have taken into account the fire flow assumptions according to the land uses each facility is anticipated to serve. The reservoirs would each hold a fire-flow volume equivalent to one fire affecting the land use served with the largest fire-flow requirement. In total, the proposed reservoirs anticipated to serve development of the Ranch Plan would be required to store 16.32 million gallons for fire flow requirements in addition to normal operational storage volumes.

Construction materials would also be required to meet building codes for development in high and very high fire severity zones. Therefore, there would be no significant impact related to provision of adequate water pressure for adequate fire protection.

Fire Access Does Not Meet Adopted Standards

OCFA has established roadway design standards to facilitate adequate emergency response times. Roadways built in compliance with the County of Orange Standard Plans would meet these standards. For roadways with medians, a turnaround sufficient for heavy fire equipment needs to be provided at a minimum every 1,000 feet. All gated communities need to install emergency opening devices and signals should install traffic preemption devices for emergency services. For all planning areas, with the exception of Planning Area 9, the development would require the construction of new roadways that would be built in compliance with County of Orange Standard Plans. Therefore, there would be not significant impacts associated with fire access. Compliance with Standard Plans is routinely reviewed as part of tentative tract maps.

The development in Planning Area 9 is an exception because access would be via the existing Verdugo Road, a two-lane rural roadway. Within Planning Area 9, the existing network of ranch roads would provide access to the proposed estates and casitas, as well as continue for their intended use of providing access for ongoing ranching operations. These ranch roads would not meet the adopted OCFA standards with regard to roadway width and length, the number of ingress/egress points for the development, the maximum number of units which would access a particular road, or roadway grade. As a result, access to the estates and casitas within Planning Area 9 would be insufficient for OCFA purposes. The level of impact cannot be accurately determined at this time, because the precise location of fire stations and the proposed housing sites within Planning Area 9 have not been determined. If a fire station were located closer to Planning Area 9, access issues would be less significant; however, not necessarily below a level of significance. Until the precise locations of fire stations within the Ranch Plan site are determined, as well as location of the estate units, the impact is assumed to be significant.

Mitigation Program

Project Design Features

The following project design features would be implemented as a part of the Ranch Plan project.

PDF 4.15-1 Construction of water storage and conveyance improvements consistent with the *Plan of Works for Improvement Districts 4C, 4E and 5 and* 6, prepared by Tetra Tech Inc. for SMWD would ensure sufficient water for all necessary fire protection systems.

PDF 4.15-2 Roadways, with the exception of Verdugo Road and other local access roads in Planning Area 9, will be designed in conformance with the Orange County Standard Plans. This is supplemented with Mitigation Measure 4.15-2.

Standard Conditions and Regulations

Many of the standard conditions and regulations are enacted at subsequent levels of approval. The following are the County of Orange Standard Conditions associated with fire protection services that would apply to the project. It is listed even it is not applicable at the GPA/ZC level of approval, but because it would be applicable at subsequent levels of approvals (i.e., tract maps). However, as previously indicated, the identification of the standard conditions at this time is to allow the reader an understanding of conditions that are applicable to the project at subsequent levels of approval. The number of the standard condition is listed in parentheses at the end of each condition.

SC 4.15-1 Prior to the recordation of a subdivision map, the subdivider shall design and construct water distribution system and appurtenances that conform to the applicable laws and adopted regulations enforced by the County Fire Chief, in accordance with plans and specifications meeting the approval of the Manager, Subdivision and Grading. (County of Orange Standard Condition of Approval T04)

Mitigation Measures

The following mitigation measures shall be implemented to ensure that fire protection services and facilities will be adequate to serve the proposed land development area.

MM 4.15-1 Prior to approval of the first Subarea Plan, except for Planning Area 1, the developer shall enter into a Secured Fire Protection Agreement with OCFA for the provision of necessary facilities, apparatus, and fire and rescue supplies and equipment for the Ranch Plan. This comprehensive plan will address fire and emergency medical service delivery within the project site, and will specify the timeframes and trigger points for initiation of services within the project by geographic area. The Secured Fire Protection Agreement shall ensure that OCFA fire protection and emergency medical performance objectives can be achieved for the Ranch Plan area. The applicant will ensure that development is phased in a matter that allows the maximum use of existing fire protection resources before new resources are required to be established.

MM 4.15-2 As part of the Area Plan and tentative tract map process, the developer shall coordinate with OCFA on street design to ensure arterial highways and local streets meet OCFA requirements, provide adequate turn around locations and widths, and signal preemption is installed in all new traffic signals within the Ranch Plan area. For gated communities, emergency opening devices shall be installed.

MM 4.15-3 Prior to issuance of building permits for the low-density development in the portion of Planning Area 2 north of the Chiquita Water Reclamation Plant and the eastern portion of Planning Area 7 and the development in Planning Area 9 the applicant shall provide verification that the units are equipped with residential sprinkler systems unless alternative methods of fire protection have been incorporated through the Secured Fire Protection Agreement.

Level of Significance After Mitigation

Through the implementation of the Secured Fire Protection Agreement and use of residential fire sprinklers the impacts associated with compliance with adopted performance standards (Impacts 4.15-1 through 4.15-3) would be reduced. The Secured Fire Protection Agreement requires that provisions for meeting OCFA performance objectives be met; however, until the Agreement is fully negotiated, it is uncertain if the impacts can be reduced to a level of less than significant. Therefore, as a measure of caution, impacts associated with provision of service to low density development in the northern portion of Planning Area 2, the eastern portion of Planning Area 7 and the estates in Planning Area 9, performance objectives may not be achievable. This would be considered a significant, unavoidable impact.

Mitigation Measure 4.15-2 would reduce Impact 4.15-4 by coordinating with OCFA on roadway design. Though Verdugo Road would not comply with County Standard Plans, the 28-foot roadway width may be sufficient for OCFA dependent on the number of units taking access,

alternative access points and other design factors. Regardless, through the Secured Fire Protection Agreement the OCFA requirements would need to be met. It is possible that the impacts associated with necessary roadway improvements in Planning Area 9 would exceed the level of impact assumed in this Program EIR. Should that occur, supplemental CEQA documentation would be required. With implementation of the mitigation program, impacts pertaining to adequate fire access would be reduced to a level of less than significant.

4.15.2 LAW ENFORCEMENT SERVICES

Methodology

The analysis of impacts to law enforcement services was based on information provided by past Assistant Sheriff George Jaramillo, Captain Fred Lisanti and Lieutenant Robert Hogbin of the Orange County Sheriff's Department (OCSD), South Operations Division, as well as Officer Christopher Goodwin, Public Information Officer for the California Highway Patrol (CHP), Capistrano Area.

Study Area

The study area for law enforcement services is OCSD's South Operations Area, which includes the southern portion of Orange County. This area includes the contract cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita, San Clemente, and San Juan Capistrano, as well as portions of unincorporated Orange County. Unincorporated communities include Coto de Caza, Emerald Bay, Trabuco Canyon, Ladera Ranch, Wagon Wheel Canyon, Las Flores, Talega, and the proposed Ranch Plan project area. The project site is also within the Capistrano Area of the CHP.

Existing Conditions

Countywide, OCSD provides law enforcement services for 12 cities and unincorporated areas of the County. Additionally, OCSD operates Transit Police Services for the Orange County Transportation Authority (OCTA) and provides security at John Wayne Airport and the Orange County Fairgrounds through contractual agreements. OCSD headquarters are located at 11 Journey in Aliso Viejo (South Operations) and 550 North Flower Street in Santa Ana (North Operations). The South Operations Area is approximately 136 square miles, including the project site, and serves approximately 320,000 people. Over 450 sworn and professional staff members provide law enforcement services in the South Operations Area.

Units assigned to the South Operations Area currently handle calls for service to the project study area. As of March 2004, the South Operations Area headquarters had 17 deputies, ten open deputy positions, four sergeant positions, and two open sergeant positions assigned to the unincorporated areas within the South Operations Area. An additional 75 to 80 non-sworn, professional staff members serve all areas, both incorporated and unincorporated, of the South Operations Area. Once the 12 open positions are filled, this staffing level is considered the minimum level of police protection necessary to properly protect the general project area.

OCSD tracks response times for two types of calls. Priority 1 calls are emergency calls requiring an immediate response. The target response time by a ground patrol unit for Priority 1 calls is five minutes or less. Priority 2 calls are non-emergency calls that do not require an immediate response. The target response time for Priority 2 calls is 12 minutes or less. Because the project study area is predominately undeveloped, has few paved roads, and is not regularly patrolled, the estimated response time for Priority 1 calls is eight to 11 minutes (Lisanti,

2004). Response times vary due to factors such as the time of day, number of available patrol units in the field, and traffic and weather conditions. The South Operations Area receives approximately 16,000 Priority 1 calls annually. Some calls are routed to administrative staff, but approximately 750 calls per year are handled per officer.

In addition to OCSD, the California Highway Patrol (CHP) is responsible for traffic law enforcement and traffic collision investigation within the project study area. As a secondary responsibility, the CHP provides mutual aid assistance to OCSD in times of emergency, or when the department's needs exceed its existing capabilities. The project site is within the Capistrano Area of the CHP. CHP headquarters are located at 32951 Camino Capistrano in the City of San Juan Capistrano.

The number of units fielded by the Capistrano Area office varies widely depending upon a number of factors, including the day of the week, time of day, illness and injury leave. Typically, there are four to seven single-officer units available during the day and afternoon shifts, and one to three two-officer units on the graveyard shifts. The total number of sworn officers on duty varies from month to month. As of April 2004, the Capistrano Office had 48 sworn officers on staff, including 33 providing road patrol services, six supervisors, one lieutenant, one captain, and seven for special assignments. There are no existing plans to hire additional officers; in fact, there is currently a hiring freeze due to the state budget deficit.

According to the CHP, current resources (i.e., manpower, equipment, facilities) are not always sufficient to maintain an adequate level of service throughout the project study area. Furthermore, the state budget crisis will not immediately allow for the hiring of additional officers to manage the shortfall in staffing. It should be noted that the CHP only provides a support role to the OCSD for law enforcement in the South Operations Area. Due to CPH staff shortages the OCSD often handles traffic issues until CHP officers can arrive.

In terms of equipment, the Capistrano Office has 25 marked patrol vehicles, one specially marked patrol vehicle used primarily for commercial vehicle enforcement, one Mobile Road Enforcement vehicle used for commercial vehicle inspections, and one mobile command post. The CHP also has access to an Emergency Incident Management Vehicle which can be used as a command post for long-term incidents, and air support in the form of a helicopter and fixed-wing airplane based in Fullerton and Thermal (in northwest Imperial County, near the Salton Sea).

Impacts

Thresholds of Significance

The proposed project would be considered to have a significant environmental impact on law enforcement services if it would:

- Need new or physically altered governmental facilities where the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives identified for law enforcement services.

- Create a substantial increase in the demand for police service, both routine and emergency calls, that cannot be adequately serviced by either available Orange County Sheriff's Department personnel or equipment or through provisions provided by the project.

Impacts to Law Enforcement Services and Facilities

The construction of governmental facilities to serve the project would not result in any significant environmental impacts beyond those addressed as part of the project. With provisions for a police substation, the OCSD would be able to respond to emergency calls. Therefore, no significant impacts were identified.

Physical Impacts Associated with Proposed Facilities

At build out, development of the Ranch Plan would permit up to 14,000 residential dwelling units and approximately five million square feet of non-residential use. As discussed in Section 4.3, at build out, the Ranch Plan project would result in a population increase of approximately 32,823 persons. If the proposed project is developed, OCSD has stated that the new residents and business uses brought into the area by virtue of the development of the Ranch Plan would place additional demands on services. As a result, OCSD has identified a need for an additional substation facility within the Ranch Plan area. The substation would be constructed within the development area; therefore, there would be no physical impacts beyond those addressed as part of the development project. No significant impacts associated with proposed facilities are anticipated.

Demand for Police Service

In determining adequate law enforcement for the proposed project, OCSD takes several factors into consideration, including response time, Preventative Patrol time, workload, and officer-to-population ratio. It is the goal to keep Priority 1 response times for life-threatening or emergency calls to five minutes or less, and Priority 2 calls to 12 minutes or less. A determinate of adequate police services is the officer-to-population ratio. OCSD uses a ratio of 0.9 sworn deputies to 1,000 people. However, because there are other factors which are used to determine staffing needs, this ratio cannot be used by itself to determine the number of additional officers and professional staff members that would be needed as a result of development of the Ranch Plan.

Proposed business and neighborhood commercial development and recreational uses would also affect OCSD's ability to adequately serve the community. No planning generation factors are used by OCSD to determine the effects of non-residential development. However, as discussed above, OCSD considers several factors as indicators of adequate service levels. These include total calls for service, average response time, and officer discretion. Implementation of the project is expected to result in an increase in calls for service for non-residential development. The increased demand for law enforcement services may necessitate the provision of new facilities and additional staff to accommodate the increased demand.

As identified above, the project provides for a site for a sheriff substation. Additional staff would also be required to handle the rapid growth in the developed areas as current staffing levels provide only a minimum level of service (Lisanti, 2004). Similar to the need for new fire stations, the funding for the hiring and training of additional officers is derived from property taxes that would be generated by the project. The fiscal matters are addressed in a separate and independent Fiscal Impact Report. CEQA does not consider fiscal matters; and, therefore, are not addressed as part of this Program EIR.

The CHP would continue in their support role to the OCSD with regards to law enforcement unless the area was to incorporate or be annexed to an existing city.

Mitigation Program

Project Design Features

PDF 4.14-3 A OCSD substation site would be provided within the project limits to reduce response times and better serve the Ranch Plan area.

Standard Conditions and Regulations

There are no standard conditions associated with police services.

Mitigation Measures

The following mitigation measures shall be implemented to ensure that law enforcement services and facilities will be adequate to serve the proposed land development area.

MM 4.15-4 Prior to approval of the first tentative tract map, except for financing purposes, the Orange County Sheriff's Department and the project applicant shall enter into an agreement specifying the level of service and supporting facilities needed to adequately serve the project area, and the amount of funding to be provided by the project applicant. The agreement will specify the timeframes and trigger points for initiation of services within the project by geographic area.

Level of Significance After Mitigation

No significant impacts have been identified with police services. The identified mitigation program would address provision of services within the project area.

4.15.3 ENERGY RESOURCES

Methodology

The analysis of energy resource impacts was based upon background information collected from the San Diego Gas and Electric Company (SDG&E) and the Southern California Gas Company (SoCalGas). Utility generation rates by land use type were not available from SDG&E or SoCalGas. As a result, utility generation rates from the South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook, Appendix 9, were used instead. Because the proposed project is located within the SCAQMD Air Basin, the SCAQMD generation rates should be comparable to any rates provided by SDG&E or SoCalGas, were they available.

Study Area

The study area for energy impacts is the service areas for SDG&E and SoCalGas. SDG&E serves consumers in San Diego County and southern Orange County. In Orange County, SDG&E serves the cities of Dana Point, Laguna Beach, Laguna Hills, Laguna Niguel, Mission Viejo, San Clemente, and San Juan Capistrano, in addition to portions of unincorporated Orange County. SDG&E's service area is 4,100 square miles. SoCalGas provides service to its customers in more than 530 communities in most of central and southern California, from Visalia to the Mexican border.

Existing Conditions

Electrical service to the project study area is provided by SDG&E. SDG&E is a regulated public utility that serves approximately three million consumers through 1.3 million electric meters. Because the Ranch Plan project site is mostly undeveloped, there is only one on-site SDG&E electrical facility: a single-circuit 138 kilovolt (kV) transmission line that runs generally north-northwest to south-southeast across the project site. Prior to submittal of the Ranch Plan project, no new facilities were proposed for the project site. Based on discussions to serve the Ranch Plan, the need for additional facilities has been identified. This is discussed below as part of the impact evaluation.

An easement for a 138-kilovolt electrical pole SDG&/Southern California Edison (SCE) transmission line is located within the project site. The 100-foot-wide easement runs approximately north-south within the project site. The line enters the project site near the southwest boundary of the project site west of Planning Area 8, and travels north along the western side of Planning Area 7. From there it skirts and then enters Planning Area 6 east of Planning Area 5, before cutting through the southwest corner of Planning Area 3. It then travels along the southern boundary of Planning Area 2 and then into the central portion of Planning Area 2. From there it travels west outside of the project site.

Smaller SDG&E/SCE electrical easements are also located within the project site. These all connect to the larger easement described above. They cross into small portions of Planning Areas 5 and 1, the northeastern portion of Planning Area 2, and the middle-center portion of Planning Area 3.

SoCalGas would provide natural gas service for the project study area. SoCalGas is the nation's largest gas distribution utility and serves approximately 19 million people through 5.4 million gas meters. There are no existing gas facilities within the boundaries of the project site. The nearest gas line is a 30-inch high-pressure line located along I-5. A 12-inch line transitions from the 30-inch line near the I-5/Avery Parkway interchange, and traverses north along Marguerite Parkway and then east along Crown Valley Parkway. This 12-inch line transitions to an 8-inch line located along Antonio Parkway. Prior to the submittal of the Ranch Plan application, no new facilities were proposed for the project site.

Impacts

Thresholds of Significance

The proposed project would result in a significant impact if:

- The project would require the construction of new electric/natural gas facilities or the expansion of existing facilities that could cause significant environmental effects.
- Electricity/natural gas supplies are not available to meet the demand of the project.
- The project site/development cannot be served by an existing provider.

Impacts to Electrical Service

No significant impacts were identified. The project proposes implementation of facilities that would allow the electrical demand of the project to be met. New facilities would be constructed within the development area; therefore, no significant environmental impacts beyond those

identified as part of the project would occur. The project site is within the service area of an existing provider.

Physical Impacts Associated with Proposed Facilities

SDG&E determined that development of the Ranch Plan project would require one, and potentially two, new electrical substations. Each substation would require a two- to three-acre site. As a part of the proposed project, an electrical substation would be located in Planning Area 3. The facility would be within the development area; therefore, the grading and associated impacts have been analyzed in the evaluation of the development plan. The substation would be 138/12 kV and have associated double-circuit 138 kV transmission lines. If required, a second facility may be located in Planning Area 5.[1] The timing for construction of these facilities, as well as the precise locations, would be coordinated with SDG&E. Distribution lines would be constructed within road right-of-way or the existing easements. No new significant environmental impacts would be anticipated from construction of the proposed facilities.

Development within Planning Areas 1, 2, 3, 5, and 6 would affect the SDG&E/SCE electrical easements. The utilities located within these easements would require relocation. However, no significant impacts are anticipated to occur because standard engineering practices and future coordination between the applicant and SDG&E would allow implementation of the proposed land use plan without any service disruptions related to the 138-kV line. County of Orange roadway design standards and SDG&E/SCE's requirements necessitate 24-hour access to the substation. Without adequate coordination with relevant electricity purveyors, implementation of the proposed land use plan could result in significant impacts to electrical facilities.

Ability of Electricity Supplies to Meet the Demand of the Project

Electricity generation rates used to assess potential consumption demands for the proposed development area are outlined, by land use type, in Table 4.15-3. In applying these rates to the proposed project, the land use plan, upon build out, would result in the total consumption of approximately 156.050 million kilowatt hours of electricity annually.

SDG&E is regulated by the Public Utilities Commission (PUC) and is required to provide service to existing and proposed development within its service area. Coordination is typical between a project applicant and a utility provider to avoid any notable service disruptions during extension, relocation, and upgrading of services and facilities. This typical coordination ensures that the nature, design, and timing of electrical system improvements are adequate to serve the project and remain in compliance with California energy conservation requirements as specified in California Administrative Code Title 24/25.

Once the electrical facilities described above are constructed, service providers would have the capacity to meet the project's demands, and no other system expansions would be required. There would be no significant impact associated with provision of new facilities, beyond those already addressed as part of project implementation.

[1] SDG&E has identified two potential substations for the project. One would be in Planning Area 3, as proposed by the Ranch Plan. However, SDG&E originally identified Planning Area 1 as the potential site for the second substation. Given the proximity of the Planning Area 1 site to the substation in Ladera Ranch, RMV is proposing to locate the second substation in Planning Area 5 to ensure appropriate overlap of service for the Ranch Plan. The precise location would be coordinated with SDG&E. Regardless of the final location, the substations would be located within the development area and would not result in new grading and associated impacts.

Service of the Project Site/Development by an Existing Provider

As previously indicated, the project site is within the SDG&E service area. There would be no impacts associated with this threshold.

TABLE 4.15-3
PROJECTED ANNUAL ELECTRICAL DEMAND AT BUILDOUT

Project Land Use Type (with SCAQMD Usage Rate Category in parenthesis)	Land Use Quantity/Size	Electrical Demand Factor (kilowatt hours/year)	Annual Demand (million kilowatt hours/year)
Residential (Residential)	14,000 du	5,626.50/unit	78.771
Neighborhood Center (Retail)	500,000 sq. ft.	13.55/sq. ft.	6.775
Urban Activity Center[a.] (Retail)	3,480,000 sq. ft.	13.55/sq. ft.	47.154
Business Park (Office)	1,220,000 sq. ft.	12.95/sq. ft.	15.799
Elementary School[b.]	200,000 sq. ft.	5.90/sq. ft.	1.180
Middle School and High School[c.]	275,000 sq. ft.	10.5/sq. ft.	2.888
Golf Resort (Hotel/Motel)	20 ac (350,000 sq. ft.)	9.95/sq. ft.	3.483
Total			**156.050**

du: dwelling units
sq. ft.: square feet
ac: acre

a. No specific SCAQMD usage rate category is available for this land use; therefore, the electrical demand factor was based on the "retail" usage rate category because the Urban Activity Center category permits office, retail, and residential uses.
b. Assumes 5 elementary schools at 40,000 sq. ft. of buildings per school (Capistrano Unified School District, 2002).
c. Assumes 1 middle school (75,000 sq .ft.) and 1 high school (200,000 sq. ft.) (Capistrano Unified School District, 2002). Note: Although a high school is not a committed land use associated with the proposed project, it may be required based on future phasing of development and is therefore assumed in this electricity service demand analysis.

Source: SCAQMD, *CEQA Air Quality Handbook*, Appendix 9, Table A9-11-A. Adopted April 1993.

Impacts to Natural Gas Service

No significant impacts were identified. The project proposes implementation of facilities that would allow the natural gas demand of the project to be met. New facilities would be constructed within the development area; therefore, no significant environmental impacts beyond those identified as part of the project would occur. The project site is with the service area of an existing provider.

Physical Impacts Associated with Proposed Facilities

The availability of natural gas services is based on present conditions of natural gas supply, and regulatory policies of the PUC and federal regulatory agencies. However, SoCalGas would provide the natural gas infrastructure. Providing service to the project site would require an extension of a 12-inch high-pressure gas line from the vicinity of the Atchison Topeka and the Santa Fe Railroad line, located west of I-5, to Antonio Parkway. The line would be placed within the Ortega Highway right-of-way and connect to a new regulating station at the northwest corner of the Antonio Parkway at Ortega Highway intersection. The regulating station would be on a

parcel approximately 30 feet by 10 feet. The station would be within the development area; therefore, the grading and associated impacts have been analyzed in the evaluation of the development plan. These facilities would be constructed in the road right-of-way or within the development area, therefore, there would be no significant impacts beyond those addressed as part of the project. The timing for construction of these facilities, as well as the precise locations, would be coordinated with SoCalGas.

Availability of Natural Gas Supplies to Meet the Demand of the Project

Natural gas generation rates used to assess potential consumption demands for the proposed development area are outlined, by land use type, in Table 4.15-4. In applying these rates to the proposed project, the land use plan, upon buildout, would result in the total consumption of approximately 1,267.48 million cubic feet of natural gas annually.

SoCalGas is required to provide service to all new customers. SoCalGas continues to develop additional energy supplies, while limiting existing consumption through conservation efforts. SoCalGas forecasts for additional demands such as the proposed project and continues to provide the necessary energy resources for existing demands. Necessary distribution facilities, such as the extension of natural gas lines described above, will be performed according to the specific requirements of SoCalGas. Implementation of the proposed project would not result in a significant impact on natural gas services or facilities.

TABLE 4.15-4
PROJECTED ANNUAL NATURAL GAS DEMAND AT BUILDOUT

Project Land Use Type (with SCAQMD Usage Rate Category in parenthesis)	Land Use Quantity/Size	Generation Rate (per month)	Annual Demand (million cubic feet/year)
Single-Family Residential (Single-Family Units)	12,380 du	6,665.0/unit	990.152
Multi-Family Residential (Multi-Family Units)	1,620 du	4,011.5/unit	77.984
Neighborhood Center (Retail/Shopping Centers)	500,000 sq. ft.	2.9/sq. ft.	17.400
Urban Activity Center (Retail/Shopping Centers)[a.]	3,480,000 sq. ft.	2.9/sq. ft.	121.104
Business Park (Office)	1,220,000 sq. ft.	2.0/sq. ft.	29.280
Elementary School[b.] (Office)	200,000 sq. ft.	2.0/sq. ft.	4.800
Middle School and High School[c.] (Office)	275,000 sq .ft.	2.0/sq. ft.	6.600
Golf Resort (Hotel/Motel)	20 ac (350,000 sq. ft.)	4.8/sq. ft.	20.160
Total			**1,267.480**

du: dwelling units
sq. ft.: square feet
ac: acre

a. No specific SCAQMD usage rate category is available for this land use; therefore, the natural gas demand factor was based on the "retail" usage rate category because the Urban Activity Center category permits office, retail, and residential uses.
b. No specific SCAQMD usage rate category is available for this land use; therefore, the natural gas demand factor was based on the "office" usage rate category. Assumes 5 elementary schools at 40,000 sq. ft. of buildings per school (Capistrano Unified School District, 2002).
c. No specific SCAQMD usage rate category is available for this land use; therefore, the natural gas demand factor was based on the "office" usage rate category. Assumes 1 middle school (75,000 sq. ft.) and 1 high school (200,000 sq. ft.) (Capistrano Unified School District, 2002). Note: Although a high school is not a committed land use associated with the proposed project, it may be required based on future phasing of development and is therefore assumed in this analysis.

Source: SCAQMD, *CEQA Air Quality Handbook*, Appendix 9, Table A9-12-A. Adopted April 1993.

Mitigation Program

Project Design Features

PDF 4.15.4 The project design has incorporated provisions for the construction of up to two 138/12 kV electrical substations and a 138 kV transmission line to serve the substations. Additionally, the project would extend the 12-inch high power gas line along Ortega Highway from the west of I-5 to Antonio Parkway, and the construction of a gas regulating station at the corner of Antonio Parkway and Ortega Highway.

PDF 4.15-5 Unless otherwise waived by the Director, PDS, all permanent electric transmission lines less than 66 kV shall be subsurface within those portions of the Ranch Plan approved for development.

Standard Conditions and Regulations

Many of the standard conditions and regulations are enacted at subsequent levels of approval. The following are the County of Orange Standard Conditions associated with energy resources that would apply to the project. These are listed even though they may not be applicable at the GPA/ZC level of approval, but because they would be applicable at subsequent levels of approvals (i.e., tract maps). However, as previously indicated, the identification of the standard conditions at this time is to allow the reader an understanding of conditions that are applicable to the project at subsequent levels of approval.

SC 4.15-2 Prior to recordation of final tract maps for the proposed land development area, the project applicant shall coordinate with SDG&E in the design and implementation of future electrical service and facilities (transmission lines, access road, etc.) within the project study area to ensure that: (1) no notable service disruptions during the extension and upgrading of these services would arise; (2) the nature, design, and timing of electrical system improvements are in accordance with all SDG&E requirements; and (3) the improvements are adequate to serve the proposed land uses.

SC 4.15-3 Prior to recordation of final tract maps for the proposed land development area, the project applicant shall coordinate with SDG&E to ensure that no notable disruptions to the existing 138 kV transmission line that extends through the project study area would occur as a result of project implementation.

SC 4.15-4 Prior to recordation of final tract maps for the proposed land development area, the project applicant shall coordinate with SoCalGas in the design and implementation of future natural gas service and facilities within the project study area to ensure that: (1) no notable service disruptions during the extension and upgrading of these services would arise; (2) the nature, design, and timing of natural gas system improvements are in accordance with SoCalGas requirements; and (3) the improvements are adequate to serve the proposed land uses.

Mitigation Measures

No mitigation beyond the project design features and standard conditions is required.

Level of Significance After Mitigation

Because the project would not significantly impact electrical or natural gas services or facilities, and because the above standard conditions and requirements would be implemented, development of the proposed project would not significantly affect electrical or natural gas services or facilities.

4.15.4 WATER SUPPLY

Introduction

Senate Bill 610 (Chapter 643, Statues of 2001) and Senate Bill 221 (Chapter 642, Statues of 2001) amended California state law, effective January 1, 2002, to improve the link between information on water supply availability and certain land use decisions made by cities and counties. Both statutes require detailed information regarding water availability to be provided to the city or county decision makers prior to approval of specified large development projects.

Both statutes also require this detailed information to be included in the administrative record that serves as the evidentiary basis for an approval action by the city or county on such projects.

Under SB 610, water supply assessments must be provided to local governments for inclusion in environmental documentation for certain projects subject to CEQA. Under SB 221, approval by a city or county of certain residential subdivisions requires an affirmative written verification of sufficient water supply. By virtue of its proposed size (i.e., more than 500 dwelling units) and the mixed-use nature of the development program (i.e., combined residential, business and commercial elements in excess of statutory acreage and floor area thresholds), the Ranch Plan is subject to the requirements of SB 610. Accordingly, a water supply assessment is required. Additionally, as subdivision maps are processed for portions of the project, project applicants must comply with the water supply verification requirements of SB 221.

As the public water system provider serving the project area, Santa Margarita Water District (SMWD) is the entity responsible for preparing and approving the water supply assessment for the proposed project. On February 24, 2003, the County of Orange released its initial Notice of Preparation (NOP) for EIR No. 589 (General Plan Amendment/Zone Change for the Ranch Plan). Upon receipt of the NOP, SMWD staff prepared a water supply assessment (WSA) for the Ranch Plan, which was approved by the SMWD Board of Directors on June 25, 2003. A copy of the approved WSA is attached as Appendix K to this Program EIR and is summarized below. Supporting documentation for the WSA is available for review at the County of Orange, Planning and Development Services offices.

Study Area

Because State law mandates the assessment of anticipated demands on the water supply, the analysis of water resources extends from the local level (e.g., issues pertaining to the governing local water district) to the interstate level (e.g., issues involving the Quantification Settlement Agreement and the distribution of Colorado River Water). As detailed below in the analysis of water supply, the Ranch Plan's water needs would be served by a variety of different sources and the study area reflects this fact.

Existing Conditions

SMWD Service Area, Operations and Responsibilities. SMWD provides potable and non-potable (i.e., recycled) water and sewer service to approximately 132,500 residents in 97 square miles of southeastern Orange County, including the project site. Established in 1964 as a California special district (California Water Code Sections 34000 et seq.), SMWD is responsible for inter-agency coordination and long-range planning to meet future water supply and wastewater treatment needs for its service area. SMWD operates 1,330 miles of water and sewer mains, 15 connections to other water districts, 30 domestic reservoirs, four non-domestic reservoirs, 21 water pump stations, 30 pressure-reducing stations, six non-domestic water pump stations, two wells with chlorine injection, 21 sewer lift stations, and four sewage treatment plants.

Imported Water Supplies. SMWD is a member agency of the Municipal Water District of Orange County (MWDOC) which, in turn, is a member agency of the Metropolitan Water District of Southern California (MWD). By virtue of these relationships, and pursuant to a service connection agreement between SMWD and MWDOC, SMWD is entitled to call upon and receive water from available MWD sources. The majority, approximately 84 percent, of SMWD's current water supply is obtained from MWDOC and MWD. Generally, MWD imports water from the Colorado River via the Colorado River Aqueduct and from northern California via the California Aqueduct (also known as the State Water Project [SWP]). The imported water is

distributed to MWDOC and SMWD through a regional distribution system located in Orange County. SMWD holds a series of entitlements and written contracts that guarantee SMWD's right to receive water through this distribution system. Notably, the Allen-McColloch Pipeline is SMWD's primary conveyor of domestic water in which SMWD owns specified capacity rights for the delivery of water. For non-domestic water, SMWD holds additional capacity and distribution rights in the Baker Pipeline (operated by the Santiago Aqueduct Commission) and the Irvine Lake Pipeline (operated by the Irvine Ranch Water District [IRWD]).

Other Water Supply Sources. The remainder of SMWD's water supply, approximately 16 percent, is a combination of recycled water, locally-produced groundwater, approved water transfers (both domestic and recycled), and surface flow diversions. Recycled water plays a key role in SMWD's current and future plans for water supply preparedness and provision. SMWD owns and operates a recycled water system with two fully-completed components (i.e., the Oso Creek Water Reclamation Plant and the Los Alisos Water Reclamation Plant) and one component that is partially complete/operational and is undergoing expansion (i.e., the Chiquita Water Reclamation Plant). To ensure the reliability of water supply distribution for its customers, SMWD maintains interconnections with other adjacent local water suppliers (including Moulton Niguel Water District, IRWD, Trabuco Canyon Water District, El Toro Water District, and the cities of San Juan Capistrano and San Clemente) for the provision of water supply delivery during periods of emergency and/or system failure.

SMWD's service area overlies the San Juan Creek watershed. The State Water Resources Control Board (SWRCB) has determined that the watershed is not a groundwater basin, but, rather, a surface and underground flowing stream. Accordingly, the watershed is subject to SWRCB jurisdiction and processes with respect to the appropriation and use of waters within the watershed. SMWD is a member of the San Juan Basin Authority (SJBA) which holds SWRCB Permit for Diversion and Use of Water Permit No. 21074 for appropriation and diversion of up to 8,026 acre-feet per year (AFY), with the ability to increase to 10,702 AFY upon a demonstration of sufficient availability of unappropriated water.

Capital Outlays and Bonding Capacity. SMWD is the agency responsible for the design, construction, operation, and maintenance of all capital water, wastewater, and reclamation facilities in SMWD's service area. To facilitate the development of additional capital improvements, SMWD has established eight primary improvement districts with the ability to issue general obligation bonds to finance necessary facilities and systems. The authorized bonding capacity of the individual improvement districts is sufficient to cover all present and anticipated capital needs for SMWD's service area, including those facilities necessary to serve the proposed project. Table 4.15-5 itemizes the amount of authorized and issued general obligations bonds for each of the improvement districts which encompass the Ranch Plan (i.e., Improvement Districts 4, 4C, 5 and 6).

TABLE 4.15-5
NORMAL YEAR PROJECTED WATER DEMAND (YEAR 2025)

Improvement District	Amount Authorized	Amount Issued	Remaining Amount Available
4	$332,546,366	$158,896,366	$173,650,000
4C	$432,000,000	--	$432,000,000
5	$150,000,000	--	$150,000,000
6	$830,000,000	--	$830,000,000

Distribution Facilities. An easement for the South County Pipeline, a domestic water pipeline jointly owned and operated by SMWD and MWD, is currently located within the project site. Specifically, the South County Pipeline easement runs in a north-south direction, entering the site as a 48-inch line near the southwest boundary of the project site, just west of Planning Area 8. The easement extends north along the west edge of Planning Area 7. As the pipeline travels beneath Ortega Highway, it increases to a 66-inch pipeline. From this point, the easement travels northwest, entering Planning Area 6 just east of Planning Area 5. After cutting through the southwest corner of Planning Area 3, the easement travels along the southern boundary of Planning Area 2 and into the northern portion of Planning Area 2. The South County Pipeline then exits the project site at the northern boundary of Planning Area 2 and the project site.

An additional easement containing two non-domestic water mains and one non-domestic water pipeline runs parallel to the South County Pipeline easement, entering at the south in Planning Area 8 and exiting the site at the northern boundary of Planning Area 2. Similar to the South County Pipeline, these non-domestic water conveyance facilities are owned and operated by SMWD.

Impacts

Thresholds of Significance

The proposed project will result in a significant impact if:

- Water supplies are not sufficient to meet the demand of the project.
- The project would require the construction of new water facilities or the expansion of existing facilities beyond what is proposed by the project, which could cause significant environmental effects.
- An existing provider cannot serve the project development.

Anticipated Water Demands

As previously indicated, the Ranch Plan project site is located in SMWD Improvement Districts (ID) 4C, 4E, 5, and 6. As a part of the preparation of the WSA, SMWD identified the approximate water demand associated with implementation of the proposed project. As identified in Table 4.15-6, at full project buildout, the projected total demand for domestic water service, under normal consumption conditions, would be 8,520 acre feet per year (AFY). The non-domestic water demand would be 8,354 AFY. Therefore, the average total water demand at full buildout under normal consumption conditions would be 16,874 AFY. Table 4.15-6 provides a breakdown of this demand by proposed land use.

TABLE 4.15-6
NORMAL YEAR PROJECTED WATER DEMAND (YEAR 2025)

Land Use	Units/Acreage	Average Domestic Water Demand (AFY)	Average Non-Domestic Water Demand (AFY)	Average Total Water Demand (AFY)
Residential	14,000 du	6,513	5,006	11,519
Urban Activity Center	251 acres	225	91	316
Business Park	80 acres	1,052	181	1,233
Neighborhood Center	50 acres	107	29	136
Golf Course	1,075 acres	18	2,000	2,018
Regional Park	1,034 acres	0	0	0
Schools	140 ac	131	256	387
Resort	20 acres	59	15	74
Other Recreation Areas/Facilities	105 acres	12	201	213
Unaccounted for Water[a.]		403	575	978
Total		8,520	8,354	16,874

a. An undefined quantity of water would be lost each year through evaporation, intermittent system disruptions, and other factors that are not subject to control or measure. These figures represent estimated system water loss based upon historical data and analysis within SMWD's service area.
Source: SMWD 2003 and Tetra Tech, Inc., 2003

Based on the geography and climate of southern California, including the proposed project area, it is necessary for demand analysis to include normal years (those meeting the average rainfall amounts), a single dry year (one drought year), and multiple dry years (three drought years). Table 4.15-7 provides a comparison of water demand for the Ranch Plan during normal years and dry years. As shown, the demand for both domestic and non-domestic water is projected to be higher under drought conditions.

TABLE 4.15-7
COMPARISON OF PROJECT WATER DEMAND FOR NORMAL YEARS AND DRY YEARS (YEAR 2025)

	Normal Year Demands (AFY)	Single Dry Year Demands (10% Increase) (AFY)	Multiple Dry Years Demands (13% Increase) (AFY)
Domestic	8,520	9,372	9,628
Non-Domestic	8,354	9,189	9,440
Total	**16,874**	**18,561**	**19,068**

Source: SMWD, 2003

Water Supplies

Regional Water Supplies. The WSA indicates that total projected water supplies available to SMWD over the next 20 years, based on normal, single dry, and multiple dry year conditions, would meet the domestic and non-domestic water demands of the proposed project plus the demands associated with existing and planned future uses in SMWD's service area. In preparing the WSA, SMWD relied, in large part, upon the following reports, studies, and documents:

- *Santa Margarita Water District Urban Water Management Plan Year 2000* (2000 UWMP), prepared by SMWD and dated December 20, 2000

- *Report on Metropolitan's Water Supplies* (MWD Supply Report), prepared by MWD and dated March 25, 2003

- *Municipal Water District of Orange County 2000 Regional Urban Water Management Plan*, prepared by MWDOC and dated December 20, 2000

- *The Regional Urban Water Management Plan for the Metropolitan Water District of Southern California*, prepared by MWD and dated December, 2000

- *Water Surplus and Drought Management Plan*, prepared by MWD and dated August 1999

According to information provided in the WSA and its supporting studies, MWD would meet, with existing supplies, all regional water demands for imported water over the next 20 years (through 2025) during average and wet years. During single and multiple dry years, MWD projects that it would meet all regional water demands over the next 15 years with existing supplies. However, with the addition of planned supplies currently under development, MWD anticipates meeting all regional water demands for imported water through 2030, even under the region's worst drought scenario, while concurrently securing an estimated 20 to 25 percent supply reserve.

Colorado River Supplies. In recent years, concerns have been raised about the availability of a reliable water supply to meet the demands of MWD and its member agencies because of the unresolved status of the Quantification Settlement Agreement (QSA). The QSA represents the cornerstone agreement between MWD, Imperial Irrigation District (IID) and other California water agencies concerning the future use of Colorado River water. For years, California has regularly exceeded its annual allotment of 4.4 million AFY of Colorado River water by consuming surplus river flows and other amounts not used by the other Colorado River basin states. Because of increased growth rates in the basin states and fluctuations in weather and supply patterns, the amount of surplus water available to California has decreased.

Under a seven-state agreement, California is conditionally entitled to continue to use more than its basic allotment until 2015. The QSA establishes the framework for demonstrating how the collective California water agencies will satisfy this commitment and gradually reduce their over-use of Colorado River water by the 2015 deadline. In the absence of the execution and delivery of the QSA by December 31, 2002, the Secretary of the Interior declared her intention to immediately reduce California's annual allotment of Colorado River water to the 4.4 million AFY limit.

The MWD Supply Report directly addressed the potential of reduced deliveries of Colorado River water to MWD in the event of a failure of the state and the relevant water agencies to timely execute the QSA. The report did not consider the potential loss of these surplus supplies to be an emergency because of prior investments made by MWD to conserve, diversify, and expand its portfolio of water resource options in anticipation that the QSA might not be adopted. The MWD Supply Report concluded that MWD's ability to meet the long-term water demands of its member agencies would not be adversely impacted should the parties fail to execute the QSA.

MWD, IID, and the other water agencies failed to meet the December 2002 deadline for executing and delivering the QSA, and the Secretary of the Interior immediately proceeded to suspend California's right to consume Colorado River water in excess of the 4.4 million AFY allotment. However, in October 2003, the unsettled issues relative to the QSA were resolved, the contract was duly signed and delivered, and the Secretary of the Interior lifted the water

supply reduction order. Beginning in November 2003, a series of lawsuits were filed that both directly and indirectly challenge the validity of the QSA. However, based on the MWD Supply Report, the rendering of an adverse order in any of the lawsuits should have no effect upon the ability of MWD to satisfy the long-term water demands of its member agencies, including MWDOC and SMWD.

State Water Supplies. MWD and 28 other public entities have contracts with the California Department of Water Resources (DWR) for a SWP water supply. Historically, the SWP has provided from 25 to 50 percent of MWD's supplies. In accordance with its contract with DWR, MWD holds an allocation of 2,011,500 AFY from the SWP. However, actual deliveries have never reached this amount and depend on availability of supplies as determined by DWR.

Prior to the execution of the Bay-Delta Accord in December 1994, significant uncertainties existed regarding how much of the water in the Sacramento San Joaquin Bay-Delta would be available for export and how much would be required to meet regulatory requirements for meeting water quality standards and sustaining endangered species. The Bay-Delta Accord and the subsequent CALFED process removed the uncertainties associated with these regulatory requirements, thus providing a base for the DWR and the SWP contractors to estimate available water supplies. Accordingly, MWD anticipates that the SWP will remain a reliable, long-term source of water to supply the needs of its member agencies.

Local Water Supplies. The projected water demand for the Ranch Plan was substantially accounted for in SMWD's 2000 UWMP, as indicated in the WSA. Further, the 2000 UWMP took into account all water supplies available to meet projected demands, including development throughout SMWD's service area and the Ranch Plan, through year 2020. The WSA furthers this analysis by addressing supply and demand projections for SMWD's entire service area (including the Ranch Plan) through 2025, or a projection period of 21 years.

Projected water supply and demand data for SMWD for 2025 and based on normal, single dry, and multiple dry years are presented in Table 4.15-8. As shown in the table, SMWD's long-term water supply program would adequately meet the demands of the Ranch Plan area at build out in addition to satisfying the water needs of existing and planned uses within SMWD's service area, thereby resulting in no impact related to water supply.

TABLE 4.15-8
LONG-TERM SMWD WATER DEMAND AND SUPPLY (YEAR 2025)

		Normal Year (AFY)	Single Dry Year (AFY)	Multiple Dry Years (AFY)
Demand				
Domestic	Existing Development	26,250	28,875	29,663
	Approved New Development	2,599	2,859	2,937
	Proposed Ranch Plan	8,520	9,372	9,628
Non-Domestic	Existing Oso Creek/CRWP Demand	6,489	7,138	7,333
	Approved New Development	395	435	446
	Proposed Ranch Plan	8,354	9,189	9,440
Total Demand		52,607	57,868	59,447
Supply				
Domestic	MWD	37,332	41,065	42,185
Non-Domestic	Oso Creek WRP/ Los Alisos WRP	16,940	16,940	17,200
Surface	Oso Barrier/Canada Gobernadora/Arroyo Trabuco	2,650	2,650	2,650
Total Supplies		56,922	60,655	62,035
Surplus		**4,315**	**2,787**	**2,588**
Source: SMWD, 2003				

Supplemental Water Supplies for the Benefit of the Project

To further ensure its future ability to provide water to the Ranch Plan without affecting the availability or reliability of supplies for the remaining portions of its service area, SMWD has entered into supplemental dry year agreements with two southern California water agencies, Cucamonga County Water District and Southern California Water Company, involving existing water supplies located in the Chino Groundwater Basin.

- *Cucamonga County Water District*. On March 25, 2003, SMWD and Cucamonga County Water District (CCWD) entered into an exclusive three-year option agreement which, when exercised, would enable SMWD to enter into a water supply contract with CCWD for at least 25 years for the purchase and delivery of 4,250 AF of water each year over the term of the contract. The option and water supply contracts are specifically directed, and exclusive, to augmenting water supply reliability for the Ranch Plan. The effect of calling this water, in the event of MWD supply shortfalls, will be to enable the delivery of the amount of water necessary to meet the Ranch Plan demands during such shortfalls. The 4,250 acre-feet of water which has been secured under the CCWD agreements will provide at least 44% redundancy to the Ranch Plan's projected year 2025 domestic water demand of 9,586 acre-feet during multiple-dry year conditions.

- *Southern California Water Company*. On December 28, 2001, SMWD and Southern California Water Company (SCWC) entered into a water sale and purchase agreement that entitles SMWD to acquire 2,000 AF of water from SCWC. As with the supplemental supply agreements established between SMWD and CCWD, the SCWC purchase agreement is intended to augment MWD's water supplies for the Ranch Plan.

The Chino Groundwater Basin covers approximately 235 square miles in the upper Santa Ana River watershed and stores approximately five (5) million acre-feet of groundwater, with the capacity to store an additional one (1) million acre-feet. The Chino Groundwater Basin was adjudicated by the Superior Court of the State of California for the County of San Bernardino on January 27, 1978. Both CCWD and SCWC are parties to the judgment issued in the

adjudication proceeding and are entitled to pump water from the Basin. Furthermore, the judgment authorizes CCWD and SCWC to store supplemental water within the Basin pursuant to written agreement with the Chino Basin Watermaster. The judgment allocates the safe yield of the Chino Basin among the parties to the adjudication, and parties are enjoined from producing water in excess of their adjudicated rights except to the extent that they are willing/able to pay a replenishment assessment upon production exceeding a specified amount. As more fully discussed in the WSA (see Appendix K), the adjudicated Basin rights held by CCWD and SCWC are sufficient to allow the agencies to fulfill their respective water supply obligations under the SMWD agreements without (i) jeopardizing the integrity of the Chino Groundwater Basin, (ii) violating the terms of the judgement issued in the adjudication proceeding (as amended) or (iii) adversely affecting the agencies' ability to meet their obligations to existing customers.

Table 4.15-9 provides a summary of how the supplemental supplies from CCWD and SCWC would affect the water supply available to the Ranch Plan and other development within SMWD's service area through at least year 2025.

TABLE 4.15-9
LONG-TERM SMWD WATER DEMAND AND SUPPLY WITH SUPPLEMENTAL SUPPLIES (YEAR 2025)

		Normal Year (AFY)	Single Dry Year (AFY)	Multiple Dry Years (AFY)
Demand				
Domestic	Proposed Ranch Plan	8,520	9,372	9,628
	All Other	28,849	31,734	32,599
Non-Domestic	Proposed Ranch Plan	8,354	9,189	9,440
	All Other	6,884	7,573	7,779
Total Demand		52,607	57,868	59,446
Supply				
Domestic		37,332	41,065	42,185
Non-Domestic		16,940	16,940	17,200
Surface		2,650	2,650	2,650
Supplemental (CCWD/SCWC)		0	6,250	4,917
Total Supplies		56,922	66,905	66,952
Surplus		**4,315**	**9,037**	**7,506**

Note: Assumes three-year drought period and averaging of 2,000 AF from SCWC over total drought period.
Source: SMWD, 2003

In the event it becomes necessary for SMWD to call upon its supplemental dry year(s) supplies from CCWD and/or SCWC, the water will be delivered to SMWD's service area through water exchange and/or wheeling utilizing the assumed, unused capacity in MWD's water delivery system. Indeed, exercise of the rights provided in the supplemental water agreements presumes that MWD is experiencing a Tier 2 water shortage and, as such, has excess delivery capacity in its system. Water Code Section 1810 authorizes a bond fide transferor of water to utilize a water conveyance facility which has unused capacity for the period of time for which that capacity is available, provided that fair compensation is paid for that use. The supplemental water supply agreements obligate SMWD to pay the fees associated with exchanging/wheeling the supplemental water through SMWD's system.

Water Facilities

As indicated in Section 3, Project Description, water improvements are proposed to meet the demand of the Ranch Plan project. The improvements would include both domestic and non-

domestic water lines, pump stations, and reservoirs. Domestic storage facilities would be constructed to provide the project with the following storage components:

- Operational Storage: Storage to meet peak demands that exceed capabilities of other supply sources. Typically, peak demands include above average demand and average demand on the maximum-demand day of the year. Per SMWD requirements, operational storage should be equivalent to one day of maximum-day demand.

- Fire Storage: Storage to meet fire-flow requirements, pursuant to OCFA standards. Each reservoir would be designed to carry a fire-flow volume equivalent to one fire for the land use served with the largest fire-flow requirement.

- Emergency Storage: Storage to meet demands during times when normal supplies are reduced or unavailable due to unusual circumstances. Based on SMWD criteria, emergency storage of domestic water supplies should be equivalent to 20 days of average-day demand for the entire district. Emergency storage supplies would be located in new, lined and covered, earthen reservoirs.

Domestic water storage facilities would also provide for seasonal storage based on the fluctuating demand related to summer and winter demands. Non-domestic storage facilities would be required to provide the planning areas with the following storage components:

- Operational Storage: As with domestic water, non-domestic operational storage is required to regulate variations in demand and to meet peak demands that exceed the capacities of other supply sources.

- Transmission Storage: Storage supplied at intermediate points along an extended transmission pipeline where intermediate pump stations are located. The intent of transmission storage is to regulate supply between pump stations.

- Seasonal Storage: Storage to collect water when demands are low (such as in the winter season) and to supply water when demands are high (such as in the summer season).

While the precise location and size of the storage and conveyance facilities would be determined at the time tentative tract maps are processed, the general location, type, and capacity of water facilities is indicated in: (a) Table 4.15-10 and Exhibit 4.15-1 for domestic water facilities and (b) Exhibit 4.15-2 for non-domestic water facilities.

The reservoir tank sizes shown for the reservoirs are a worst-case scenario to provide sufficient back-up capacity. When the seasonal storage facilities are implemented, the size of the reservoir tanks would be reevaluated and likely reduced. Coordination with SMWD would be required. Because most facilities would be within development areas, the grading is assumed as part of the cut and fill for the development and no new impacts are anticipated. For those facilities located outside of development areas, an approximate location and pad size has been assumed to ensure that the potential impacts of these facilities are included in the impact assessment for the project.

As indicated previously, there are limited existing domestic and non-domestic water facilities within the project site. Easements for the South County Pipeline for domestic water and the non-domestic water mains and pipeline run through the project area and would be affected by the development within Planning Areas 2, 3, and 6. Due to the level of planning being provided in this EIR, potential impacts on the facilities that extend through the land development area

have not been determined; however, it is expected that these water conveyance facilities would require relocation to avoid proposed development areas, resulting in a project impact. Future coordination between the applicant and the water purveyors, SMWD and MWD, would ensure that implementation of the proposed land use plan would not result in any service disruptions related to domestic and non-domestic water provision.

Summary of Analysis

As indicated in Table 4.15-8, the projected supply of water, both domestic and non-domestic, that would be available to SMWD is expected to exceed the anticipated demand from the proposed project in addition to satisfying existing demand and future demand for all approved new development within the study area. As indicated in Table 4.15-9, the addition of supplemental supplies from CCWD and SCWC would augment the supplies available to SMWD to satisfy project-related demands under all conditions. Additionally, proposed water facilities would be constructed to accommodate the storage and transport of the water supply. In summary, the project would not create a significant impact related to water.

TABLE 4.15-10
PROPOSED DOMESTIC AND NON-DOMESTIC WATER FACILITIES

Location	Type of Facility	Facility Capacity
Planning Area 1	One (1) Zone 1 Domestic Water Reservoir No. 1	4.4 MG
	One (1) Zone A Non-Domestic Water Reservoir No. 1	4.3 MG
Planning Area 2	One (1) Zone 2 Domestic Water Reservoir No. 1	1.1 MG
	One (1) Zone B Non-Domestic Water Reservoir No. 1	3.5 MG
	One (1) Zone A Non-Domestic Water Pump Station No. 1	2,440 gpm
	One (1) Zone B Non-Domestic Water Pump Station No. 1	4,320 gpm
Planning Area 3	One (1) Zone 1 Domestic Water Reservoir No. 2	5.3 MG
	One (1) Zone 2 Domestic Water Reservoir No. 2	5.3 MG
	One (1) Zone 3 Domestic Water Reservoir No. 1	1.4 MG
	One (1) Zone 3 Domestic Water Pump Station No. 1	500 gpm
	One (1) Zone A Non-Domestic Water Reservoir No. 2	2.3 MG
	One (1) Zone B Non-Domestic Water Reservoir No. 2	3.4 MG
	One (1) Zone B Non-Domestic Water Pump Station No. 2	2,370 gpm
Planning Area 5	One (1) Zone 2 Domestic Water Reservoir No. 3	2.9 MG
	One (1) Zone 3 Domestic Water Reservoir No. 2	1.5 MG
	One (1) Zone 4 Domestic Water Reservoir No. 1	1.1 MG
	One (1) Zone 3 Domestic Water Pump Station No. 2	1,000 gpm
	One (1) Zone 4 Domestic Water Pump Station No. 1	400 gpm
	One (1) Zone A Non-Domestic Water Reservoir No. 3	1.2 MG
	One (1) Zone B Non-Domestic Water Reservoir No. 3	2.3 MG
	One (1) Zone A Non-Domestic Water Pump Station No. 2	2,870 gpm
	One (1) Zone B Non-Domestic Water Pump Station No. 3	1,560 gpm
Planning Area 7	One (1) Zone 2 Domestic Water Reservoir No. 4	1.7 MG
	One (1) Zone 3 Domestic Water Reservoir No. 3	2.3 MG
	One (1) Zone 4 Domestic Water Reservoir No. 2	0.8 MG
	One (1) Zone 3 Domestic Water Pump Station No. 3	680 gpm
	One (1) Zone 4 Domestic Water Pump Station No. 2	230 gpm
	One (1) Zone A Non-Domestic Water Reservoir No. 4	1.0 MG
	One (1) Zone B Non-Domestic Water Reservoir No. 4	2.9 MG
	One (1) Zone B Non-Domestic Water Pump Station No. 5	3,950 gpm
Planning Area 8	One (1) Zone 2 Domestic Water Reservoir No. 5	3.9 MG
	One (1) Zone 3 Domestic Water Reservoir No. 4	1.0 MG
	One (1) Zone 4 Domestic Water Reservoir No. 3	0.6 MG
	One (1) Zone 3 Domestic Water Pump Station No. 4	320 gpm
	One (1) Zone 4 Domestic Water Pump Station No. 3	65 gpm
	One (1) Zone B Non-Domestic Water Reservoir No. 5	2.1 MG
	One (1) Zone C Non-Domestic Water Reservoir No. 1	0.7 MG
	One (1) Zone C Non-Domestic Water Pump Station No. 1	510 gpm
Planning Area 9	One (1) Zone 3 Domestic Water Reservoir No. 5	0.6 MG
	One (1) Zone 4 Domestic Water Reservoir No. 4	0.8 MG
	One (1) Zone 3 Domestic Water Pump Station No. 5	260 gpm
	One (1) Zone 4 Domestic Water Pump Station No. 4	200 gpm

gpm: gallons per minute
MG: million gallons

Source: TetraTech, Inc., 2003

Mitigation Program

Project Design Features

PDF 14.5-6 The project has incorporated provisions for the placement and sizing of facilities in compliance with the Plan of Works developed by SMWD.

Standard Conditions and Requirements

The proposed project would not result in a significant impact regarding water supply; however, the following standard conditions shall be required:

SC 4.15-5 Prior to recordation of final tract maps for the proposed land development area, the project applicant shall coordinate with SMWD and MWD to ensure that no notable disruptions to the existing domestic and non-domestic water facilities that extend through the project study area would occur as a result of project implementation.

SC 4.15-6 During development of area plans, the project applicant shall coordinate with SMWD to determine specific sizing and placement of water facilities.

Mitigation Measures

No mitigation measures have been identified for the project related to water supply.

Level of Significance After Mitigation

According to the analysis conducted for the proposed Ranch Plan, the project would not create any significant impacts related to water supply.

4.15.5 WASTEWATER

Methodology

The following wastewater analysis was prepared using information derived from the following resources:

- *Plan of Works for Improvement Districts 4C, 4E, 5 and 6*, prepared by Tetra Tech, Inc. and dated November 18, 2003 ("*Plan of Works*")
- Telephone conversations with Mr. Dan Ferons, Chief Engineer, Santa Margarita Water District
- *Final Environmental Impact Report for the Trabuco Basin Wastewater Treatment Facilities* (Volume I – September, 1984)
- *Supplemental Environmental Impact Report for the Trabuco Basin Wastewater Treatment Facilities / Canada Chiquita Alternative Sites* (September, 1984)
- *Mitigated Negative Declaration / Chiquita Water Reclamation Plant Phase III* (May, 2001)

As previously indicated, the Ranch Plan project site is located within SMWD Improvement Districts 4C, 4E, 5 and 6 (the "Ranch Plan IDs"). In anticipation of the proposed project, SMWD contracted with Tetra Tech, Inc. to prepare the *Plan of Works* in order to identify a planning level program for the provision of domestic water, non-domestic water and wastewater services for the project area. In relevant part, the *Plan of Works* addresses wastewater treatment and conveyance issues as they relate to current and planned capacities within SMWD's service area. Using wastewater generation and peaking factors established by SMWD, the *Plan of Works* estimates the amount of wastewater likely to be generated in the Ranch Plan IDs as a result of project implementation. This amount is added to anticipated wastewater generated by other projects/users within SMWD's service area in order to determine the aggregate amount of wastewater that will need to be accommodated by SMWD's treatment and conveyance system following full development of the Ranch Plan. The *Plan of Works* specifically addresses the

existing capacity of SMWD's wastewater treatment and conveyance system in relation to the Chiquita Water Reclamation Plant ("CWRP"), and identifies a series of improvements that, upon implementation, will adequately control and manage wastewater generated within SMWD's service area. A copy of the *Plan of Works* is attached hereto as Appendix L.

Scope of Wastewater Analysis

The following sections begin with an introductory description of (i) the study area identified for the Ranch Plan wastewater analysis and (ii) the existing generation and treatment capacity conditions within SMWD's entire service area. The discussion then recites the individual thresholds of significance identified for potential wastewater impacts associated with development of the Ranch Plan, followed by an evaluation and analysis of the Ranch Plan project in light of the identified significance thresholds.

Study Area

The following wastewater analysis addresses the entirety of SMWD's current service area, a region comprised of approximately 62,674 acres, which includes the Ranch Plan project area.

Existing Conditions

System-Wide Treatment Facilities and Demands

SMWD owns and operates the CWRP, where a majority of the District's wastewater is conveyed for primary and secondary treatment. The current treatment capacity of the CWRP is approximately 9.0 million gallons per day (MGD) for secondary treatment and 5 MGD for tertiary treatment. SMWD also owns wastewater treatment capacity in the Oso Creek Water Reclamation Plant (approximately 3.0 MGD of secondary treatment), the Moulton Niguel Water District 3A Plant (approximately 2.25 MGD of secondary treatment), the South Orange County Wastewater Authority Jay B. Latham Regional Treatment Plant (approximately 2.25 MGD of secondary treatment) and the Irvine Ranch Water District Los Olisos Plant (approximately 0.7 MGD of secondary treatment). The aggregate wastewater treatment capacity for SMWD is, therefore, approximately 17.7 MGD of primary/secondary treatment and 5.0 MGD of tertiary treatment.

Presently, SMWD provides approximately 11.0 MGD of primary/secondary wastewater treatment for the benefit of its service area. Of this amount, approximately 6.0 MGD of wastewater is treated at the CWRP; the remaining 5.0 MGD is treated at the non-CWRP facilities identified above. Accordingly, SMWD currently has a system-wide treatment capacity surplus of approximately 6.7 MGD (secondary treatment standards).

Current CWRP Capacity and Demand

As more fully discussed below, wastewater flows from the Ranch Plan IDs will be conveyed to the CWRP for treatment. In 1984, the CWRP was originally approved for an ultimate primary/secondary treatment capacity of 18.0 MGD. Concurrent with said approval, SMWD evaluated the significant environmental impacts associated with building and operating the full-capacity CWRP facility and its related infrastructure. As evaluated and approved by SMWD, the master plan for the CWRP envisioned a phased development program for the facility, commencing with the construction of an initial 3.0 MGD secondary treatment facility and subsequent demand-driven expansion in increments of 3.0 MGD each. In 1985, the initial 3.0 MGD facility was constructed in Canada Chiquita. The CWRP was subsequently expanded in to accommodate 6.0 MGD of primary/secondary wastewater treatment. In 2003/04, the

CWRP was expanded further to accommodate its current 9.0 MGD of primary/secondary capacity (with an additional 5.0 MGD of tertiary treatment, as described above). Environmental review has been conducted at each stage as the CWRP has been implemented pursuant to the approved master plan.

As indicated above, the CWRP currently treats approximately 6.0 MGD of wastewater to secondary standards. Said wastewater amount is generated by, and treated for the benefit of, those Improvement Districts/entities owning current treatment capacity in the CWRP.[2] The original master-planned flow estimate for the current CWRP capacity owners was projected at 14.55 MGD. However, due to certain governmental, user-based and technological changes, the master plan flow estimate for the current CWRP capacity owners has been reduced to approximately 8.1 MGD – an amount that is within the existing 9.0 MGD secondary treatment capacity of the CWRP.

Existing Conveyance Facilities

SMWD is the beneficiary of several facility easements that allow for conveyance and disposal of wastewater generated within SMWD's service area. Many of these easements are located within the bounds of the Ranch Plan project area; to wit: Two forcemains (10- and 16-inch) originating from the Talega development are located within the project site. The easement for these forcemains enters the project site near the southwest boundary of the project site west of Planning Area 8. The easement continues northward, adjacent to Planning Area 7 and ten travels west, entering Planning Area 6. From this point, the easement cuts through the southwest corner of Planning Area 3, travels along the southern boundary of Planning Area 2 and heads north. Midway through Planning Area 2, the easement splits into two and one forcemain continues to run north out of the project site and the other runs in a northeasterly direction out of the project site.

An additional easement for the Chiquita Trunk Sewer is located within the project site. This trunk sewer, originating in the adjacent community of Coto de Caza, enters the project site at the southwestern boundary of Planning Area 1. The trunk sewer runs through Planning Area 1 and the adjacent open space area in a northeasterly direction where it joins with the Talega forcemains easement. From this point, the trunk sewer runs north just outside the boundary of Planning Area 2 and terminates at the CWRP.

Impacts

Thresholds of Significance

The proposed project would result in a significant impact if:

- Sewage flows from the project would exceed the planned capacity of the wastewater treatment facilities.
- Sewage generated by the project would exceed the capacity of the trunk sewer system.
- The construction of new wastewater treatment facilities or the expansion of existing facilities are required and would cause significant environmental effects.

[2] The Ranch Plan IDs are not current capacity owners in the CWRP; rather, the Ranch Plan IDs are identified as proposed capacity owners that will need to acquire treatment rights in the CWRP as the Ranch Plan is developed.

- The project were to exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

Anticipated Wastewater Flows Generation

Based upon the SMWD generation factors identified in Table 4.15-11, the land uses proposed for the Ranch Plan (as described in Section 3) are anticipated to generate an ultimate average dry-weather wastewater flow of 5.20 MGD. This estimated wastewater amount is segregated/reported by planning area in Table 4.15-12.

TABLE 4.15-11
SMWD WASTERWATER GENERATION FACTORS

Land Use	Units	Wastewater Generation Factor (GPD/unit)
Residential including Senior and Estates	Dwelling unit	300
High Density Residential	Dwelling unit	175
Commercial, Business Park, Urban Activity Center, Retail	1,000 sq. ft. of building area	225
High School	Student	15
Middle School	Student	10
Elementary School	Student	10
Resort	Room	200
GPD: gallons per day Source: Tetra Tech, Inc., 2003		

TABLE 4.15-12
ESTIMATED ULTIMATE AVERAGE DRY-WEATHER WASTEWATER FLOWS

Planning Area	Ultimate Wastewater Flow (gpm)	Ultimate Wastewater Flow (mgd)
1	401	0.58
2	345	0.49
3	1,419	2.05
4	39	0.06
5	518	0.74
6	25	0.04
7	311	0.45
8	506	0.73
9	47	0.07
Total	**3,611**	**5.21**
Source: Tetra Tech, Inc., 2003		

In addition to estimating ultimate average dry-weather flows, the Plan of Works identifies the projected total peak dry-weather flows that would be conveyed from the Ranch Plan project to the CWRP for treatment. Specifically, the Plan of Works cites and applies SMWD's peaking formula and estimates that the total peak dry-weather flow for the project would be 7.58 MGD.

Whether using the ultimate average dry-weather flow figure of 5.20 MGD or the peak dry-weather flow figure of 7.58, the CWRP has both existing and potential expansion capacity to accommodate wastewater generated by the project. As described above, the CWRP has a

current treatment capacity surplus of approximately 3.0 MGD (i.e., 9.0 MGD of total capacity–LESS–6.0 MGD of current treatment activity). Furthermore, the CWRP is currently master-planned and approved for a treatment capacity of 18 MGD. As such, the CWRP may be expanded up to an additional 9.0 MGD of primary/secondary treatment capacity to service the wastewater flows generated by the project. Additionally, the Ranch Plan IDs may have the ability to purchase from the other Improvement Districts some or all of the existing excess CWRP treatment capacity of 3.0 MGD. In short: Up to 12.0 MGD of unused existing and potential capacity is available within the CWRP facility to meet the wastewater treatment demands of the project. Sewage flows from the project will not exceed the planned capacity of the CWRP.

Wastewater Conveyance System and Capacity

Wastewater generated as a result of Ranch Plan implementation would exceed the capacity of the existing conveyance system. Accordingly, Section 3 provides a summary of the wastewater improvements that are proposed to serve the Ranch Plan project at full build out. As specified in the *Plan of Works*, these improvements include the construction of major trunk sewers, forcemains and lift stations. In addition to the construction of new facilities, several existing facilities would require improvement and expansion to adequately serve the project site. While the precise location and size of the facilities/improvements would be determined at the time tentative tract maps are processed, the *Plan of Works* identifies the general location, type and capacity of the proposed wastewater facilities and improvements. See Table 4.15-13 and Exhibit 4.15-3.

TABLE 4.15-13
PROPOSED WASTEWATER FACILITIES

Location	Type of Facility	Facility Capacity
Planning Area 2	One Small Wastewater Lift Station	260 gpm
Planning Area 3	One Small Wastewater Lift Station	350 gpm
	One Large Wastewater Lift Station	4,850 gpm
Planning Area 8	One Large Wastewater Lift Station	1,684 gpm
	One Large Wastewater Station: ID No. 3	2,720 gpm
	Expansion to Talega Lift Station	1,684 gpm
Planning Area 9	One Package Treatment Plant	126 gpm
Source: Tetra Tech, Inc., 2003		

In addition to the construction of new facilities, several existing facilities would require improvements and expansions to adequately serve the project site. The following paragraphs identify the projected improvements, facilities and conveyance strategies for the individual planning areas.

Planning Area 1. SMWD plans to divert approximately 52 percent of the flows from Planning Area 1 (approximately 209 gpm) to the existing San Juan Creek Lift Station for pumped conveyance to CWRP. Upon agreement with the City of San Juan Capistrano, the remaining 48 percent of flows (approximately 192 gpm) would be sewered to the City of San Juan Capistrano's sewer system (via an 8-inch sewer in Ortega Highway and an 8-inch sewer in San Juan Creek Road). If an agreement with the City were not reached, two small lift stations would be required south of Ortega Highway.

Planning Area 2 (upper). Flows from a portion of Planning Area 2 would be conveyed to the existing SMWD 30-inch sewer line located in Chiquita Canyon Road. This sewer would

accommodate calculated flows (approximately 190 gpm) because flows from the Las Flores development were recently diverted to an alternate sewer line.

Planning Areas 2 (lower) and 3. Development of Planning Areas 2 and 3 would require the construction of three lift stations (Gobernadora Lift Station, Lower Chiquita Lift Station, and Northeast Gobernadora Lift Station) to accommodate calculated wastewater flows. The Gobernadora Lift Station would accept new flows from Planning Area 3 and a portion of the Planning Area 2 flows, while also accommodating flows from the Southern Improvement District 6 Lift Station No. 3, bringing the total peak flow to approximately 4,850 gpm. Flows from the Gobernadora Lift Station would then be pumped through proposed 18- and 10-inch forcemains to CWRP for treatment.

Two smaller lift stations (Lower Chiquita and Northeast Gobernadora Lift Stations) would be required to pump small amounts of wastewater flow (260 and 350 gpm, respectively) over ridges in the topography and into sewers that would convey the flows to the Gobernadora Lift Station.

Planning Area 4. Planning Area 4 would be served by pipelines connecting to Planning Area 3. No new lift stations or pump facilities would be required with the boundary of Planning Area 4.

Planning Area 5. Existing wastewater flows from Talega (Improvement District No. 7) are currently conveyed to the Ortega Lift Station and subsequently pumped to CWRP via existing 10-inch and 16-inch forcemains. As currently proposed, flows from Planning Area 5, as well as flows from Planning Areas 6, 7, and 8, would be conveyed to the Ortega Lift Station. Under this proposal, the Ortega Lift Station would require expansion to accommodate the increased wastewater flow. Table 4.15-13 shows that the expansion would increase the Talega Lift Station's facility capacity by 1,684 gpm.

The Plan of Works identifies two alternatives to accommodate the anticipated flows from Planning Area 5 in combination with the flows from Planning Areas 6, 7, and 8. The first alternative would continue to pump the Talega flow through existing forcemains and construct two new forcemains (10-inch each) to convey the anticipated flows from Planning Areas 5, 6, 7, and 8 (combined peak flow of 2,720 gpm) to a new 21-inch sewer line in Central Gobernadora. The flow would then be routed to the Gobernadora Lift Station and then on to the CWRP for treatment.

The second alternative would modify the existing pumps at the Ortega Lift Station to accommodate the increased flows generated by Planning Areas 5, 6, 7, and 8. However, Alternative 1 would be a more feasible alternative under the current fiscal constraints of high energy costs associated with pumping flows over long distances. Therefore, Alternative 1 is assumed for purposes of this analysis.

Planning Areas 6, 7, and 8. As discussed above, it is proposed that flows from Planning Areas 6, 7, and 8 be conveyed to the existing Talega Lift Station, which would require expansion to accommodate these additional flows as shown in Table 4.15-13. The new pumping facilities to be located within the expanded Talega Lift Station would be labeled "Southern Improvement District 6 Lift Station No. 2". The addition of flows from Planning Areas 6, 7, and 8 to the existing flows from the Talega development would generate a combined peak dry-weather flow of 3,254 gpm. Existing forcemains and the existing 15-inch PVC sewer would accommodate this combined flow without requiring expansion. An additional lift station would be required (i.e., Southern Improvement District 6 Lift Station No. 1) to further accommodate flows from these planning areas.

Planning Area 9. Development of Planning Area 9 with low density residential and golf course uses would require construction of a package wastewater treatment plant to treat the estimated peak flow of 126 gpm. Additionally, a number of dwelling units on the western edge of the planning area would be sewered directly into the CWRP collection system.

Significant Environmental Effects

As previously indicated, the CWRP was master-planned in 1984 to accommodate an ultimate primary/secondary treatment capacity of 18 MGD. Concurrent with the master-planning process, an environmental analysis was performed that evaluated the potentially significant impacts associated with development of the CWRP facility. Specifically, an EIR and supplemental EIR ("SEIR") were prepared that discuss the significant unavoidable impacts that would result from development and operation of the full facility (i.e., 18 MGD capacity) as well as the identification of certain mitigation measures to eliminate or otherwise reduce the impact of other identified effects. Both the EIR and the SEIR were certified by SMWD in 1984; Phase I of the CWRP was constructed in 1985.

The CWRP has undergone supplemental expansion in accordance with the phasing program contemplated for the facility (i.e., from 3.0 MGD to 6.0 MGD and from 6.0 MGD to 9.0 MGD in 2003/04). Each subsequent phase of the CWRP has been the subject of environmental analysis and evaluation. As the CWRP is further expanded to accommodate the wastewater treatment needs of the Ranch Plan IDs, additional environmental analysis will be performed consistent with the requirements of CEQA and in accordance with prior practice. All expansions should be accommodated within the facility footprint/boundaries identified for the initially approved/studied CWRP (with the exception of a potential overflow basin that may be constructed just south of the facility).

With respect to significant environmental effects associated with the construction and expansion of other wastewater facilities, said improvements would be constructed and implemented as part of the overall Ranch Plan project. (See Section 3, Project Description.) These new/expanded facilities would not produce impacts separate from, or in addition to, those impacts associated with general Ranch Plan development. Accordingly, no significant effects should occur.

Regional Water Quality Control Board Requirements

As the identified wastewater service provider for the Ranch Plan IDs, SMWD will be responsible for ensuring that the CWRP and all other wastewater treatment and conveyance facilities will comply with the treatment requirements of the Regional Water Quality Control Board.

<u>Mitigation Program</u>

Project Design Features

PDF 14.5-7 The project has incorporated provisions for the placement and sizing of wastewater treatment and conveyance facilities as specified in the *Plan of Works*.

Standard Conditions and Regulations

With the proposed improvements and expansions identified in the Plan of Works, the proposed project would not result in a significant impact related to wastewater; however, the following standard conditions shall be required. Although the standard conditions and regulations are enacted at subsequent levels of approval, they are listed at this time is to allow the reader an understanding of conditions that are applicable to the project at subsequent levels of approval.

SC 4.15-7 Prior to recordation of final tract maps for the proposed land development area, the project applicant shall coordinate with SMWD to ensure that no notable disruptions to the existing sewer conveyance facilities, which extend through the project study area, would occur as a result of project implementation.

SC 4.15-8 During development of area plans, the project applicant shall coordinate with SMWD to determine specific sizing and placement of wastewater facilities.

Mitigation Measures

No mitigation measures have been identified for the project related to wastewater.

Level of Significance After Mitigation

According to the analysis conducted for the proposed Ranch Plan, the project would not create any significant impacts related to wastewater.

4.15.6 SCHOOLS

Methodology

An analysis of potential school impacts associated with development of the project was performed using information collected from the Capistrano Unified School District (CUSD). Generation rates provided by CUSD were used to project the anticipated numbers of students to be generated as a result of Ranch Plan development. Information regarding the current number of students and capacities of existing and planned the schools within the CUSD boundary were also provided by CUSD.

Study Area

The study area is the district boundary for CUSD. The CUSD district includes the cities of Aliso Viejo, Dana Point, Laguna Niguel, Mission Viejo, Rancho Santa Margarita, San Clemente and San Juan Capistrano, as well as the communities of Capistrano Beach, Coto de Caza, Dove Canyon, Ladera Ranch, Las Flores, Talega, and Wagon Wheel. A large portion of unincorporated Orange County, including the project site, is also located within the CUSD boundary. CUSD currently provides kindergarten through 12th grade educational services for nearly 50,000 students enrolled in 55 schools in south Orange County.

Existing Conditions

CUSD has 36 elementary schools, ten middle schools, five high schools, and four alternative schools. While the proposed project site is located within the CUSD service area, there are currently no school facilities within the boundaries of the project site.

Table 4.15-14 identifies the current enrollment and student capacities for those CUSD school facilities which are located closest to the project site. As shown in this table, available capacity exists within the majority of schools near the project site. However, Wagon Wheel Elementary, San Clemente High School, and Tesoro High School are currently over-enrolled. As a result, according to CUSD data, these school facilities would not be adequate to serve the number of students anticipated to be generated within the district under current development conditions. The remainder of the schools could possibly have available capacity during early phases of the Ranch Plan to serve some students prior to new schools opening.

TABLE 4.15-14
2003/2004 ENROLLMENT AND CAPACITY INFORMATION FOR CUSD SCHOOLS NEAR PROJECT SITE

School	Student Enrollment	Average Capacity	Available Capacity
Harold Ambuehl Elementary 28001 San Juan Creek Road San Juan Capistrano	666	**800**	134
Ladera Ranch Elementary 29551 Sienna Parkway Ladera Ranch	459	**750**	291
Vista del Mar Elementary 1130 Avenue Talega San Clemente	512	**750**	232
Wagon Wheel Elementary 30912 Brindle Path Coto de Caza	1,083	**700**	<383>
Ladera Ranch Middle School 29551 Sienna Parkway Ladera Ranch	773	**1,000**	227
Vista del Mar Middle School 1130 Avenue Talega San Clemente	431	**750**	319
San Clemente High School 700 Avenida Pico San Clemente	2,752	**1,800**	<952>
Tesoro High School 1 Tesoro Creek Road Ranch Santa Margarita	2,498	**2,200**	<298>
Junipero Serra High School (Continuation High School) 31422 Camino Capistrano San Juan Capistrano	135	**250**	115
Source: CUSD Facilities Planning, 2003.			

Impacts

Thresholds of Significance

The proposed project would result in a significant impact to school service if it would result in substantial adverse physical impacts associated with the need or provision of new or physically altered school facilities in order to maintain acceptable student services, the construction of which could cause significant environmental impacts.

Facilities Demand

Implementation of the proposed project would result in the generation of new students to be served by CUSD. According to CUSD, and as identified in Table 4.15-15, existing educational facilities currently serving the project study area would not be able to adequately accommodate these students. CUSD used generation factors to estimate the number of new students that would be generated by the 8,000 single- and multi-family (non-senior) housing units proposed for the project. This information is shown in Table 4.15-16.

TABLE 4.15-15
ESTIMATED STUDENT GENERATION

Type of School	Number of Proposed Non-Senior Dwelling Units	Student Generation Factor	Potential Number of Students Generated
Elementary School	8,000	0.328	2,624
Middle School	8,000	0.110	880
High School	8,000	0.098	784
Total			**4,288**
Source: Capistrano Unified School District, 2004.			

Based on this information, the school district identified the number of new facilities needed to serve future students within the project site. This information is shown in Table 4.15-16.

TABLE 4.15-16
ESTIMATED DEMAND OF SCHOOL CONSTRUCTION

Type of Facility	Estimated Number of Facilities Needed
Elementary School	5
Middle School	1
High School	0.5
Source: Capistrano Unified School District, 2004.	

To serve the projected number of students, the Ranch Plan would provide for acquisition by the school district, five elementary school sites and one middle school site. Elementary school sites are anticipated to be located in Planning Areas 2, 3, 7, and 8. Planning Area 3 would likely require two elementary schools. Each elementary school would be built on approximately 12 acres and would accommodate approximately 700 children. These schools would serve the proposed development and would be phased with construction. The middle school would likely be located in Planning Area 3. The middle school would be built on approximately 25 acres and would serve approximately 1,200 students. The precise location of the schools would be determined in consultation with the CUSD.

The additional students generated by the project, combined with surrounding area demand, could necessitate the construction of a high school within the project limits. The high school, if required, would be built on approximately 55 acres and serve approximately 2,200 students. A potential high school site would be provided for acquisition by the school district in Planning Area 3.

According to CUSD, the implementation of these educational facilities would likely be adequate to accommodate students generated by the proposed project, as well as high school students located outside of the project area. CUSD and the developer must come to agreement regarding the locations of new schools and any arrangements with other government entities, such as for shared parks or support facilities. Upon approval of the Ranch Plan, the applicant will enter into an agreement with CUSD specifying the number and location of new schools to serve the Ranch Plan.

The number and type of schools required would ultimately depend on actual student generation, the capacity of the existing and future schools, rate of development, and actual number of residential units. CUSD would continue to engage in the planning of schools within the site at

each level of project planning as appropriate. Specific characteristics and design of each school would need to be determined once additional information is provided.

School Funding

Taxes

According to CUSD, the district receives property tax revenue from property within the Ranch Plan area. These revenues are linked to the assessed value of land located within the Ranch Plan project area. Increases in revenue will come from increases in assessed value, primarily from new development, and reassessments. Therefore, the proposed project would generate an increase of tax revenue for CUSD. In the instance that tax revenues would not sufficiently cover the financial needs of the district in relation to the Ranch Plan area schools, an opportunity exists for CUSD to seek supplemental fees from residential developers (see the following section).

Supplemental Fees

Following the approval of Proposition IA by the voters of the State of California, Senate Bill 50 (SB 50), was fully implemented on November 4, 1998. One of the provisions of SB 50 was the suspension of the Mira-Hart-Murrieta court decisions until January 1, 2006. Under SB 50, statutory caps have been placed on developer fees, and local governments cannot deny a project based on the adequacy of school facilities. In lieu of the powers granted to the school districts by the Mira-Hart-Murrieta court decisions, SB 50 provides school districts with a reformed statutory school fee collection procedure that, subject to certain conditions, authorizes school districts to collect alternative school fees on residential developments. In order to levy alternative fees, a school district must first prepare and approve a School Facilities Needs Analysis (SFNA) that assesses, among other factors, existing capacity and unhoused students.

SB 50 provides for three levels of statutory mitigation fees (Levels 1 through 3) and permits developer fees to be levied in amounts up to approximately 50 percent of the cost of constructing school facilities and for land acquisition and site development (Level 2 Fees). The State is responsible for contributing the remaining costs of construction, site acquisition, and development by providing per-pupil grants based upon State construction standards. If, in the future, the State ceases to make apportionments of funds to school districts, then the school district may seek to levy additional amounts representing approximately 100 percent of the cost of constructing school facilities and site acquisition (Level 3 Fees). However, as indicated above, school districts may levy Level 2 and Level 3 Fees only if the school districts have met certain conditions including, but not limited to, the preparation of an SFNA and an affirmative finding by the State Allocation Board that the districts are eligible to participate in the State Funding Program. Imposition of Level 2 and Level 3 mitigation fees on a particular development is not permanent. School districts must prepare new SFNAs and justify entitlement to receive Level 2 and Level 3 fees on an annual basis.

Mitigation Program

Project Design Features

PDF 4.15-8 The project description provides for the incorporation of school sites into the land use plan. The project design assumes five elementary school sites, one middle school site, and a potential high school site, if deemed necessary by CUSD.

Standard Conditions and Requirements

Many of the standard conditions and regulations are enacted at subsequent levels of approval. The following standard condition would be applicable at subsequent levels of approvals (i.e., tract maps). However, as previously indicated, the identification of the standard conditions at this time is to allow the reader an understanding of conditions that are applicable to the project at subsequent levels of approval.

SC 4.15-9 Prior to the recordation of final tract map, the project applicant shall provide for the payment of fees pursuant to California Government Code Section 65995, unless other provision are required of the applicant through the agreement with CUSD (see mitigation measure 4.15-5).

Mitigation Measures

MM 4.15-5 Prior to 500th residential building permit, excluding senior housing, the applicant shall enter into an agreement with CUSD regarding the development of future facilities and payment of costs. The agreement shall, at a minimum, provide for the payment of fees pursuant to California Government Code Section 65995. If fees are paid, the amount of fees to be paid will be determined based on the established State formula for determining construction costs. Applicable fees shall be paid prior to the issuance of each building permit.

Level of Significance After Mitigation

In accordance with California Government Code §65995(h) and(i):

> *"The payment or satisfaction of a fee, charge, or other requirement levied or imposed pursuant to Section 17620 of the Education Code in the amount specified in Section 65995 and, if applicable, any amounts specified in Section 65995.5 or 65995.7 are hereby deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization as defined in Section 56021 or 56073, on the provision of adequate school facilities.*
>
> *A state or local agency may not deny or refuse to approve a legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization as defined in Section 56021 or 56073 on the basis of a person's refusal to provide school facilities mitigation that exceeds the amounts authorized pursuant to this section or pursuant to Section 65995.5 or 65995.7, as applicable."*

After payment of fees to CUSD, no impact to the school district would remain.

4.15.7 SOLID WASTE MANAGEMENT

Methodology

The proposed project's impact on the County solid waste system was evaluated using information provided by the California Integrated Waste Management Board (CIWMB) and County of Orange Integrated Waste Management Department (OCIWMD). Information regarding generation rates was provided by CIWMB, while local regulations related to waste

management facilities, and their capacities, and the Countywide Integrated Waste Management Plan (CIWMP) were provided by OCIWMD.

Study Area

OCIWMD administers municipal solid waste collection, recycling, and planning for the County of Orange, including the project site. The Orange County solid waste system includes three active regional landfills, four household hazardous waste collection centers, and 19 former refuse disposal stations. The three facilities that may serve the proposed project are the Olinda Alpha, Frank R. Bowerman, and the Prima Deshecha Sanitary Landfills. Notwithstanding, OCIWMD anticipates that the proposed project would be primarily served by the Prima Deshecha Landfill located south of Ortega Highway at the current terminus of La Pata Avenue.

Existing Conditions

Regulations

Solid waste practices in California are governed by several agencies and forms of legislation. Federal and state regulations ensure that landfill operations minimize impacts to public health and safety, and the environment. An important part of OCIWMD's mission is to apply sound environmental practices to ensure compliance with these regulations.

The California Integrated Waste Management Act of 1989 (AB 939) required all counties to prepare a County Integrated Waste Management Plan. The County of Orange adopted its CIWMP in 1996. The CIWMP includes the following components: Source Reduction and Recycling, Household Hazardous Waste, and a countywide Siting Element.

OCIWMD is obligated to obtain permits from several regulatory agencies as a condition of operating the three active landfills in Orange County. These include: a Solid Waste Facilities Permit; Waste Discharge Requirements; a Stormwater Discharge Permit; and permits to construct and operate gas management systems. The main regulatory body for California landfills is the CIWMB. The County of Orange Health Care Agency's Environmental Health Division is the local enforcement agency (LEA) for the CIWMB.

In addition to the CIWMB and the LEA, the South Coast Air Quality Management District (SCAQMD) enforces air quality regulations and the California Regional Water Quality Control Boards (CRWQCB) enforces water quality regulations relative to OCIWMD's landfill operations. OCIWMD also operates under certain Memoranda of Understanding (MOU) with the cities that host a landfill. The individual MOUs are agreements between cities and the County that address local issues such as landfill operating hours, traffic routes, and the maximum amount of trash received daily. In addition to the above-referenced permits, certain projects may fall under the jurisdiction of the U.S. Army Corps of Engineers (ACOE), the U.S. Fish and Wildlife Service (USFWS), and the California Department of Fish and Game (CDFG). Additionally, OCIWMD evaluates all landfill projects for compliance with CEQA. This ensures that any project that could have an impact on the environment is fully analyzed, and that any impacts are mitigated to the extent feasible.

Prima Deshecha Sanitary Landfill

As previously indicated, the primary solid waste facility that would serve the project study area is the Prima Deshecha Landfill. Opened in 1976, this facility is located approximately three miles east of the intersection of I-5 and Ortega Highway in unincorporated Orange County. The landfill is a 1,530-acre facility with approximately 680 acres permitted for refuse disposal. The

Prima Deshecha Landfill accepts only non-hazardous solid waste, including some biosolids (dewatered sewage sludge). The landfill has a design capacity of 171.6 million cubic yards (mcy) of air space and, as of June 2003, had filled approximately 22.43 mcu. At that time, the existing remaining capacity of the landfill was approximately 149.17 mcy. The average daily tonnage received by the landfill in March 2004 was 2,700 tons per day; the landfill is permitted to receive up to 4,000 tons of solid waste per day. The estimated closure year is now approximately 2067 (based on daily permitted disposal limit of 4,000 tons per day). A General Development Plan has been prepared for Prima Deshecha Landfill, which indicates the end use of the landfill property as a regional park.

The Prima Deshecha Landfill also has a HHWCC, which is part of a countywide program of permanent collection centers. Materials accepted at the HHWCC include paint, used motor oil, household pesticides, cleaning materials, and other commonly used household chemicals limited to volumes of 5 gallons or 50 pounds of weight. Solid waste generated in the project study area would be transported by one of two franchised haulers in the area–CR&R/Solag Disposal or Waste Management of Orange County, Inc.

OCIWMD also accepts additional waste from outside Orange County. If cumulative development causes the daily tonnage ceiling of a particular facility to be exceeded, out-of-county waste being imported to that facility would be reduced by a corresponding amount. OCIWMD has identified that the County's landfill system has capacity in excess of the required 15-year threshold established by CIWMB. Consequently, it can be assumed that adequate capacity for the proposed project is available for the foreseeable future.

Impacts

Thresholds of Significance

The proposed project would result in a significant impact if:

- Sufficient permitted landfill capacity is not available to accommodate the project's solid waste disposal needs.
- The disposal of project-related waste would result in a substantial reduction in the planned lifespan of a landfill.

Solid Waste Impacts

CIWMB solid waste generation rates used to assess potential consumption demands for the proposed development area are outlined, by land use type, in Table 4.15-17. In applying these rates to the proposed project, implementation of the land use plan would generate approximately 62.514 million pounds of solid waste annually. This represents approximately 90 tons of solid waste per day. However, the County IWMD estimates that the landfill system is receiving approximately seven pounds of waste per day per person. Using the population projections outlined in Section 4.3, Population and Housing, the project is expected to generate 32,823 new residents. Using the IWMD generation rate, that would result in 229,761 pounds (approximately 115 tons) per day or 83.863 million pounds of solid waste annually. Because the Prima Deshecha landfill is currently permitted to accept up to 4,000 tons of solid waste per day, and the average daily tonnage accepted in 2003 was 2,525 tons, sufficient capacity is projected to exist to accommodate daily tonnage generated by implementation of the proposed project. No significant impacts to solid waste service would result with implementation of the proposed project.

TABLE 4.15-17
PROJECTED SOLID WASTE GENERATION

Project Land Use Type (with CIWMB Category in parenthesis)	Land Use Quantity/Size	Daily Solid Waste Generation Rate (pounds/unit)	Annual Solid Waste Generation Rate (pounds/unit)	Annual Demand (million pounds/ year)
Residential (Single-Family)	12,380 du	10	3,650	45.187
Residential (Multi-Family)	1,620 du	4	1,460	2.365
Neighborhood Center (Commercial/Retail)	500,000 sq. ft.	0.005	1.825	0.913
Urban Activity Center[a.] (Commercial/Retail)	3,480,000 sq. ft.	0.005	1.825	6.351
Business Park (Office)	1,220,000 sq. ft.	0.006	2.190	2.672
Elementary School[a.] (Office)	200,000 sq. ft.	0.006	2.190	0.438
Middle and High School[a.] (Office)	275,000 sq. ft.	0.006	2.190	0.602
Golf Resort* (Other Services)	350,000 sq. ft.	0.0312	11.388	3.986
Total				**62.514**

du: dwelling units
sq. ft.: square feet

[a.] No specific CIWMB generation rate category is available for this land use; the generation rate was based on "other services" category.

Source: CIWMB, 2004.

Mitigation Program

Project Design Features

There are no PDFs addressing Solid Waste.

Standard Conditions and Regulations

The following standard conditions and regulations would be enacted at a subsequent level of approval. It is listed even though they may not be applicable at the GPA/ZC level of approval, but because allows the reader an understanding of conditions that are applicable to the project at subsequent levels of approval.

SC 4.15-10 Prior to approval of the first master area plan, a Solid Waste Management Plan shall be prepared and submitted to OCIWMD for review and approval. This plan, which shall include specific measures to reduce the amount of refuse generated by construction of the proposed project, shall be developed to meet waste reduction requirements established by the California Integrated Waste Management Act of 1989.

Mitigation Measures

Because implementation of the proposed project is not expected to result in significant impacts to the solid waste system, no mitigation measures related to solid waste management have been identified.

Level of Significance After Mitigation

Based on the above analysis and as a result of the project applicant's obligation to comply with the requirements of AB 939, the impact of the project relative to solid waste would be less than significant.

4.15.8 PETROLEUM LINES

Methodology

A high pressure petroleum fuel pipeline traverses the project site. An evaluation of the location of the line and the placement of development in proximity to the line was conducted to determine if the project would have an impact on this existing facility.

Study Area

The project study area is limited to the Ranch Plan area.

Existing Conditions

The Santa Fe Petroleum Pipeline (SFPP) is comprised of two pipelines, a 10-inch and a 16-inch, that traverse the project site. The 10-inch line is currently inactive. The active 16-inch-diameter fuel pipeline serves the Marine Corps Air Station (MCAS) at Miramar, in San Diego County, from the refinery in Wilmington in the City of Los Angeles. The line runs approximately south-north within the project site. The line enters the project site from the approximate center of Planning Area 8, and travels northwest past the western edge of Planning Area 7. From there it skirts the southern edge of Planning Areas 6 and 5, and across the western edge of Planning Area 5. It then cuts across the western portion of Planning Area 1, and moves north out of the project site.

Impacts

Threshold of Significance

The project would have a significant impact if the relocation of the petroleum fuel line would result in a notable disruption of service.

Petroleum Line Impacts

The SFPP easement would be affected by development within Planning Areas 1 and 8. The applicant has provided an alignment for the future relocation of the 10-inch SFPP Line through RMV landholdings located adjacent to an existing easement for the 16-inch SFPP line. The relocation would be contained within the Ranch ownership and conducted in conjunction with grading and infrastructure construction. However, even after relocating the 10-inch pipeline into the existing 16-inch pipeline easement, the easement and pipelines would require relocation due to development of the project, resulting in a project impact. The easement for the 16-inch-diameter pipeline serving Miramar would be affected by development within Planning Areas 1

and 8, and would require relocation. Utility relocations generally do not result in significant impacts because the replacement line is constructed prior to the removal of the existing facility. No offsite relocation of the facility is anticipated. A segment of the pipeline to the north through Ladera Ranch was previously relocated to accommodate that development. The relocated line would be able to reconnect with the existing line prior to exiting the Ranch Plan site and prior to entering MCB Camp Pendleton. Impacts would be less than significant. However, a mitigation measure requiring the applicant to coordinate the relocation with the pipeline owner, Kinder-Morgan, is included to ensure that no disruption in service occurs. Short term impacts associated with removal of habitat is addressed under Section 4.9, Biological Resources.

Mitigation Program

Project Design Features

There are no PDFs associated with petroleum line impacts.

Standard Conditions and Regulation

There are no standard conditions and regulations associated with petroleum line impacts.

Mitigation Measures

MM 4.15-6 Prior to recordation of final tract maps, except for financing purposes, the project applicant shall coordinate with the pipeline owner, Kinder-Morgan, to ensure that no notable disruptions to the fuel pipeline that extends through the project site would occur as a result of project implementation.

Level of Significance After Mitigation

Impacts on the petroleum fuel line would be less than significant.

4.15.9 LIBRARY SERVICES

Methodology

The library services analysis was based upon information collected from the Orange County Public Libraries (OCPL) as well as information provided by the City of Mission Viejo Public Library. Current numbers of facilities and locations were also provided by OCPL and the City of Mission Viejo Public Library

Study Area

Existing libraries closest to the project study area are listed in Table 4.15-18 below:

TABLE 4.15-18
LIBRARIES CLOSEST TO THE PROJECT STUDY AREA

Library Name	Address	Approximate # of People Served
City of Mission Viejo Public Library	100 Civic Center Mission Viejo, CA 92691	90,000
Ladera Ranch Branch Library	29551 Sienna Parkway Ladera Ranch, CA 92694	60,000
San Juan Capistrano Regional Library	31492 El Camino Real San Juan Capistrano, CA 92675	60,000

TABLE 4.15-18 (Continued)
LIBRARIES CLOSEST TO THE PROJECT STUDY AREA

Laguna Niguel Library	30341 Crown Valley Parkway Laguna Niguel, CA 92677	75,000+
Rancho Santa Margarita Library	30902 La Promesa Drive Rancho Santa Margarita, CA 92688	60,000
San Clemente Library	242 Avenida Del Mar San Clemente, CA 92672	75,000
Source: Orange County Public Libraries. 2004; City of Mission Viejo Public Library. 2001-2002.		

Existing Conditions

The Orange County Public Libraries and the City of Mission Viejo Public Library provide informational, recreational and reference materials that include the latest book titles, special language collections, books on tape, and reference services. Each of the OCPL branches accommodates a number of communities. For example, the Ladera Ranch Branch Library services several areas including Ladera Ranch, Coto de Caza, Las Flores, and portions of Mission Viejo, while the Laguna Niguel Branch may also serve portions of Aliso Viejo, the City of Laguna Beach and unincorporated areas within the vicinity of the library. The City of Mission Viejo was formerly a member library of the OCPL system until 1994 when it obtained ownership of the Mission Viejo branch and built a new and larger facility at 100 Civic Center, Mission Viejo, CA.

In recent years, funding levels for library services have been greatly reduced. This has had an adverse effect on library services through the county.

Thresholds of Significance

The proposed project would result in a significant impact to library services:

- If existing or planned library facilities are not adequate to serve additional demand resulting from proposed land uses.

Impacts

The proposed project would increase demand for library services due to the increased population and related demand for library services. The need for an additional facility would ultimately depend on utilization rates of existing facilities and the demand for library services at the time site-specific planning and documentation is prepared for the proposed land use plan. The County of Orange has made provisions for library services through developer fees used to provide for future demand. No significant impacts are anticipated.

Mitigation Program

Project Design Features

There are no Project Design Features for Library Services.

Standard Conditions and Regulations

Many of the standard conditions and regulations are enacted at subsequent levels of approval. The following standard condition would be applicable at subsequent levels of approvals (i.e., tract maps). However, as previously indicated, the identification of the standard conditions at

this time is to allow the reader an understanding of conditions that are applicable to the project at subsequent levels of approval.

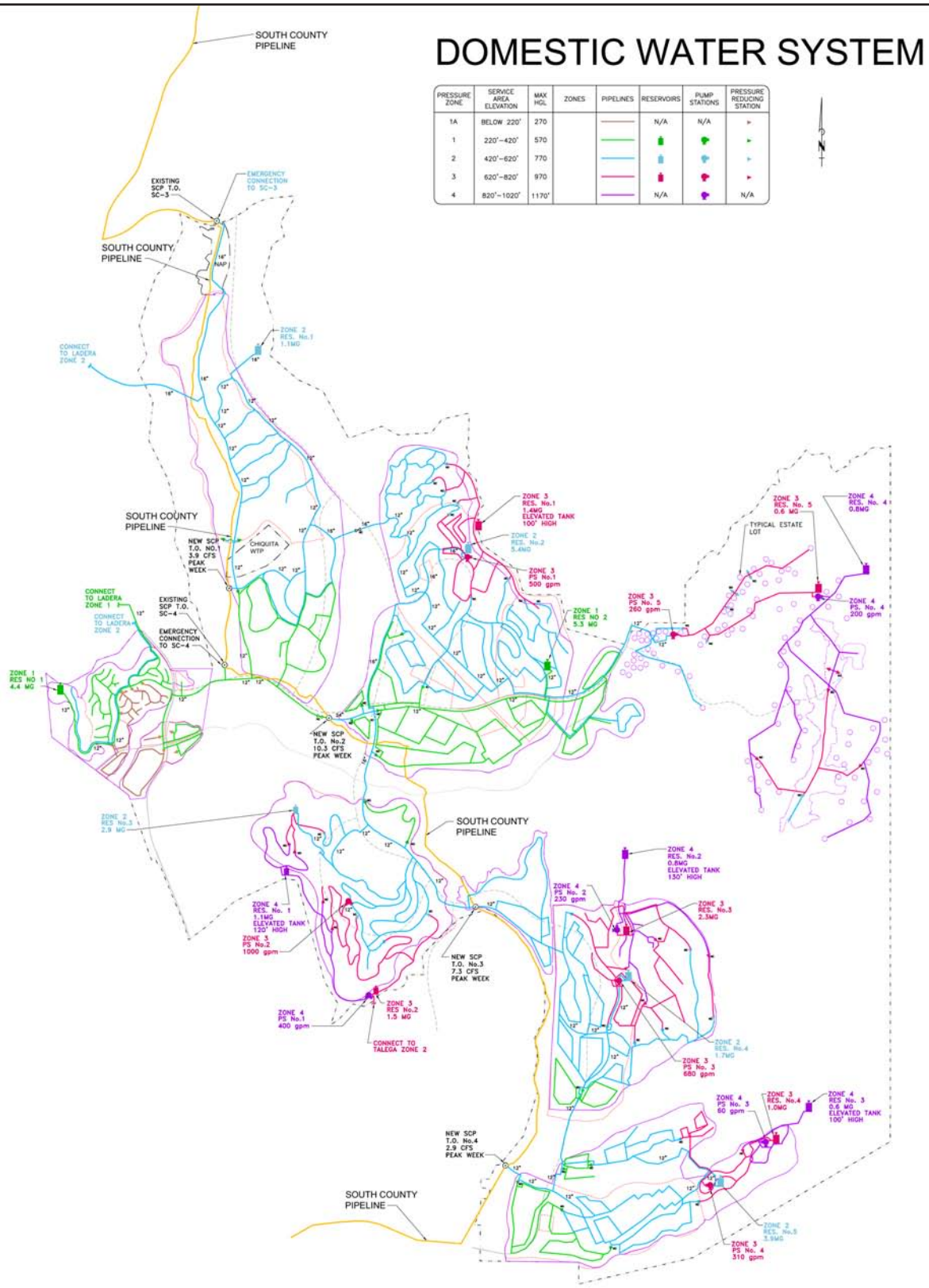
SC 4.15-11 Prior to the recordation of any final tract/parcel map for the proposed land development area, the project proponent shall pay appropriate developer fees, as determined by the County of Orange, for needed library facilities.

Mitigation Measures

With implementation of SC 4.15-11, no further mitigation measures are required.

Level of Significance After Mitigation

The implementation of the recommended mitigation program would reduce any impacts to a level considered less than significant.



Domestic Water System

Exhibit 4.15-1

The Ranch Plan

1" = 7,500'

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Source: Tetra Tech

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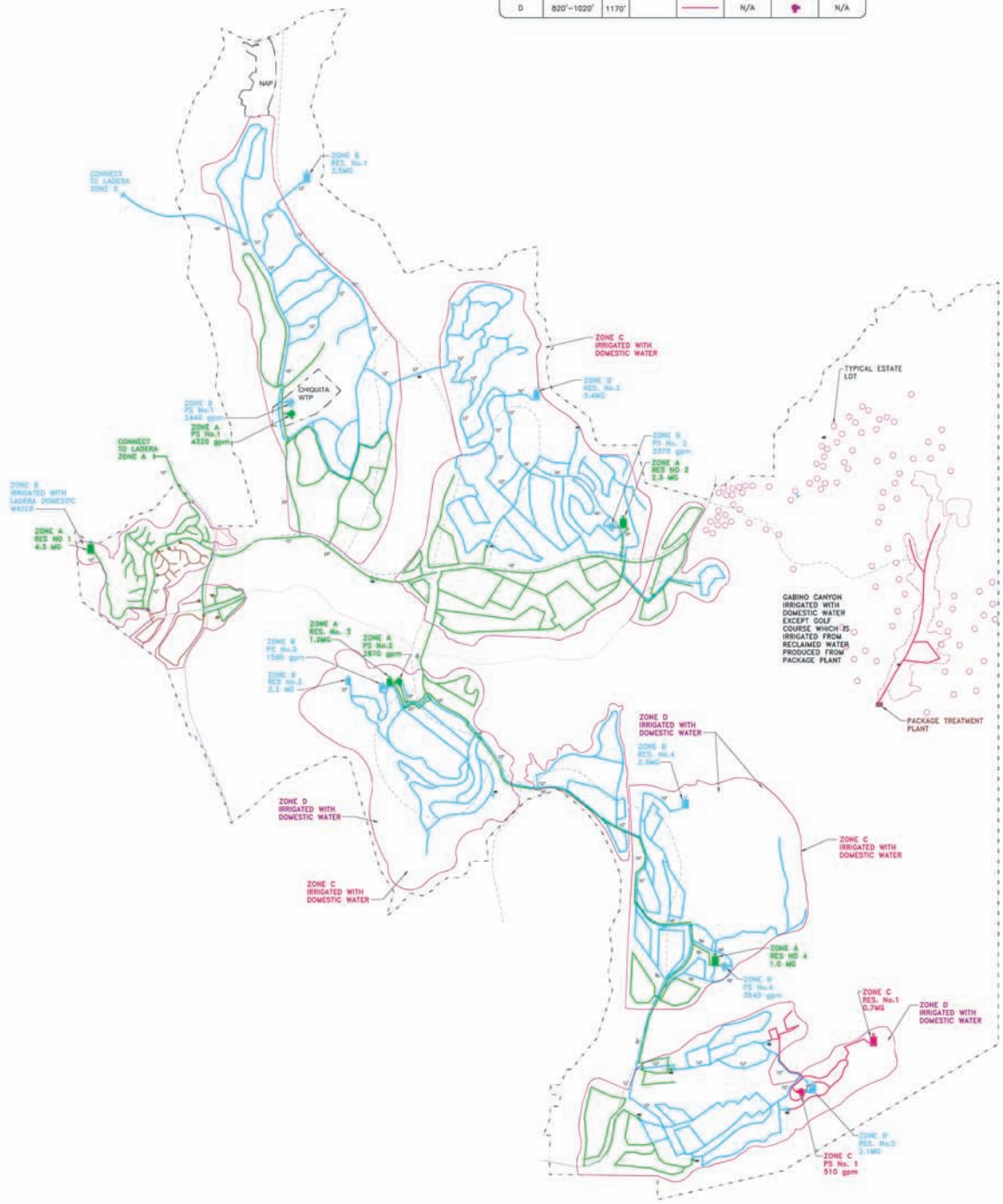
NON-DOMESTIC WATER SYSTEM

PRESSURE ZONE	SERVICE AREA ELEVATION	MAX HGL	ZONES	PIPELINES	RESERVOIRS	PUMP STATIONS	PRESSURE REDUCING STATION
A1	BELOW 220'	270			N/A	N/A	
A	220'–420'	570					
B	420'–620'	770					
C	620'–820'	970					
D	820'–1020'	1170'			N/A		N/A



Non-Domestic Water System

Exhibit 4.15-2

The Ranch Plan

1" = 7,500'

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Source: Tetra Tech

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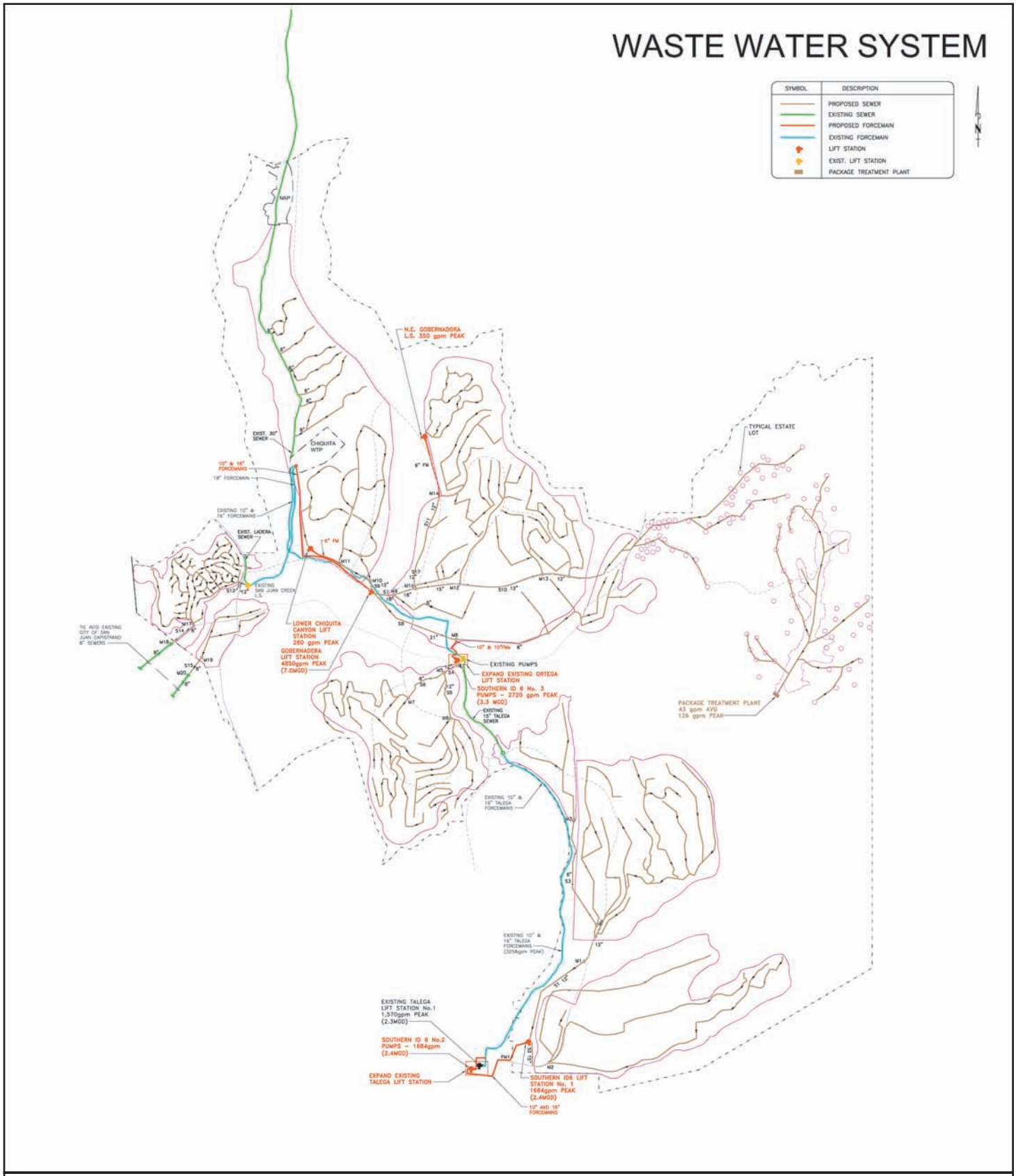

Waste Water System

Exhibit 4.15-3

The Ranch Plan

1" = 7,500'

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Source: Tetra Tech

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SECTION 5
ALTERNATIVES TO THE PROPOSED PROJECT

5.1 INTRODUCTION

Section 15126.6(a) of the CEQA Guidelines provides guidance on the scope of alternatives to a proposed project that must be evaluated. It states:

> "An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives, which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason."

Based on previous studies of the natural resources (e.g., wildlife habitats and species) of the Ranch Plan area, it was recognized that one of the greatest environmental challenges to development of the Ranch Plan area would be the formulation of a conservation strategy to protect those natural resources. For this reason, the selection of project alternatives has focused largely on the identification of a variety of development footprints and corresponding open space areas that would allow for the examination of alternative conservation strategies and their effectiveness in avoiding and/or minimizing impacts on those important resources.

The coordinated planning process previously described in Section 2 of this Program EIR facilitated the task of formulating these alternative conservation strategies and provided a forum for public review and comment of the alternatives. The goal was to develop a consistent set of alternatives for evaluation in each of the three planning processes and their respective environmental documents. The alternatives identified included five variations of a “No Project” (i.e., no NCCP/HCP or SMAP/MSAA) scenario (identified as Alternatives A-1 through A-5), and eight project alternatives (Alternatives B-1 through B-8) including the Ranch Plan alternative (Alternative B-4).

The alternatives developed through the coordinated planning process were screened by the NCCP/SAMP Working Group to ensure that the alternatives selected for evaluation would represent a reasonable range of alternatives with regard to addressing the impacts on biological resources and potential conservation strategies. The NCCP/SAMP Working Group included representatives from the USACE, CDFG, USFWS, County of Orange, and landowners. Alternatives were evaluated by their ability to meet the NCCP/HCP Planning Guidelines and SAMP/MSAA Watershed Planning Principles. The Working Group developed the range of alternatives and the Planning Principles and Guidelines. Through the use of these principles and guidelines and the broader SRP Tenets and SAMP Tenets, the Working Group refined the preliminary alternatives to a set of alternatives for the GPA, NCCP, and SAMP processes that represent a reasonable range of alternatives for development and species/habitat conservation.

In addition to the alternatives identified through the coordinated planning process, four other development alternatives were identified and have been included in this Program EIR. The B-9 Alternative was developed in conjunction with the NCCP/SAMP Working Group as an

alternative that would maximize compliance with the NCCP/HCP Planning Guidelines and SAMP/MSAA Watershed Planning Principles. Additionally, the County of Orange developed two alternatives to the Ranch Plan for evaluation in this Program EIR. These alternatives have been identified as Alternatives B-10 and B-11. A variation of the Ranch Plan, known as the B-4 Reduced Density Alternative, has also been addressed.

Although most of the project alternatives were formulated with the primary objective of avoiding or minimizing impacts of the project on biological impacts, it should be noted that specific attributes of certain of the alternatives would also avoid or reduce other significant adverse impacts of the proposed development that cannot be mitigated below a level of significance with the implementation of proposed mitigation measures and implementation of standard conditions and regulations (as previously described in Section 4.0). Among the other impacts addressed by the alternatives are significant unavoidable impacts in the following areas:

- Land Use
- Agricultural Resources
- Air Quality
- Transportation
- Aesthetics and Visual Resources
- Mineral Resources

For example, certain of the alternatives would disturb significantly less land area than the proposed project thereby reducing impacts due to grading and alteration of landforms, and associated aesthetic/visual impacts, as well as reducing air quality impacts resulting from grading and construction activities. In addition, because the alternatives do not include the dedication of a regional park along San Juan Creek, they would preserve the accessibility of important sand and gravel resources in this area and avoid a significant unavoidable impact on these mineral resources. Alternatives were evaluated with a reduced number of dwelling units that would examine the effect of fewer residential units on overall traffic impacts. The B-11 alternative would provide a level of housing more consistent with regional housing projections. In summary, the alternatives considered in this Program EIR were developed to represent a reasonable range of alternatives for addressing potentially significant adverse impacts of proposed development on the Ranch Plan area. None of the alternatives are able to eliminate the significant impacts, though different impacts were reduced with certain alternatives.

The following discussion explains which of the alternatives were considered and rejected (and why). For those alternatives that were carried forward, this section provides a comparison of their varying environmental effects, and their merits and/or disadvantages, in relation to the proposed Ranch Plan project and to each other, as well as their feasibility and ability to achieve project objectives. The environmentally superior alternative is also identified as required by CEQA.

The following sections provide an overview of the alternatives. The alternatives that would not receive further evaluation are summarized below as “Alternatives Not Carried Forward.”

5.2 “NO PROJECT” ALTERNATIVES NOT CARRIED FORWARD

As previously identified, the coordinated planning process identified five variations of the “No Project Alternative” for purposes of that planning process. These alternatives assume different levels of development, but no NCCP/HCP and no SAMP/MSAA. The following alternatives from that group are not being carried forward as viable alternatives to the Ranch Plan General Plan amendment and zone change.

Alternative A-3

Alternative A-3 assumes development of the project site based on the OCP-2000 housing projections. This was identified as a No Project Alternative for the NCCP/HCP and the SAMP/MSAA because it assumed implementation of the regional growth assumptions for the area without adoption of a NCCP/HCP and SAMP/MSAA. However, it would not be a true No Project Alternative to the proposed project because implementation would necessitate a General Plan amendment and zone change. It has been grouped with the "No Project Alternatives" for consistency with the earlier coordinated planning process.

The OCP-2000 projections represented the growth projections adopted by the County, local jurisdictions, and regional planning agencies at the time the alternatives were being developed (see Section 4.3, Population and Housing for a discussion of OCP-2000). This alternative would provide for 20,468 dwellings units and 9,800 jobs. The distribution of these units was based on an allocation by the Center for Demographic Research in association with the County. This level of development generally represented a jobs/housing balance within the Ranch Plan boundaries. This alternative was not mapped; therefore, the precise number of acres of open space that would be provided with this alternative is unknown. The focus of this alternative is on the provision of new housing consistent with long-term development/housing need projections provided by the SCAG and the County of Orange. Additionally, since the growth projections are used by the SCAG and the SCAQMD, this level of development has been assumed in other local and regional planning documents. This alternative would require a General Plan amendment, zone change, and MPAH amendment to provide the basis for developing the number of units assumed in OCP-2000. This alternative was not carried forward for the following reasons:

(1) The intent of providing development consistent with the regional housing needs is generally accommodated with Alternative B-11.

(2) The traffic level associated with Alternative A-3 would be difficult to mitigate to a level of less than significant because this alternative would provide substantially greater amount of development. This alternative is expected to generate 235,552 average daily trips, substantially more than the 183,338 for the proposed project. This alternative was analyzed using the MPAH network (both on-site and off-site) including the proposed SR-241 extension. Under this scenario, the OCP-2000 alternative results in four mainline freeway deficiencies, seven freeway ramp deficiencies, and 12 intersection deficiencies. The traffic data is presented in Table 5.4-4.

(3) Alternative A-3 would not lessen or avoid significant impacts and offers no substantial benefits that are not addressed by other alternatives.

Alternative A-4

Alternative A-4 assumed that development would have been reviewed by the County of Orange on a project-by-project basis concurrent with the submission of new development proposals within the RMV Ranch property. This project alternative was not quantified because the amount of future development and open space set-asides could not have been determined at this time. This approach would have required RMV to process sequential and incremental applications for individual projects within the RMV property over a period that could range from approximately 20 to 25 years. It would likely have been difficult to assure provision for open space in a configuration that could have been managed as effectively as the larger open space system to be provided as a part of the proposed Ranch Plan project. Additionally, funding for management of open space would have been dependent on the sequential and incremental

permitting process. This alternative is not being carried forward because it does not provide for the same level of protection of sensitive biological, aquatic, and hydrological resources on a sub-regional level as the proposed project.

Alternative A-5

The orientation of this alternative was consideration of development that would be allowed in the absence of a proposed NCCP/HCP and SAMP/MSAA, which would avoid impacts to: 1) state and federal threatened/endangered species; 2) federally regulated waters of the United States, including wetlands; and 3) state-regulated wetlands and streams. This alternative would also have provided for development on 8,000 acres. As conceptually depicted on Exhibit 5-1, this alternative would have provided for 14,815 acres, or 65 percent of the total acreage as open space. A precise level of development was not identified for this alternative through the coordinated planning process. However, based on the level of development allowed under the existing zoning, it is estimated that Alternative A-5 could accommodate approximately 2,500 to 3,000 dwelling units. Another option that would be consistent with the premise of avoiding impacts to endangered species and wetlands would be to allow intensification of development on land without resources. This latter approach would require a General Plan amendment and zone change, but would allow a development project to exceed 3,000 dwelling units and still not require resource and regulatory agency permits. For this approach, the level of development allowed would likely be tied to what would be feasible without overtaxing the circulation network. To ensure total avoidance of state and federal threatened/endangered species and regulated waters, access would be dependent on existing arterial highways and the ranch road network (i.e., the existing dirt/gravel roads) with surfacing limited to existing road widths.

Dedicated open space in the subregion under this alternative would include the existing regional parks, non-profit lands, and conservation easement open space already set aside. Given the level of development that would be feasible under this concept and the manner in which this type of development would be processed (i.e., incremental processing versus comprehensive planned community), there would be limited amounts of future open space dedicated within the property boundary.

While this alternative would avoid regulated resources, it did not address or was inconsistent with many of the NCCP/HCP and SAMP/MSAA program purposes and objectives (e.g., provide effective conservation of wildlife heritage while allowing appropriate economic development and growth). A preliminary evaluation of Alternative A-5 with the NCCP/HCP Planning Guidelines and SAMP/MSAA Planning Principles determined that it would have a low consistency finding. This alternative was proposed as part of the NCCP/HCP and SAMP/MSAA planning processes because it represented a No Project scenario for those programs; it is what could occur without the processing of the NCCP/HCP and SAMP/MSAA and without obtaining any federal permits. This alternative was not developed as an option that was intended to meet the Planning Guidelines criteria; hence the poor consistency finding. This alternative would not only have a direct impact on the lands where development would occur, there also would not be a comprehensive water quality program that would protect areas, such as GERA, which are already serving as habitat preserve. It would have impacts because of a loss of large foraging areas, as well as inability to maintain existing hydrology, sediment transport, and/or water quality. The approach to development proposed by Alternative A-5 would not provide for management of riparian habitat and exotic species, protection of upland terraces to maintain foraging and estivation habitat, and control erosion. Alternative A-5 would not protect key habitat linkages/dispersal habitat or minimize impacts to occupied sites. The A-5 Alternative overall would provide poor protection and management of both listed and non-listed Planning Species. For these reasons, Alternative A-5 was found not to meet the basic project objectives

outlined for the proposed Ranch Plan project. This alternative would not provide a comprehensive approach of protecting biological resources while permitting reasonable development.

5.3 DEVELOPMENT ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

Four of the eight development alternatives formulated by the coordinated planning process were eliminated from further consideration for the following reasons:

- The alternative did not address or was inconsistent with many of the NCCP/HCP and SAMP/MSAA program purposes and objectives (e.g., provide effective conservation of wildlife heritage while allowing appropriate economic development and growth); or

- The alternative was duplicative in many respects to one or more of the alternatives chosen for continuing evaluation.

These alternatives also have not been carried forward in this Program EIR as alternatives to the proposed Ranch Plan project because they do not provide any substantial avoidance or minimization of impacts not accommodated in other alternatives that are receiving evaluation in this Program EIR. The following discussion of the alternatives and reasons for not selecting them for further evaluation is based on the web site data for the Southern Orange County Coordinated Planning Process (http://pdsd.oc.ca.gov/soccpp).

Alternative B-1

Alternative B-1 would have maximized open space protection within the RMV property and restored areas degraded by past use. As depicted in Exhibit 5-2, this alternative would have provided for development on approximately 900 acres and maintained 21,915[1] acres of sub-regional open space. Development would have been limited to portions of Planning Areas 1 and 11.

No future development would have been permitted within the Gobernadora, Central San Juan, and Verdugo sub-basins within the San Juan Creek Watershed. In addition, no future development would be permitted within the San Mateo Creek Watershed. This alternative would permit future development on approximately 900 acres in the Ortega Gateway area (Chiquita Sub-basin, west of Chiquita Ridge) of the Ranch Plan project site. This alternative was not carried forward because it did not address the basic goal of providing a reasonable level of compatible future development that would address the social and economic needs of Orange County. Additionally, in light of the greatly reduced amount of development provided by this alternative, its economic feasibility was viewed as questionable at best. The project applicant indicated that it would not be willing to sell the Ranch lands identified for inclusion in the sub-regional open space under this alternative, and the resource agencies' policy is to pursue acquisition from willing sellers. Additionally, at this time, the availability to secure the necessary funding for acquisition is uncertain. This alternative was deemed not to be a feasible alternative.

[1] The number of acres of open space has been adjusted for all the alternatives to reflect the 22,815-acre Ranch Plan project area, not the original 22,850-acre project area, which was contained in the Ranch Plan when the NCCP/HCP and SAMP/MSAA alternatives were developed.

Alternative B-2

Alternative B-2 would have allowed new development in disturbed and other areas in the Verdugo Sub-basin portion of the San Juan Creek watershed and avoided new development within Chiquita Canyon east of Chiquita Ridge. As depicted on Exhibit 5-3, this alternative would have provided for development on 3,900 acres in portions of Planning Areas 1, 3, 4, and 5. No future development would have been permitted within the San Mateo Creek watershed. It would have permitted future development along the slopes adjacent to the City of San Juan Capistrano in Planning Area 11. This alternative would have provided for the preservation of approximately 18,915 acres, or 83 percent, of the total acreage of sub-regional open space. This alternative was not carried forward because it would have allowed development on property that presents severe landslide and other geotechnical issues that bring into question the feasibility of developing the areas (i.e., the slopes adjacent to San Juan Capistrano). Additionally, this alternative was in many respects duplicative of Alternative B-8. The NCCP/SAMP Working Group selected Alternative B-8 for continued evaluation because it provided for a similar level of economic development (i.e., 3,700 acres compared to 3,900 acres for the B-2 Alternative) while being more protective of sensitive biological, aquatic, and hydrologic resources and avoiding areas with questionable geotechnical conditions.

Alternative B-3

Alternative B-3 would have provided significant economic development (i.e., new housing, commercial, and employment uses while limiting new development within the San Mateo Watershed to the Cristianitos Canyon sub-basin and avoiding new development north of the proposed extended extension of Crown Valley Parkway (as currently shown on the MPAH) in the Chiquita Canyon sub-basin. As depicted on Exhibit 5-4, this alternative would have provided for development on 6,400 acres. This alternative would have provided for approximately 16,415 acres, or 72 percent, of subregional open space. This alternative was found to be largely duplicative of Alternative B-4 (the Ranch Plan). The major differences in the alternatives were limited to the deletion of future development “bubbles” in Planning Areas 8 and 9 and the slight reduction in the size of the development bubble in Planning Area 2. This alternative did not represent a significantly different approach to protecting sensitive biological, aquatic, and hydrologic resources when compared to the alternatives selected for continued evaluation.

Alternative B-7

Alternative B-7 would have preserved approximately 15,808 acres, or 69 percent of the total acreage of the RMV property as part of 43,775 acres of sub-regional open space. As depicted on Exhibit 5-5, this alternative would have permitted future development on approximately 7,060 acres in the Planning Areas 1, 2, 3, 4, 5, 7, 8, and 9. The B-7 Alternative was eliminated from future consideration by the NCCP/SAMP Working Group because it was duplicative of the B-4 Alternative and did not represent significantly different approaches to protecting sensitive biological, aquatic, and hydrologic resources when compared to the alternatives selected for continuing evaluation.

5.4 ALTERNATIVES ANALYZED

Included among the alternatives evaluated in this Program EIR are the four development alternatives that the NCCP/HCP and SAMP/MSAA Working Group identified for full evaluation in the environmental documents. These alternatives are as follows: B-4 (the Ranch Plan), B-5, B-6, and B-8. These alternatives are included in this Program EIR because through the earlier coordinated planning process a consistent set of alternatives was developed for each of the

planning processes. In addition, Alternatives B-4R, B-9, B-10, and B-11 have been developed for evaluation. These alternatives are discussed below as "Development Alternatives." Additionally, CEQA requires the evaluation of a No Project Alternative. This Program EIR has carried forward the remaining two No Project Alternatives identified through the NCCP/HCP and SAMP/MSAA processes. CEQA requires that the definition of the No Project Alternative include the existing conditions, as well as what would be reasonably expected to occur in the foreseeable future, if the project was not approved. Given this direction, Alternatives A-1 and A-2 are true No Project Alternatives. Alternative A-1 is based on the assumption of no action and no additional on-site development. Existing uses would be allowed to continue. Alternative A-2 would allow development consistent with the current zoning regulations and requirements.

In evaluating the A-1 Alternative and the A-2 Alternative, the Program EIR examines a range of potential environmental effects that could occur if the proposed Ranch Plan project were not to be approved. At one end of the spectrum, the A-1 Alternative assumes no additional residential or urban development on the project site. On the other end of the No Project spectrum, the A-2 Alternative assumes development of the project site consistent with the County's zoning designations for the site (i.e., development of areas zoned "*General Agricultural*" with residential units on lots of a minimum of four acres). Although some adjustment to the potential number of dwelling units that could be allowed under the existing zoning designations has been made to account for site access and site feasibility (resulting in a reduction of over 50 percent of the theoretical maximum number of units), the estimated 3,265 residential dwelling units may be high because of the environmental constraints on large lot, low-density residential development. It is expected that the most probable no project development scenario would fall within the range of no project alternatives assessed in this Program EIR.

Economic Feasibility Issues

Pursuant to CEQA Guidelines Section 15126.6, in selecting alternatives to the proposed project, the lead agency is to consider alternatives that could feasibly obtain most of the basic objectives of the project. Feasibility may take into account many factors including economic viability. However, no one factor establishes a fixed limit on the scope of alternatives considered, and the lead agency may consider alternatives even if they would impede to some degree the attainment of the project objectives or would be more costly. This Program EIR considers certain alternatives that (1) provide for less development (due either to a reduction in the density/intensity of development, or a reduction in the total acreage proposed for development) than the applicant's proposed project, and/or (2) modify the locations of the applicant's proposed development. Depending on the magnitude of reductions in the amount of development allowed and the effect of modifying the locations of development, such alternatives could affect the ability to achieve one of the stated project objectives, namely, providing "the financial return necessary for the landowner to offset the level of risk, loss of investment opportunities, and commitment of land and financial resources required to provide for the large-scale protection of many valuable natural resources." The applicant has indicated that the failure to achieve sufficient economic return would affect (1) the amount of open space that could be dedicated under a given alternative (thus requiring that dedication rights to certain portions of the open space be acquired with alternative funds, e.g., public funds) and (2) the amount of funding that would be available to support the Adaptive Management Program that is proposed for project open space. The applicant has expressed particular concern regarding the economic feasibility of alternatives B-5, B-6, B-8 and B-9. The question of economic feasibility/liability is complex and, as noted above, may be affected not only by the density/intensity of development and development acreage provided by an alternative, but also by the location of that acreage, as well as the related costs of development in given areas. While the analysis of economic feasibility is beyond the scope of this EIR, it is a key

consideration that will ultimately need to be factored into decisions regarding the feasibility of any alternative selected for approval by the County. In the following comparison of alternatives, where economic feasibility concerns may arguably be a consideration (such as in the discussion of open space dedication and Adaptive Management Program funding) the issue is noted but not resolved.

Comparison of Alternatives

Three tables have been developed that provide an overview and summary comparison of the alternatives. Table 5.4-1 provides a comparison of the acres of development, and acres of open space, level of development (dwelling units and employment) and the project trip generation. The following briefly notes the level of development for each of the alternatives.

Alternative A-1–No development in the project area.

Alternative A-2–This alternative would have 3,265 dwellings in the project area (one unit per four acres in the developable parts of the project area).

Proposed Project–The 14,000-dwelling unit Ranch Plan with 16,895 employees.

Alternative B-5–This alternative concentrates the development in the more northerly parts of the project (i.e., no development in Planning Areas 6 through 10). It has 14,000 dwelling units and 16,895 employees, the same as the proposed project.

Alternative B-6–This alternative has 14,000 dwelling units and 16,895 employees, the same as the proposed project, but with no development in Planning Areas 2, 10, and 12.

Alternative B-8–This reduced intensity alternative has 8,400 dwelling units and 7,731 employees, with development concentrated in Planning Areas 1, 3, and 5.

Alternative B-9–This alternative has 13,600 dwelling units with 16,895 employees.

Alternative B-10–This alternative has 14,450 dwelling units and 17,563 employees.

Alternative B-11–This alternative has 19,200 dwelling units and 11,569 employees and provides additional housing and employment compared to the proposed project

Alternative B-4 Reduced Intensity–This alternative is a reduced intensity alternative with 10,800 dwelling units and 8,784 employees.

Table 5.4-2 provides a summary comparison of each of the alternatives to the Ranch Plan. The level of comparison in the table is whether an alternative has “less than,” the “same,” or “greater than” level of impact compared to the proposed Ranch Plan project. The analysis is based on the level of impact after mitigation. Table 5.4-3 provides a comparison of how well each alternative and the Ranch Plan meet the implementing measures for the project objectives. The project objectives implementing measures are summarized in the table. For review of all of the project objectives, please refer to Section 3.7 of this Program EIR.

TABLE 5.4-1
ALTERNATIVES COMPARISON

	A-1	A-2	B-4	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
Acres of Development	No new development	19,822[a.]	7,694	7,170	6,740	3,680	6,582	7,683	8,621	6,589
Acres of Open Space	No new dedications	No new dedications	15,121	15,645	16,075	19,135	16,233	15,132	14,194	16,226
Dwelling Units	0	3,265	14,000	14,000	14,000	8,400	13,600	14,450	19,200	10,800
Million Sq. Ft. Employment	0	0[b.]	5.2	5.58	5.58	2.48	5.2	5.595	3.64	2.7
Acres of Golf Resort	0	0	20	0	0	0	25	25	25	25
Average Daily Trip Generation	0	29,878	183,338	183,906	183,906	126,925	180,840	183,360	191,911	137,844

a. This assumes subdividing the project site pursuant to existing zoning. Additionally, this alternative would allow an expansion of Sand and Gravel Extraction up to 1,620 acres in the ONIS leasehold. San Juan Creek is also zoned for *Sand and Gravel Extraction*; however, there is no active use permit allowing mining.

b. Existing nursery and industrial operations could continue. However, this alternative assumes the site would eventually be developed consistent with the one unit per four acres allowed under the existing zoning.

Source: BonTerra Consulting, 2004

TABLE 5.4-2
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN[2]

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
Land Use and Related Planning Programs									
Conflict with the policies of the General Plan or zoning put into place to protect environmental resources.	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact
Disrupt or divide the physical arrangement of an established community	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact
Create an incompatibility with existing or planned land uses on-site or adjacent to the project site.	Less/No Impact	Less/No Impact	Less/No Impact	Similar/ Mitigated	Similar/ Mitigated	Similar/ Mitigated	Similar/ Mitigated	Similar/ Mitigated	Similar/ Mitigated
Consistency with policies of the regional planning agency applicable to the proposed project.	Greater/ Inconsistent with regional housing projections	Greater/ Inconsistent with regional housing projections	Same/ Inconsistent with regional housing projections	Same/ Inconsistent with regional housing projections	Greater/ Inconsistent with regional housing projections	Same/ Inconsistent with regional housing projections	Same/ Inconsistent with regional housing projections	Same/ Inconsistent with regional housing projections	Greater/ Inconsistent with regional housing projections
Conflict with any applicable adopted habitat conservation plan or natural community conservation plan.	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact

[2] The comparison criteria provided in the table generally reflect the thresholds of significance used in the impact evaluation. The thresholds have been summarized to accommodate the table format. For precise wording refer to the technical sections in Section 4.

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
Agricultural									
Convert farmlands listed as "Prime," "Unique" or of "Statewide Importance," as shown on the State Farmland Mapping and Monitoring Program, to non-agricultural use.	Less/No Impact	Greater/All acreage removed. Unavoidable Impact	Greater/892 acres removed. Unavoidable Impact	Less/825 acres removed. Unavoidable Impact	Less/ 718 acres removed. Unavoidable Impact	Less/ 797 acres removed. Unavoidable Impact	Greater/ 845 acres removed. Unavoidable Impact	Greater/ 862 acres removed. Unavoidable Impact	Same/892 acres removed. Unavoidable Impact
Conflict with existing Williamson Act contract.	Less/No Impact	Less/No Impact	Less/No Impact	Less/No Impact	Less/No Impact	Less/No Impact	Less/No Impact	Less/No Impact	Same/ Significant Impact
Population and Housing									
Cumulatively exceed adopted regional or local population projections.	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact
Displace existing housing affecting a substantial number of people	Less/No Impact	Less/No Impact	Same/Less than Significant	Same/Less than Significant	Same/ Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant
Geology and Soils									
Expose people or structures to major geologic hazards (e.g., earthquakes, expansive soils, liquefaction, subsidence, unique geologic feature or landslides/mudslides) and/or permit development in areas of unsuitable geologic conditions.	No change from existing	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
Result in substantial erosion or the loss of topsoil associated with grading activities.	No change from existing	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated
Generate a conflict with any applicable plan, policy or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect from geologic events.	No impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact
Water Resources									
Substantially increase rate or amount of surface runoff in a manner that would expose people or structures to on-site or off-site flooding or result in peak runoff rates from the site that would exceed existing or planned capacities of downstream flood control systems.	No change from existing	Less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact
Substantially increase or decrease low flow estimates where high groundwater elevations are considered important.	No change from existing	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact
Substantially alter the existing drainage pattern of the site or area, including alteration of the course of a stream or	No change from existing	Less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
river, in a manner that would cause substantial erosion or siltation.									
Substantially increase the frequencies & duration of channel adjusting flows.	No change from existing	Less/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact
Substantially deplete groundwater supplies or interfere substantially with groundwater recharge that would cause a net deficit in aquifer volumes or lowering of the local groundwater table.	No change from existing	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact
Violate surface and/or ground water quality standards or waste discharge requirements for the receiving drainages, including applicable provisions of; • County of Orange SUSMP • California Toxics Rule for metals • RWQCB Standards	No change from existing	Less/ Mitigated Impact	Same or less/ Mitigated impact	Same or less/ Mitigated impact	Same or less/ Mitigated impact	Same or less/ Mitigated impact	Same or less/ Mitigated impact	Same or less/ Mitigated impact	Same or less/ Mitigated impact

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam, or inundation by seiche, tsunami, or mudflow.	No change from existing	Less/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact	Same/ Mitigated Impact
Require the construction of new storm water drainage facilities or expansion of existing facilities where the construction would cause significant environmental effects.	No change from existing	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact
Conflict with any applicable plan, policy or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect related to hydrology or water quality.	No impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact	Same or less/ Mitigated Impact

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
Transportation and Circulation									
Trip generation levels (compared to project)	Less	Less	More	More	Less	Less	More	More	Less
Number of deficient freeway or mainline segments in the long-range cumulative scenario.[a.]	Same/--/--	Same/--/--	Same/Same/ Less	Same/Same/ Same	Same/Same/ Same	Same/Same/ Same	Same/Same/ Same	--/--/Same	Same/Same/ Same
Number of deficient freeway ramps in the long-range cumulative scenario.[a.]	Same/--/--	More/--/--	Less/Same/ Less	Same/Same/ Same	Same/Same/ Less	Same/Same/ Same	Same/Same/ Same	--/--/Same	Same/Same/ Less
Number of deficient arterial highway intersections in the long-range cumulative scenario.[a.]	Less/--/--	Same/--/--	Same/More/ More	Same/Same/ Same	Same/Less/ Less	Same/Same/ Same	Same/Same/ Same	--/--/More	Same/Less/ Less
Air Quality									
Result in a violation of any state or national ambient air quality standard or contribute substantially to an existing or projected air quality violation.	No impact	Yes/ Unavoidable Impact	Yes/ Unavoidable Impact	Yes/ Unavoidable Impact	Yes/ Unavoidable Impact	Yes/ Unavoidable Impact	Yes/ Unavoidable Impact	Yes/ Unavoidable Impact	Yes/ Unavoidable Impact
Result in an increase in carbon monoxide concentrations where: (1) an increase in CO concentrations is sufficient to cause an exceedance of the most stringent state or national	Less/No impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
CO standard, or (2) in an area that already exceeds national or state CO standards, the project increase exceeds one part per million (ppm) for a 1-hour average or 0.45 ppm for an 8-hour average.									
Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	Less/No impact	Less/ Unavoidable Impact	Greater/ Unavoidable Impact	Greater/ Unavoidable Impact	Less/ Unavoidable Impact	Same/ Unavoidable Impact	Same/ Unavoidable Impact	Same/ Unavoidable Impact	Less/ Unavoidable Impact
Expose sensitive receptors to substantial pollutant concentrations.	Less/No impact	Less than Significant	Less than Significant	Less than Significant	Less than Significant	Less than Significant	Less than Significant	Less than Significant	Less than Significant
Conflict with or obstruct implementation of the applicable air quality plan.	Less/No impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact
Expose a substantial number of people to objectionable odors.	No impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact
Noise									
Short-term construction noise impacts would violate the provisions of the County of Orange Noise Ordinance.	No impact	No impact	No impact	No impact	No impact	No impact	No impact	No impact	No impact

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
Long-term traffic noise impacts are measured against two criteria. Both of the following criteria must be met for a significant impact to be identified:									
• The project traffic results in substantial noise level increase on a roadway segment adjacent to a noise sensitive land use (a substantial noise increase is defined as an increase of 3 dB or more); and,	No impact	Less/ Impact Mitigated	Greater/ Impact Mitigated	Greater/ Impact Mitigated	Less/ Impact Mitigated	Less/ Impact Mitigated	More/ Impact Mitigated	Less/ Impact Mitigated	Less/ Impact Mitigated
• The resulting future with project noise level must exceed the criteria for the noise sensitive land use, as identified above for the County of Orange. The following interior and exteriors noise standards would apply: 45 CNEL residential interior noise levels 65 CNEL residential exterior noise levels	No Impact	Less/ Impact Mitigated	Greater/ Impact Mitigated	Greater/ Impact Mitigated	Less/ Impact Mitigated	Less/ Impact Mitigated	More/ Impact Mitigated	Less/ Impact Mitigated	Less/ Impact Mitigated

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
Biological Resources									
Substantial adverse effect, either directly or through habitat modifications, on any species listed by Federal or State agencies as threatened or endangered.	No change	Similar or greater	Greater	Less	Less	Less	Less	Less	
Substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate for listing, sensitive, rare, or otherwise special status plant or animal species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	No change	Similar or greater	Greater	Less	Less	Less	Less	Less	
Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	No change	Similar or greater	Less	Less	Less	Less	Less	Less	

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
Substantial adverse effect on State or Federal-protected wetlands as defined by Section 1600 of the California Fish and Game Code or Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means.	No change	Similar or greater	Less	Less	Less	Less	Less	Less	
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.	No change	Similar or greater	Similar in San Juan Watershed/ Less in San Mateo Watershed	Similar	Similar	Similar	Similar	Similar	
Conflict with applicable San Juan Creek Watershed/Western San Mateo Creek Watershed SAMP/MSAA Planning Principles	Not applicable	Less consistency	Less Consistency/ Less for AMP Implementa-tion	Less Consistency/ Less for AMP Implementa-tion	Less Consistency/ Less for AMP Implementa-tion	Less Consistency/ Less for AMP Implementa-tion	Similar for Consistency	Similar for Consistency	
Conflict with applicable Southern Subregion NCCP/HCP Guidelines.	Not applicable	Less consistency	Similar for Consistency/ Less for AMP Implementa-tion	Greater for Consistency/ Less for AMP Implementa-tion	Less for Consistency/ Less for AMP Implementa-tion	Greater for Consistency/ Less for AMP Implementa-tion	Greater for Consistency	Greater for Consistency	

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
Aesthetics and Visual Resources									
The project would substantially degrade the existing visual character or quality of the site and its surroundings.	No impact	Similar/ Unavoidable Impact	Less/ Unavoidable Impact	Less/ Unavoidable Impact	Less/ Unavoidable Impact	Less/ Unavoidable Impact	Similar/ Unavoidable Impact	Similar/ Unavoidable Impact	Less/ Unavoidable Impact
The project would result in substantial landform alteration that would adversely affect the visual quality of the area.	No impact	Similar/ Unavoidable Impact	Less/ Unavoidable Impact	Less/ Unavoidable Impact	Less/ Unavoidable Impact	Less/ Unavoidable Impact	Similar/ Unavoidable Impact	Similar/ Unavoidable Impact	Less/ Unavoidable Impact
The project would create light or glare beyond the physical limits of the project site, which would adversely affect views in the area.	No Impact	Similar/ Unavoidable Impact	Similar/ Unavoidable Impact	Less/ Unavoidable Impact	Less/ Unavoidable Impact	Less/ Unavoidable Impact	Similar/ Unavoidable Impact	Similar/ Unavoidable Impact	Less/ Unavoidable Impact
Cultural and Paleontological Resources									
A significant impact would occur if grading and construction activities would result in a substantial adverse change in the significance of cultural resource.	Level of impact dependent on areas that experiencing expanded agricultural operations	More/83 sites total- 19 NRHP/ CRHR eligible/ Mitigated	Less/31 sites total- 6 NRHP/ CRHR eligible/ Mitigated	Less/29 sites total- 5 NRHP/ CRHR eligible/ Mitigated	Less/12 sites total- 0 NRHP/ CRHR eligible/ Mitigated	Less/24 sites total- 4 NRHP/ CRHR eligible/ Mitigate	Less/31 sites total- 8 NRHP/ CRHR eligible/ Mitigate	Less/33 sites total- 8 NRHP/ CRHR eligible/ Mitigate	Same or less than Proposed Project/ Mitigated
Recreation									
Increase the use of the existing parks such that a substantial physical deterioration would occur	Less/No Impact	Less/Less than Significant	Same/Less than Significant	Same/Less than Significant	Less/Less than Significant	Less/Less than Significant	Greater/Less than Significant	Greater/Less than Significant	Less/Less than Significant

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
or be accelerated.									
Require construction of recreational facilities that might have an adverse physical effect on the environment.	None/No Impact	Less/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant
Mineral Resources									
Result in the loss of availability of a known mineral resource that would be of value to the region.	Less/No Impact	Less/No Impact	Same/ Unavoidable Impact	Same/ Unavoidable Impact	Same/ Unavoidable Impact	Same/ Unavoidable Impact	Same/ Unavoidable Impact	Same/ Unavoidable Impact	Same/ Unavoidable Impact
Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan.	Less/No Impact	Less/No Impact	Same/ Unavoidable Impact	Same/ Unavoidable Impact	Same/ Unavoidable Impact	Same/ Unavoidable Impact	Same/ Unavoidable Impact	Same/ Unavoidable Impact	Same/ Unavoidable Impact
Hazards									
Locate future sensitive uses in areas potentially containing contaminants that have not received proper clean-up/remediation	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same
Exceed applicable local, state or federal environmental standards concerning releases of hazardous substances by proposed onsite land uses	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same
Impair implementation of or physically interfere with	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
an adopted emergency response plan or emergency evacuation plan									
Be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same	No/Same
Public Services and Facilities									
Fire Protection Services									
Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities.	No change from existing	Greater/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated
Would substantially reduce acceptable service ratios, or other adopted performance objectives, or substantially increase response time of the Orange County Fire Authority.	No change from existing	Greater/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated
Create a substantial amount of emergencies that cannot be adequately serviced by either available OCFA personnel or equipment	No change from existing	Potentially Greater/ Unavoidable Impact	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
or through provisions provided by the project.									
Water pressure for fire protection flow is less than required.	No change from existing	Required/ Mitigated	Required/ Mitigated	Required/ Mitigated	Required/ Mitigated	Required/ Mitigated	Required/ Mitigated	Required/ Mitigated	Required/ Mitigated
Fire access does not meet adopted standards.	No change from existing	Greater/ Potential unavoidable Impact	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated	Less/ Mitigated
Police Protection Services									
Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities.	No Change from Existing	Potentially Less/No impact if no new facilities provided	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated
Need new or physically altered governmental facilities where the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives identified for police protection services.	No Change from Existing	Potentially Less/No impact if no new facilities provided	Same/ Mitigated	Same/ Mitigated	Less/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated
Create a substantial increase in the demand for police service, both routine and emergency calls, that cannot be adequately serviced by either available police department personnel or	No change from existing	Potentially Greater due to fewer resources/ Potential unavoidable impact	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
equipment or through provisions provided by the project.									
Energy Resources									
Electricity/natural gas supplies are not available to meet the demand of the project.	No change from existing	Less/Less than Significant	Greater/Less than Significant	Greater/Less than Significant	Less/Less than Significant	Less/Less than Significant	Greater/Less than Significant	Greater/Less than Significant	Less/Less than Significant
The project would require the construction of new electric/natural gas facilities or the expansion of existing facilities that could cause significant environmental effects.	No change from existing	Potentially Greater/ Mitigated	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant
The project site/ development cannot be served by an existing provider.	No Change from Existing	Same Less than Significant	Same Less than Significant	Same Less than Significant	Same Less than Significant	Same Less than Significant	Same Less than Significant	Same Less than Significant	Same Less than Significant
Water									
Water supplies are not sufficient to meet the demand of the project.	No change from existing	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant
The project would require the construction of new water facilities or the expansion of existing facilities beyond what is proposed by the project, which could cause significant environmental effects.	No change from existing	Greater/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
An existing provider cannot serve the project development.	No change from existing	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact
Wastewater									
Sewage flows from the project would exceed the planned capacity of the wastewater treatment facilities.	No change from existing	Less/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant
Sewage generated by the project would exceed the capacity of the trunk sewer system.	No change from existing	Less/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant	Same/Less than Significant
The construction of new wastewater treatment facilities or the expansion of existing facilities are required and would cause significant environmental effects.	No change from existing	Potentially Greater/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated
Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.	No change from existing	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact
Schools									
The proposed project would result in a significant impact to school service if it would result in substantial adverse physical impacts associated with the need or provision of new or	No change from existing	Potentially Greater/ Mitigated	Same/ Mitigated	Same/ Mitigated	Greater/ Mitigated	Same/ Mitigated	Greater/ Mitigated	Same/ Mitigated	Less/ Mitigated

TABLE 5.4-2 (Continued)
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE RANCH PLAN

Topic	A-1	A-2	B-5	B-6	B-8	B-9	B-10	B-11	B-4 Reduced
physically altered school facilities in order to maintain acceptable student services, the construction of which could cause significant environmental impacts.									
Solid Waste Management									
Insufficient permitted landfill capacity is available to accommodate the project's solid waste disposal needs.	No change from existing	Same/Less than Significant Impact	Same/Less than Significant Impact	Same/Less than Significant Impact	Same/Less than Significant Impact	Same/Less than Significant Impact	Same/Less than Significant Impact	Same/Less than Significant Impact	Same/Less than Significant Impact
The project does not comply with federal, state, or local regulations related to solid waste.	No change from existing	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/No Impact	Same/ No Impact	Same/No Impact
The disposal of project-related waste would result in a substantial reduction in the planned lifespan of a landfill.	No change from existing	Less/Less than Significant	Greater/Less than Significant	Greater/Less than Significant	Less/Less than Significant	Less/Less than Significant	Greater/Less than Significant	Greater/Less than Significant	Less/Less than Significant
Petroleum Pipeline									
The project would have a significant impact if the relocation of the petroleum fuel line would result in a notable disruption of service.	No change from existing	Potentially Greater/ Mitigated	Less/ Mitigated	Less/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated	Same/ Mitigated

a. For the traffic comparison, the number of deficient freeway mainline segments, freeway ramps, and arterial intersections compared to the proposed project is provided for three circulation scenarios (x/y/z; x=committed circulation system; y=committed circulation system plus the La Pata Avenue extension; z=committed circulation system plus the La Pata Avenue and SR-241 extensions; "--" entries indicate scenarios that were not analyzed). Specific locations of deficient intersections are shown in Table 5.4-4. The thresholds for determining deficiencies are provided in Section 4.6, Transportation and Circulation.

TABLE 5.4-3
ABILITY OF EACH ALTERNATIVE TO MEET THE PROJECT OBJECTIVES
IMPLEMENTING MEASURES

Project Objective	Evaluation
Growth Management According to the Orange County Projections 2000 (OCP-2000), by the year 2025, Orange County is projected to experience marked increases in population, employment, and housing. Because the rate of increase in new housing is projected to lag behind the rate of increase in employment, the County would also experience an increased housing deficit. The project's Growth Management Goal is to build self sustaining master planned communities that would accommodate up to 14,000 dwelling units of the projected County population growth and approximately 5,000,000 square feet of non-residential uses indicated for RMV lands in accordance with the goals established for southern Orange County by the Orange County General Plan Growth Management Element and the Jobs/Housing Balance goals established for Southern Orange County by SCAG. While the project itself cannot fully satisfy the total housing needs of the County, the intent is to weight the project toward housing in order to provide for more housing than job opportunities over the life of the project in an effort to contribute to a long-term balance between jobs and housing within the County.	Neither of the No Project alternatives (A-1 and A-2) would meet the growth management objectives. These alternatives provide no development (A-1) or minimal development (A-2) over the existing condition. Alternatives B-8, B-11, and B-4 Reduced would partially meet this objective. The B-8 and B-4 Reduced alternatives would and provide for a jobs/housing balance. They do not provide for the 14,000 dwelling units and 5,000,000 square feet of non-residential development identified as the target development level. Between these two alternatives, the B-4 Reduced Alternative would better meet the objective. It provides more housing and employment. The B-11 Alternative exceeds the housing target identified in this objective, but does not provide sufficient employment uses. The objective does state "the intent is to weight the project toward housing in order to provide for more housing than job opportunities over the life of the project in an effort to contribute to a long-term balance between jobs and housing within the County;" however, while the County as a whole is jobs rich, the GMA in which the project is in, is housing rich. Alternatives B-5, B-6, and B-10, and the Ranch Plan would provide a jobs housing balance and meet the housing and employment target levels. These alternatives would best meet the Growth Management Objective. Alternative B-9 is just slightly below the housing target, but would generally be found to meet this project objective.
Land Use Implement land uses that respond to the goals, objectives, and policies of the County of Orange Growth Management Element regarding development. Among other things, Growth Management Element objectives and policies advocate phasing of development in accordance with any applicable phasing plan adopted by the County. The intent of such phasing plans is to establish both a phasing allocation of development commensurate with roadway and public facility capacities and an overall build-out development plan which can be supported by implementation of the planned infrastructure system. Retain flexibility in land use designations to allow opportunities for meeting changing economic and social circumstances over time. Comply with the County of Orange Growth Management Element policy on Balanced Community Development, which states in part "Balanced community development shall be	Alternatives A-1 and A-2 would not meet the land use objectives. They either would not provide for any new development (A-1) or limited development (A-2). The County would not be able to achieve housing and employment levels assumed in the adopted growth projections. These alternatives do not provide any flexibility to meet changing needs. Additionally, they would not provide for an open space dedication program. Alternatives B-8 and B-4 Reduced would partially meet these objectives. They would provide a portion of the anticipated housing demand (8,400 and 10,800 units, respectively). This represents approximately 41 and 52 percent, respectively, of the housing allocation assumed in the regional growth projections. Of these two alternatives, B-8 would provide limited flexibility to respond to change because of limited area designated for development. Both of these alternatives would provide a jobs/housing balance. B-11 would only partially meet these objectives. This alternative would provide for the housing development but not the jobs/housing balance. This alternative would have the same issue discussed above associated with the lack of flexibility resulting from heavy reliance on the business park designation.

TABLE 5.4-3 (Continued)
ABILITY OF EACH ALTERNATIVE TO MEET THE PROJECT OBJECTIVES IMPLEMENTING MEASURES

Project Objective	Evaluation
established which encourages employment of local residents and provides for both employment and employee housing opportunities within the County or Growth Management Area." Implement land uses that are compatible with adjacent land uses. Locate commercial and industrial centers along existing and/or planned major transportation facilities. Additionally, the plan should provide for other potential large business users in areas not necessarily adjacent to existing roads so long as proper infrastructure can be provided without creating impacts that would otherwise be avoided as a result of locating adjacent to said transportation facilities. Create a viable habitat reserve system via a phased open space dedication program that assures the orderly phased dedication of open space as portions of the project area are developed, comparable to other major phased dedication programs in the County.	The Ranch Plan, B-5, B-6, B-9, and B-10 alternatives would generally meet the land use objectives concerning the amount of housing and employment levels. These all provide a jobs/housing balance, although they only provide approximately 68 percent of the housing allocation assumed in the regional growth projections. The level of flexibility to meet changing needs within the County varies by alternative. All except the Ranch Plan have the employment based in the business park designation. This may limit the ability for the plan to be responsive to the needs as the project develops over the next 20 to 25 years. The *Urban Activity Center (UAC)* designation proposed for the Ranch Plan would provide that flexibility. The *UAC* designation allows the project to maximize compatibility with adjacent uses within the project site. Additionally, the *UAC* designation would allow employment uses to be located in proximity to the SR-241 even if an alignment different from the one shown on the MPAH be selected. Additionally, the B-6 and B-9 alternatives would potentially limit the flexibility in the type of housing units being offered because the reduced number of acres being allocated for residential development would necessitate higher density. All of these alternatives would allow the phasing of development to be compatible with the provision of infrastructure. All of the alternatives would provide for an open space dedication program; however, only the B-11 and the Ranch Plan do not require an acquisition program for the full open space program to be realized.
Housing Provide a variety of residential densities and product types that permits a mix of housing opportunities that (a) meet the market demand; (b) are supported by a transportation network; (c) allow for the logical extension of the transportation network; and (d) are feasible in light of geotechnical constraints. Achieve an absorption rate that is commensurate with the capacities of the existing and planned transportation circulation network and provides sufficient funding for the costs and phasing of constructing supporting infrastructure, including open space and habitat dedications. Minimize local home-to-work commute distances and reduce overall regional vehicle miles traveled (VMT) to employment centers in southern and central Orange County by providing housing opportunities in proximity to local and Orange County employment centers.	Alternatives A-1 and A-2 would not meet the housing project objectives. These alternatives provide minimal to no new development. A-2 would not allow for a mix of housing types because the lot sizes would be a minimum of four acres. It would not place housing in close proximity to transportation facilities because housing would be distributed throughout the project site. No employment uses would be provided; therefore, A-2 would not minimize home-to-work commute distances. The Ranch Plan, B-5, B-6, B-9, and B-10 would all meet the housing objectives. They would generally allow a mix of housing types, although this would be best met by the Ranch Plan and B-10, which also provide for estate units. By providing a jobs/housing balance these alternatives are able to minimize the home-to-work commute distances, thereby reducing the regional VMT. All of these alternatives would be able to phase the housing with planned transportation facilities. The B-8 and B-4 Reduced would generally meet these objectives. Similar to the alternatives above, they would allow a mix of housing types. By providing a jobs/housing balance these alternatives are able to minimize the home-to-work commute distances, thereby reducing the regional VMT. The reduced density associated with these alternatives would distribute the cost of infrastructure across fewer units. While there may be slightly less infrastructure required for these alternatives, a basic

TABLE 5.4-3 (Continued)
ABILITY OF EACH ALTERNATIVE TO MEET THE PROJECT OBJECTIVES IMPLEMENTING MEASURES

Project Objective	Evaluation
	framework is required. B-11 would meet the objectives with the exception of placing housing in close proximity to transportation facilities. Since there is not a jobs/housing balance, B-11 would not effectively minimize home-to-work commute distances.
Transportation Assist in implementing the County of Orange Growth Management Element goal of ensuring that adequate transportation facilities are provided for future residents. In this regard, consult with adjacent cities, the County, and OCTA, in conformance with the objectives of the Growth Management Element and the Congestion Management Program, to analyze the project's traffic impacts, to determine feasible mitigation measures and to establish an appropriate implementation program. Identify opportunities for expanding, enhancing, and/or managing the capacity of the arterial highway system to accommodate project development. Address planned regional transportation facilities alternatives provided by the relevant lead transportation agencies. Implement Transportation System Management/Transportation Demand Management measures, where appropriate. Promote alternative modes of transportation, such as walking, bicycling, and mass transit.	As a part of the preparation of the project traffic study, the County coordinated with all potentially affected jurisdictions, OCTA, and Caltrans. The purpose of this coordination effort was to address the traffic study methodology and traffic study area; obtain traffic data and cumulative project data; identify potential options for the mitigation of potential impacts. This effort was applicable to all project alternatives. The traffic study addresses project and cumulative traffic impacts. As a part of the study, a mitigation program is provided for all project alternatives resulting in significant traffic impacts. The traffic study addresses and incorporates as appropriate regional transportation facilities that have committed circulation improvements that would affect the proposed project. All project alternatives that would result in significant traffic impacts would be required to implement Transportation Demand Management measures. This requirement is addressed in Section 4.6. The project assumes the provision of pedestrian walkways, bicycle lanes, and the extension of service of transit into the project site.
Public Services /Public Safety/Governance Provide a development master plan that contains a mix of land uses that provides the foundation for a viable and self-sustaining community that can be appropriately governed over the long-term. Provide a development pattern and layout that result in a community with a district identity and sense of place, thereby encouraging a sense of belonging and community cohesion. Integrate into the mix of development such essential elements as sites for public and private schools, parks, and other public/civic facilities. Plan and design public facilities to maximize community identity and sense of place. Utilize the preserved natural terrain, including	A-1 and A-2 would not meet the public services/public safety/governance objectives. These alternatives would not provide the framework for a self-sustaining community or the mix of uses that builds a sense of identity and community cohesion. Basic services, such as schools and fire protection, would need to be provided. While these uses are allowed in the residential designations, the limited density would make it difficult to economically supply these facilities. B-8 would not effectively meet all of the objectives. While there would be sufficient density to allow for the provision of public services, the size of the development would not provide sufficient size and diversity to become a self-sustaining community. The amount of non-residential development, although providing a jobs/housing balance, would not be sufficient to provide the foundation for a self-governing community. Neither Planning Areas 1 nor 3 would provide sufficient non-residential areas to establish a Town Center, which would provide a sense of community cohesion or sense of place. The B-8 Alternative would

TABLE 5.4-3 (Continued)
ABILITY OF EACH ALTERNATIVE TO MEET THE PROJECT OBJECTIVES IMPLEMENTING MEASURES

Project Objective	Evaluation
riparian drainage corridors, sensitive habitat areas, and wildlife habitat linkages to define the boundaries of distinctive neighborhoods/ communities.	be able to develop distinctive neighborhoods using the natural terrain and features. The B-11 Alternative would also not effectively meet all of the objectives. While there would be sufficient density to allow for the provision of public services, the amount of non-residential development would be in sufficient to support a self-sustaining community. The project would function as predominately a bedroom community, making it difficult to establish a sense of community cohesion or sense of place. B-11 would be able to develop distinctive neighborhoods using the natural terrain and features. The Ranch Plan, and B-5, B-6, B-9, B-10 and B-4 Reduced alternatives, would be able to meet these project objectives. There is sufficient density and mix of uses to allow for the provision of public services and to become a self-sustaining community. These alternatives provide sufficient non-residential area to establish a Town Center; however, the Ranch Plan and B-4 Reduced Alternative best accomplish this task because of the flexibility allowed with the *UAC* designation, as compared to business park. These alternatives, with differing degrees of sensitivity (see biological objectives), would be able to develop distinctive neighborhoods using the natural terrain and features.
Recreation Address the need for regional park sites and commercial recreational facilities to meet the recreation needs of existing and future residents, including natural parks; active recreational facilities, such as soccer fields, golf courses, and equestrian facilities; educational facilities, such as interpretative centers, museums, and cultural centers; and other recreation based uses such as picnicking. Locate any regional park site(s) and commercial recreational facilities to minimize potential conflicts between recreational and development uses, and between active recreation and habitat and aquatic resource preservation/management areas. Integrate any wilderness or natural park areas into related resource protection programs. Address the need for local park sites and facilities to meet the local recreation needs of existing and future residents. Maximize opportunities for joint use of community facilities and recreational areas (such as joint use of recreational facilities for public schools and city parks). Encourage multi-use recreational facilities for all	The Ranch Plan and the B-4 Reduced, B-10, and B-11 alternatives all provide for either a new regional park or expansion of the existing regional parks. However, RDMD/HBP has indicated they does not support the Rancho Mission Viejo Regional Park associated with the proposed Ranch Plan project and B-4 Reduced Alternative. The other alternatives do not provide for regional facilities. The Ranch Plan, as well as Alternatives B-9, B-10, B-11, and B-4 Reduced all provide for commercial recreational facilities in the form of golf courses. Alternatives B-9 and B-11 provide two golf courses, Alternative B-4 Reduced provides three, B-10 provides four, and the Ranch Plan provides five golf courses. Other commercial recreational facilities, such as equestrian facilities, would not be precluded but are specific uses that would be considered at the Area Plan level. All of the alternatives would be required to comply with the Local Park Code. However, Alternative A-2 would not provide for effective park planning because of the limited amount of development and the piecemeal fashion of how it would be implemented. The Ranch Plan and B-4 Reduced identify an active sports park as part of the project design. Although not specifically identified, the other alternatives would have the ability to incorporate a similar facility during subsequent Area Plan review. The Ranch Plan would provide for an Adaptive Management Program, which would integrate the Rancho Mission Viejo Regional Park and the open space area into a comprehensive resource protection program; however, the RDMD/HBP has

TABLE 5.4-3 (Continued)
ABILITY OF EACH ALTERNATIVE TO MEET THE PROJECT OBJECTIVES IMPLEMENTING MEASURES

Project Objective	Evaluation
age groups.	indicated they do not support the proposed regional park. Alternatives B-10 and B-11 would incorporate 2,114 acres into existing wilderness parks. The remaining alternatives do not have a management program proposed as a project component. At the GPA/ZC level, precise locations of school and parks have not been identified. The objective of maximizing opportunities for joint use of community facilities and recreational areas is best addressed at the Area Plan. None of the alternatives would preclude this from occurring; however, as previously indicated, A-2 would make effective park planning difficult.
Trails and Bikeways Local trails should connect residential areas, parks, staging areas and equestrian centers to regional parks. Local Class I bikeways should connect residential areas to regional bikeways and activity centers such as, parks, schools, shopping centers and employment centers. These trails should provide for trail linkages between open space and recreation facilities and between community and municipal trail systems, including: a) Provide for links in the Orange County "Mountains to the Coast" trail and bikeway system. b) Provide for links to the City of Mission Viejo, City of San Juan Capistrano, and City of San Clemente trails and bikeways. Facilitate implementation of the Master Plan of Regional Riding and Hiking Trails. Locate and manage trail and bikeway linkages in a manner that is consistent with the goals, policies, and other provisions of programs for the protection of native habitat, aquatic resources, and watershed. Facilitate implementation of the OCTA and County bikeway master plans.	All of the alternatives, with the exception of the A-1, would provide for the Regional Riding and Hiking Trails and Master Plan of Bikeways. Right-of-way for the trails/bikeways would be required as development occurs. However, the development pattern would result in a difference in the effectiveness for providing the regional facilities. A-2 would be piecemeal development potentially resulting in long delays in providing the connectivity of the trails/bikeways. At subsequent levels of planning, provisions for trail implementation in open space areas would be addressed. For the proposed project, it is assumed that the trails would be implemented in development areas as part of the project. Other methods would be required where the trail crosses open space. There are four regional trails and two regional bikeways within the project limits. The following identifies the portion of these facilities that would be required to be implemented because they are within development areas: - Wagon Wheel Trail is within open space for all the alternatives; therefore, at this level of development, none of the alternatives would provide for trail implementation. - Cristianitos Trail only traverses development area in the Ranch Plan and B-10. Because the Ranch Plan has a greater amount of development in Planning Area 6, a greater portion of the trail would be required. - Prima Deshecha Trail has a segment within development for all the alternatives. - San Juan Creek Trail is identified in the Ranch Plan and B-4 Reduced as part of the regional park. The B-10 and B-11 alternatives identify it as an allowed use within the Flood Management Zone. The portion of the trail within Planning Area 1 would be provided by all the alternatives. - Antonio Class II bikeway would be implemented by all the alternatives. - San Juan Creek Class I bikeway is identified in the Ranch Plan and B-4 Reduced as part of the regional park. The B-10 and B-11 alternatives identify it as an allowed use within the Flood Management Zone. The portion of the bikeway within Planning Area 1 would be provided by all the alternatives. Identification of a local bikeway/trail network is identified as mitigation measure to be developed at Area Plan level. None of alternatives identify a local system at this time.
Natural/Biological Resources	

TABLE 5.4-3 (Continued)
ABILITY OF EACH ALTERNATIVE TO MEET THE PROJECT OBJECTIVES IMPLEMENTING MEASURES

Project Objective	Evaluation
Establish and implement a program for the protection, management, enhancement, and restoration of upland and aquatic habitats and species in those portions of San Juan Creek and San Mateo Creek watersheds within the project area in accordance with the requirements of federal and state laws, including the ESA, California Endangered Species Act (CESA), CWA, and Porter-Cologne Act. These planning efforts would provide for a comprehensive program that would ensure the preservation and long-term protection, enhancement, management, and restoration of identified habitats and species. Included, as part of the program, is the creation of a permanent reserve system that is designed to protect the significant biological functions and values within the project site. The reserve system will be designed to provide for biological connectivity, including protection of vital wildlife movement corridors. Also included are adaptive management programs keyed to identified habitats and species needs.	As described in the Biological Resources and Alternatives sections of this Program EIR, the proposed Project and all of the development alternatives seek to protect the significant biological functions and values, including the protection of vital wildlife movement corridors within the project site through a Conservation Strategy consisting of two interdependent parts: 1) preservation of open space and 2) implementation of an Adaptive Management Program. The ability of each alternative to set aside the proposed open space, and then fund an associated Adaptive Management Program, is expected to vary between the proposed project and each alternative because of differences in the magnitude and locations of proposed development. The proposed project achieves the first part of the conservation strategy (preservation of open space) without the need for public acquisition of open space. Also, the proposed project has developed an Adaptive Management Program designed to maintain net habitat value in the preserved open space through implementation of management enhancement and restoration of identified habitats keyed to a stressor-based approach (i.e., those habitats likely to experience changed conditions as a result of extrinsic factors receive the most management). The proposed project has identified a menu of feasible mechanisms to fund implementation of the AMP. To the extent that the economic return from proposed development under any of the alternatives were insufficient to support the dedication of the specified amount of open space and adequate funding of the Adaptive Management Program, that alternative may not be economically feasible without other sources of funding for the acquisition of dedication rights and the Adaptive Management Program.
Hydrology/Water Quality/Flood Control Where flood control protection is indicated in conjunction with project development, provide for such protection in a manner that is consistent with protection of important hydrologic and biological resources. Protect and, where feasible, enhance hydrologic functions and water quality. As part of the SAMP/MSAA, develop comprehensive preservation, enhancement, and restoration plans in consideration of habitat enhancement, water quality improvement, and flood hazard evaluation. Prepare a watershed-level water quality program as it relates to new development proposed as part of the project.	All of the project alternatives, with the exception of A-1, would be required to be designed in such a manner as to avoid and/or mitigate impacts to hydrologic and biological resources. With the exception of Alternative A-1, all project alternatives would be required to mitigate for any significant hydrologic and water quality impacts that would occur because of the implementation of development. Where feasible, alternatives would enhance hydrologic functions and water quality. For those alternatives that would be subject to the SAMP/MSAA, these alternatives would implement the principals of the SAMP/MSAA with respect to the preservation, enhancement and restoration, as applicable, of habitat, water quality and flood prevention. With the exception of Alternative A-1, all project alternatives would be required to provide for the mitigation of water quality impacts through the implementation of a water quality program applicable to the types of development proposed for each alternative.
Agriculture & Mineral Resources Provide for ongoing and future compatible agricultural operations, including cattle grazing.	All of the project alternatives, except A-2, would be able to accommodate some level of agricultural operations and cattle

TABLE 5.4-3 (Continued)
ABILITY OF EACH ALTERNATIVE TO MEET THE PROJECT OBJECTIVES IMPLEMENTING MEASURES

Project Objective	Evaluation
Avoid reliance on mineral resources outside of the Ranch Plan area and encourage the use of local mineral resources during construction of authorized uses.	grazing. The minimum four-acre lot size associated with A-2 would preclude the effective continuation of these activities. The Ranch Plan, through the application of the Adaptive Management Program, would provide for continued cattle grazing and protection of sensitive habitat. All of the project alternatives, except A-1 and A-2, would preclude the long-term mining of resources on the project site. Planning Area 5 is proposed for residential development in all of the other alternatives, which would preclude any future sand and gravel mining. Similarly, recovery of the resources in San Juan Creek would be precluded due to the proposed designation for the area.
Cultural/Historic Resources Identify significant cultural, archaeological, and paleontological resources in accordance with requirements of Section 106 of the National Historic Preservation Act and other applicable laws. Protect and/or recover significant cultural, archaeological, and paleontological resources in accordance with requirements of Section 106 of the National Historic Preservation Act and other applicable laws. Preserve the following historic ranch uses: the Rancho Mission Viejo Cow Camp, Amantes Camp, Campo Portola, O'Neill/Moiso family cemetery, and Rancho Mission Viejo corporate headquarters.	All of the alternatives would have the potential for having impacts on cultural resources. The number of resources affected is influenced in part by the amount of area being developed and the level of previous disturbance. All of the alternatives, except A-1, would implement mitigation measures which would provide for the identification and protection of archaeological, and paleontological resources. The A-8 Alternative has the lowest level of impact, so would best meet this objective. However, these impacts could be reduced to a level of less than significant for all alternatives, including the Ranch Plan. All of the alternatives, except A-2, would protect the historic resources identified.

5.4.1 NO PROJECT ALTERNATIVES ANALYZED

Alternative A-1

Alternative A-1 is the "No Action" Alternative, as required by CEQA. This alternative assumes existing conditions on RMV property and continued use of the RMV property for existing agricultural, livestock, resource extraction, and lease activities. No additional residential or other urban uses would be proposed. This alternative would not require an amendment to the General Plan, the MPAH, cancellation of Agricultural Preserves, or any of the other actions associated with the Ranch Plan. The impacts associated with this alternative are as follows:

Land Use and Related Planning Programs

Using the same thresholds of significance applied to the Ranch Plan, this alternative would not have any physical impacts to land use. This alternative would not result in the disruption of an established community because it does not propose any changes to the existing uses. The land uses associated with the alternative would be compatible with existing or planned on-site land uses and uses adjacent to the project because they would be a continuation of the existing uses. This alternative would have a potential planning impact because it would not be consistent with the applicable policies of the regional planning agencies. Although the General

Plan does not designate the site for urban development, the growth projections for the area, which have been incorporated into the regional planning documents, do assume greater levels of development in the subregion. No development on the Ranch Plan would have the potential of jeopardizing the ability of adopted regional plans, such as the AQMP and Regional Comprehensive Plan and Guide to ultimately be implemented. This alternative would not allow for development to meet the future housing and employment needs in Orange County and would therefore, be inconsistent with regional planning efforts. This would be a significant impact.

Agricultural Resources

This alternative would avoid the significant impacts associated with the loss of Important Farmland. It is assumed that existing agricultural uses would continue similar to existing operations. There would be no need to cancel the Williamson Act contract for certain portions of the agricultural preserve because no new development would occur. Notices of non-renewal have been issued for all property on the Ranch encumbered by the Williamson Act contract. The increased tax costs associated with the withdrawal of the lands from the agricultural preserve may have implications on the viability of agriculture. However, this alternative assumes long-term continuation of the agriculture use so that new Williamson Act contracts could be entered into to address this issue.

Population and Housing

This alternative would not exceed the adopted regional or local population projections for the project area. As indicated above, the adopted projections assume a much greater level of development for the project site. This alternative would not displace any existing housing or a substantial number of people. There would be no significant impacts to population and housing with Alternative A-1.

Geology and Soils

This alternative would not encounter geotechnical constraints because no new development is proposed with Alternative A-1. The site would remain subject to ground shaking from seismic activity and the landslide issues on-site would remain. However, these conditions would not pose a threat because development is not proposed. No significant impacts are anticipated.

Water Resources

No changes to the existing hydrological conditions on the site would occur with Alternative A-1. No improvements to the site would be made in association with water quality or hydrology.

Transportation and Circulation

The traffic analysis for the A-1 Alternative evaluated the year 2025 land use with the committed circulation system. This would provide an evaluation of the long-term cumulative impact associated with these land use assumptions. As identified in Table 5.4-4, there are seven mainline freeway deficiencies, seven freeway ramp deficiencies, and 15 deficient intersections forecast under this scenario. However, no development is associated with this alternative. Therefore, the A-1 Alternative would not contribute vehicular traffic to any system deficiencies that would occur in the future.

To avoid duplication throughout this section, Table 5.4-4 provides a master impact table that summarizes cumulative deficiencies for the mainline freeway, freeway ramps and intersections

in the study area for each of the alternatives where traffic modeling was conducted, except for Alternative B-11, which is compared in a separate table. For the six alternatives that are analyzed in detail, the land use is paired with one or more circulation system alternatives. The combination of land use and transportation system creates an analysis "scenario." Land uses outside the project area are the same for all scenarios, and with the exception of Alternative A-2 (Existing Zoning) and Alternative A-3 (OCP-2000), the on-site circulation is the same for every scenario (the existing zoning and OCP-2000 alternatives assume the current on-site MPAH, while all other alternatives assume the proposed MPAH amendments on the site). Shaded entries denote locations where there is a deficiency.

Air Quality

No new air quality emissions would occur as a part of the A-1 No Project Alternative. This alternative would avoid significant unavoidable carbon monoxide (CO), volatile organic compound (VOC), nitrogen oxide (NOx), and particulate matter (PM_{10}) emissions associated with the proposed project's construction-related activities. This alternative would also avoid long-term significant unavoidable operational CO, VOC, $NO_{X,}$ and PM_{10} emissions that are associated with the proposed project. The No Project Alternative would not adversely affect attainment of air standards.

TABLE 5.4-4
2025 CIRCULATION SYSTEM DEFICIENCIES BY ALTERNATIVE

		No Project	Existing Zoning		OCP-2000	B-4 Reduced Intensity			B-5 Alternative		
Location		**Committed**	**Committed**	**MPAH 9**	**MPAH 9**	**Committed**	**Committed w/La Pata**	**Committed w/La Pata & FTC-S**	**Committed**	**Committed w/La Pata**	**Committed w/La Pata & FTC-S**
Freeway Mainline											
I-5 north of Oso		■	■	■	■	■	■	□	■	■	□
I-5 north of Ortega		■	■	□	□	■	■	□	■	■	□
I-5 north of Camino Capistrano		■	■	■	■	■	■	■	■	■	■
I-5 south of Camino Capistrano		■	■	■	■	■	■	■	■	■	□
I-5 north of Vista Hermosa		■	■	□	□	■	■	■	■	■	■
I-5 north of Avd Pico		■	■	□	□	■	■	□	■	■	□
I-5 south of Avd Pico		■	■	■	■	■	■	■	■	■	■
Freeway Interchange	**Ramp**										
I-5 at Oso	SB Off	■	■	□	■	■	■	■	■	■	■
I-5 at Crown Valley	NB Direct On	□	■	■	■	■	■	■	□	■	■
	SB Off	■	■	■	■	■	■	■	■	■	■
I-5 at Junipero Serra	NB On	■	■	■	■	■	■	□	■	■	□
I-5 at Ortega	NB On	■	■	■	■	■	■	■	■	■	■
	SB Off	□	□	□	■	□	□	□	□	□	□
I-5 at Camino Capistrano	SB Off	□	□	□	■	□	□	□	□	□	□
I-5 at Vista Hermosa	NB Direct On	■	■	□	□	□	□	□	□	□	□
	SB Off	■	■	□	□	■	□	□	■	□	□
I-5 at Avd Pico	NB On	■	■	□	□	■	□	□	□	□	□
Intersections	**Jurisdiction**										
4. Felipe & Oso	Mission Viejo	□	■	■	■	■	■	■	■	■	■
5. Antonio & Oso	Unincorporated	■	■	■	■	■	■	■	■	■	■
6. Marguerite & Felipe	Mission Viejo	□	□	□	■	□	□	□	□	□	□
9. Los Altos & Crown Valley	Mission Viejo	□	□	□	■	□	□	□	□	□	□
11. Marguerite & Crown Valley	Mission Viejo	■	■	■	■	■	■	■	■	■	■
12. Antonio & Crown Valley	Unincorporated	■	■	□	■	■	■	■	■	■	■
20. Golden Lantern & Paseo de Colinas	Laguna Niguel	■	■	■	■	■	■	■	■	■	■
24. Marguerite & Avery	Mission Viejo	□	■	□	□	■	□	□	□	□	□
27. Rancho Viejo & Ortega	San Juan Capistrano	□	□	□	■	□	□	□	□	□	□
28. La Novia & Ortega	San Juan Capistrano	□	■	□	□	■	□	□	■	■	□

TABLE 5.4-4 (Continued)
2025 CIRCULATION SYSTEM DEFICIENCIES BY ALTERNATIVE

Location		No Project	Existing Zoning		OCP-2000	B-4 Reduced Intensity			B-5 Alternative		
		Committed	Committed	MPAH 9	MPAH 9	Committed	Committed w/La Pata	Committed w/La Pata & FTC-S	Committed	Committed w/La Pata	Committed w/La Pata & FTC-S
29. Antonio/La Pata & Ortega	Unincorporated	■	■	□	■	■	■	■	■	■	■
30. Camino Capistrano & Del Obispo	San Juan Capistrano	■	■	□	□	■	■	■	■	■	■
32. Valle & San Juan Creek	San Juan Capistrano	■	■	□	□	■	■	□	■	■	□
33. La Novia & San Juan Creek	San Juan Capistrano	■	■	□	□	■	□	□	■	□	□
34. La Pata & San Juan Creek	Unincorporated	□	□	□	■	□	□	□	□	□	□
37. La Pata & Vista Hermosa	San Clemente	■	■	□	□	■	■	□	■	■	□
38. Talega & Vista Hermosa	San Clemente	□	□	□	□	■	□	□	■	□	□
39. Vera Cruz & Vista Hermosa	San Clemente	■	■	□	□	■	■	■	■	■	■
43. Antonio & New Ortega	Unincorporated	□	□	□	□	□	■	□	□	■	■
45. I-5 NB Ramps & Oso	Mission Viejo	□	□	□	□	□	□	□	■	□	□
46. I-5 SB Ramps & Crown Valley	Mission Viejo	□	□	□	■	□	□	□	□	□	□
53. Valle & La Novia/I-5 NB Ramps	San Juan Capistrano	■	■	□	□	■	□	□	■	□	□
56. I-5 SB Ramps & Pico	San Clemente	■	■	□	□	■	■	□	■	■	□
57. I-5 NB Ramps & Pico	San Clemente	■	■	□	□	■	■	□	■	■	□
59. SR-241 NB Ramps & Antonio	Rancho Santa Margarita	■	■	■	■	■	■	■	■	■	■
61. SR-241 NB Ramps & Oso	Rancho Santa Margarita	□	■	□	□	□	□	□	□	■	■
67. SR-241 NB Ramps & New Ortega	Unincorporated	□	□	□	□	□	□	□	□	□	■
74. I-5 NB Ramps & Junipero Serra	San Juan Capistrano	■	■	□	□	■	■	■	■	■	■
79. C Street & New Ortega	Unincorporated	□	□	□	□	□	□	□	□	■	■

* Buildout of the Orange County Master Plan of Arterial Highways (MPAH) includes the Foothill Transportation Corridor South (FTC-S).

□ - No deficiency at this location.
■ - Deficiency at this location.

Source: The Ranch EIR Traffic Report, Austin-Foust Associates, Inc., May 2004.

Noise

Because no new development would be implemented on the project site as a part of the A-1 Alternative, no new noise would be generated by on-site uses proposed as a part of the Ranch Plan project. Although no new trips would be generated from the project site under Alternative A-1, none of the MPAH changes proposed to be implemented during development of the proposed project would be completed. Consequently, traffic conditions would degrade at numerous locations in the study area including the roadway segments that abut existing residential uses along San Juan Creek Road, Avenida Pico, and Antonio Parkway. Associated noise impacts would result.

Biological Resources

This alternative would continue the ongoing agricultural, ranching, and industrial uses on the site. Additional natural habitat could be removed as a result of these activities, although removal of sensitive habitat or threatened and endangered species would require the applicable permits and mitigation. Although it is uncertain which areas would be disturbed should existing uses expand on the site, Exhibit 5-1 depicts the areas within the Ranch Plan area that could be disturbed without the need for regulatory or resource agency permits. There is the potential for habitat fragmentation with this alternative.

Aesthetics and Visual Resources

This alternative would be a continuation of the existing uses. The aesthetic character of the study area would not change substantially. There could be areas that may convert from natural vegetation to agricultural production, but the overall character of the area would remain rural. Alternative A-1 would not result in substantial landform alteration. With the possible exception of increased sand and gravel extraction in the ONIS leasehold, only minor modifications associated with preparation of sites for planting would be expected with this alternative.

Cultural and Paleontological Resources

With the continuation of agricultural operations, there is the potential that unknown archaeological sites would be disturbed by cultivation and other agricultural operations. There would be no requirements for archaeological or paleontological monitors when areas are cultivated. Efforts would be made to protect known sites, to the extent feasible; however, there would be no management/protection plan required. Additionally, Alternative A-1 would not provide for data recovery from known archaeological sites. This is potentially a significant impact.

Recreation

This alternative would not place any new demand on recreational facilities or add any new recreational facilities. No significant impacts would occur.

Mineral Resources

Alternative A-1 would avoid the loss of silica sand resources by allowing the mining operations to continue at the ONIS site. With this alternative, assuming consent of the parties to the lease, the lease on the site could continue past the current 2013 expiration date allowing long-term extraction within the ONIS site, which is currently zoned and permitted for mining operations. Additionally, there would be nothing to preclude future extraction of resources within San Juan Creek, provided appropriate permits are obtained.

Hazards

The hazardous impacts associated with the Ranch Plan were related to implementation of sensitive uses (i.e., residential development) in locations that have been subject to agricultural or other uses. The residual pesticides and fertilizers, as well as locations of stained soil and other contaminants, may pose a risk depending on the uses proposed by the Ranch Plan for those areas. Alternative A-1 would continue the agricultural and other existing uses on the site. The conditions that currently exist would remain. There would be a continuation in the use of fertilizers and pesticides. However, this would not be considered a significant impact because no sensitive uses are proposed for the site. Use of these substances is done in compliance with applicable regulations.

Public Services and Facilities

This alternative would not result in significant increased demand for Public Services and Facilities. The ongoing operations would be conducted with the existing resources and services presently available. There would be no new impact for Public Services and Facilities.

Alternative A-2 (Existing Zoning)

As previously noted, Alternative A-2 assumes development in compliance with the existing zoning. The majority of the site is zoned General Agricultural, which would allow development of large-lot residential development (one dwelling unit per four acres), as well as agricultural uses. Additionally, two areas are zoned for Sand and Gravel Extraction–ONIS site (Planning Area 5) and San Juan Creek. Resource extraction and related uses would be allowed to continue and potentially expand within 1,620 acres of designated areas consistent with existing zoning. It is assumed that permits for mining in San Juan Creek would be pursued. Taking the total number of acres within the study area, less the areas designated for Sand and Gravel Extraction, the zoning would allow over 5,000 units. However, in developing this alternative, consideration was given to access and feasible building sites. As depicted in Exhibit 5-6, approximately 3,265 single-family dwelling units could reasonably be sited throughout the project site providing access with existing ranch roads. This alternative would result in approximately 19,822 acres of the Ranch Plan area being subdivided. Approximately 75 percent of the project site would be in open space. However, the land would not be publicly dedicated, but would occur within small estate lot parcels owned by individual homeowners and along the ridges and slopes deemed unsuitable for development. The impacts associated with this alternative are as follows:

Land Use and Related Planning Programs

Implementation of the A-2 Alternative would not result in significant physical land use impacts. It would not result in the disruption of an established community because all development would occur within the project boundaries. The land uses associated with the alternative would be compatible with existing or planned land uses on-site and uses adjacent to the project because they would be a continuation of large-lot residential development. Similar to Alternative A-1, this alternative would have a potential planning impact because it would not be consistent with the applicable policies of the regional planning agencies. Alternative A-2 would not meet growth projections for the area, which have been incorporated into the regional planning documents. This alternative would not allow for the same commitment of development to meet the future housing and employment needs in Orange County as would the Ranch Plan project. Alternative A-2 would be inconsistent with adopted regional plans, such as the AQMP and Regional Comprehensive Plan and Guide. This alternative would not allow for development to meet the

future housing and employment needs in Orange County and would therefore, is inconsistent with regional planning efforts. This would be a significant impact**.** This alternative would have similar impacts associated with compatibility with MCB Camp Pendleton, although the overall number of units would be less.

Agricultural Resources

This alternative would have similar, although slightly greater, impacts to agricultural resources as the proposed project. The large-lot subdivision program would effectively eliminate ongoing agricultural production on Important Farmland. With the minimum four-acre lot size, it is reasonable to assume that portions of the agricultural use (citrus and avocado trees) would be maintained on private lots. However, especially over time, it is unlikely that the same agriculture function would be maintained. This would result in the loss of all Important Farmland because the definition of Important Farmland requires the land be used for the production of irrigated crops. Alternative A-2 would not require the cancellation of the Williamson Act contract. All the property is scheduled to be removed from the Agriculture Preserve by December 31, 2008. Given the expected timeframe for the absorption of this many large-lot units, the phasing of the development would allow for the non-renewal process to be completed.

Population and Housing

This alternative would not exceed the adopted regional or local population projections for the project area. As indicated above, the adopted projections assume a much greater level of development for the project site. This alternative would not displace any existing housing or a substantial number of people. There would be no significant impacts to population and housing with Alternative A-2.

Geology and Soils

Similar to the proposed Ranch Plan, development in Alternative A-2 would be subject to ground shaking from seismic activity, liquefaction, compressible and expansive soils, and landslides. This alternative proposes development throughout the project site, including Planning Area 11, which has extensive landslides. Correction for these constraints would be done through compliance with the Orange County Grading Manual, County Standard Conditions of Approval, and County permit process. This approach to development would not allow a comprehensive approach to grading and corrective measures because development of this nature would likely be custom homes processed individually. However, with such low-density development, mass grading and need for extensive corrective measures is assumed unnecessary. No significant unavoidable impacts would be anticipated with this alternative.

Water Resources

Implementation of the A-2 Alternative would allow for more of the site to be retained in open space. Changes to the existing hydrological conditions on the site would be less than associated with the proposed Ranch Plan project. Less urban runoff would also be expected with less development on the site. As with the proposed project, it is anticipated that impacts can be mitigated to a less than significant level.

Transportation and Circulation

This alternative would generate approximately 29,878 trips per day. Two circulation scenarios for this land use are analyzed, one being the committed system and the other being the full

MPAH including the SR-241 extension. Under the committed network scenario, this alternative would have seven mainline freeway deficiencies, eight freeway ramp deficiencies, and 19 intersection deficiencies (Table 5.4-4). The MPAH circulation system with existing zoning land use, by comparison, results in four mainline freeway deficiencies, four freeway ramp deficiencies, and five intersection deficiencies.

Air Quality

Alternative A-2 is expected to require less cut and fill, but grading over a larger area of the site when compared to the proposed project. Therefore, the significant construction-related emissions associated with the proposed project would be similar for Alternative A-2. This alternative would result in significant unavoidable construction-related emissions associated with carbon monoxide (CO), volatile organic compound (VOC), nitrogen oxides (NOx), and particulate matter (PM_{10}). Operational emissions would be significantly reduced when compared to the proposed project because of the reduction in vehicular traffic associated with this alternative. However, as with the proposed project, this alternative would result in significant unavoidable operational emissions associated with CO, VOCs, NOx, and PM_{10}.

Noise

The A-2 Alternative would generate similar short-term construction noise levels when compared to the proposed project, but the duration of construction would be shorter because of less development associated with this alternative. As with the proposed project, these impacts can be mitigated to less than significant levels. As previously stated, Alternative A-2 would generate approximately 29,878 trips per day. Two circulation scenarios for this land use alternative are analyzed, one being the committed system and the other being buildout of the full MPAH including the SR-241 extension. With implementation of the committed transportation system, noise impacts to residences along San Juan Creek Road, Avenida Pico, and Antonio Parkway would occur as a result of deficiencies in the transportation system. All of the existing residential uses along San Juan Creek Road, Avenida Pico, and Antonio Parkway either are outside the projected worst-case future 65 CNEL contour or have soundwalls separating them from the roadway. The A-2 Alternative would generate less long-term operational noise when compared to the proposed project because of the reduction in development associated with this alternative. In particular, less traffic noise would be generated. As with the proposed project, long-term operational impacts can be mitigated to a less than significant level.

Biological Resources

Alternative A-2 would distribute development throughout the entire project site. This would result in disturbance of a substantial amount of area. Because of the uncertainty of the location and extent of improvements associated with the Alternative A-2 (i.e., the precise location of any structure and associated improvements), a quantification of the impacts to sensitive species and their associated species is not possible. As previously noted, this alternative assumes approximately 3,265 single-family dwelling units on the site. Most of the open space would not be publicly dedicated, but would occur within small estate lot parcels owned by individual homeowners and along the ridges and slopes deemed unsuitable for development. Therefore, Alternative A-2 would not be conducive to the maintenance of net habitat value over the long-term through implementation of protection of open space and implementation of an Adaptive Management Plan.

Aesthetics and Visual Resources

Because the A-2 Alternative would allow for development throughout the site, under a worst-case scenario, this alternative could result in similar aesthetic impacts as associated with the proposed project. These impacts are considered significant and unavoidable.

Cultural and Paleontological Resources

Alternative A-2 would distribute development throughout the entire project site. This would result in disturbance of a substantial amount of area. Because of the uncertainty of the location and extent of improvements associated with the Alternative A-2 (i.e., the precise location of any structure and associated improvements), a worst-case impact analysis assumes this alternative would impact up to 88 archaeological sites. Of these sites, 20 sites are considered NRHP/CRHR eligible; 46 sites are not considered eligible; and 22 sites have not been tested for eligibility determination. Those sites that have not been tested are assumed to result in significant impacts until such time where eligibility may determine otherwise. Implementation of the Alternative A-2 could result in significant impacts to the following archaeological resources: prehistoric sites CA-ORA-29, -362, -535, -536, -656, -753, -754, -882, -913, -921/-1127, -984, -997, -1021, -1023/-1024, -1043, -1048, -1121, -1125, -1132, -1133, -1134, -1137, -1138, -1139, -1140, -1141, -1142, -1143, -1185, -1222, -1148, -1149, -1551, -1552, -1554, -1555, -1556, -1559, -1560, and -1565, and historic sites 30-176631, -176633, -176634, and -176635. As development plans are submitted, there may be the opportunity to avoid known sites. Implementation of the mitigation program identified for the Ranch Plan would reduce this impact to a level of less than significant. Impacts to paleontologically sensitive resources would be greater because of the increased potential for disturbance over the project site. As with the proposed project, these impacts can be mitigated to a less than significant level.

Recreation

This alternative would not provide for any new or expansion/improvements to existing regional parks. As required by the Quimby Act, new development would be required to either dedicate land or pay fees for local parks. Given the limited number of homes that would be provided by this alternative and that it would not be subdivided all at once, it is likely that fees would be paid. Residents would use existing parks in the area, potentially leading to deterioration of the existing parks. Ultimately, as the area built out, additional parkland may be added using park fees. Impacts would be mitigated to a less than significant level.

Mineral Resources

Alternative A-2 would avoid the loss of sand and gravel resources by allowing the mining operations to continue at the ONIS site and potentially initiate mining operations within San Juan Creek. With this alternative, assuming the consent of the parties to the lease, the lease on the ONIS site could continue past the current 2013 expiration date allowing long-term extraction of silica sand resources. The California Geological Survey (CGS) has identified San Juan Creek as a mineral resource zone (MRZ). Unlike the proposed Ranch Plan, which proposes a park in this location, Alternative A-2 would not preclude the extraction of these resources. This alternative would have a beneficial effect with respect to mineral resources.

Hazards

Impacts associated with hazardous materials for Alternative A-2 would be similar to those associated with the Ranch Plan. This alternative would provide for residential development in

locations that have been subject to agricultural or other uses. The residual pesticides and fertilizers, as well as locations of stained soil and other contaminants known on to occur on-site would pose the same risk as would occur for the Ranch Plan. These impacts could be reduced to a level of less than significant. However, the scale of the development and amount of area involved would make any required clean up more costly per unit provided. It should be noted that this alternative would not involve residential development in Planning Area 5. Therefore, testing and clean up associated with the mining operation in Planning Area 5 would not apply. Exposure to wildland fire risks would be greater because of the type of development. The distribution of development throughout the study area would not allow implementation of the Fire Management Plan. Conventional development provides greater fire protection because of greater fuel removal and improved access to development areas.

Public Services and Facilities

Development of this alternative would result in significant impacts on emergency services. Larger areas would be outside of standard response times for both OCFA and the Sheriff's Department. The distribution of development throughout the project site without using a collector circulation network would result in delayed response times by fire and sheriff personnel. Given the remoteness of many of the lots, effective placement of fire stations and sheriff facilities would be difficult. This may be an unavoidable impact of this alternative. It would not be cost effective to build sufficient facilities to meet response standards. To minimize the potential fire danger, fuel modification zones would be required. In addition, given the size of the lots, it would be expected that the homes would be of sufficient size to require sprinklers, which would reduce the impact on fire services to a level of less than significant. Sheriff response times would be considered a potential unavoidable impact.

This alternative would result in less demand for utilities than the proposed project. The distribution of units throughout the project may require development of more reservoirs, lift stations, and pump stations to adequately serve residences at higher elevations. This would result in reduced efficiency and higher maintenance requirements for the utility providers. Coordination with the utility providers for the development of a Master Plan of Works would be required to ensure adequate facilities can be provided. Timely implementation of improvements may be more difficult due to the nature of the development. Rather than a master developer coordinating the improvements, the development would be on a smaller scale.

For schools, although there would be fewer students with this alternative, there would be potential impacts on adjacent schools until such time as the area generates enough students to warrant the construction of new facilities on the site. It is anticipated that this alternative would not warrant a middle school or high school, which would necessitate the use of existing schools.

The development of four-acre parcels would potentially result in greater impacts to the Santa Fe Petroleum Pipeline (SFPP). Additionally, the coordinated relocation of the facility would be more difficult.

5.4.2 DEVELOPMENT ALTERNATIVES ANALYZED

As previously addressed, the development alternatives analyzed in this Program EIR include the development alternatives selected to be evaluated in the NCCP/HCP and SAMP/MSAA; an alternative developed in conjunction with the NCCP/SAMP Working Group for the NCCP/HCP; a variation of the B-4 Alternative with reduced density; and two County developed alternatives. The planning areas for each of the alternatives, although often in the same general locations as

the Ranch Plan areas, are different. The development tables identify the number of acres within each planning area. The graphics depict the development areas for each alternative.

The alternatives, especially those developed for the NCCP/HCP and the SAMP/MSAA, have been developed to provide distinctly different approaches to management of biological resources. The NCCP/HCP and the SAMP/MSAA would evaluate the resources on a watershed basis. Therefore, the definitions of the alternatives often refer to elimination of development in a particular watershed or subbasin. To facilitate the understanding of the reader, the associated planning areas for the proposed project are provided in parentheses.

The land uses proposed for the each of the alternatives are the same, although they have different densities and configurations. The land uses allowed in each land use category are assumed to be the same as the proposed Ranch Plan (e.g., the uses identified as being allowed in open space for the Ranch Plan would also apply to the open space for each of the alternatives). Similarly, the restrictions associated with each of the land uses would also apply to each of the alternatives.

The NCCP/HCP and SAMP/MSAA alternatives (i.e., B-5, B-6, and B-8), as well as the B-9 Alternative, all assume some level of open space acquisition. The amount of open space dedication compared to the acquisition area, and the funding sources for acquisition have not been defined but would vary depending on the amount of open space proposed (i.e., those assuming more open space would require more acquisition).

Alternative B-5

As depicted on Exhibit 5-7, Alternative B-5 would provide 14,000 dwelling units, 101 acres of urban activity center uses, 265 acres of business park, and 40 acres of neighborhood center for a total of 7,170 acres of new development. This alternative assumes 6,000 senior units, over four million square feet of business park and slightly over 1.1 million square feet of urban activity center uses. This alternative would achieve a jobs/housing balance on the site.

Approximately 15,645 acres (69 percent) of the project site would be designated as permanent open space. The amount of open space dedication versus acquisition area, and the funding sources for acquisition have not been defined. However, this alternative assumes that acquisition of open space would be required. This alternative is distinguished from the Ranch Plan because no future development would be permitted within the San Mateo Creek watershed (Planning Areas 6, 7, 8, and 9 in the proposed project). Planning Area 4 is substantially larger with Alternative B-5 than the Ranch Plan (1,015 acres versus 216 acres). Existing leases and continued ranching/farming activities would be permitted in the Verdugo sub-basin (Planning Area 9) and San Mateo Creek watersheds. Development would be intensified in the areas where development is permitted to enable the 14,000 dwelling units to be constructed. Table 5.4-5 provides an overview of how the development would be distributed by planning area.

Most of the same approvals required for the project would also be required for Alternative B-5. This alternative would require a General Plan amendment to designate the site *1B-Suburban Residential*, *UAC*, and *Employment*. A zone change from *A-1, General Agriculture*; and *S&G, Sand and Gravel Extraction* to *Planned Community (PC)* also would be required.

TABLE 5.4-5
ALTERNATIVE B-5 DEVELOPMENT DISTRIBUTION

Planning Area	Development Use										Open Space Use	Planning Area Totals
	Residential[a.]		Urban Activity Center		Neighborhood Center		Business Park		Golf Resort			
	Gross Acres	Maximum Dwelling Units	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Gross Acres	Open Space Gross Acres	Gross Acres
1	457	950	43	490,000			40	610,000		540		540
2	1,630	2,660			10	100,000	100	1,525,000		1,740		1,740
3	2,327	6,360	58	650,000	10	100,000	125	1,905,000		2,520		2,520
4	1,005	980			10	100,000				1,015		1,015
5	1,345	3,050			10	100,000				1,355		1,355
6												0
7												0
8												0
9												0
10											15,645	15,645
Subtotal	6,764	**14,000**	**101**	1,140,000	**40**	400,000	**265**	4,040,000	**0**	**7,170[b]**	**15,645**	**22,815**
Total												

a. Of the 14, 000 units, 6,000 will be senior housing and will be located in PAs 1, 2, 3, and 5.
b. Development area is inclusive of fuel modification zones.

Source: SOCCPP, 2003. Table formatted by EDAW.

A Transportation Element amendment and MPAH amendment would also be required. Similar to the Ranch Plan, Alternative B-5 would be requesting the addition of New Ortega Highway, the deletion of the Crown Valley Parkway extension, and the downgrading of the segment of Avenida Talega within unincorporated Orange County. Because no development is proposed in the San Mateo Watershed as a part of this alternative, Cristianitos Road would end at Avenida Talega, rather than extend southerly to Avenida Pico. This alternative would also be requesting the abandonment of the segment of Ortega Highway that runs parallel to New Ortega Highway as a State Highway. The local circulation network would be the same as what is assumed for the Ranch Plan. However, no development would load onto Verdugo Canyon Road, which would remain strictly a ranch road.

An amendment to the Resources Element pertaining to Prime Farmland and wildlife habitat areas would be necessary. Some areas would be developed. However, depending on the timing of development, cancellation of the Agricultural Preserve contract may or may not be requested. This alternative would not propose the Rancho Mission Viejo Regional Park; therefore, the amendment to the Recreation Element would not be required. The impacts associated with this alternative are as follows:

Land Use and Related Planning Programs

Implementation of the B-5 Alternative would not result in any significant physical land use impacts. It would not result in the disruption of an established community because all

development would occur within the project boundaries. The type of land uses associated with the alternative would be similar to the Ranch Plan. However, the density of development would be greater because a similar amount of development is proposed on fewer acres. This alternative would be considered compatible with existing or planned land uses both on- and off-site. It would avoid the potential impacts associated with proximity to MCB Camp Pendleton because there is no development proposed in the southern portion of the project site. This alternative would provide similar levels of development as the Ranch Plan and would be considered inconsistent with the applicable policies of the regional planning agencies. Through the GPA/ZC process, this alternative would be consistent with the proposed General Plan and zoning. There is no adopted NCCP/HCP or SAMP/MSAA. The question of consistency of this alternative with the draft NCCP/HCP Guidelines and Watershed Planning Principals is discussed in the Biological Resources Alternatives Appendix M.

Agricultural Resources

This alternative would have similar, although slightly greater, impacts to agricultural resources as the proposed project. Alternative B-5 would result in the loss of approximately 892 acres of Important Farmland. A total of 294 acres of Prime Farmland, 543 acres of Unique Farmland, and 55 acres of Farmland of Statewide Importance would be converted to urban uses; this conversion is a significant impact. As noted above, Alternative B-5 may or may not require the cancellation of the Williamson Act contract, depending on the timing of development. All the property would be removed from the Agriculture Preserve by December 31, 2008. Given the expected phasing of the project, development would allow for non-renewal process to occur.

Population and Housing

Alternative B-5 would not exceed the regional or local population projections for the project area. Similar to the proposed project, a limited number of existing housing units on the ranch would be displaced. However, replacement opportunities exist on the project site. Given the limited number of units, a substantial number of people would not be affected.

Geology and Soils

Alternative B-5 would encounter geotechnical constraints similar in nature to those identified for the Ranch Plan project. The site is subject to ground shaking from seismic activity, liquefaction, compressible and expansive soils, and landslides. These constraints are found in all the planning areas. Although Alternative B-5 would disturb less land than the Ranch Plan, the same type of impacts would be experienced but would be incrementally less without development in Planning Areas 6, 7, 8, and 9. Substantially more grading would be required for Planning Area 4. With less soil disturbed, there would be a reduced potential for erosion. Correction for these constraints would be done through compliance with the Orange County Grading Manual, County Standard Conditions of Approval, and County permit process. No significant unavoidable impacts would be anticipated with this alternative.

Water Resources

***Hydrology*.** Compared to the Proposed Project, this alternative evaluates 1) additional development in Gobernadora Canyon, 2) the elimination of development in Upper Gabino (PA 9) and 3) the elimination of estates development in PA's 7 and 8 (Cristianitos Canyon and TRW, respectively). The gross acreage reserved for development is 7170 acres – a reduction of 524 acres from the Proposed Project. The most significant change related to water resources in upper Gobernadora where the Planning Area 3 is expanded by 431 acres. Soils in

Gobernadora Canyon tend to be sandy and well drained, except for hardpan and other less infiltrative soils along the ridges, especially to the east. Where development is located on less infiltrative soils, projected runoff will be more similar to pre-development conditions and matching pre-development runoff conditions is more feasible. Most of the Central San Juan catchments such as Gobernadora are in sandy terrains and runoff volumes and flows associated with the pre-development condition tend to be relatively low. Because of this, development in sandy soils tends to create larger differences between pre- and post-development runoff volumes and flows. Under some conditions, runoff volumes may increase by ten to 20 percent, however stream conditions are such that significant changes to the stream equilibrium and geomorphology are not likely. Also, modeling conducted for the Ranch Plan under similar conditions indicates that infiltration is likely to increase because of the utilization of infiltration basins as part of the combined control system. Thus groundwater recharge actually would increase and benefit water supply. On the basis of these considerations, the impact of the B-5 Alternative on hydrologic conditions of concern is considered less than significant.

***Water Quality*.** The pollutants of concern include TSS; nutrients; potentially toxic constituents such as trace metals, pesticides, hydrocarbons, and chlorine; and trash and debris will be addressed through a multi-tiered approach that combines site design, source control, and treatment control, consistent with the DAMP requirements. Site design BMP's under this alternative did not acknowledge the geomorphology and terrains to the same degree as the Proposed Project, thus this alternative does propose development in sandy terrains in several areas including the Chiquita and Gobernadora sub-basins. As a result of the footprint of development for this alternative, the alternative is largely inconsistent with the Watershed and Sub-basin Planning Principles used as the initial site design BMP's for the Proposed Project. However, for development located in a sandy terrains, treatment facilities will be designed to bypass high flows and thereby not interrupt the coarse sediment supply balance that sustains the stream equilibrium. The proposed treatment facilities for this alternative will include wetland treatment for dry weather flows, and detention and infiltration for wet weather flows. To the extent that pollutants are associated with particulates, treatment effectiveness will increase. Based on the modeling results conducted for similar conditions with the Ranch Plan, post-development concentrations tend to decrease with development, whereas post-development loads decrease or increase depending on the pollutant. On the basis of these considerations, the impact of the B-5 Alternative, when considering the anticipated treatment effectiveness of the proposed WQMP, on pollutants of concern is considered less than significant, with the exception of pathogens.

Transportation and Circulation

The traffic analysis for Alternative B-5 paired the land use with three circulation system alternatives. Similar to the Ranch Plan, Alternative B-5 was considered with the Committed Circulation System, the Committed Circulation System with the La Pata Avenue extension, and the Committed Circulation System with the La Pata Avenue extension and the extension of SR-241. The combination of land use and transportation system creates an analysis "scenario." Land uses outside the project area are the same for all scenarios. The on-site circulation is the same for every scenario, which for Alternative B-5 assumes the proposed MPAH amendments on the site. The analysis was conducted for year 2025 cumulative development.

The B-5 Alternative is similar to the proposed project but concentrates the project development in the northern areas. It is estimated to generate approximately 183,906 daily trips, slightly more than the proposed project.

The B-5 Alternative under the committed circulation system results in seven mainline freeway deficiencies, five freeway ramp deficiencies, and 19 intersection deficiencies (the same as the proposed project for the freeway mainline and freeway ramps and one additional deficiency for the intersections). Under the committed plus La Pata Avenue circulation system, the number of mainline deficiencies remains the same at seven; the number of freeway ramp deficiencies remains the same at five; and the number of intersection deficiencies decreases to 18. The committed plus La Pata Avenue and SR-241 extension circulation system results in three mainline freeway deficiencies, four freeway ramp deficiencies, and 14 intersection deficiencies. Alternative B-5 would have greater circulation impacts than the Ranch Plan. Please refer to Table 5.4-4 for specific intersections that would operate at a deficient level of service for the year 2025 cumulative assumptions.

Air Quality

Implementation of the B-5 Alternative is expected to require less grading over the site when compared to the proposed project. However, as with the proposed project, the B-5 Alternative would result in significant unavoidable construction-related emissions associated with carbon monoxide (CO), volatile organic compound (VOC), nitrogen oxides (NOx), and particulate matter (PM_{10}). Operational emissions would be greater than the proposed project because of increased vehicular traffic when compared to the proposed project. As with the proposed project, this alternative would result in significant unavoidable operational emissions associated with CO, VOCs, NOx, and PM_{10}.

Noise

Development of Alternative B-5 would develop approximately 5240 fewer acres than the proposed project and construct approximately 380,000 more square feet of commercial uses. To the extent that less grading would be required for development of Alternative B-5, noise impacts due to construction would be reduced somewhat. As with the proposed project, this alternative would not have significant construction noise impacts.

Alternative B-5 is expected to generate about the same amount of traffic as the proposed project. However, most of the development with Alternative B-5 would be implemented in the northerly section of the site. Therefore, more of the traffic would use roadways around the north end of the site. Generally, traffic noise level increases on roadways around the northern portion of the site would be greater than noise levels associated with the proposed project and traffic noise level increases would be less on roadways around the southern portion of the site.

Alternative B-5 would not cause any significant off-site project-specific traffic noise impacts, but would contribute to cumulatively significant noise impacts in the following location: Oso Parkway, east of Antonio Parkway (residences that back up to Oso Parkway along Acanthus and Radiance Lane). A noise barrier would be required to mitigate forecast future cumulative noise levels to below 65 CNEL. The impacted residences are located at elevations above the roadway. In these cases the most practical place to locate a noise barrier is at the edge of the residential pad. Building barriers on private property would require the consent of the property owner, which cannot be guaranteed at this time. If owner consent cannot be obtained it may be infeasible to construct a reasonable noise barrier within the public right-of-way that reduces noise levels to below 65 CNEL. Therefore, it cannot be guaranteed that mitigation could be implemented. Therefore, Alternative B-5 could result in significant unavoidable traffic noise impact.

Noise from on-site activities would be similar for this alternative and the proposed project, and would not be expected to result in any significant off-site noise impacts from on-site activities. Implementation of the County of Orange standard conditions would ensure that necessary noise abatement is included in project design so that residential and non-residential uses would not be significantly impacted by traffic noise.

Alternative B-5 does not include any development in the southern portion of the project site near MCB Camp Pendleton. Therefore, unlike the proposed project, Alternative B-5 would not be impacted by noise generated by activities at the base. Alternative B-5 does not include the development of any golf courses. Therefore, the potential impacts from golf course operations would not be occur with this alternative. Alternative B-5 does include development of commercial uses that could be located adjacent to residential uses. The application of County of Orange standard conditions would ensure that commercial uses would not significantly impact any proposed residential uses.

Biological Resources

The following is a summary of biological resources issues associated with the B-5 Alternative. Pleas refer to Appendix M for a full discussion of this alternative. The major issues associated with the B-5 Alternative are as follows:

1) Development location conflicts with NCCP Guidelines goals and habitat restoration recommendations for restoring gnatcatcher habitat within the Chiquita Canyon/Chiquadora Ridge major population;

2) The adequacy of Habitat Linkages/Wildlife Movement Corridors within the San Juan watershed;

3) The conflicts between the open space/development bubbles and the protection of the Chiquita Creek and Gobernadora Creek systems;

4) Impacts on Verdugo Canyon habitat areas and the generation of coarse sediments important to downstream habitat functions;

5) Economic feasibility of dedicating the entirety of the open space and funding the Adaptive Management Program.

***Alternative B-5 Open Space System*.** Alternative B-5 may not meet SRP reserve design tenets and species protection goals. As a consequence, the amount of land area shown for development in Chiquita Canyon and on Chiquadora Ridge would need to be substantially reduced with a concomitant increase in open space.

***Long-term Habitat Management*.** Because no new development is proposed for the San Mateo watershed, Alternative B-5 provides significant opportunities for long-term Adaptive Management in the San Mateo watershed including addressing existing areas of severe erosion in clay soils (the clay pits in Cristianitos Canyon and hillside erosion in upper Gabino). The funding of the foregoing restoration efforts could reduce funding available for other restoration actions (although there would be fewer restoration undertakings for coastal sage scrub, native grasslands, and Gobernadora Creek under this alternative than under any of the other development alternatives). Were funding to be insufficient, it could be particularly significant for implementation of the “Invasive Species Control Plan within the San Mateo Creek and San Juan Creek Watersheds Program.” This alternative would also depend heavily on the Grazing

Management Plan. Fire Management in the San Mateo watershed would be facilitated, but would be more difficult within the San Juan watershed, particularly within Chiquita Canyon due to the extension of the proposed development bubble for urban uses to areas west of Chiquita Creek.

Conclusions Regarding Consistency with Subregional Conservation Goals and Objectives. Alternative B-5 presents the following issues regarding Consistency with Subregional Conservation Goals and Objectives:

a. Development location conflicts with NCCP Guidelines goals and habitat restoration recommendations for restoring gnatcatcher habitat within the Chiquita Canyon/Chiquadora Ridge major population;

b. The adequacy of Habitat Linkages/Wildlife Movement Corridors within the San Juan watershed;

c. The conflicts between the open space/development bubbles and the protection of the Chiquita Creek and Gobernadora Creek systems;

d. Impacts on Verdugo Canyon habitat areas and the generation of coarse sediments important to downstream habitat functions;

e. Potential impacts on arroyo toad habitat and proposed recovery actions in the San Juan Creek area and potential impacts to all of the other listed species, except the thread-leaved brodiaea, previously enumerated.

f. The adequacy of Adaptive Management Program funding for vegetation and landform restoration in the San Mateo watershed (landform stabilization and vegetation restoration activities would be required within the Cristianitos Canyon areas of the Cristianitos and lower Gabino sub-basins and in upper Gabino Canyon).

Proposed development areas would need to be reduced to comply with NCCP and SAMP policies. To the extent that the economic return from proposed development under this alternative were insufficient to support the dedication of the specified amount of open space and adequate funding of the adaptive management program, this alternative may not be economically feasible without other sources of funding for the acquisition of dedication rights and the adaptive management program.

Aesthetics and Visual Resources

Visual changes to the project site associated with the implementation of the B-5 Alternative are expected to be reduced when compared to the proposed project. The most significant change between the proposed project and this alternative would be the retention of most of the site east of the proposed SR-241 extension alignment in open space. Only development in Planning Area 4 would occur in this area. This alternative would avoid significant unavoidable aesthetic impacts and night lighting impacts in this portion of the Ranch Plan project site. The development plans for both the proposed project and the B-5 Alternative west of the SR-241 extension alignment are similar. Implementation of residential development in Planning Area 2 is expected to have greater aesthetic impacts when compared to the proposed project because mass grading is assumed for all of this planning area. Where development is proposed in the remainder of the planning areas, impacts would be similar to the proposed project. Therefore,

although the aesthetic impacts associated with the B-5 Alternative would be reduced, they remain significant and unavoidable.

Cultural and Paleontological Resources

Alternative B-5 would directly impact 29 archaeological sites. Of these sites, eight of the sites are eligible for the NRHP/CRHR; 20 sites are not considered NRHP eligible, and one site has not been tested for eligibility; the latter are assumed significant for purposes of this analysis. Implementation of the B-5 alternative would result in significant impacts to the following archaeological resources: Implementation of the Alternative A-2 could result in significant impacts to the following archaeological resources: prehistoric sites CA-ORA-535, -656, -753, -997, -1554, -1555, -1559, -1560, and -1565, and historic sites 30-176631, -176633, -176634, and -176635. Implementation of mitigation measures would reduce the impacts to less than significant. Fewer impacts to paleontological resources would be anticipated because less to the site would be disturbed. As with the proposed project, these impacts can be mitigated to a less than significant level.

Recreation

This alternative would not provide for any new or expansion/improvements to existing regional parks. The open space area would be in a habitat preserve that would be adaptively managed. As required by the Quimby Act, new development would be required to either dedicate land or pay fees for local parks. It is assumed that parkland would be provided for within the development areas. Similar to the proposed project, it is assumed that residents would use parks within the project area, effectively reducing the potential for deterioration of the existing parks.

Mineral Resources

Alternative B-5 would have similar impacts to mineral resources as the Ranch Plan. Development is proposed in Planning Area 5. This would ultimately displace the silica mining operation on the ONIS site. Continuation of the mining operation would be allowed until the lease expires in 2013. This alternative does not propose a regional park in the vicinity of San Juan Creek; however, it is designated as open space. Sand and gravel extraction would be prohibited in the open space designation; therefore, Alternative B-5 would also restrict the ability to mine resources from the MRZ area in San Juan Creek.

Hazards

Impacts associated with hazardous materials for Alternative B-5 would be similar to those associated with the Ranch Plan, although the area is reduced. As with the proposed project, this alternative would provide for residential development in locations that have been subject to agricultural or other uses. The residual pesticides and fertilizers, as well as locations of stained soil and other contaminants known on to occur on-site would pose the same risk as would occur for the Ranch Plan. This alternative does not propose development in Planning Areas 6, 7, and 8. Potential contaminants and mitigation measures were identified for Planning Areas 7 and 8. These would not apply to this alternative. All applicable standards for sensitive land uses would be applied where residential development is proposed. Impacts could be reduced to a level of less than significant.

Public Services and Facilities

The public services and utility demands associated with Alternative B-5 would be similar to the Ranch Plan because the level of development is similar. As with the Ranch Plan, these impacts can be mitigated to a level of less than significant. The increased employment use would result in a slightly greater demand for water, wastewater services, solid waste, and energy services. The demand on schools would be the same because the same number of students would be generated. The need for library services would be similar to the proposed project. Emergency services would be slightly different because of the reduced service area. However, the total number of service calls would be expected to be substantially the same because of the similarity in the level of development. One difference would be fire protection. This alternative would have fewer impacts to fire protection resources than the proposed project. Because no development would occur within the San Mateo Creek Watershed, and the estates and casitas in Planning Area 9 would be eliminated from the project, fewer fire stations would be required; all areas could be effectively served and OCFA standards would be met. Transport delays and commute time from Planning Areas 7 and 9 would not occur under this development scenario. Additionally, as with the Ranch Plan, there would be sufficient water pressure for adequate fire protection. However, the deletion of Crown Valley Parkway from the MPAH would continue to reduce the effectiveness of Fire Station #58, and would reduce emergency response and evacuation effectiveness. This alternative would also require the implementation of the mitigation measures that would reduce the impacts to less than significant.

Alternative B-6

Alternative B-6 would avoid future development within the Chiquita sub-basin east of Chiquita ridge (Planning Area 2) and within the Verdugo Canyon sub-basin (northern portion of Planning Area 9). Development would be concentrated in areas in the San Juan Creek watershed, with new development in the San Mateo Creek watershed limited to areas already disturbed by past uses. This roughly equates to development in the areas similar to Planning Areas 1, 3, 4, 5, 7, 8, and 9. As depicted on Exhibit 5-8, this alternative would provide for 14,000 dwelling units on approximately 6,334 acres. Additionally, 91 acres of urban activity center, 265 acres of business park, and 50 acres of neighborhood center uses would be provided. This alternative assumes 6,000 senior units, over four million square feet of business park, and slightly over 1.0 million square feet of urban activity center uses. This alternative would achieve a jobs/housing balance on the site. This alternative would provide for 16,075 acres or approximately 70 percent of the total acreage in open space. The amount of open space dedication area versus acquisition area has not been defined. Development would be intensified in the areas where development is permitted to enable the 14,000 dwelling units and employment uses to be constructed. Table 5.4-6 provides an overview of how the development would be distributed by planning area.

Most of the same approvals required for the project would also be required for Alternative B-6. This alternative would require a General Plan amendment to designate the site *1B-Suburban Residential*, *UAC*, and *Employment* would be required. A zone change from *A-1, General Agriculture* and *S&G, Sand and Gravel Extraction* to *Planned Community (PC)* would be required.

A Transportation Element amendment and MPAH amendment, identical to what is being requested for the Ranch Plan, would also be required. The local network for this alternative would be slightly different from the proposed project. Chiquita Canyon Road would not be built because there is no development proposed in this area. This alternative would also improve Verdugo Canyon Road to provide access to Planning Area 9. Additionally, a collector loop road

would be constructed within Planning Area 9 to serve as part of the local collector street network.

An amendment to the Resources Element pertaining to Prime Farmland and wildlife habitat areas would be necessary. Cancellation of the Agricultural Preserve contact would not be requested. This alternative would not propose the Rancho Mission Viejo Regional Park; therefore, an amendment to the Recreation Element would not be required. The impacts associated with this alternative are addressed in the following narrative.

TABLE 5.4-6
ALTERNATIVE B-6 DEVELOPMENT DISTRIBUTION

Planning Area	Development Use										Open Space Use	Planning Area Totals
	Residential[a.]		Urban Activity Center		Neighborhood Center		Business Park		Golf Resort			
	Gross Acres	Maximum Dwelling Units	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Gross Acres	Open Space Gross Acres	Gross Acres
1	462	1,000	38	440,000			40	610,000		**540**		**540**
2												
3	2,332	6,650	53	600,000	10	100,000	125	1,905,000		**2,520**		**2,520**
4	490	500			5	50,000				**495**		**495**
5	1,345	3,100			10	100,000				**1,355**		**1,355**
6												**0**
7	650	1,200			10	100,000				**660**		**660**
8	480	900			5	50,000				**590**		**590**
9	575	650			5	50,000				**580**		**580**
10											16,075	**16,075**
Subtotal	6,334	**14,000**	**91**	1,040,000	**50**	500,000	**265**	4,040,000	**0**			
Total										**6,740**[b]	**16,075**	**22,815**

[a] Of the 14, 000 units, 6,000 will be senior housing and will be located in Pas 1, 3, 5 and 7.
[b] Development area is inclusive of fuel modification zones.
Source: SOCCPP, 2003. Table formatted by EDAW.

Land Use and Related Planning Programs

Implementation of the B-6 Alternative would not result in significant physical land use impacts. This alternative would not result in the disruption of an established community because all development would occur within the project boundaries. The type of land uses associated with the alternative would be similar to those of the Ranch Plan. However, the density of development would be greater because a greater amount of development is proposed. This alternative would be considered compatible with existing or planned on-site land uses. Similar to the Ranch Plan, this alternative proposes residential development in Planning Area 8. A total of 900 dwelling units are proposed for this area (compared to 1,400 units with the Ranch Plan). This would result in the same type of impacts associated with proximity of noise sensitive uses to MCB Camp Pendleton. Residential development in this area may experience disturbances from helicopter flights and artillery training exercises, especially those occurring during night

hours. MCB Camp Pendleton has expressed a concern that this would result in pressures to modify military training operations to reduce impacts on these residences, which may result in potential impacts on the mission of MCB Camp Pendleton as a training facility. In addition to the annoyance factor, there may be an issue with respect to land use compatibility associated with noise standards. Given development would not occur in this area until after 2018 (when the current lease expires), the operations at MCB Camp Pendleton and the RCUZ adopted at the time development is proposed would need to be evaluated. Similar to the Ranch Plan, these impacts can be mitigated to a level of less than significant. This alternative would be consistent with the General Plan and zoning policies. There is no adopted habitat conservation plan or NCCP. Consistency of this alternative with the draft NCCP Guidelines is discussed below under Biological Resources. This alternative would provide similar levels of development as the Ranch Plan and would be considered inconsistent with the applicable policies of the regional planning agencies. Similar to the proposed project, this alternative would have an unavoidable, significant impact associated with inconsistency with the regional housing projections.

Agricultural Resources

This alternative would have fewer impacts on agricultural resources than the proposed project. Alternative B-6 does not propose development in Chiquita Canyon, therefore, the Important Farmland in that area would be retained. A total of 825 acres of Important Farmland would be removed, including 262 acres of Prime Farmland, 526 acres of Unique Farmland, and 37 acres of Farmland of Statewide Importance would be converted to urban uses. This would be a significant impact. Alternative B-6 would not require the cancellation of the Williamson Act contract. All the property will be removed from the Agriculture Preserve by December 31, 2008. Given the expected phasing of the project, development would allow for non-renewal process to occur.

Population and Housing

Alternative B-6 would provide fewer dwelling units than the approximately 20,000 dwelling units assumed in OCP-2000M[3] for the project study area. Therefore, it would not exceed the cumulative regional or local growth projections. Similar to the proposed project, a limited number of existing housing units on the project site would be displaced; however, replacement opportunities exist on the project site. Given the limited number of units, a substantial number of people would not be affected and this is not considered a significant impact.

Geology and Soils

Alternative B-6 would encounter geotechnical constraints similar in nature to those identified for the Ranch Plan because factors such as ground shaking from seismic activity, liquefaction, compressible and expansive soils, and landslides are associated with the project site. These constraints are found in all the planning areas. Therefore, even though Alternative B-6 would disturb less land than the proposed Ranch Plan project, the same type of impacts would be experienced. With less soil disturbed, there would be a reduced potential for erosion. Correction for these constraints would be done through compliance with the Orange County Grading Manual, County Standard Conditions of Approval and County permit process. No significant unavoidable impacts would be anticipated with this alternative.

[3] See Section 4.3, Population and Housing, for a discussion of the OCP-2000M and the OCP-2004 datasets.

Water Resources

***Hydrology*.** The major change with the B-6 alternative, compared with the Proposed Project, is 1) the elimination of development in Planning Area 2, 3) expansion of Planning Areas 3 and 4 in the San Juan Creek watershed, 3) expanded development in Upper Gabino (Planning Area 9), 4) the elimination of development in Planning Area 6 and 5) the elimination of estates in Planning Areas 7 and 8 in the San Mateo watershed. Overall the area reserved for development is 6,740 acres – a reduction of 954 acres from the Proposed Project. This alternative development in the San Juan Creek watershed would be 4,910 acres - a reduction of 156 acres from the Proposed Project. Under this alternative development in the Cristianitos and Gabino sub-basins would be about 1830 acres – a reduction of approximately 800 acres from the Proposed Project.. This is an area with relatively poorly infiltrating soils, so that the pre-development runoff is high relative to areas having more infiltrative capacity. Grading would be conducted to route as much of the development in Cristianitos Creek to the Gabino sub-basin because of the concern that increased runoff with development could adversely affect the stability of lower Cristianitos Creek. Flow control facilities could be located on the individual development pads, or in one or more of the quarry ponds in Lower Gabino. The B-6 alternative includes new development in Upper Gabino in an area that has experienced extensive erosion because of natural erosive conditions coupled with past agricultural practices. The Gabino sub-basin is underlain by clayey and crystalline terrains that generally produce high runoff volumes, urbanization may not substantially increase post-development runoff. With development, grading, landscaping, and the incorporation of flow control facilities including recycling of stormwater for irrigation are all factors that would reduce runoff volumes and rates into middle and lower Gabino Creek. The B-6 alternative also calls for development that would ultimately replace the Northrop-Grumman (formerly TRW) facility. Post-development runoff can be controlled to closely match pre-development conditions. For example, the proposed utilization of quarry ponds, if properly modified, could be quite effective in reducing post-development runoff. On the basis of these considerations, the impact of the B-6 Alternative on hydrologic conditions of concern is considered less than significant.

***Water Quality*.** Although quantitative analysis has not been conducted for this alternative, the modeling conducted under Proposed Project addressed similar areas to those proposed under this alternative, including areas in the San Mateo watershed. The pollutant control measures for this alternative would include the site design, source control, and treatment concepts. For the proposed development in the San Mateo watershed, soil and channel substrate conditions tend to be more erodible clays and silts and therefore there is the potential for increased fines to be discharged if development increases runoff flows. Combined control system facilities would be tailored to sub-basin conditions, and for this alternative would take advantage of quarry ponds in Lower Gabino that could be modified to provide water quality treatment. Such ponds could potentially provide sufficient detention time to effectively treat the fines and associated pollutants. Treatment facilities for the proposed development of the TRW area would be located in lower Blind Canyon and would include wetlands for treating low flows, and detention and infiltration for treating storm flows. Consistent with stormwater practices in meeting the MEP standard, facilities would be sized to capture the majority of the mean annual runoff, with bypass facilities provided for large, infrequent events (e.g., ten to 100 year storms). Those results indicate that the impacts of this alternative with the proposed BMPs or PDFs on pollutants of concern is considered less than significant, with the exception of pathogens.

Transportation and Circulation

The land use distribution is minimally different for Alternative B-6 than from the proposed project and would show the same long-term impact. The project trip generation (183,906 ADT) and peak hour characteristics would be slightly greater than the trips generated by Ranch Plan (183,338 ADT) and the same as Alternative B-5. Impacts would be generally the same as the proposed project.

Air Quality

The B-6 Alternative is expected to require less cut and fill grading when compared to the proposed project. However, as with the proposed project, the B-6 Alternative would result in significant unavoidable construction-related emissions associated with carbon monoxide (CO), volatile organic compound (VOC), nitrogen oxides (NOx), and particulate matter (PM_{10}). Operational emissions would be slightly greater than the proposed project because of increased vehicular traffic when compared to the proposed project. As with the proposed project, this alternative would result in significant unavoidable operational emissions associated with CO, VOCs, NOx, and PM_{10}.

Noise

Alternative B-6 would develop approximately 954 fewer acres than the proposed project and construct approximately 380,000 more square feet of commercial uses. To the extent that less grading would be required for development of Alternative B-6, noise impacts due to construction would be reduced. As with the project, noise impacts for this alternative would be less than significant. Traffic generation for the B-6 Alternative would be slightly more than with the proposed project (568 trips, or 0.31 percent). The distribution of trips would be substantially similar. Therefore, traffic noise impacts with Alternative B-6 would be effectively the same as the proposed project. The small increase in traffic with Alternative B-6 would not affect forecast noise levels.

As with the proposed project, Alternative B-6 would not be expected to result in any significant off-site impacts associated with traffic noise on a project-specific or cumulative basis. Areas near existing development that would be developed for this alternative would occur in generally the same areas proposed for the Ranch Plan project. Therefore, the potential for noise impacts from on-site activities is similar for both the proposed project and this alternative. Neither is expected to result in any significant off-site noise impacts from on-site activities.

Compliance with County of Orange standard conditions would ensure appropriate noise abatement is included in project design so that residential and non-residential uses are not significantly impacted by traffic noise. Alternative B-6 does not include the development of golf courses. Therefore, potential impacts from golf course operations would not be occur with this alternative. As with the proposed project, compliance with County requirements is expected to preclude noise impacts from parks. Alternative B-6 does include development of commercial uses that could be located adjacent to residential uses. Implementation of County standard conditions would ensure that proposed commercial use would not significantly impact proposed residential uses.

Biological Resources

The following is a summary of biological resources issues associated with the B-6 Alternative relative to Biological Resources. A full discussion of this alternative is provided in Appendix M of the Program EIR.

***Alternative B-6 Open Space System*.** Except for development along the valley floor of Gobernadora Creek, in upper Gabino, and development on the south side of San Juan Creek in the Trampas Canyon area, the Alternative B-6's proposed open space would meet the broad-scale NCCP and SAMP guidelines.

Long-Term Habitat Management. Alternative B-6 is consistent with all of the major elements of the Adaptive Management Program except the Gobernadora Creek restoration plan and the upper Gabino coastal sage scrub/grasslands restoration area. Alternative B-6 is consistent with and helps carry out the comprehensive Invasive Species Control. This alternative proposes to protect all of the coastal sage scrub restoration areas in Chiquita Canyon. Within the Gobernadora sub-basin, the Sulphur Canyon and associated coastal sage scrub restoration areas are protected, but the area proposed for restoration of the creek meander would not protected. Valley grasslands restoration and enhancement areas proposed in the NCCP Guidelines for Narrow Canyon (within the Chiquita sub-basin), upper Cristianitos Canyon, and Blind Canyon mesa would be protected. The coastal sage scrub/valley grasslands restoration/enhancement areas in upper Gabino Canyon are expected to be precluded by development proposed under Alternative B-6. Alternative B-6 is consistent with the draft Grazing Management Plan and Fire Management Plan.

***Conclusions Regarding Consistency with Subregional Conservation Goals and Objectives*.** Alternative B-6 presents the following issues regarding Consistency with Subregional Conservation Goals and Objectives:

a. Impacts on thread-leaved brodiaea;

b. Impacts on vernal pool habitat of the Riverside and San Diego fairy shrimp in proximity to Radio Tower Road;

c. The potential inability to implement all of the Gobernadora Creek restoration actions protecting the least Bell's vireo and flycatcher populations;

d. The extent of development in upper Gabino potentially impacting Gabino Creek and precluding Adaptive Management proposals for coastal sage scrub/native grasslands enhancement and restoration;

e. The extent of development along the south side of San Juan Creek adjacent to Trampas Canyon;

f. The adequacy of the linkage between upper Cristianitos and San Juan Creek; and

g. Reductions in development areas would be required for purposes of assuring consistency with the NCCP Guidelines and Watershed Principles. To the extent that the economic return from proposed development under this alternative were insufficient to support the dedication of the specified amount of open space and adequate funding of the adaptive management program, this alternative may not be economically feasible without other sources of funding for the acquisition of dedication rights and the adaptive management program.

Aesthetics and Visual Resources

Visual changes to the project site associated with the implementation of the B-6 Alternative are expected to be less when compared to the proposed project. This alternative would retain approximately 16,075 acres of the 22,815-acre site in open space. The most significant change between the proposed project and this alternative would be the retention of Planning Area 2 in open space. As a part of the proposed project, this planning area would be developed with conventional and large lot, low-density residences, a golf course, a neighborhood center, and urban activity center uses, and the retention of Planning Area 6 (proposed for residential and golf course uses as a part of the project) in open space. This alternative would preclude significant unavoidable aesthetic impacts and night lighting impacts in these parts of the Ranch Plan project site. Additionally, the B-6 Alternative does not include low-density residential development areas that are assumed as a part of the project's Planning Areas 7 through 9. Similar levels of development would occur in Planning Areas 1, 3, 4, and 5. Development proposed in these planning areas would have similar impacts to the proposed project. Therefore, although the aesthetic and night lighting impacts associated with the B-6 Alternative would be reduced, they remain significant and unavoidable.

Cultural and Paleontological Resources

This alternative would directly impact 31 archaeological sites. Of these sites, two sites are eligible for the NRHP/CRHR; 24 sites are not considered NRHP or CRHR eligible; and four sites have not had their eligibility determined. Implementation of Alternative B-6 would result in significant impacts to the following archaeological resources: CA-ORA-1132, -1133, -1134, -1137, -1449, -1552, and -1565. The project would also significantly impact historic sites 30-176631, -176633, -176634, and 30-176635. Implementation of the B-6 Alternative would also significantly impact sensitive paleontological resources. As with the proposed project, impacts to cultural and paleontological resources can be mitigated to a less than significant level.

Recreation

This alternative would not provide for any new or expansion/improvements to existing regional parks. As required by the Quimby Act, new development would be required to either dedicate land or pay fees for local parks. It is assumed that parkland would be provided for within the development areas. Similar to the proposed project, it is assumed that residents would use parks within the project area, effectively reducing the potential for deterioration of the existing parks.

Mineral Resources

Alternative B-6 would have similar impacts to mineral resources as the proposed Ranch Plan project because both scenarios assume development in Planning Area 5 thereby ultimately displacing the silica mining operation on the ONIS site. Continuation of the mining operation would be allowed until the lease expires in 2013. Unlike the proposed project, this alternative does not propose a regional park in the vicinity of San Juan Creek. However, this area of the site would be designated as open space. Sand and gravel extraction would be prohibited in the open space designation. Therefore, Alternative B-6 would also restrict the ability to mine resources from the MRZ area in San Juan Creek.

Hazards

Impacts associated with hazardous materials for Alternative B-6 would be less than to those associated with the Ranch Plan. This alternative would provide for residential development in locations that have been subject to agricultural or other uses. The elimination of development in Planning Area 2 would reduce the amount of development area previous exposed to agricultural activities. The remaining areas where residual pesticides and fertilizers, as well as locations of stained soil and other contaminants are known to occur on-site would pose the same risk as would occur for the Ranch Plan. All applicable standards for sensitive land uses would be applied where residential development is proposed. Impacts could be reduced to a level of less than significant.

Public Services and Facilities

The public services and facility demands associated with Alternative B-6 would be similar to the Ranch Plan because the level of development would be similar. As with the Ranch Plan, these impacts can be mitigated to a level of less than significant. The increased employment use would result in a slightly greater demand for water, wastewater services, solid waste, and energy services. The demand on schools would be the same because the same number of students would be generated. Emergency and library services would be substantially the same. This alternative would eliminate development in Planning Area 2, thereby slightly reducing the area identified by OCFA as being outside of their standard response times. However, this alternative would increase the amount of development in Planning Area 9, offsetting the potential benefits associated with the elimination of Planning Area 2. With 650 units in Planning Area 9, it is assumed the roads would be built to County standards rather than rely on existing ranch roads. This would reduce the impact associated with meeting fire standards for access.

Alternative B-8

As depicted on Exhibit 5-9, Alternative B-8 would allow new development in the three areas similar to Planning Area 1, 3, and 5 of the proposed Ranch Plan project. This alternative would provide for 8,400 dwelling units on 3,680 acres. To allow maximum flexibility because of the reduced number of dwelling units, this alternative assumes none of the units would be age restricted. Additionally, 82 acres of urban activity center, 90 acres of business park, and 20 acres of neighborhood center uses would be provided. Alternative B-8 would support 915,000 square feet of urban activity center and 1,373,000 square feet of business park. There would be 200,000 square feet of neighborhood center. This alternative would provide a jobs/housing balance on the site. This alternative would provide for 19,135 acres or 84 percent of the total acreage is open space. This alternative would require acquisition and management of open space through dedications, and public and non-profit organization funding of acquisitions and management. Table 5.4-7 provides an overview of how the development would be distributed by planning area.

Most of the same approvals required for the project would also be required for Alternative B-8. This alternative would require a General Plan amendment to designate the site *1B-Suburban Residential*, *UAC*, and *Employment* would be required. A zone change from *A-1, General Agriculture*, and *S&G, Sand and Gravel Extraction*, to *Planned Community (PC)* would be required.

A Transportation Element amendment and MPAH amendment would also be required. Similar to the Ranch Plan, Alternative B-8 would be requesting the addition of New Ortega Highway, the deletion of the Crown Valley Parkway extension, and the downgrading of the segment of

Avenida Talega within unincorporated Orange County. However, because no development is assumed San Mateo Watershed as a part of this alternative, Cristianitos Road would end at Avenida Talega rather than extend southerly to Avenida Pico. This alternative would also be requesting the abandonment of the segment of Ortega Highway that runs parallel to New Ortega Highway as a State Highway. The local circulation network would not include Chiquita Canyon Road because no development is proposed in Planning Area 2.

TABLE 5.4-7
ALTERNATIVE B-8 DEVELOPMENT DISTRIBUTION

Planning Area	Development Use										Open Space Use	Planning Area Totals
	Residential		Urban Activity Center		Neighborhood Center		Business Park		Golf Resort			
	Gross Acres	Maximum Dwelling Units	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Gross Acres	Open Space Gross Acres	Gross Acres
1	470	950	40	450,000			30	458,000		**540**		**540**
2												**0**
3	1,837	5,075	42	465,000	10	100,000	60	915,000		**1,949**		**1,949**
4												**0**
5	1,181	2,375			10	100,000				**1,191**		**1,191**
6												**0**
7												**0**
8												**0**
9												**0**
10											19,135	**15,645**
Subtotal	3,486	**8,400**	**82**	915,000	**20**	200,000	**90**	1,373,000	**0**			
Total										**3,680**[a]	**19,135**	**22,815**

[a] Development area is inclusive of fuel modification zones.
Source: SOCCPP, 2003. Table formatted by EDAW.

An amendment to the Resources Element pertaining to Prime Farmland and wildlife habitat areas would be necessary. However, cancellation of the Agricultural Preserve contact would not be requested. This alternative would not propose the Rancho Mission Viejo Regional Park; therefore, an amendment to the Recreation Element would not be required. The impacts associated with this alternative are as follows:

Land Use and Related Planning Programs

Implementation of the B-8 Alternative would not result in significant physical impacts to land use. The alternative would not result in the disruption of an established community because all development would occur within the project boundaries. Land uses associated with the alternative would be compatible with existing or planned on-site land uses and uses adjacent to the project because they would be a continuation of residential development adjacent to the project site. This alternative would be consistent with General Plan and zoning policies. Similar

to Alternative A-2, this alternative would have a potential planning impact because it would not be consistent with the applicable policies of the regional planning agencies. Alternative B-8 would not meet growth projections for the area, which have been incorporated into the regional planning documents. Although greater than either of the no project alternatives, this alternative only provides 41 percent of the housing assumed for this area by the regional plans that used the OCP-2000M dataset. This alternative would not allow for development to meet the future housing and employment needs in Orange County. Unless the anticipated level development for the project site could be absorbed elsewhere within the RSA, this would be a significant impact. This alternative does not assume an adopted habitat conservation plan or NCCP. The issue of consistency of this alternative with the draft NCCP Guidelines is discussed below under Biological Resources.

Agricultural Resources

This alternative would have less impact to agricultural resources than the proposed project. Alternative B-8 does not propose development in Chiquita Canyon, therefore, the Important Farmland in that area would be retained. A total of 719 acres of Important Farmland, including 190 acres of Prime Farmland, 512 acres of Unique Farmland, and 16 acres of Farmland of Statewide Importance would be converted to urban uses. This conversion is considered a significant impact. Alternative B-8 would not require the cancellation of the Williamson Act contract. All the property will be removed from the Agriculture Preserve by December 31, 2008. Given the expected phasing of the project, development would allow for the non-renewal process to occur without early contract termination.

Population and Housing

Alternative B-8 would not exceed the cumulative regional or local growth projections. This alternative would provide for 8,400 dwelling units, which is below the approximately 20,000 dwelling units assumed in OCP-2000M for the project study area. This alternative does provide for a jobs/housing balance. Similar to the proposed project, a limited number of existing housing units on the project site would be displaced; however, replacement opportunities exist on the project site. Given the limited number of units, a substantial number of people would not be affected.

Geology and Soils

Alternative B-8 would encounter geotechnical constraints similar in nature to those identified for the Ranch Plan because factors such as ground shaking from seismic activity, liquefaction, compressible and expansive soils, and landslides are associated with the project site. These constraints are found in all the planning areas; therefore, even though Alternative B-8 would disturb less land than the Ranch Plan, the same type of impacts would be experienced. The impacts would be incrementally less without development in Planning Areas 2, 4, 6, 7, 8, and 9. With less soil disturbed, there would be a reduced potential for erosion. Correction for these constraints would be done through compliance with the Orange County Grading Manual, County Standard Conditions of Approval and County permit process. No significant unavoidable impacts would be anticipated with this alternative.

Water Resources

***Hydrology*.** The B-8 alternative would involve approximately 3,680 acres of new development, all of which would be located in three development bubbles in the San Juan Creek Watershed: Ortega Gateway (Planning Area 1) primarily west of Antonio Parkway, Gobernadora Canyon

(Planning Area 3), and Central San Juan/Trampas Canyon (Planning Area 5). About two-thirds of the total proposed developed area or 2,470 acres would be located in Central San Juan/Trampas. This is primarily a sandy terrain where, as discussed above, matching of pre-development hydrologic conditions is difficult because pre-development runoff is quite low. However, hydrologic modeling in similar terrains has indicated that infiltration basins can achieve 80 to 90 percent reduction in post-development runoff. The modest 10 to 20 percent increases can generally be accommodated in central San Juan Creek, whose geomorphology is governed by larger scale watershed conditions. On the basis of the above considerations, the impact of the B-8 Alternative on hydrologic conditions of concern is considered less than significant.

***Water Quality*.** Combined control system facilities in this sandy terrain area include detention and infiltration, the latter of which takes advantage of the infiltrative soils. The combination of detention followed by infiltration provides effective treatment for most pollutants associated with urbanization, including phosphorous that may be elevated by natural sources and other pollutants that tend to partition to particulates. On the basis of the above considerations, the impact of the B-8 Alternative on pollutants of concern is considered less than significant, with the exception of pathogens.

Transportation and Circulation

The cumulative impacts of this alternative would be similar to the B-4 Reduced Intensity Alternative for most of the study area. Alternative B-8 would have a trip generation of approximately 126,925 ADT compared to 137,844 ADT for the B-4 Reduced Intensity Alternative. In the southernmost part of the study area (i.e., the southeastern part of San Clemente), the impacts would be the same as for the B-5 Alternative which also features no development in the southern part of the project area. If Alternative B-8 had a similar ratio of senior housing as the proposed project, the trip generation would be reduced by approximately 13 percent or to 110,743 average daily trips.

Air Quality

The B-8 Alternative would require less cut and fill grading when compared to the proposed project. However, as with the proposed project, the B-8 Alternative would result in significant unavoidable construction-related emissions associated with carbon monoxide (CO), volatile organic compound (VOC), nitrogen oxides (NOx), and particulate matter (PM_{10}). Operational emissions would decrease when compared to the proposed project because of the reduction in vehicular traffic when compared to the proposed project. Although decreased, as with the proposed project, this alternative would result in significant unavoidable operational emissions associated with CO, VOCs, NOx, and PM_{10}.

Noise

Alternative B-8 would develop approximately 4,014 fewer acres than the proposed project and construct approximately 2.712 million fewer square feet of commercial uses. To the extent that less construction would be required for development of Alternative B-8, noise impacts due to construction would be reduced. No significant construction-related noise impacts are expected for this alternative or the proposed project.

Alternative B-8 is expected to generate 126,925 daily vehicle trips or 56,413 (30.8 percent) fewer trips than the proposed project. The distribution of traffic for this alternative would be

substantially similar Alternative B-4R, except to the south were it would be similar to Alternative B-5. Noise associated with the B-8 Alternative would be similar or less than with the proposed project. With respect to off-site traffic noise impacts, no significant impacts are anticipated on a project-specific or cumulative basis. As with the proposed project, this alternative would not result in a significant off-site impacts noise impacts due to on-site activities. Areas near existing development that would be developed for Alternative B-8 would occur in generally the same areas as for the proposed Ranch Plan project.

Compliance with County of Orange standard conditions would ensure appropriate noise abatement is included in project design so that residential and non-residential uses are not significantly impacted by traffic noise. Alternative B-8 does not include any development in the southern portion of the project site near MCAS Camp Pendleton. Unlike the proposed project, this alternative would not result in noise impacts generated by activities at the base.

Alternative B-8 does not include the development of any golf courses. Therefore the potential impacts from golf course operations would not occur. As with the proposed project, potential impacts from golf course operations and parks can be mitigated. This alternative includes development of commercial uses that could be located adjacent to residential uses. The application of County standard conditions would ensure that proposed commercial uses would not significantly impact proposed residential uses.

Biological Resources

The following summarizes biological resources issues associated with the B-8 Alternative. For a full discussion of the biological resources associated with alternative, please refer to Appendix M of this Program EIR.

***Alternative B-8 Open Space System*.** The open space assumptions for Alternative B-8 would meet the broad-scale NCCP and SAMP reserve design guidelines. The Alternative B-8 assumes approximately 83 percent of the project site would be in open space.

***Long-Term Habitat Management*.** Alternative B-8 proposes to include all of the Adaptive Management Program recommended habitat restoration areas within the B-8 open space, including costly soils stabilization actions in Cristianitos Canyon and upper Gabino Canyon.

Conclusions Regarding Consistency of the B-8 Alternative with Subregional Conservation Goals and Objectives. To the extent that the economic return from proposed development under this alternative were insufficient to support the dedication of the specified amount of open space and adequate funding of the adaptive management program, this alternative may not be economically feasible without other sources of funding for the acquisition of dedication rights and the adaptive management program.

Aesthetics and Visual Resources

Visual changes to the project site associated with the implementation of the B-8 Alternative are expected to be reduced when compared to the proposed project. This alternative would retain approximately 19,135 acres of the 22,815-acre site in open space. The most significant changes between the proposed project and this alternative would be the retention of Planning Areas 2, 4, and 6 through 9 in permanent open space. Retention of these areas in open space would preclude significant unavoidable aesthetic impacts and night lighting impacts in these parts of the Ranch Plan project site. Similar levels of development would occur in Planning Areas 1, 3, 4, and 5. Development proposed in these planning areas would have similar

impacts to the proposed project. Therefore, although the aesthetic and night lighting impacts associated with the B-8 Alternative would be substantially reduced, they remain significant and unavoidable.

Cultural and Paleontological Resources

Alternative B-8 would result in impacts to 16 archaeological sites. Of these sites, one is eligible for the NRHP and CRHR: CA-ORA-656. Additionally, historic site 30-176631 would be impacted by implementation of the B-8 Alternative. Because this site has not been tested, impacts are considered significant until otherwise noted. Because of the reduction in grading and disturbance that would be required to implement this alternative, fewer impacts to paleontological resources would be anticipated. As with the proposed project, impacts to known cultural resources and paleontological resources can be mitigated to a less than significant level.

Recreation

This alternative would not provide for any new or expansion/improvements to existing regional parks. As required by the Quimby Act, new development would be required to either dedicate land or pay fees for local parks. It is assumed that parkland would be provided for within the development areas. Similar to the proposed project, it is assumed that residents would use parks within the project area, effectively reducing the potential for deterioration of the existing parks.

Mineral Resources

Alternative B-8 would have similar impacts to mineral resources as the Ranch Plan. Development is proposed in Planning Area 5. This would ultimately displace the silica mining operation on the ONIS site. Continuation of the mining operation would be allowed until the lease expires in 2013. This alternative does not propose a regional park in the vicinity of San Juan Creek; however, it is designated as open space. Sand and gravel extraction would be prohibited in the open space designation; therefore, Alternative B-8 would also restrict the ability to mine resources from the MRZ area in San Juan Creek.

Hazards

Impacts associated with hazardous materials would be similar in nature for both Alternative B-8 and the proposed Ranch Plan project. Alternative B-8 would provide for residential development in locations that have been subject to agricultural or other uses. The elimination of development in Planning Areas 2 and 7 would reduce the amount of development area that would be exposed to prior agricultural activities. Additionally, this alternative does not propose development in Planning Areas 6 and 8. Potential contaminants and mitigation measures identified for Planning Areas 2, 7, and 8 would not apply to this alternative. The remaining areas where residual pesticides and fertilizers, as well as locations of stained soil and other contaminants are known to occur on-site would pose the same risk as would occur for the Ranch Plan. Impacts could be reduced to a level of less than significant.

Public Services and Facilities

The public services and utility demands associated with Alternative B-8 would be less than the Ranch Plan because it would provide fewer dwelling units and employment uses. This alternative would provide approximately 61 percent of the housing and 48 percent of the

employment use compared to the proposed Ranch Plan project. The demand for water, wastewater, library, and solid waste services would be reduced proportionally. The student generation rate would be slightly higher than the proposed Ranch Plan project. Unlike the Ranch Plan alternative, which has 6,000 senior housing units and 8,000 conventional units, Alternative B-8 is assumed that all units would be conventional housing. As a result, more students would be expected and the impacts would be slightly higher than for the proposed project. However, the demand could be accommodated by the development of schools within the project development. With respect to emergency services, the demand would be reduced compared to the proposed project. The concentration of development in three planning areas would reduce the area needing to be served by OCFA and the OCSD. Since the development within Planning Areas 2, 7, and 9, which would not be within the OCFA standards response times, would be removed, the impacts associated with this alternative would be reduced. The deletion of Crown Valley Parkway from the MPAH would continue to reduce the effectiveness of Fire Station #58.

Alternative B-9

Alternative B-9 has been developed in conjunction with the NCCP/SAMP Working Group as an alternative that maximizes compliance with the Planning Principals and Guidelines. As depicted in Exhibit 5-10, this alternative assumes the development of 13,600 dwelling units, 91 gross acres of urban activity center, 240 acres of business park, and 50 acres of neighborhood center uses for a total of 7,170 acres of new development. This alternative assumes 6,000 senior units, over 3.6 million square feet of business park, 500,000 square feet of neighborhood center, and slightly over 1.0 million square feet of urban activity center uses. A golf course with a 25-acre golf course resort component is also assumed for Planning Area 5. This alternative would achieve a jobs/housing balance on the site. Approximately 16,233 acres (71 percent) of the project site would be designated as permanent open space. The amount of open space dedication versus acquisition area, and the funding sources for acquisition have not been defined. However, this alternative assumes that acquisition of open space would be required.

This alternative is distinguished from the proposed Ranch Plan project because no development would occur in Upper Chiquita Canyon and Verdugo Canyon and development in the San Mateo Watershed would be limited to Planning Area 8. Alternative B-9 would substantially increase the size of Planning Area 4 compared to the proposed project (1,300 acres versus 216 acres). Existing leases and continued ranching/farming activities would be permitted in the Verdugo sub-basin (Planning Area 9) and San Mateo Creek watersheds. Development would be intensified in the areas where development is permitted to enable the 13,600 dwelling units to be constructed. Table 5.4-8 provides an overview of the distribution of development in the planning areas.

Most of the same approvals required for the project would also be required for Alternative B-9. This alternative would require a General Plan amendment to designate the site *1B-Suburban Residential*, *UAC*, and *Employment* would be required. A zone change from *A-1*, *General Agriculture*, and *S&G, Sand and Gravel Extraction*, to *Planned Community (PC)* would be required.

TABLE 5.4-8
ALTERNATIVE B-9 DEVELOPMENT DISTRIBUTION

Planning Area	Development Use										Open Space Use	Planning Area Totals
	Residential[a]		Urban Activity Center		Neighborhood Center		Business Park		Golf Resort			
	Gross Acres	Maximum Dwelling Units	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Gross Acres	Open Space Gross Acres	Gross Acres
1	453	1,020	47	560,000			40	610,000		540		540
2	565	1,290			10	100,000	40	610,000		615		615
3	1,908	5,630	44	480,000	10	100,000	80	1,220,000		2,042	129	2,171
4	1,241	2,000			10	100,000				1,251	49	1,300
5	1,181	2,440			10	100,000				1,191		1,191
6												0
7												0
8	828	1,220			10	100,000	80	1,220,000	25	943	350	1,293
9												0
10											15,705	15,705
Subtotal	6,176	13,600	91	1,040,000	50	500,000	240	3,660,000	25			
Total										6,582[b]	16,233	22,815

a Of the 13,600 units, 5,600 would be senior housing and would be located in Planning Areas 1, 2, 3, 4, 5, and 8.
b Development area is inclusive of fuel modification zones.

Source: SOCCPP, 2003. Table data compiled by EDAW.

A Transportation Element amendment and MPAH amendment would also be required. Similar to the Ranch Plan, Alternative B-9 would be requesting the addition of New Ortega Highway, the deletion of the Crown Valley Parkway extension, and the downgrading of the segment of Avenida Talega within unincorporated Orange County. Cristianitos Road as an arterial highway would end at Avenida Talega. It would extend southerly to Avenida Pico as a local collector road. This alternative would also be requesting the abandonment of the segment of Ortega Highway that runs parallel to New Ortega Highway as a State Highway. The local circulation network would be the same as what is assumed for the proposed project. However, Verdugo Canyon Road would be upgraded to a local collector to serve Planning Area 4.

An amendment to the Resources Element pertaining to Prime Farmland and wildlife habitat areas would be necessary. Cancellation of the Agricultural Preserve contact would not be requested. This alternative does not propose the Rancho Mission Viejo Regional Park; rather, this area would be retained in open space. As a result, Alternative B-9 does not require an amendment to the Recreation Element. The impacts associated with this alternative are as follows:

Land Use and Related Planning Programs

Implementation of the B-9 Alternative would not result in significant physical impacts on land use. The B-9 Alternative would not disrupt an established community because all development would occur within the project boundaries. The type of land uses associated with the alternative

would be similar to those of the proposed Ranch Plan project. However, the density of development would be greater because a greater amount of development is proposed within a small development footprint. This alternative would be considered compatible with existing or planned on-site land uses. Similar to the proposed project, this alternative proposes residential development in Planning Area 8. This alternative proposes 1,220 dwelling units for this planning area (compared to 1,400 units with the proposed Ranch Plan project). Development in this location would result in the same type of impacts associated with proximity of noise sensitive uses to MCB Camp Pendleton. Residential development in this area may experience disturbances from helicopter flights and artillery training exercises, especially those occurring during night hours. MCB Camp Pendleton has expressed a concern that this would result in pressures to modify military training operations to reduce impacts on these residences, which may result in potential impacts on the mission of MCB Camp Pendleton as a training facility. In addition to the annoyance factors, there may be a land use compatibility issue associated with noise standards. Given that development would not likely occur in this area until after 2018, when the current lease expires, the operations at MCB Camp Pendleton and the RCUZ adopted at the time development is proposed would need to be evaluated. Similar to the Ranch Plan, these impacts can be mitigated to a level of less than significant.

This alternative would be consistent with the General Plan and zoning policies. There is no adopted habitat conservation plan or NCCP. Consistency of this alternative with the draft NCCP Guidelines is discussed below under Biological Resources. This alternative would provide similar levels of development as the Ranch Plan and would be considered inconsistent with the applicable policies of the regional planning agencies. Similar to the proposed project, this alternative would have an unavoidable, significant impact associated with inconsistency with the regional housing projections.

Agricultural Resources

This alternative would have less impact on agricultural resources than the proposed project. Alternative B-9 does not propose development in Chiquita Canyon north of the Chiquita Water Reclamation Plant; therefore, Important Farmland in that area would be retained. A total of 797 acres of Important Farmland, including 254 acres of Prime Farmland, 517 acres of Unique Farmland and 26 acres of Farmland of Statewide Importance would be converted to urban uses. This would be a significant impact. Alternative B-9 would not require the cancellation of the Williamson Act contract. All the property will be removed from the Agriculture Preserve by December 31, 2008. Given the expected phasing of the project, development would allow for the non-renewal process to occur without early contract termination.

Population and Housing

Alternative B-9 would not exceed the cumulative regional or local growth projections. OCP-2000M assumes approximately 20,000 dwelling units for the project study area. Alternative B-9 would provide for 13,600 dwelling units. Similar to the proposed project, a limited number of existing housing units on the project site would be displaced; however, replacement opportunities exist on the project site. Given the limited number of units, a substantial number of people would not be affected.

Geology and Soils

As with the other alternatives being evaluated, Alternative B-9 would encounter geotechnical constraints similar in nature to those identified for the Ranch Plan. Factors such as ground shaking from seismic activity, liquefaction, compressible and expansive soils, and landslides are

associated with the project site. These constraints are found in all the planning areas. Therefore, although Alternative B-9 would disturb less land than the proposed Ranch Plan project, the same type of impacts would be experienced. The impacts would be incrementally less without development in Planning Areas 6, 7, and 9. However, substantially more grading would be required for Planning Area 4. With less soil disturbed, there would be a reduced potential for erosion. Correction for these constraints would be done through compliance with the Orange County Grading Manual, County Standard Conditions of Approval, and County permit process. No significant unavoidable impacts would be anticipated with this alternative.

Water Resources

***Hydrology*.** The watershed modeling indicates that Alternative B9 is expected to produce less total runoff than the Proposed Project. The runoff estimates are similar to the Ranch Plan expect for Planning Areas 8 and 9. This alternative allows for more development in the San Juan watershed, while significantly limiting development in the San Mateo watershed. The sub-basin which indicates an increase in runoff over that modeled for the Ranch Plan within the San Juan watershed, is the Central San Juan watershed area known as East Ortega (Planning Area 4). The hydrologic modeling analysis conducted for this alternative also indicates a slight decrease in peak discharge at the ocean for San Juan Creek. The mitigation analysis indicated that the hydrologic modifications for increase runoff discharge and volume can easily be accommodated through the infiltration and flood control detention basins. On the basis of the above considerations, the impact of the B-9 Alternative on hydrologic conditions of concern is considered less than significant.

Water Quality. Projected changes in pollutant loads in the San Juan Creek and San Mateo Creek with development of this alternative vary depending on the pollutant. The pollutant load estimates for the B-9 alternative are expected to be similar as the Ranch Plan except for Planning Area 8 and 9. Suspended solids and nutrients are expected to decrease while trace metals are expected to increase slightly in San Juan Creek. San Mateo Creek the suspended solid loads are expected to remain the same, nutrients decrease, and trace metals decrease. Previous results for the Ranch Plan indicate that the impacts of this alternative, when considering the proposed BMPs and PDFs, on pollutants of concern is considered less than significant, with the exception of pathogens.

Transportation and Circulation

The land use distribution and trip distribution is minimally different for Alternative B-9 as compared to the proposed project and would show the same long-term impact. The project trip generation for Alternative B-9 would be approximately 183,906 ADT compared with 183,338 ADT for the Ranch Plan. The peak hour characteristics would also be similar to the Ranch Plan; therefore, the impacts would be the same.

Air Quality

The B-9 Alternative would require substantially less cut and fill grading when compared to the proposed project. However, as with the proposed project, the B-9 Alternative would result in significant unavoidable construction-related emissions associated with carbon monoxide (CO), volatile organic compound (VOC), nitrogen oxides (NOx), and particulate matter (PM_{10}). Operational emissions would be the same as/very similar to the proposed project because of the similarity in vehicular traffic; again, Alternative B-9 would produce approximately 183,906 ADT compared to 183,338 ADT. Therefore, as with the proposed project, this alternative would

result in significant unavoidable operational emissions associated with CO, VOCs, NOx, and PM_{10}.

Noise

Alternative B-9 would develop approximately 1,112 fewer acres than the proposed project and construct 400 fewer dwelling units. To the extent that less construction would be required for development of Alternative B-9, noise impacts due to construction would be reduced. Both this alternative and the proposed project would not result in a significant noise impact.

Alternative B-9 would be expected to generate slightly lower traffic volumes when compared to the proposed project. Therefore, traffic noise impacts associated with this alternative would be effectively the same as the proposed project; the small decrease in traffic would not affect forecast vehicular noise levels. Alternative B-9 would not be expected to result in any significant project-specific or cumulative off-site traffic noise impacts. With respect to off-site noise impacts from on-site activities, no significant impacts are anticipated. Compliance with County of Orange standard conditions would ensure appropriate noise abatement is included in project design so that residential and non-residential uses are not significantly impacted by traffic noise.

Alternative B-9 does propose commercial and golf course uses adjacent to residential uses. The application of County standard conditions would ensure that these uses would not significantly impact proposed residential uses. Potential impacts related to parks would be mitigated to a less than significant level.

Biological Resources

The following is a summary of biological resources issues associated with the B-9 Alternative. Please refer to Appendix M for a full discussion of this alternative.

***Alternative B-9 Open Space System*.** Open space proposed as a part of this alternative in conjunction with previously committed open space areas located within the Southern NCCP/HCP planning area would substantially meet the provisions of the sub-basin and watershed-scale guidelines and principles.

Long-Term Habitat Management. Alternative B-9 is generally consistent with the Adaptive Management Program and would participate in the comprehensive Invasive Species Control Plan. Alternative B-9 protects the coastal sage scrub restoration areas in Chiquita Canyon. Within the Gobernadora sub-basin, Sulphur Canyon and associated coastal sage scrub restoration areas are protected. This alternative is also consistent with the restoration proposed for Gobernadora Creek as reviewed in the Adaptive Management Program. Valley grasslands restoration and enhancement areas proposed in the NCCP Guidelines for Narrow Canyon within the Chiquita sub-basin and Upper Cristianitos Canyon are protected. However, valley grasslands restoration areas proposed for Blind Canyon Mesa would likely be largely precluded by development. The coastal sage scrub/ valley grasslands restoration/enhancement areas in Upper Gabino Canyon would be consistent with the B-9. Alternative B-9 is consistent with the draft Grazing Management Plan and Fire Management Plan.

Alternative B-9 provides for important soils stabilization actions in Cristianitos Canyon and Upper Gabino. Both areas contain substantial land areas manifesting ongoing erosion in areas characterized by clay soils–erosion resulting from past clay mining actions in the case of Cristianitos Canyon and erosion resulting from cattle operations and local roads (some of which serve development located outside the planning area) in the case of Upper Gabino.

Conclusions Regarding Consistency with Subregional Conservation Planning Goals and Objectives. To the extent that the economic return from proposed development under this alternative were insufficient to support the dedication of the specified amount of open space and adequate funding of the adaptive management program, this alternative may not be economically feasible without other sources of funding for the acquisition of dedication rights and the adaptive management program.

Aesthetics and Visual Resources

Visual changes to the project site associated with the implementation of the B-9 Alternative are expected to be less than those associated with development of the proposed project. This alternative would retain approximately 16,233 acres of the 22,815-acre site in open space. The most significant changes between the proposed project and this alternative would be the retention of Planning Areas 6 and 7 in permanent open space, and the enlargement of the development area associated with Planning Area 4. Additionally, the large lot, low-density residential development areas in Planning Area 2 would not occur. Retention of these areas in open space would preclude significant unavoidable aesthetic impacts and night lighting impacts in these parts of the Ranch Plan project site. Where similar levels of development would occur in Planning Areas 1, 3, and 5, these planning areas would have similar impacts to the proposed project. Proposed residential development in Planning Area 4 is expected to result in greater aesthetic impacts than would occur with the proposed project because of extensive grading that would be required. Therefore, the aesthetic and night lighting impacts associated with the B-8 Alternative would be significant and unavoidable.

Cultural and Paleontological Resources

This alternative would directly impact 21 archaeological sites. Of the 21 sites, five sites are eligible for NRHP and CRHR listing and 16 sites are not considered eligible. Implementation of the B-9 alternative would result in significant impacts to the following archaeological resources: CA-ORA-535, -656, -882, -1048, and -1565. Additionally, the B-9 Alternative would impact the following historic sites: 30-176631, -176634, and -176635. These site have either not been tested or their eligibility has not been determined. Therefore, for the purpose of this analysis, they are assumed to be significantly impacted. With respect to paleontological resources, because less grading and site disturbance would occur, when compared to the proposed project, significant impacts to these resources would be reduced. However, with implementation of the mitigation program outlined for the proposed Ranch Plan project, the impacts could be reduced to a level of less than significant.

Recreation

This alternative would not provide for any new or expansion of/improvements to existing regional parks. As required by the Quimby Act, the subdivision of land for residential purposes requires either the dedication of land or the payment of fees for local parks. It is assumed that parkland would be provided for within the development areas. Similar to the proposed project, it is assumed that residents would use parks within the project area, effectively reducing the potential for deterioration of the existing parks.

Mineral Resources

Alternative B-9 would have similar impacts to mineral resources as the Ranch Plan. Development is proposed in Planning Area 5. This would ultimately displace the silica mining operation on the ONIS site. Continuation of the mining operation would be allowed until the

lease expires in 2013. This alternative does not propose a regional park in the vicinity of San Juan Creek; however, it is designated as open space. Sand and gravel extraction would be prohibited in the open space designation; therefore, Alternative B-9 would also restrict the ability to mine resources from the MRZ area in San Juan Creek.

Hazards

Impacts associated with hazardous materials would be less for Alternative B-9 than the proposed Ranch Plan project. This alternative would provide for residential development in locations that have been subject to agricultural or other uses. Because this alternative does not assume development in the upper portion of Planning Area 2 and in Planning Area 7, less development would be exposed to areas previously in agricultural use. Potential contaminants and mitigation measures identified for these planning areas would not apply to this alternative. The remaining areas where residual pesticides and fertilizers, as well as locations of stained soil and other contaminants are known to occur on-site would pose the same risk as would occur for the Ranch Plan. Impacts could be reduced to a level of less than significant.

Public Services and Facilities

The public services and utility demands associated with Alternative B-9 would be similar to the proposed Ranch Plan project because the similar levels of development. As with the proposed project, these impacts can be mitigated to a level of less than significant. This alternative proposes slightly less housing (400 units) than the Ranch Plan and the same amount of employment use. As a result, there would be a slight decrease in the demand for water, wastewater services, solid waste, schools, library, and energy services. Emergency services would be slightly different because of the reduced service area. However, the total number of service calls would be expected to be substantially the same because of the similarity in the level of development. One difference would be fire protection because this alternative eliminates development in Planning Areas 7 and 9, an area that OCFA identified as being outside of standard response times.

Alternative B-10

The County of Orange developed Alternative B-10. As depicted on Exhibit 5-11, this alternative assumes the development of 14,450 dwelling units, 95 gross acres of urban activity center, 260 acres of business park, and 55 acres of neighborhood center uses. Twenty-five acres are also designated for a golf resort, for a total of 7,683 acres of development. This alternative assumes 6,000 senior units, almost 4.0 million square feet of business park, and slightly less than 1.1 million square feet of urban activity center uses. In addition to the golf resort, golf courses are proposed in Planning Areas 2, 5, and 7. This alternative would achieve a jobs/housing balance on the site. Approximately 15,132 acres (66 percent) of the project site would be designated as permanent open space. Acquisition of the areas designated for open space would not be required with this alternative. As with the other alternatives, existing leases and continued ranching/farming activities would be permitted in the open space areas. Development distribution is shown in Table 5.4-9.

This alternative has several features that distinguish it from the proposed Ranch Plan project: a) the size and amount of development in Planning Area 4 is substantially greater; b) no development is assumed for Planning Area 9; and c) Planning Area 6 is smaller. The location for the regional park is also different than for the proposed project. As a part of the proposed project, the applicant has proposed the Rancho Mission Viejo Regional Park along San Juan Creek. Instead, Alternative B-11 would provide an expanded General Thomas F. Riley

Wilderness Park (Planning Area 10) and expanded Caspers Wilderness Park (Planning Area 11). The final distinguishing feature associated with Alternative B-10 is the Planning Reserve Overlay. The Planning Reserve designation covers certain areas containing sensitive natural resources that would not be proposed for development until later phases of the project and/or until specified pre-conditions to development have been satisfied. Three distinct Planning Reserve areas have been identified for the B-11 Alternative: Planning Reserve A–the northern portion of Planning Area 2 (Chiquita); Planning Reserve B–the entirety of Planning Areas 6 and 7 (Cristianitos); and Planning Reserve C–Planning Area 8.

As with the Development Sensitive Overlay Areas associated with the proposed Ranch Plan project, the Alternative B-11's Planning Reserve areas encompass potential development areas as well as some open space. The precise footprint of development within each Planning Reserve would be identified as part of the more detailed planning efforts to be carried out in the future, and would consider the guidelines and principles applicable to those areas, as discussed below.

The permitted uses, the maximum development acreage, and the maximum density/intensity of development have been preliminarily identified for the Planning Reserve areas in order for this Program EIR to evaluate potential environmental impacts of development in these areas. Further environmental documentation would be required at such time as development is actually proposed in order to more specifically identify potential impacts.

Prior to development in the Planning Reserve areas, it is intended that existing uses within these areas would be allowed to continue, and that interim uses would also be allowed, pursuant to provisions similar to those set forth in the proposed *Ranch Plan Planned Community Program Text* (see Section 3, Project Description).

Conditions of approval/mitigation measures (including provisions of any adaptive management program) that are imposed on the project in conjunction with General Plan amendment and zone change approvals would be applicable to the Planning Reserve areas only at such times as these areas were to receive subsequent development entitlements (i.e., entitlements in addition to General Plan amendment and zone change approvals).

Applications for subsequent development entitlements (i.e., Master Area Plans) within the Planning Reserve areas would be allowed to be submitted according to the following schedules:

(1) Planning Reserve A: Five years after final approval of the Ranch Plan GPA/ZC or until confirmation of the proposed SR-241 extension alignment and/or until specified infrastructure is available, whichever occurs first;

(2) Planning Reserve B: Five years after final approval of the Ranch Plan GPA/ZC or until confirmation of the proposed SR-241 extension alignment and/or until specified infrastructure is available, whichever occurs first;

(3) Planning Reserve C: Fourteen years after final approval of the Ranch Plan GPA/ZC or until confirmation of the proposed SR-241 extension alignment and/or until specified infrastructure is available, whichever occurs first;

Any future plan for development proposed within the Planning Reserve areas would be required to incorporate, and would be evaluated for consistency with, the guidelines and principles (including planning, management and restoration recommendations) that are applicable to the specific area(s) proposed for development and/or conservation. The guidelines and principles

for each Planning Reserve area are those set forth in Section 4.9, Biological Resources, for the affected sub-basins.

As with the Ranch Plan, it is intended that the plans for development and conservation under this alternative be complementary to any NCCP/HCP and/or any SAMP/MSAA programs covering the project site that are completed in the future. Therefore, at such times as an NCCP/HCP and/or SAMP/MSAA were to be finally approved, any mitigation programs applicable to the project site (including any Planning Reserve areas that have received subsequent development entitlements) would be adapted for inclusion as part of that NCCP/HCP and/or SAMP/MSAA.

In any event, as with the applicant's proposed project and other development alternatives, any required federal and state permits (including those needed to allow take of listed species, or to authorize impacts on jurisdictional waters and/or streambeds) would need to be obtained prior to the commencement of development activities within the affected area, including the Planning Reserve areas.

Similar approvals required for the proposed project would also be required for Alternative B-10. This alternative would require a General Plan amendment to designate the site *1B-Suburban Residential*, *UAC*, and *Employment* would be required. A zone change from *A-1*, *General Agriculture*, and *S&G, Sand and Gravel Extraction*, to *Planned Community (PC)* would be required.

TABLE 5.4-9
ALTERNATIVE B-10 DEVELOPMENT DISTRIBUTION

Planning Area	Development Use										Open Space Use		Planning Area Totals	Planning Reserve (Overlay)
	Residential[a.]		Urban Activity Center		Neighborhood Center		Business Park		Golf Resort					
	Gross Acres	Maximum Dwelling Units	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Gross Acres	Wilderness Park Open Space Acres	Open Space Acres	Gross Acres	Gross Acres
1	450	1,020	50	590,000			40	610,000		540			540	
2	959	1,392			10	100,000	40	610,000		1,009		622	1,631	925
3	1,916	5,630	45	490,000	10	100,000	100	1,525,000		2,071		100	2,171	
4	1,291	2,000			10	100,000				1,301		230	1,531	
5	1,181	2,440			10	100,000				1,191			1,191	
6	61	122								61		214	275	275
7	468	446			5	50,000				473		877	1,350	1,441
8	922	1,400			10	100,000	80	1,220,000	25	1,037		312	1,349	1,661
9													0	
10											903		903	
11											1,211		1,211	
12													10,663	
Subtotal	7,248	14,450	95	1,080,000	55	550,000	260	3,965,000	25		2,114	13,018		
Total										7,683[b]	15,132		22,815	

a Of the 14, 000 units, 6,000 would be senior housing and would be located in Planning Areas 1, 2, 3, 5, and 8.
b Development area is inclusive of fuel modification zones.
Source: County of Orange, 2003. Data compiled by EDAW.

A Transportation Element amendment and MPAH amendment would also be required. Similar to the Ranch Plan, Alternative B-10 would be requesting the addition of New Ortega Highway, the deletion of the Crown Valley Parkway extension, and the downgrading of the segment of Avenida Talega within unincorporated Orange County. Cristianitos Road, as an arterial highway, would end at Avenida Talega. It would extend southerly to Avenida Pico as a local collector road. This alternative would also be requesting the abandonment of the segment of Ortega Highway that runs parallel to New Ortega Highway as a State Highway. The local circulation network would be the same as what is assumed for the Ranch Plan; however, Verdugo Canyon Road would be upgraded to a local collector to serve Planning Area 4.

An amendment to the Resources Element pertaining to Prime Farmland and wildlife habitat areas would be necessary. However, cancellation of the Agricultural Preserve contact would not be requested. An amendment to the Recreation Element would be required to depict the expansion of Riley and Caspers Wilderness Parks. The impacts associated with this alternative are as follows:

Land Use and Related Planning Programs

Similar to the proposed project, implementation of the B-10 Alternative would not result in significant physical land use impacts. The alternative would not result in the disruption of an established community because all development would occur within the project boundaries. The type of land uses associated with the alternative would be similar with those of the Ranch Plan; however, the density of development would be greater because a greater amount of development is proposed. This alternative would be considered compatible with existing or planned on-site land uses. Similar to the Ranch Plan, this alternative proposes residential development in Planning Area 8. This would result in the same type of impacts associated with proximity of noise sensitive uses to MCB Camp Pendleton. Residential development in this area may experience disturbances from helicopter flights and artillery training exercises, especially those occurring during night hours. MCB Camp Pendleton has expressed a concern that this would result in pressures to modify military training operations to reduce impacts on these residences, which may result in potential impacts on the mission of MCB Camp Pendleton as a training facility. In addition to the annoyance factors, there may be a land use compatibility issue associated with noise standards. Given that development would not likely occur in this area until after 2018, when the current lease expires, the operations at MCB Camp Pendleton and the RCUZ adopted at the time development is proposed would need to be evaluated. Similar to the Ranch Plan, these impacts can be mitigated to a level of less than significant.

This alternative would be consistent with the General Plan and zoning policies. There is no adopted habitat conservation plan or NCCP. Consistency of this alternative with the draft NCCP Guidelines is discussed below under Biological Resources. This alternative would provide similar levels of development as the Ranch Plan and would be considered inconsistent with the applicable policies of the regional planning agencies. Similar to the proposed project, this alternative would have an unavoidable, significant impact associated with inconsistency with the regional housing projections.

Agricultural Resources

Alternative B-10 and the Ranch Plan would have similar impacts to agricultural resources. A total of 845 acres of Important Farmland, including 278 acres of Prime Farmland, 529 acres of Unique Farmland, and 38 acres of Farmland of Statewide Importance would be converted to urban uses. However, this alternative has a Planning Reserve Overlay on the portion of Chiquita Canyon north of the Chiquita Water Reclamation Plant, which contains Important

Farmland. The Planning Reserve would allow the continued agricultural uses until such time as the conditions are met. This would allow the extended use of this Important Farmland; however, once the conditions are met, this Important Farmland would be converted to urban uses. This would be a significant impact. Alternative B-10 would not require the cancellation of the Williamson Act contract. All the property will be removed from the Agriculture Preserve by December 31, 2008. Given the expected phasing of the project, development would allow for non-renewal process to occur.

Population and Housing

Alternative B-10 would not be expected to exceed the cumulative regional or local growth projections. This alternative would provide for 14,450 dwelling units compared to the approximately 20,000 dwelling units assumed by OCP-2000M for the project study area. Similar to the proposed project, a limited number of existing housing units on the project site would be displaced; however, replacement opportunities exist on the project site. Given the limited number of units, a substantial number of people would not be affected.

Geology and Soils

Factors such as ground shaking from seismic activity, liquefaction, compressible and expansive soils, and landslides are the geotechnical constraints that would be encountered with Alternative B-10. These constraints are found in all the planning areas. The amount of land being disturbed by Alternative B-10 is generally comparable to the Ranch Plan; therefore, the magnitude of the impacts would be similar. Alternative B-10 would avoid impacts to Planning Area 9. Substantially more grading would be required in Planning Area 4 because of the increased size of the footprint. Correction for the geotechnical constraints would be accomplished through compliance with the Orange County Grading Manual, County Standard Conditions of Approval and County permit process. No significant unavoidable impacts would be anticipated with this alternative.

Water Resources

***Hydrology*.** The major change with the B-10 alternative, compared with the Proposed Project is 1) an expanded Planning Area 4 in the San Juan Creek Watershed, 2) reduced estate development in the Cristianitos (Planning Area 6), 3) the elimination of development in Upper Gabino (Planning Area 9) and 4) limited estate and golf course development in Cristianitos Canyon (Cristianitos and Gabino Sub-basins comprising Planning Area 7). Planning Reserves that establish additional criteria that affect future development in the San Mateo Creek watershed and in the middle portion of the Chiquita Sub-basin are included in this alternative. Overall the amount of land proposed for development is similar to the Proposed Project. The area in Cristianitos is relatively poorly infiltrating soils, so that the pre-development runoff is high relative to areas having more infiltrative capacity. The flow management plan would propose to treat and store excess runoff for non-potable supply including irrigation water for the golf course. Treatment and storage could be integrated into the water features of the golf course. Alternatively, because the estate housing is quite low density, low impact site design control options could be utilized. Runoff from the 166 acres of estate housing planned for the Gabino Sub-basin could be managed with infiltration facilities given that soils are primarily sandy loam in this portion of the Gabino Sub-basin. Alternatively flow control facilities could be located in one or more of the quarry ponds in Lower Gabino. The quarry ponds reflect groundwater levels and water levels may change as much as 25 feet seasonally. Water in the quarry ponds currently infiltrates into the groundwater and could potentially serve as flow and water quality control basins, provided there is pretreatment to protect groundwater quality and outlets or

bypasses for large runoff events. On the basis of these considerations, the impact of the B-10 alternative on hydrologic conditions of concern is considered less than significant.

***Water Quality*.** Although quantitative analysis has not been conducted for this alternative, the modeling conducted under the B-9 alternative addressed similar areas to those proposed under this alternative, including areas in the San Mateo watershed. For the proposed estate developments in the San Mateo Creek watershed, soil and channel substrate conditions tend to be more erodible clays and silts and therefore there is the potential for increased fines to be discharged if development increases runoff flows. Combined control system facilities would be tailored to sub-basin conditions, and for this alternative would take advantage of quarry ponds in Lower Gabino that could be modified to provide water quality treatment. Such ponds could potentially provide sufficient detention time to effectively treat the fines and associated pollutants. In the Cristianitos Sub-basin, the combined control system would take advantage of the potential to treat, store, and recycle runoff for irrigating the proposed golf course. Previous results for the Ranch Plan indicate that the impacts of this alternative, when considering the proposed BMPs and PDFs, on pollutants of concern is considered less than significant, with the exception of pathogens.

Transportation and Circulation

The land use distribution is minimally different for Alternative B-10 as compared to the proposed project, and would show the same long-term impact. The project trip generation (approximately 183,360 ADT) and peak hour characteristics would only be slightly greater than the trips generated by the Ranch Plan (183,338 ADT); therefore, the impacts would be generally the same.

Air Quality

The B-10 Alternative is expected to require similar amounts of cut and fill grading when compared to the proposed project. As with the proposed project, this alternative would result in significant unavoidable construction-related emissions associated with carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NOx), and particulate matter (PM_{10}). Operational emissions would also be similar to the proposed project because of comparable vehicular traffic. As with the proposed project, this alternative would result in significant unavoidable operational emissions associated with CO, VOCs, NOx, and PM_{10}.

Noise

Alternative B-10 would permit approximately 395,000 more square feet of commercial uses and 450 more dwelling units. Increased development would increase the duration of construction, but grading activities represent the most significant construction activity in terms of noise. As with the proposed project, it is assumed that this alternative would comply with the County's noise standards and no significant noise impacts would occur.

Uses proposed for Alternative B-10 would generate 183,360 daily vehicle trips (22 trips or 0.01 percent more than the propose project). Because the distribution of traffic for this alternative would be substantially similar to the proposed project, traffic noise impacts between the two development scenarios would be the same. The small increase in traffic would not affect predicted noise levels. Alternative B-10 would also not be expected to result in any significant off-site project-specific or cumulative traffic noise impacts. With respect to potential off-site

noise impacts from on-site project activities, Alternative B-6 would not be expected to result in any significant noise impacts.

Compliance with County of Orange standard conditions would ensure appropriate noise abatement is included in project design so that residential and non-residential uses are not significantly impacted by traffic noise. Alternative B-10 proposes commercial uses that could be located adjacent to residential uses. As with the proposed project, the application of County standard conditions would ensure that commercial and golf course uses would not significantly impact any proposed residential uses. Park impacts would be mitigated to a less than significant level.

Biological Resources

The following summarizes biological issues associated with Alternative B-10. A detailed discussion is provided in Appendix M of this Program EIR.

***Alternative B-10 Open Space System*.** Alternative B-10 proposed open space meets broad-scale NCCP and SAMP guidelines. The B-10 Alternative has similar development acreage as the proposed project (7,683 acres compared to 7,694 acres). However, this alternative strategically re-arranges the development areas to provide further protection to biological resources in the Chiquita, Cristianitos, and Gabino sub-basins. The B-10 Alternative is also intended to enhance the protection of the habitat linkage/wildlife movement corridor leading from Sulphur Canyon (linkage H) to Casper's Park by decreasing development at the top of Gobernadora and linkage M by removing development from upper Gabino. The primary differences between Alternative B-10 and the proposed project are as follows:

a. Reduction and re-arrangement of development acreage in Chiquita sub-basin (Planning Area 2) by moving proposed development acreage immediately below Tesoro High School to the development area proposed below the treatment plant;

b. Reduction in development acreage at the top of the Gobernadora sub-basin (Planning Area 3);

c. Increase in development acreage in Central San Juan and development in a small portion of the Verdugo sub-basin outside of Verdugo Canyon (Planning Area 4);

d. Decrease in development areas in Cristianitos sub-basin (Planning Areas 6 and 7);

e. Reduction and re-arrangement of development acreage in the Talega sub-basin (Planning Area 8); and

f. Removal of development acres from upper Gabino (Planning Area 9)

***Long-Term Habitat Management*.** Alternative B-10 generally is consistent with the Adaptive Management Program and would help carry out the comprehensive Invasive Species Control Plan. The alternative would protect the coastal sage scrub restoration areas in Chiquita Canyon. Within the Gobernadora sub-basin, Sulphur Canyon and associated coastal sage scrub restoration areas are protected. Importantly, Alternative B-10 is consistent with the restoration proposed for Gobernadora Creek as reviewed in the Adaptive Management Program. Valley grasslands restoration and enhancement areas proposed in the NCCP Guidelines for Narrow Canyon within the Chiquita sub-basin are protected. However, valley grasslands restoration areas proposed for Blind Canyon Mesa and Upper Cristianitos Canyon would likely be largely precluded by development. The coastal sage scrub/valley grasslands

restoration/enhancement areas in Upper Gabino Canyon would be consistent with the B-10 Alternative. This alternative is consistent with the draft Grazing Management Plan and Fire Management Plan.

Upper Gabino contains substantial land areas manifesting ongoing erosion in areas characterized by clay soils–erosion resulting from cattle operations and local roads (some of which serve development located outside the planning area) in the case of Upper Gabino. These issues would need to be addressed by the Adaptive Management Program.

Conclusions Regarding Consistency with Subregional Conservation Planning Goals and Objectives. Alternative B-10 is generally consistent with subregional conservation planning goals and objectives. However, the adequacy of funding for soils stabilization required to address existing erosion in areas generating fine sediments in upper Gabino needs to be confirmed.

Aesthetics and Visual Resources

Visual changes to the project site associated with the implementation of the B-10 Alternative are expected to be similar to the proposed project. This alternative would retain approximately 15,132 acres of the 22,815-acre site in permanent open space and wilderness park open space. The most significant change between the proposed project and this alternative would be the expansion of Planning Area 4 and the creation of a wilderness park in the northeastern portion of the Ranch Plan project area (i.e., within a portion of the area assumed as a part of the proposed project's Planning Area 9). This alternative would not result in any significant unavoidable aesthetic impacts or night lighting impacts.

Cultural and Paleontological Resources

Alternative B-10 would directly impact 45 archaeological sites. Of the 45 archaeological sites, 13 are eligible for NRHP and CRHR listing, 27 sites are not eligible; and five sites have not been tested for eligibility. Those sites that have not been tested are assumed to be significantly impacted until such time that additional testing made determine otherwise. Implementation of Alternative B-10 would result in significant impacts to the following archaeological resources: CA-ORA-29, -535, -656, -753, -754, -882, -913, -997, -1043, -1048, -1137, -1138, -1222, -1449, -1556, -1559, -1560, and -1565. Additionally, the following historic resources would be significantly impacted: 30-176631, -176633, -176634, and -76635. Impacts to paleontological resources would be similar to the proposed project. With implementation of the mitigation program developed for the Ranch Plan, impacts can be mitigated to a less than significant level.

Recreation

This alternative would provide for expansion of existing regional parks. As required by the Quimby Act, subdivided property for the purpose of residential uses are required to either dedicate land or pay fees for local parks. It is assumed that parkland would be provided for within the development areas. Similar to the proposed project, it is assumed that residents would use parks within the project area, effectively reducing the potential for deterioration of the existing parks.

Mineral Resources

Alternative B-10 would have potentially less impact to mineral resources as the proposed Ranch Plan project. As with the proposed project, development in Planning Area 5 would ultimately

displace the silica mining operation on the ONIS site. Continuation of the mining operation would be allowed until the lease expires in 2013. Similar to the proposed project, this would be a significant impact because mineral resources are available in this location to allow for mineral extraction post-2013. This alternative does not propose a regional park in the vicinity of San Juan Creek, but would designate the area as open space. Although Alternative B-10 would not provide for sand and gravel extraction from the MRZ area in San Juan Creek, it does not propose a use that would preclude future opportunities.

Hazards

Impacts associated with hazardous materials for Alternative B-10 would be similar to those associated with the proposed project. This alternative would provide for residential development in locations that have been subject to agricultural or other uses. Potential contaminants associated with residual pesticides and fertilizers, as well as locations of stained soil and other contaminants known to occur on-site would pose the same risk as would occur for the proposed project. Impacts could be reduced to a level of less than significant.

Public Services and Facilities

The public services and utility demands associated with Alternative B-10 would be similar to the Ranch Plan because of similar levels of proposed development. As with the proposed Ranch Plan project, these impacts can be mitigated to a level of less than significant. This alternative proposes slightly more residential development (450 dwelling units) and, accordingly, a concomitant increase in the wastewater services, solid waste, library, and energy services would be expected. Emergency services would be slightly different because of the increased development. However, this alternative would eliminate development in Planning Area 9 and the more remote large lot, low-density residential development in Planning Area 7.

Alternative B-11

The County of Orange developed Alternative B-11 to provide a similar amount of housing that was assumed for the site in OCP-2000M. As depicted in Exhibit 5-12 and summarized in Table 5.4-10, this alternative assumes the development of 19,200 dwelling units, including 11,450 senior units, and 112 gross acres of urban activity center (slightly less than 1.3 million square feet), 115 acres (1.76 million square feet) of business park, and 60 acres of neighborhood center uses. Twenty-five acres are also designated for a golf resort, for a total of 8,621 acres of new development. In addition to the golf resort, a golf course is shown in Planning Area 7. This alternative would not achieve a jobs/housing balance on the site. Approximately 14,194 acres (62 percent) of the project site would be designated as permanent open space. Acquisition of the areas designated for open space would not be required with this alternative. As with the other alternatives, existing leases and continued ranching/farming activities would be permitted in the open space areas.

Development areas for this alternative are similar to Alternative B-10. However, conventional development is proposed in the northern portion of Planning Area 2 and the eastern portion of Planning Area 7. Rather than preserving “fingers” of open space, conventional grading is assumed. Similar to Alternative B-10, the size and amount of development in Planning Area 4 is substantially greater than what is proposed by the proposed Ranch Plan project. Unlike the proposed project, no development is assumed for Planning Areas 6 and 9. The location and acreage for the regional parkland is the same as Alternative B-10. As with Alternative B-10, this alternative would also have the Planning Reserve Overlay over the northern portion of Planning Area 2 (Chiquita Canyon), Planning Area 7 (Cristianitos), and Planning Reserve C (Planning

Area 8). The underlying development for these areas associated with this alternative is different from Alternative B-10.

Similar approvals required for the project would also be required for Alternative B-10. This alternative would require a General Plan amendment to designate the site *1B-Suburban Residential*, *UAC*, and *Employment* would be required. A zone change from *A-1*, *General Agriculture*, and *S&G, Sand and Gravel Extraction* to *Planned Community (PC)* would be required.

TABLE 5.4-10
ALTERNATIVE B-11 DEVELOPMENT DISTRIBUTION

Planning Area	Development Use										Open Space Use		Planning Area Totals	Planning Reserve (Overlay)
	Residential		Urban Activity Center		Neighborhood Center		Business Park		Golf Resort					
	Gross Acres	Maximum Dwelling Units	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Gross Acres	Wilderness Park Open Space Acres	Open Space Acres	Gross Acres	Gross Acres
1	496	1,040	44	500,000						540			540	
2	1,126	3,700			10	100,000				1,136		495	1,631	502
3	1,976	5,180	50	550,000	10	100,000	35	540,000		2,071		100	2,171	
4	1,285	2,340	6	80,000	10	100,000				1,301		230	1,531	
5	1,181	2,300			10	100,000				1,191			1,191	
6										0			0	
7	1,340	2,200			10	100,000				1,350			1,350	1,350
8	905	2,440	12	150,000	10	100,000	80	1,220,000	25	1,032		317	1,349	1,666
9													0	
10											903		903	
11											1,211		1,211	
12												10,938	10,938	
Subtotal	8,309	19,200	112	1,280,000	60	600,000	115	1,760,000	25		2,114	12,080		
Total										8,621	14,194		22,815	

a. Of the 19,200 units, 11,450 would be senior housing and will be located in PAs 1, 2, 3, 4, 5, 7 and 8.
b. Development area is inclusive of fuel modification zones.
Source: County of Orange, 2003. Table formatted by EDAW.

Alternative B-11 would require the same Transportation Element amendment and MPAH amendment required for the Ranch Plan. The local circulation network would be the same as what is assumed for the Ranch Plan. Verdugo Canyon Road would be upgraded to a local collector to serve Planning Area 4.

An amendment to the Resources Element pertaining to Prime Farmland and wildlife habitat areas would be necessary. However, cancellation of the Agricultural Preserve contact would not be requested. An amendment to the Recreation Element would be required to depict the expansion of Riley and Caspers Wilderness Parks. The impacts associated with this alternative are as follows:

Land Use and Related Planning Programs

Implementation of the B-11 Alternative would not result in significant physical impacts to land use. This alternative would not result in the disruption of an established community because all development would occur within the project boundaries. The type of land uses associated with the alternative would be similar with those of the Ranch Plan; however, the density of development would be greater because a greater amount of development is proposed. This alternative would be considered compatible with existing or planned on-site land uses. Similar to the proposed Ranch Plan project, this alternative proposes residential development in Planning Area 8. A total of 2,440 dwelling units are proposed for this area (compared to 1,400 units with the proposed project). This would result in the same type of impacts associated with proximity of noise sensitive uses to MCB Camp Pendleton. Residential development in this area may experience disturbances from helicopter flights and artillery training exercises, especially those occurring during night hours. MCB Camp Pendleton has expressed a concern that this would result in pressures to modify military training operations to reduce impacts on these residences, which may result in potential impacts on the mission of MCB Camp Pendleton as a training facility. In addition to annoyance factors, there may be a land use compatibility issue associated with noise standards. Given that development would not likely occur in this area until after 2018, when the current lease expires, the operations at MCB Camp Pendleton and the RCUZ adopted at the time development is proposed would need to be evaluated. Similar to the Ranch Plan, these impacts can be mitigated to a level of less than significant. This alternative would be consistent with the General Plan and zoning policies.

This alternative does not assume an adopted habitat conservation plan or NCCP. The issue of consistency of this alternative with the draft NCCP Guidelines is discussed below under Biological Resources. This alternative is the only development alternative that would be found to be substantially consistent with the OCP-2000M projections. There would be no unavoidable, significant land use and planning program impacts associated with this alternative.

Agricultural Resources

Alternatives B-10 and B-11 would have similar impacts to agricultural resources. With the Alternative B-11, a total of 862 acres of Important Farmland, including 297 acres of Prime Farmland, 534 acres of Unique Farmland, and 31 acres of Farmland of Statewide Importance would be converted to urban uses. This alternative has a Planning Reserve Overlay on the portion of Chiquita Canyon north of the Chiquita Water Reclamation Plant. Like Alternative B-10, the Planning Reserve would allow the extended use of this of Important Farmland; this would be a significant impact. Alternative B-11 would not require the cancellation of the Williamson Act contract. All the property will be removed from the Agriculture Preserve by December 31, 2008. Given the expected phasing of the project, development would allow for non-renewal process to occur.

Population and Housing

Alternative B-11 was developed to address regional housing needs. Housing levels assumed for Alternative B-11 are similar to the level assumed by the OCP-2000M projections. This alternative would not exceed regional projections. However, this alternative does not provide for a jobs/housing balance and would not provide the projected level of employment for the study area. Similar to the proposed project, a limited number of existing housing units on the project site would be displaced; however, replacement opportunities exist on the project site. Given the limited number of units, a substantial number of people would not be affected.

Geology and Soils

Factors such as ground shaking from seismic activity, liquefaction, compressible and expansive soils, and landslides are the geotechnical constraints that would be encountered with Alternative B-11. These constraints are found in all the planning areas. The amount of land being disturbed by Alternative B-11 is generally comparable to the Ranch Plan; therefore, the magnitude of the impacts would be similar. Alternative B-11 would avoid impacts to Planning Area 9; however it would require substantially more grading in Planning Area 4. Correction for the geotechnical constraints would be accomplished through compliance with the Orange County Grading Manual, County Standard Conditions of Approval and County permit process. No significant unavoidable impacts would be anticipated with this alternative.

Water Resources

***Hydrology*.** This alternative expands development in Planning Areas 2 and 4. Similar to the B-10 alternative, it provides for Planning Reserves that establish additional criteria that affect future development in the San Mateo Creek watershed and in the middle portion of the Chiquita Sub-basin. This alternative evaluates the development of 8,621 acres of development – an increase of 927 acres from the Proposed Project. The middle portion of the Chiquita Sub-basin is underlain by sandy alluvial deposits that provide good infiltration capacity and facilitates the utilization of infiltration basins for flow duration control. Modeling conducted for the B-4 Alternative and modeling for B-9 Alternative for Planning Area 4 verified that a combined control system could effectively mimic pre-development flow duration and water balance conditions. In the San Mateo Creek watershed, the planning reserve would encompass the proposed development bubble in the Cristianitos and Gabino Sub-basins, and the development bubble that would cover portions of Talega and Blind Canyons and the Lower Cristianitos Sub-basin. The effects of development of the Cristianitos/Gabino bubble (PA 7) has been addressed and modeled under the B-4 alternative, whereas proposed development in the Talega and Blind Sub-basins (PA 8) has been addressed in both the B-4 and B-9 modeling. The results of that work indicate that there are ample opportunities and options for effective flow duration control, and on this basis, the impact of the B-11 alternative on hydrologic conditions of concern is considered less than significant.

***Water Quality*.** Although quantitative analysis has not been conducted for this alternative, the modeling conducted under the B-4 and B-9 alternatives addressed similar areas to those proposed under this alternative, including areas in the San Mateo watershed. Those results indicate that the impacts of this alternative, when considering the WQMP, on pollutants of concern are considered less than significant, with the exception of pathogens.

Transportation and Circulation

The B-11 Alternative assumes development of the project area with 19,200 dwelling units and 11,569 total employees. Seniors housing comprises 11,450 of the total dwelling units (compared to 6,000 for the proposed project). Total trip generation is estimated at 191,911 trips (compared to 183,338 for the proposed project). The on-site circulation system for Alternative B-11 is the same as for the proposed project. This alternative was analyzed based on the committed network plus La Pata Avenue and the extension of SR-241 circulation system.

Because this alternative has a higher trip generation than the proposed project and represents a different development concept for the project area, the cumulative analysis results for this alternative were not included in the master impact table presented earlier. Of primary interest is whether this alternative would require additional mitigation than the proposed project, and Table 5.4-11 provides a comparison of the 2025 deficiencies for the proposed project versus this Regional Housing Alternative (Alternative B-11). As can be seen, this alternative would result in four mainline freeway deficiencies, five freeway ramp deficiencies, and 13 intersection deficiencies. This is similar to the deficiencies for the proposed project, although there is some variation in the actual locations of the intersection deficiencies.

TABLE 5.4-11
B-11 ALTERNATIVE
2025 CIRCULATION SYSTEM DEFICIENCIES COMMITTED
(CIRCULATION SYSTEM + LA PATA AVENUE + SR-241 EXTENSION)

Location		Proposed Project	B-11 Alternative
Freeway Mainline			
I-5 north of Camino Capistrano		■	■
I-5 south of Camino Capistrano		■	■
I-5 north of Avenida Vista Hermosa		■	■
I-5 south of Avenida Pico		■	■
Freeway Interchange	**Ramp**		
I-5 at Oso	SB Off	■	■
I-5 at Crown Valley Parkway	NB Direct On	■	■
	SB Off	■	■
I-5 at Ortega Highway	NB On	■	■
	SB Off	□	■
I-5 at Avenida Pico	NB On	■	□
Intersections	**Jurisdiction**		
4. Felipe at Oso Parkway	Mission Viejo	■	■
5. Antonio Parkway at Oso Parkway	Unincorporated	■	■
11. Marguerite Parkway at Crown Valley Parkway	Mission Viejo	■	■
12. Antonio Parkway at Crown Valley Parkway	Unincorporated	■	■
20. Golden Lantern at Paseo de Colinas	Laguna Niguel	■	■
27. Rancho Viejo at Ortega Highway	San Juan Capistrano	□	■
28. La Novia at Ortega Highway	San Juan Capistrano	□	■
29. Antonio/La Pata at Ortega Highway	Unincorporated	■	■
30. Camino Capistrano at Del Obispo	San Juan Capistrano	■	■
32. Valle at San Juan Creek	San Juan Capistrano	■	■
39. Vera Cruz at Avenida Vista Hermosa	San Clemente	■	■
43. Antonio Parkway at New Ortega Highway	Unincorporated	■	□
59. SR-241 NB Ramps at Antonio Parkway	Rancho Santa Margarita	■	■
74. I-5 NB Ramps at Junipero Serra	San Juan Capistrano	■	■

□ - No deficiency at this location.
■ - Deficiency at this location.
Source: Austin Foust, May 2004.

Air Quality

The B-11 Alternative is expected to require similar amounts of cut and fill grading when compared to the proposed project. As with the proposed project, this alternative would result in significant unavoidable construction-related emissions associated with carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NOx), and particulate matter (PM_{10}). Operational emissions would also be similar to the proposed project because of comparable vehicular traffic. This alternative would result in significant unavoidable operational emissions associated with CO, VOCs, NOx, and PM_{10}.

Noise

Alternative B-11 would develop approximately 927 more acres than the proposed project with approximately 1.56 fewer million square feet of commercial uses and 520 more dwelling units. To the extent that more grading would be required for this alternative, the duration of noise impacts would increase. As with the proposed project, construction activities would be required to comply with County standard conditions and would not result in a significant noise impact.

Uses proposed for Alternative B-11 would generate 191,911 daily vehicle trips, an increase of 8,573 trips (or 4.68 percent) when compared to the proposed project. The distribution of traffic for would be substantially similar to the proposed Ranch Plan project. Therefore, although the alternative would generate more vehicle trips than the proposed project, traffic noise levels would not increase by more than 0.2 dB. Traffic noise associated with Alternative B-11 would be almost the same as the proposed. The small increase in traffic noise levels with Alternative B-11 would not affect forecast traffic noise impacts.

Alternative B-11 would also not be expected to result in any significant project-specific or cumulative off-site traffic impacts. Areas near existing development that would be developed for Alternative B-11 would occur in generally the same locations proposed for the project. Therefore, the potential for noise impacts from on-site activities associated with the B-11 Alternative would be the same as associated with the proposed project; no significant impacts are anticipated.

Compliance with County of Orange standard conditions would ensure appropriate noise abatement is included in project design so that residential and non-residential uses are not significantly impacted by traffic noise. Alternative B-11 proposes commercial and golf course uses that could be located adjacent to residential uses. As with the proposed project, the application of County standard conditions would ensure that commercial and golf course uses would not significantly impact any proposed residential uses. Park impacts would be mitigated to a less than significant level.

Biological Resources

The following is a summary of biological issues associated with the B-11 Alternative. Please refer to Appendix M for a detailed discussion of the biological resources and issues associated with this alternative.

Alternative B-11 Open Space System. The Alternative B-11 proposed open space meets broad-scale NCCP and SAMP guidelines, even though in order to maximize the opportunities to provide needed housing in Orange County with complimentary supporting employment, Alternative B-11 proposes more development acreage than the proposed project (8,621 acres

compared to 7,694) in locations similar to the proposed project. The differences between the proposed project and the B-11 Alternative are follows:

a. Increased development in Chiquita sub-basin (Planning Area 2) and re-arrangement of development acreage to protect Chiquita Narrows and focus development east of Chiquita Creek;

b. Reduction in development acreage at the top of the Gobernadora sub-basin (Planning Area 3);

c. Increase in development acreage in Central San Juan and development in a small portion of the Verdugo sub-basin outside of Verdugo Canyon (Planning Area 4);

d. Removal of development acres in Cristianitos sub-basin (Planning Area 6);

e. Addition of golf course use to Cristianitos sub-basin (Planning Area 7) to buffer increased residential uses to the east of the golf course;

f. Reduction and re-arrangement of development acreage in the Talega sub-basin (Planning Area 8); and

g. Removal of development acres from upper Gabino (Planning Area 9)

***Long-Term Habitat Management*.** Alternative B-11 is generally is consistent with the Adaptive Management Program and would help carry out the comprehensive Invasive Species Control Plan. Alternative B-11 would protect coastal sage scrub restoration areas in Chiquita Canyon. Within the Gobernadora sub-basin, Sulphur Canyon and associated coastal sage scrub restoration areas would be protected. Importantly, Alternative B-11 is consistent with the restoration proposed for Gobernadora Creek as reviewed in the Adaptive Management Program. Valley grasslands restoration and enhancement areas proposed in the NCCP Guidelines for Narrow Canyon within the Chiquita sub-basin and Upper Cristianitos Canyon are protected. However, valley grasslands restoration areas proposed for Blind Canyon Mesa would likely be largely precluded by development. The coastal sage scrub/valley grasslands restoration/enhancement areas in Upper Gabino Canyon would be consistent with this alternative. Alternative B-11 is consistent with the draft Grazing Management Plan and Wildland Fire Management Plan.

Upper Gabino contains substantial land areas manifesting ongoing erosion in areas characterized by clay soils–erosion resulting from cattle operations and local roads (some of which serve development located outside the planning area) in the case of Upper Gabino. These issues would need to be addressed by the Adaptive Management Program.

***Conclusions Regarding Consistency with Subregional Conservation Planning Goals and Objectives*.** Alternative B-11 is generally consistent with subregional conservation planning goals and objectives; however, the adequacy of funding for soils stabilization required to address existing erosion in areas generating fine sediments in upper Gabino needs to be confirmed.

Aesthetics and Visual Resources

Visual changes to the project site associated with the implementation of the B-11 Alternative are expected to be similar to the proposed project. This alternative would retain approximately 14,194 acres of the 22,815-acre site in permanent open space and wilderness park open space.

The most significant change between the proposed project and this alternative would be the expansion of Planning Area 4 and the creation of a wilderness park in the northeastern portion of the Ranch Plan project area (within a portion of the area assumed as a part of the proposed project's Planning Area 9). No development is assumed in Planning Area 6 as a part of this alternative; the proposed project assumes residential and golf course in this planning area. Therefore, retention of Planning Area 6 in permanent open space would preclude significant aesthetic impacts that would occur in connection with the development of the proposed Ranch Plan project. However, this alternative would still result in significant unavoidable aesthetic impacts and night lighting impacts.

Cultural and Paleontological Resources

Alternative B-11 would directly impact 32 archaeological sites. Of the 32 archaeological sites, six are NRHP/CRHR eligible; 22 sites are not eligible; and four sites have not been tested for eligibility. Those sites that have not been tested are considered significant for purposes of this analysis. Implementation of Alternative B-11 would result in significant impacts to the following archaeological resources: CA-ORA-535, -656, -753, -754, -882, -997, -1048, -1137, -1138, and -1449. Additionally, historic resources 30-176631, -176633, -176634, and -176635 would be significantly impacted by this alternative. Similar impacts to paleontological resources would occur. With implementation of the mitigation program identified for the proposed Ranch Plan project, impacts could be reduced to a level of less than significant.

Recreation

This alternative would provide for expansion of existing regional parks. As required by the Quimby Act, the subdivision of property for residential land uses requires either the dedication of land or the payment fees for local parks. It is assumed that parkland would be provided for within the development areas. Similar to the proposed project, it is assumed that residents would use parks within the project area, effectively reducing the potential for deterioration of the existing parks.

Mineral Resources

Alternative B-11 would have similar impacts to mineral resources as Alternative B-10.

Hazards

Impacts associated with hazardous materials for Alternative B-11 would be similar to those associated with the proposed project. This alternative would provide for residential development in locations that have been subject to agricultural or other uses. Potential contaminants associated with residual pesticides and fertilizers, as well as locations of stained soil and other contaminants known to occur on-site would pose the same risk as would occur for the Ranch Plan. Impacts could be reduced to a level of less than significant.

Public Services and Facilities

The demand for Public Services and Facilities would be slightly greater for Alternative B-11 when compared to the proposed Ranch Plan project.

<u>Alternative B-4 Reduced Intensity</u>

This is not a new alternative concept, but a modification of the proposed Ranch Plan. This alternative assumes a similar development footprint as the Ranch Plan, but assumes only

10,800 units would be constructed. The low-density development proposed by the Ranch Plan in the eastern portions of Planning Areas 7, 8, and the northern portion of Planning Area 3 would be eliminated, as would the estate housing in Planning Area 9. Additionally, the amount of urban activity center uses would be reduced to 820,000 square feet and 1,430,000 square feet of business park. Up to 45 acres of neighborhood commercial would be provided. This would reduce the amount of developed area to 6,589 acres. This alternative does not propose a regional park. The area proposed as part of the Rancho Mission Viejo Regional Park would be designated as open space. A total of 16,226 acres or slightly more than 72 percent of the area would be retained in open space. This alternative is included in the Program EIR analysis with the intent of providing an alternative that would reduce significant traffic and biological resources impacts associated with the proposed Ranch Plan project. As a result, the air quality and noise impacts would also be lessened because those impacts are directly related to the traffic volumes generated by the alternative. The statistical information is summarized in Table 5.4-12.

Most of the same approvals required for the project would also be required for Alternative B-4 Reduced. This alternative would require a General Plan amendment to designate the site *1B-Suburban Residential*, *UAC*, and *Employment*. A zone change from *A-1, General Agriculture*, and *S&G, Sand and Gravel Extraction*, to *Planned Community (PC)* would be required.

A Transportation Element amendment and MPAH amendment would also be required. Similar to the Ranch Plan, Alternative B-4-Reduced would be requesting the addition of New Ortega Highway, the deletion of the Crown Valley Parkway extension, and the downgrading of the segment of Avenida Talega within unincorporated Orange County. Cristianitos Road as an arterial highway would end at Avenida Talega; it would extend southerly to Avenida Pico as a local collector road. This alternative would also be requesting the abandonment of the segment of Ortega Highway that runs parallel to New Ortega Highway as a State Highway. The local circulation network would be the same as what is assumed for the Ranch Plan; however, Verdugo Canyon Road would be upgraded to a local collector to serve Planning Area 4.

An amendment to the Resources Element pertaining to Prime Farmland and wildlife habitat areas would be required. As with the proposed Ranch Plan, this alternative would request the cancellation of the Agricultural Preserve contact. This alternative does not propose the Rancho Mission Viejo Regional Park; this area would be retained in open space. As a result, Alternative B-4 Reduced does not require an amendment to the Recreation Element. The impacts associated with Alternative B-4 Reduced are similar to the Ranch Plan because the same area would be developed.

Development of Alternative B-4 Reduced would develop approximately 1,100 fewer acres than the proposed project and construct 3,200 fewer dwelling units and 2.5 million fewer square feet of commercial uses. To the extent that there is less development, Alternative B-4 Reduced would have reduced impacts associated with traffic, air emissions noise and removal of natural habitat. Additionally, the elimination of development in Planning Area 9 and the removal of the low density development in the eastern portion of Planning Area 7 would reduce the impacts associated with providing fire protection to those areas to less than significant.

TABLE 5.4-12
ALTERNATIVE B-4 REDUCED DEVELOPMENT DISTRIBUTION

Planning Area	Development Use										Open Space Use	Planning Area Totals
	Residential[a.]		Urban Activity Center		Neighborhood Center		Business Park		Golf Resort			
	Gross Acres	Maximum Dwelling Units	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Maximum Square Footage	Gross Acres	Gross Acres	Open Space Gross Acres	Gross Acres
1	487	910	39	460,000			14	210,000		540		540
2	1,020	1,250			10	100,000				1,030	650	1,680
3	1,867	3,940	32	360,000	10	100,000	40	610,000		1,949		1,949
4	211	150			5	50,000				216		216
5	1,181	2,280			10	100,000				1,191		1,191
6										0		0
7	720	850			5	50,000				725		725
8	873	1,420			5	50,000	40	610,000	25	938	90	1,028
9										0		
10										0	15,486	15,486
Subtotal	6,359	10,800	71	820,000	45	450,000	94	1,430,000	20			
Total										6,589[b]	16,226	22,815

a. Of the 10,800 units, 3,600 would be senior housing and would be located in Planning Areas 1, 2, and 5.
b. Development area is inclusive of fuel modification zones.
Source:

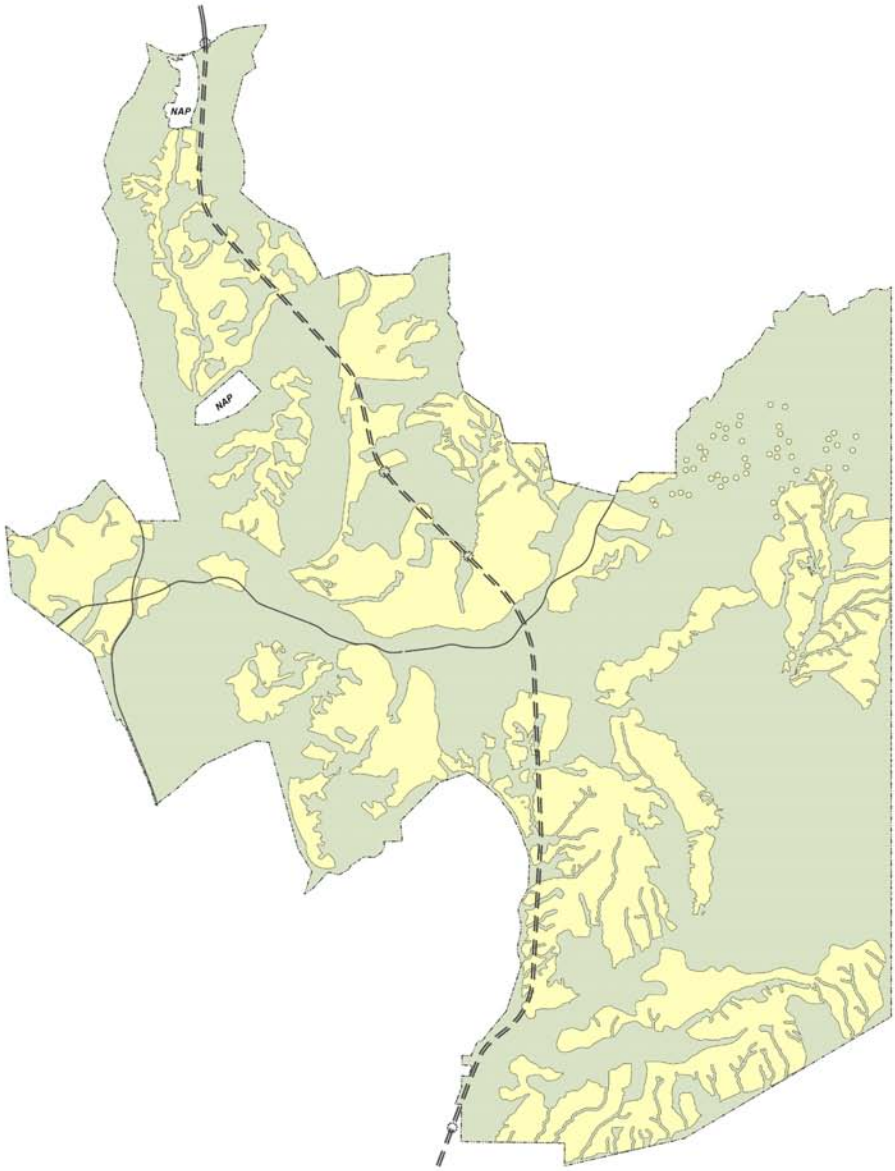
5.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires that the EIR identify the environmentally superior alternative. Section 15126.6 of the CEQA Guidelines, identifies the following factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts. These factors are considered in the selection of the environmentally superior alternative.

The analysis of the potential impacts associated with the proposed project and alternatives indicates that no alternative is clearly the environmentally superior alternative. The alternatives with a greater amount of growth are better able to meet the County and regional housing goals, whereas those alternatives with smaller development footprints impact less natural habitat. Through the NCCP/HCP and SAMP/MSAA processes extensive consideration has been give to where the most suitable locations for development are located based physical constraints, as well as the presence of sensitive species and habitat values.

The alternatives have been developed to provided the decision-makers with an adequate range of development scenarios and ability to “mix and match” the various components of each alternatives. For example, alternatives have been developed that exclude development from the San Mateo watershed or from portions of Chiquita Canyon. Other alternatives consider the impacts associated with increasing the amount of development in the Planning Areas 3 or 4. The alternatives also provide a range of development levels (3,365 dwelling units up to 19,200 dwelling units). This range of alternatives would allow the decision makers to either select one

of the alternatives presented in this Program EIR or develop an alternative using components from multiple alternatives. Using this latter approach, the impacts would be within the range of impacts addressed in this Program EIR. This would allow the decision makers the ability to balance the advantages of advancing housing and economic goals with the need for sensitivity to environmental resources.



Legend

Residential

Open Space

= = FTC - South: Shown for Informational Purposes Only

A-5 Alternative

Exhibit 5-1

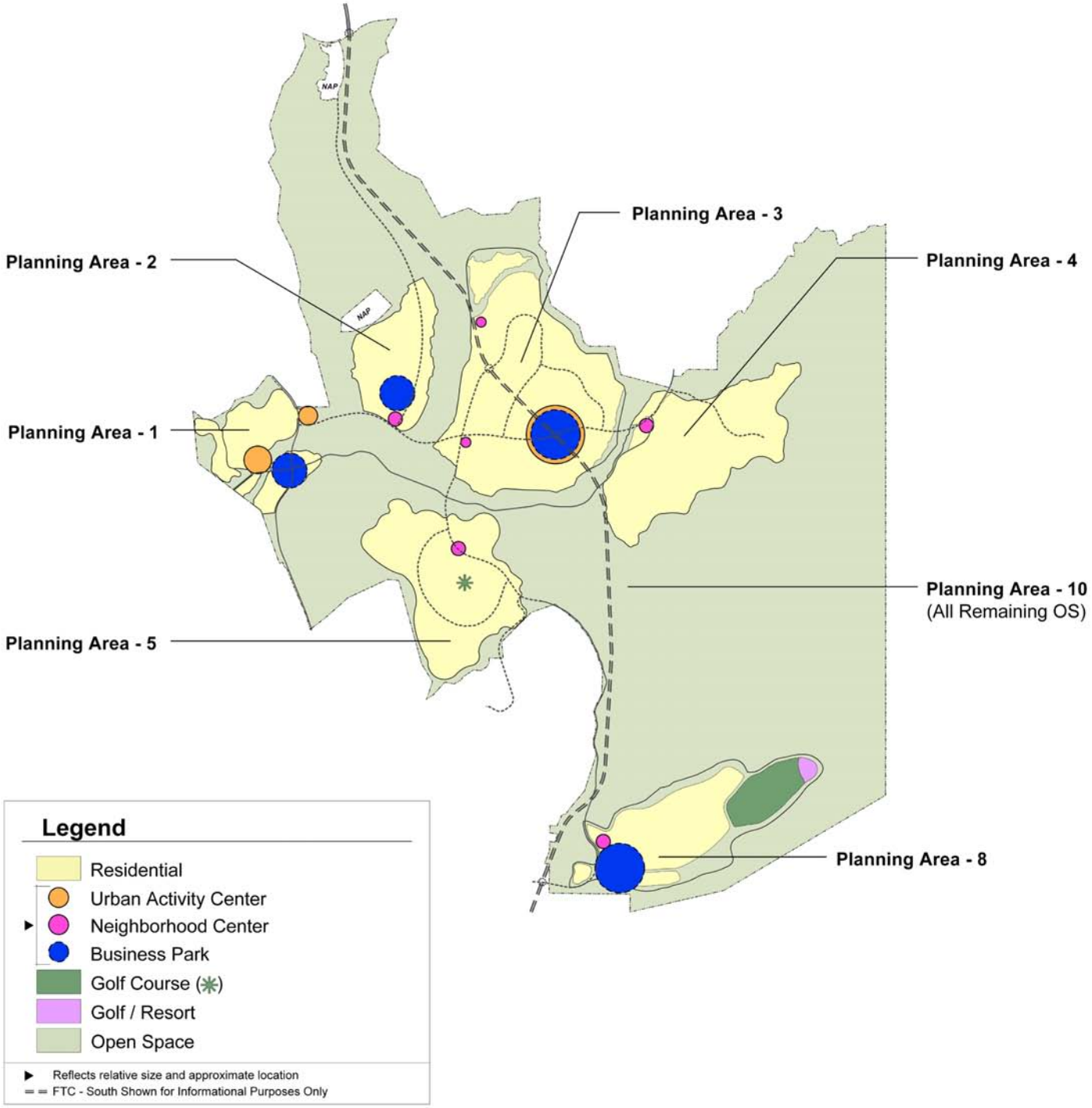
The Ranch Plan

1" = 8,500'

N
W E
S

Source: SOCCPP

R:\Projects\RMVJ008\Ex5-1_AltA5_060704.pdf



Alternative B-9

Exhibit 5-10

The Ranch Plan

1" = 8,500'

N
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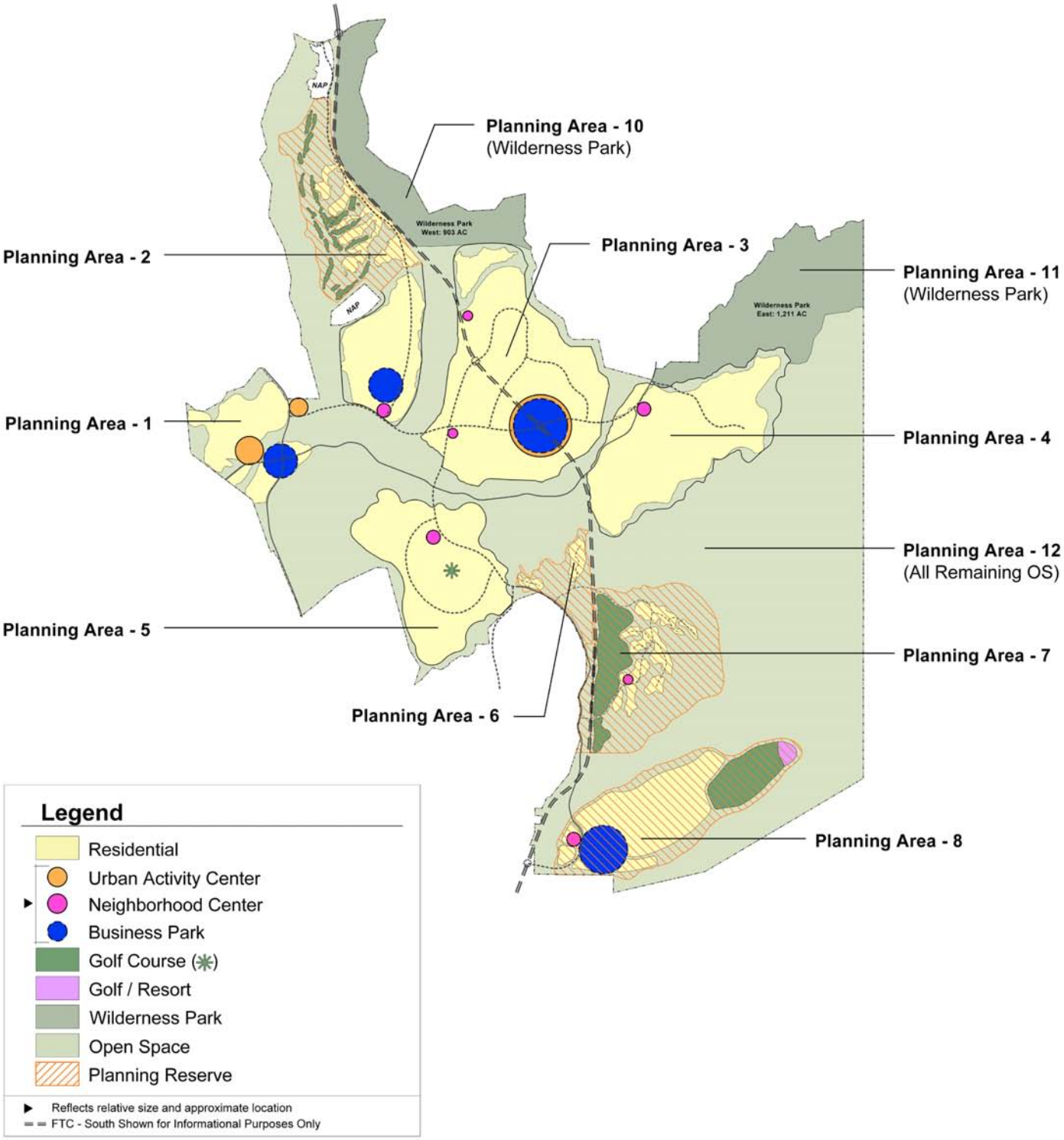
Source: EDAW INC.

R:\Projects\RMVJ008\Ex5-10_AltB9_060704.pdf



Alternative B-10

Exhibit 5-11

The Ranch Plan

1" = 8,500'

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Source: County of Orange

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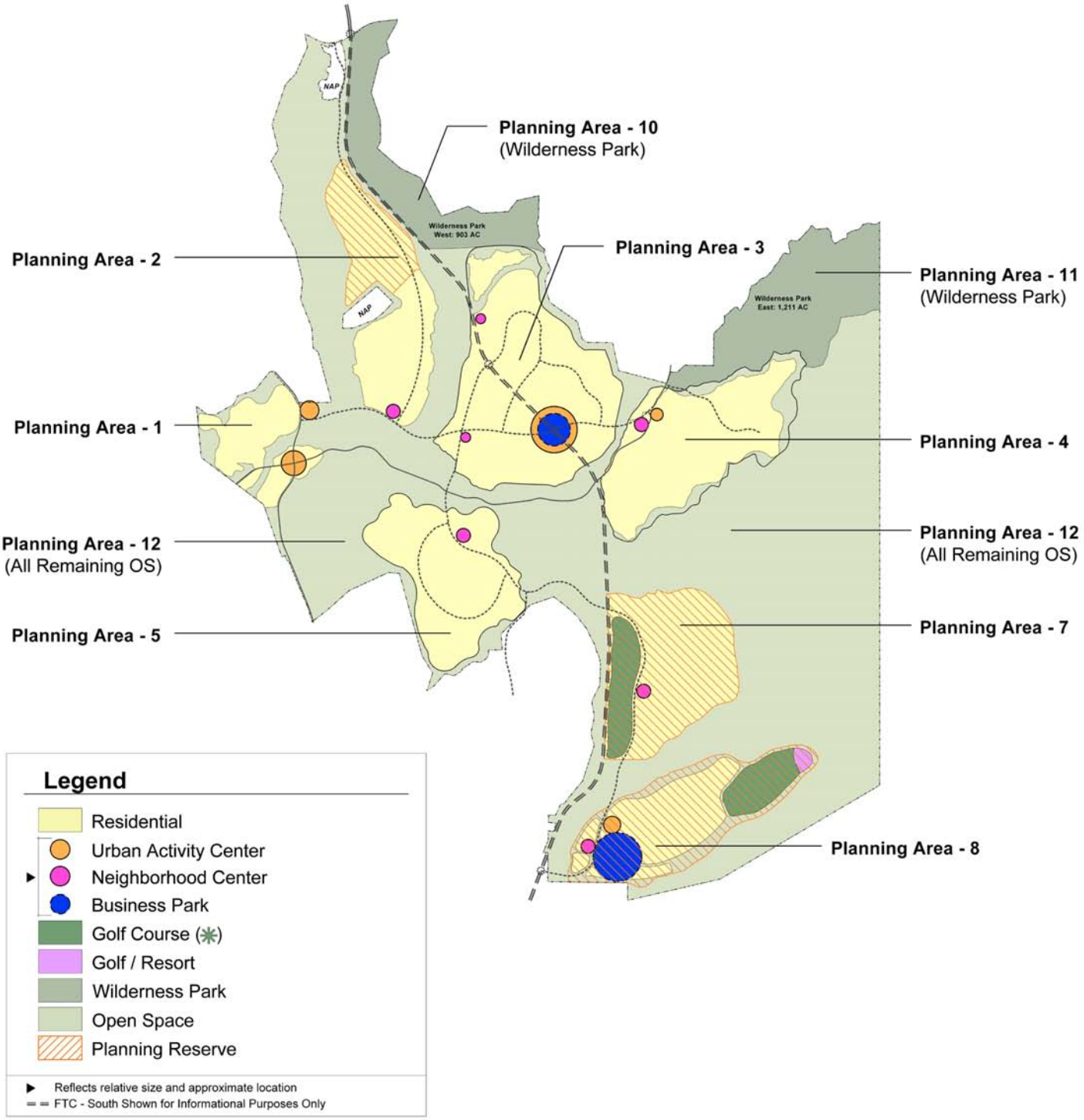

Alternative B-11

Exhibit 5-12

The Ranch Plan

1" = 8,500'

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Source: County of Orange

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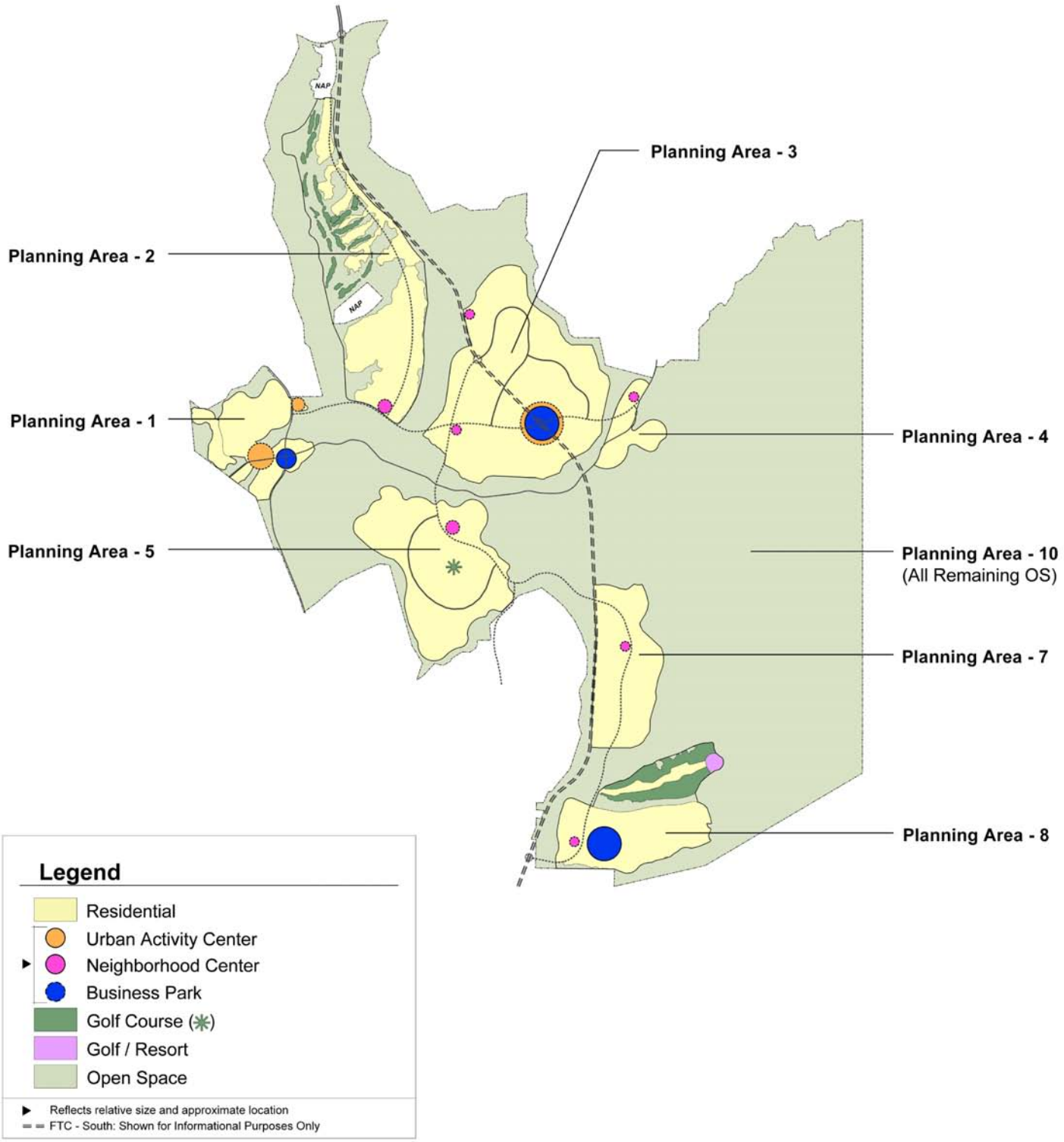

Alternative B-4 Reduced Intensity

Exhibit 5-13

The Ranch Plan

1" = 8,500'

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Source: EDAW INC.

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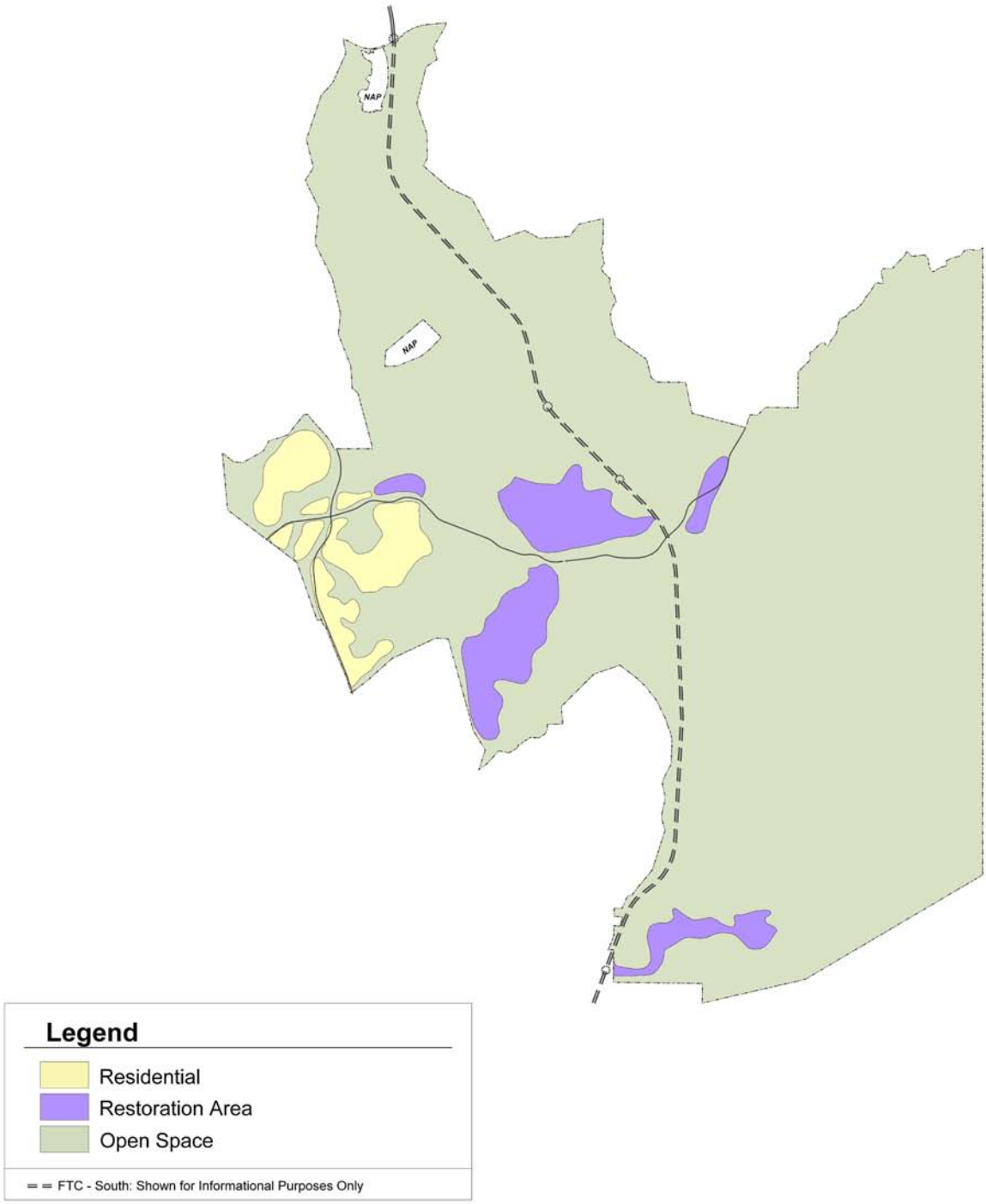

Alternative B-1

Exhibit 5-2

The Ranch Plan

1" = 8,500'

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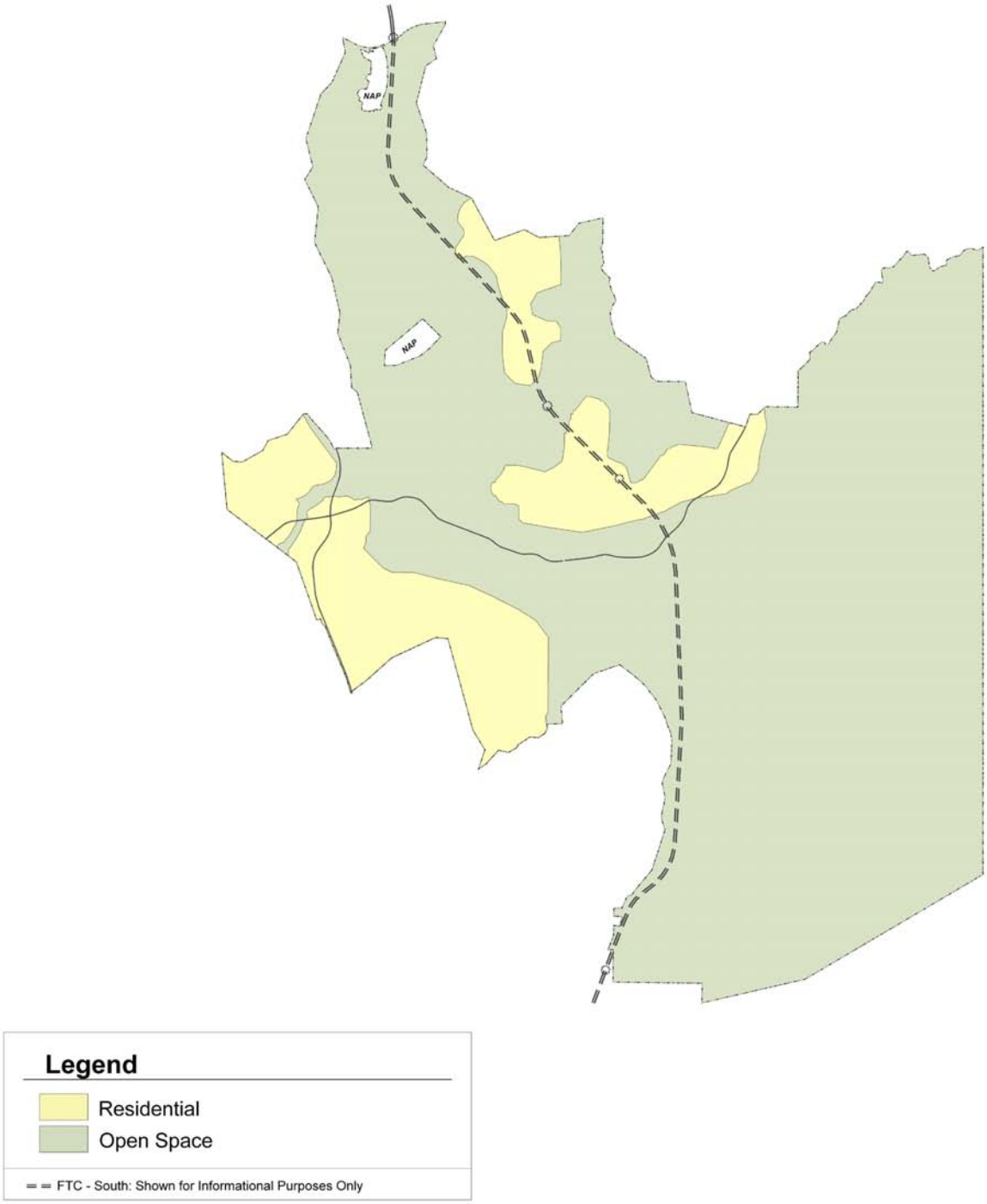
Source: SOCCPP

R:\Projects\RMVJ008\Ex5-2_AltB1_060704.pdf



Alternative B-2

Exhibit 5-3

The Ranch Plan

1" = 8,500'

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Source: SOCCPP

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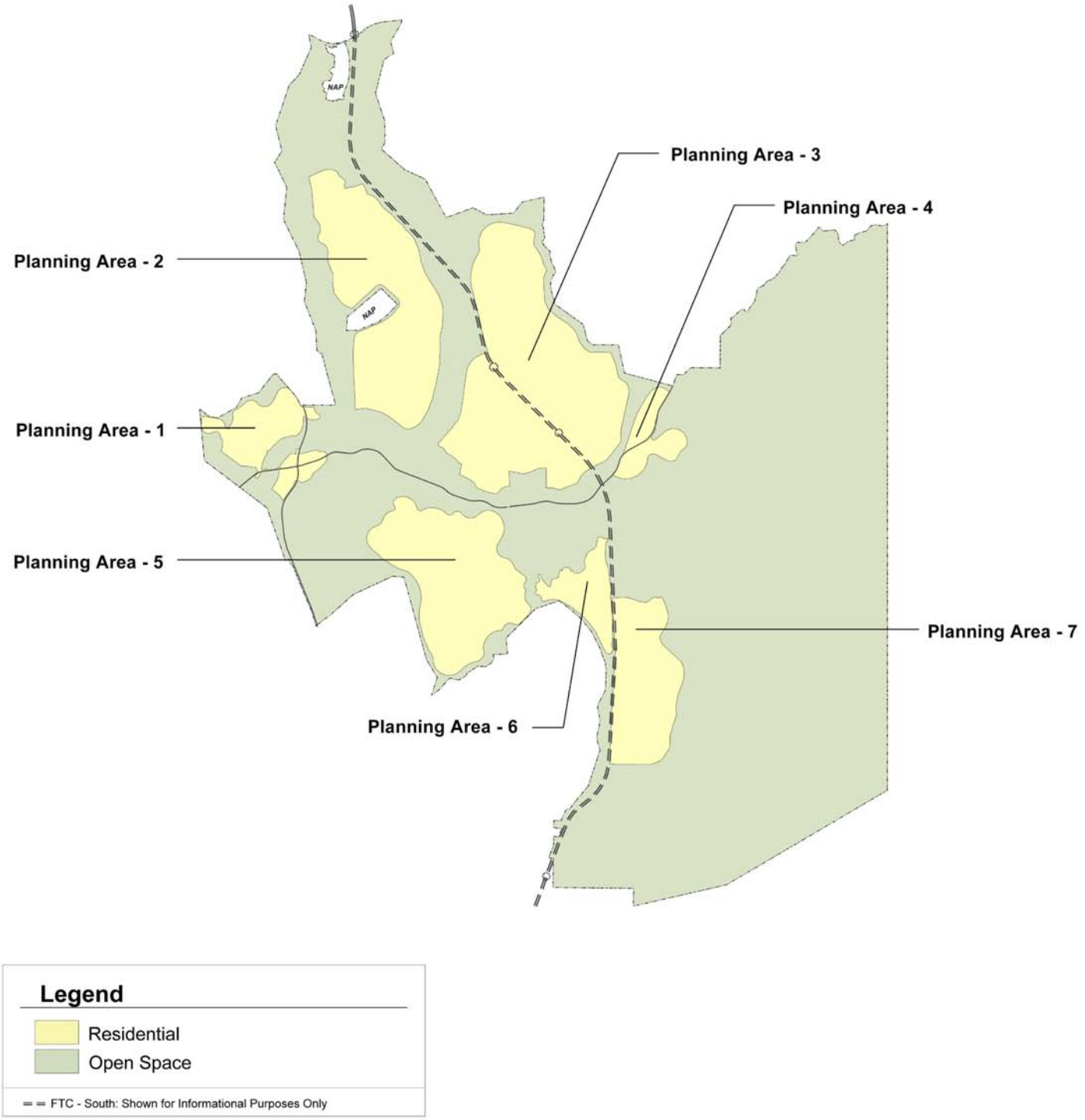

Alternative B-3

Exhibit 5-4

The Ranch Plan

1" = 8,500'

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Source: SOCCPP

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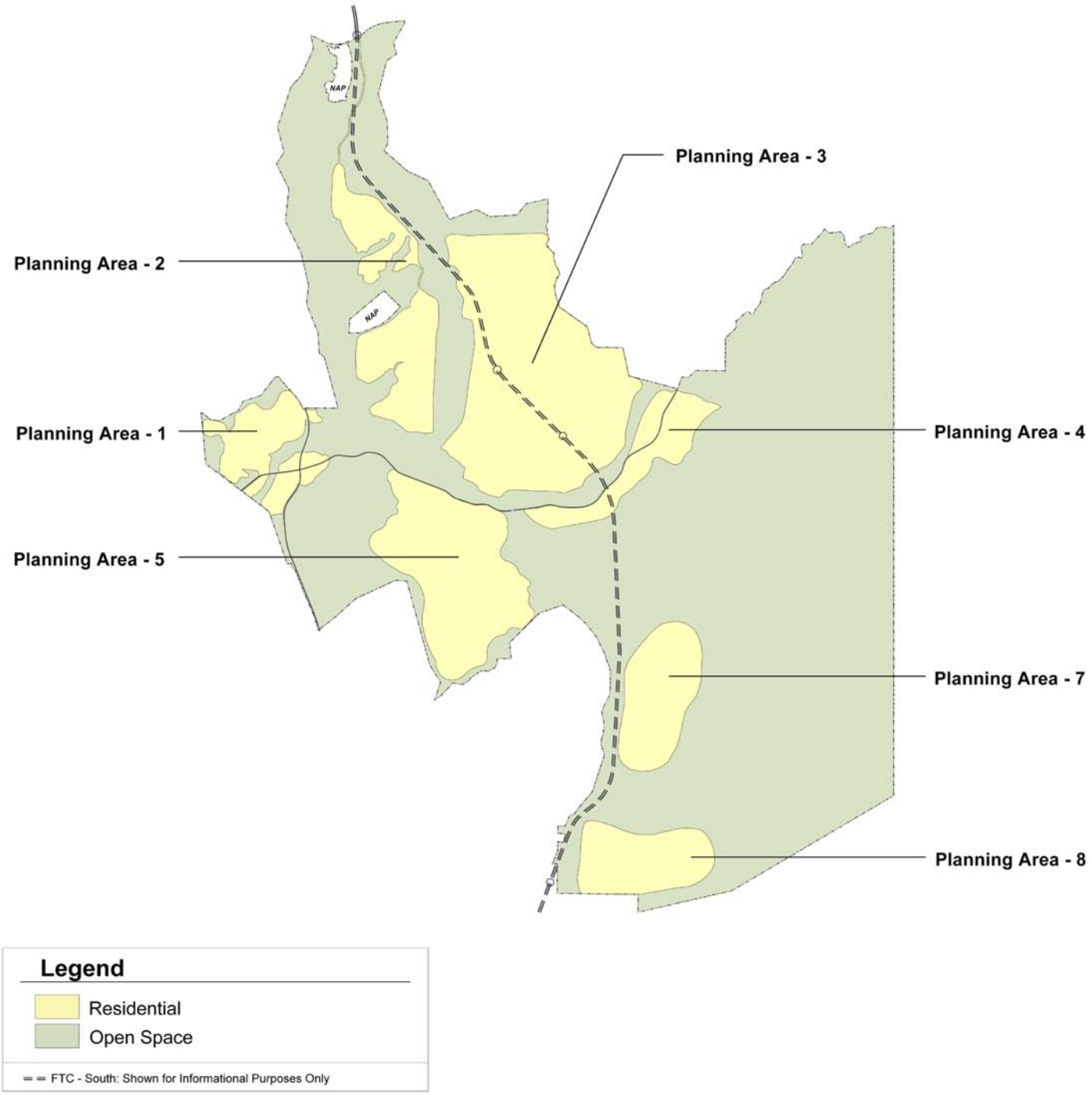

Alternative B-7

Exhibit 5-5

The Ranch Plan

1" = 8,500'

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Source: SOCCPP

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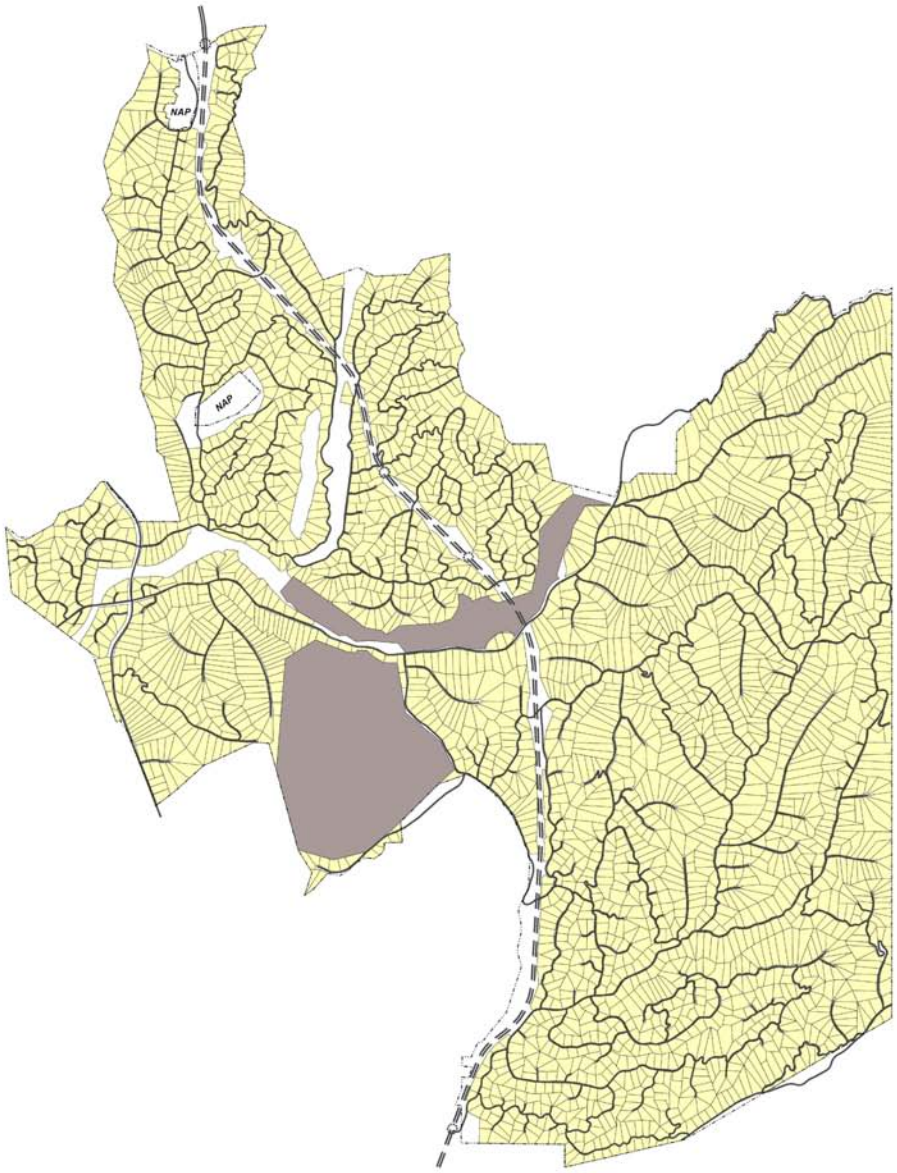

Legend

Agricultural Zoning (4 AC. / 1 DU)

Sand and Gravel Zoning

= = FTC - South Shown for Informational Purposes Only

Alternative A-2

Exhibit 5-6

The Ranch Plan

1" = 8,500'

N
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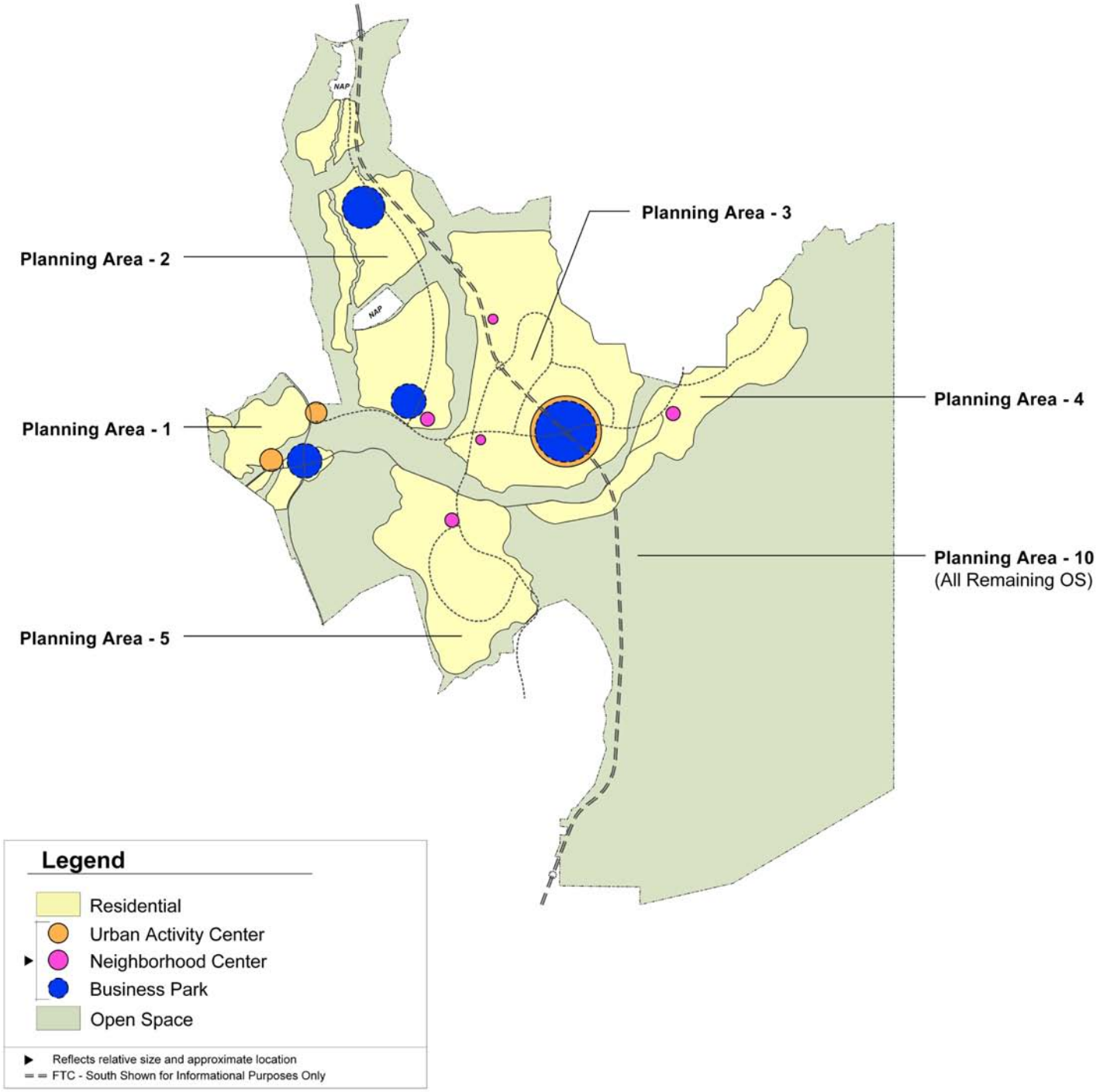
Source: SOCCPP

R:\Projects\RMVJ008\Ex5-6_AltA2_060704.pdf



Alternative B-5

Exhibit 5-7

The Ranch Plan

1" = 8,500'

N
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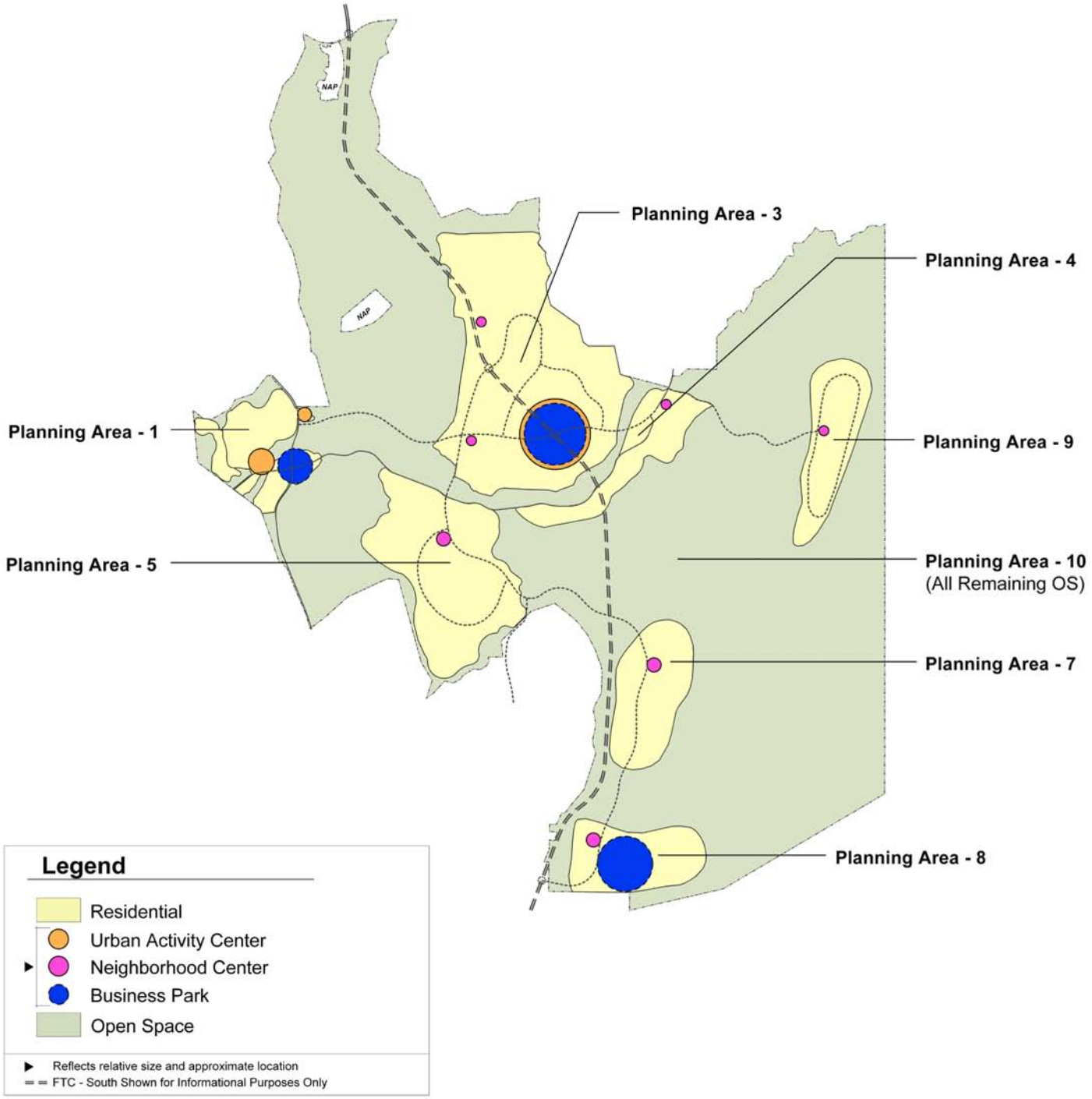
Source: SOCCPP

R:\Projects\RMVJ008\Ex5-7_AltB5_060704.pdf



Alternative B-6

Exhibit 5-8

The Ranch Plan

1" = 8,500'

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Source: SOCCPP

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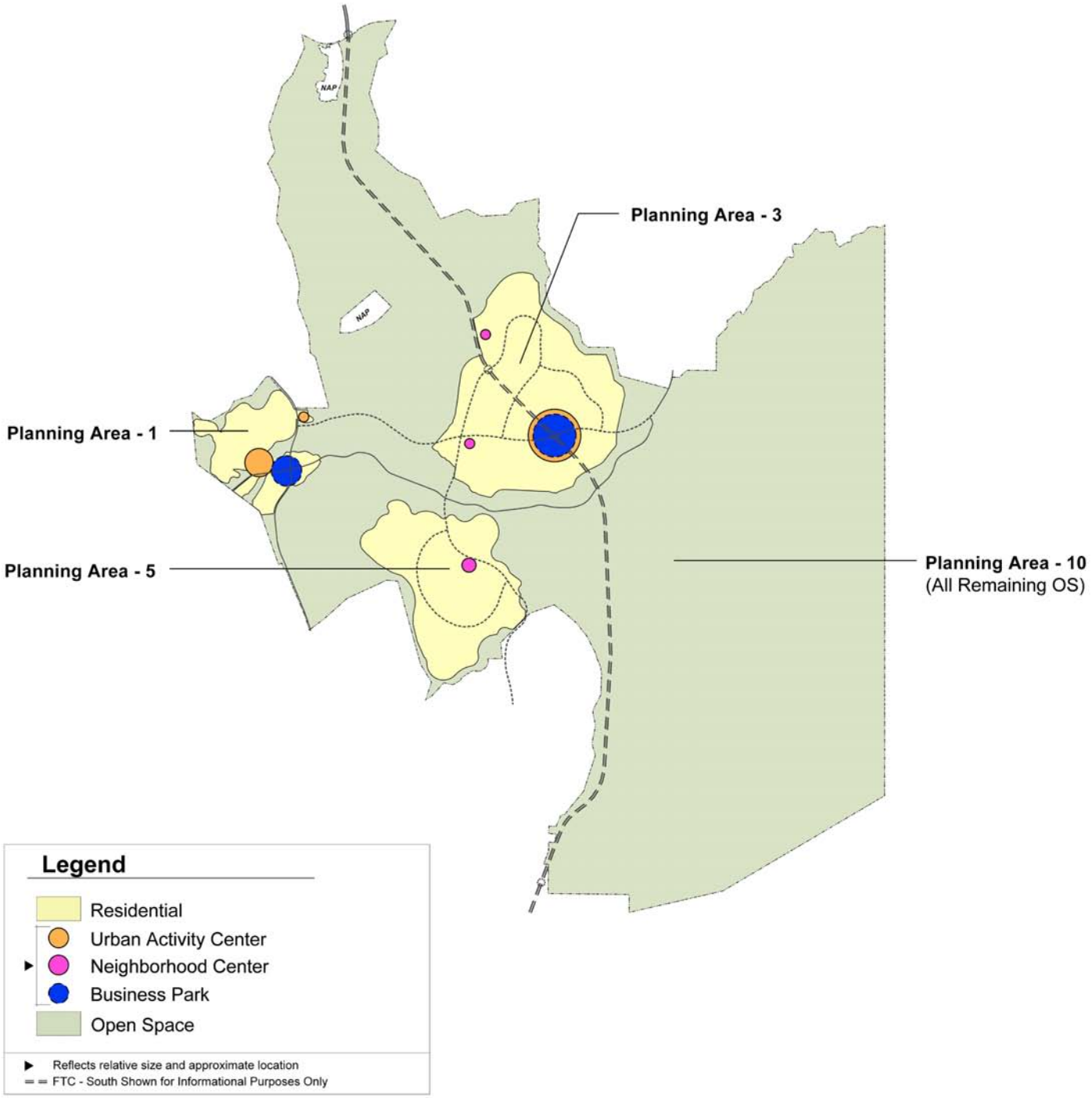

Alternative B-8

Exhibit 5-9

The Ranch Plan

1" = 8,500'

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Source: SOCCPP

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SECTION 6
GROWTH INDUCING IMPACTS

CEQA Guidelines §15126.2(d) requires the evaluation of the growth-inducing impacts of the proposed project. This section is required to determine the manner in which the proposed project could encourage substantial economic or population growth, or construction of additional housing in the surrounding area, either directly or indirectly. Growth that is induced as a result of construction of the project or the infrastructure needed for the project is distinguished from direct employment, population, or housing growth that would occur within the project site. A project could also induce growth by lowering or removing barriers to growth, or by creating an amenity or facility that attracts new population or economic activity.

6.1 METHODOLOGY

Growth inducement can be defined as the relationship between the proposed project and growth within the surrounding area. This relationship is often difficult to establish with any degree of precision and cannot be measured on a numerical scale because there are many social, economic, and political factors associated with the rate and location of development. Accordingly, the CEQA Guidelines instruct that an EIR should focus on the ways growth might be induced. This relationship is sometimes looked at as either one of facilitating planned growth or inducing unplanned growth. Both types of growth, however, should be evaluated.

In assessing the growth-inducing impacts of a project, CEQA Guidelines §15126.2(d) states that the lead agency is not to assume that growth in an area is necessarily beneficial or of little significance environmentally. Typically, growth-inducing impacts result from the provision of urban services and extension of infrastructure (including roadways, sewerage, or water service) into an undeveloped area. Growth-inducing impacts can also result from substantial population increase, if the new population may impose new burdens on existing community service facilities, such as increasing the demand for service and utilities infrastructure and creating the need to expand or extend services, which may induce further growth.

A project can remove infrastructure constraints, provide access, or eliminate other constraints on development, and thereby encourage growth that has already been approved and anticipated through the General Plan process. This planned growth would be reflected in land use plans that have been developed and approved with the underlying assumption that an adequate supporting infrastructure ultimately would be constructed. This can be described as accommodating or facilitating growth. A project can remove infrastructure constraints, provide new access, or otherwise encourage growth which is not assumed as planned growth in the General Plans or growth projections for the affected local jurisdictions. This could include areas which are currently designated for open space, agricultural uses, or other similar non-urban land uses. In such a case, the removal of infrastructure constraints or provision of access can trigger consideration of a change in land use designation to allow development at a higher level of intensity than originally anticipated. For this section, the terms “inducing” will be used for both types of growth.

Growth-inducing impacts may also be categorized as either direct or indirect. Direct growth-inducing impacts occur when a project directly fosters growth. This may occur in a variety of ways, including, but not limited to, the construction of new homes and businesses and the extension of urban services, such as utilities and improved roads, to previously undeveloped areas. Growth can also be induced directly due to the economic effect of a project whereby economic growth multiplier effects that can cause related growth in areas near the new project.

Indirect growth is induced by the demand for housing, goods, and services associated with a project.

There are many other factors that can affect the amount, location, and rate of growth in the region. These include the following:

(1) market demand for housing, employment, and commercial services;

(2) desirability of climate and living/working environment as reflected by market demand;

(3) strength of the local employment and commercial economy;

(4) availability of other roadway improvements (e.g. new and/or expanded arterial or highway capacity);

(5) availability of other services/infrastructure (e.g. wastewater treatment, water, schools, etc.); and

(6) land use and growth management policies of the counties and municipal jurisdictions.

6.2 STUDY AREA

As described in Section 3.0, the project area is situated in an unincorporated area in southeastern Orange County. The proposed project is located within RSA 43, specifically within CAAs 59, 60, and 70. However, because growth inducing impacts are often not limited to the immediate project site, this section will also include information regarding all of RSAs 40 and 43 in Orange County, Subregional Areas (SRA) 42, 43, and 55 in northwest San Diego County, and the Elsinore and Southwest Planning Areas of western Riverside County. San Diego County borders the southern and eastern edges, and Riverside County borders the site on its eastern edge. Exhibit 6-1 shows the location of these areas.

6.3 GROWTH PATTERNS AND TRENDS

To understand the context in which potential growth inducing impacts of the proposed project may occur, it is helpful to review the historic and projected growth patterns of Orange, San Diego, and Riverside counties.

Orange County

Orange County has experienced significant growth in population over the past 40 years. Population in the county has increased from 216,200 in 1950 to almost 2,846,300 in 2000. Concurrent with these substantial increases in population, the economic character of Orange County has dramatically changed over the past 50 years. The predominately rural/agricultural and residential economy of the 1950s has changed to a well diversified commercial/industrial economy. Aviation/aerospace and other high technology industries, biomedical facilities, retail commercial, light manufacturing, administrative and financial services, and tourism have become major components of the economy. According to the Orange County General Plan (1999), in 1995 approximately 2 percent (24,581) of the County's 1.2 million jobs were located in unincorporated areas, the majority of which are located in southern Orange County. By 2020, the total number of jobs in unincorporated Orange County is projected to increase by approximately 670 percent to approximately 190,000 jobs (County of Orange, 1999). In 2020, that figure will account for nearly 9 percent of Orange County's total.

In 1965, the employment to population ratio was 22 percent in Orange County. By 1980, the ratio increased to 40 percent. This has subsequently increased to approximately 54 percent in 1990. By 2000 the ratio had increased to 53 percent. Not only has the proportion of jobs to residents increased, but it is also based on a dramatically larger population.

Future population is projected from assumptions regarding three major events: births, deaths, and migration. Historically, the growth in Orange County was predominately due to migration; however, now births contribute more residents. This trend is expected to continue. Migration patterns are changing as the level of migration declines. Previously, new residents came from other parts of California and the United States, while current trends indicate that the new residents are more likely to come from Asia or Latin America.

The Orange County RSAs 40 and 43 that affect the project site study area have large amounts of available land and many natural amenities. As described in Section 4.3, the south Orange County area has experienced, and will continue to experience, large increases in population, housing, and employment. According to OCP-2000M, the population within the project study area CAAs[1] is projected to increase from 273,164 in 2000 to 392,750 in 2025, an increase of 43.8 percent. For this same period, the county is projected to experience a population increase of 19.7 percent. For housing, there would be a projected increase from 94,099 in 2000 to 134,846 in 2025, a 43.3 percent increase within the project study area CAAs. In comparison, the county would experience a 14.1 percent increase. Lastly, employment is projected to increase 50.6 percent from the 2000 count of 88,223 to 132,891 in 2025 within the project study area CAAs; the county would experience a 36.2 percent increase.

The project site covers approximately 22,815 acres and is located within RSA 43, which includes CAAs 55, 56, 57, 58, 59, 60, and 70. However the project site is only located within CAAs 59, 60, and 70. With the exception of the Ranch Plan project site, the majority of the land within these CAAs is presently developed; most of the remaining undeveloped areas (other than the Ranch Plan area) are designated for recreation or open space. This remaining land is generally vacant, undevelopable land. Undevelopable lands are not available for development for physical, public policy, or environmental reasons.

San Diego County

San Diego County has experienced many of the same trends as Orange County. North San Diego County in particular has experienced substantial growth in population and change in economic character. Population in San Diego county has increased from 1,033,000 in 1960 to 2,813,833 in 2000. Northern San Diego County economic growth has experienced trends similar to Orange County's economy. The predominantly rural/agricultural and residential economy of the 1950s has changed to a well-diversified commercial/industrial economy. In 1970, the employment-to-population ratio was 32 percent in San Diego. By 1980 and 1990, the ratio increased to 41 and 48 percent, respectively. In 2000, the employment to population ratio increased to 49 percent.

For northern San Diego County, the Sub-Regional Areas (SRAs) near the proposed project area are 43 – Pendleton, 55 – Fallbrook, and 42 – Oceanside. SRA 43 is located in northwestern San Diego County, and encompasses MCB Camp Pendleton. MCB Camp Pendleton covers over 250,000 acres and includes 17.5 miles of shoreline. It is the largest undeveloped portion of coastal area left in Southern California. SRA 55 is located east of and inland from SRA 43 in

[1] As discussed in Section 4.3.1, the CAAs within the Population/Housing/Employment Project Study Area include: 58, 59, 60, 68, 69, and 70.

northwestern San Diego County. SRA 55 covers the San Diego County portion of the 460,000-acre Cleveland National Forest, as well as the unincorporated areas of Fallbrook, Rainbow, and Bonsall. (The remaining areas of the Forest are located in Orange and Riverside Counties.) SRA 42 is located south of SRA 43 on the western border of San Diego County and includes the City of Oceanside. Also included in SRA 42 are several pockets of unincorporated San Diego County.

The *SANDAG 2030 Cities/County Forecast* (SANDAG, 2002) provides population, housing, and employment projections through the year 2030. The projection forecast indicates that the population within SRA 43 will increase from 36,146 in 2000 to 37,030 in 2030, an increase of 2 percent. For SRA 55, the population is projected to increase from 43,952 in 2000, to 63,270 in 2030, an increase of 44 percent. SRA 42 is expected to increase from 151,545 to 205,857 during the same period, an increase of 36 percent. Countywide, the population is projected to increase from 2,813,833 in 2000 to 3,889,604 in 2030, an increase of 38 percent. SRAs 53 and 42 are anticipated to have similar increases in population to the county as a whole. SRA 43's small increase in population can be attributed to the relatively stable population of MCB Camp Pendleton.

SRAs 43 and 55 have a large amount of vacant land. However, MCB Camp Pendleton encompasses all of SRA 43, so development opportunities are exceptionally limited, and the area is projected to add only 15 housing units between 2000 and 2030, and only two jobs during that same period. Additionally, the portion of SRA 55 nearest the project site contains the Cleveland National Forest, where development is also restricted. Despite the restriction in development within areas of the Cleveland National Forest, SRA 55 is projected to have a 40 percent increase in housing between 2000 and 2030, from 15,748 to 22,068. Additionally, a 68 percent increase in employment is projected for this area for the same period, with an increase from 11,774 to 19,748. However, because the Cleveland National Forest has no major roadways through which San Diego County residents can travel to gain access to Orange County, increases in population, housing, and employment in SRA 55 would have minimal interface with Orange County. SRA 42, on the other hand, has relatively easy access through MCB Camp Pendleton via I-5 to southern Orange County and the project site. This area is projected to have more than a 183 percent increase in housing units (55,193 in 2000 to 156,536 in 2030), and an 88 percent increase in employment (36,840 in 2000 to 69,437 in 2030).

Because of the projected increases in population, housing, and employment, SANDAG evaluated policies to slow growth within the region. Their report, entitled "Evaluation of Growth Slowing policies for the San Diego Region" (2001), quoted a recent study of the California Department of Housing and Community Development, which concluded that California "chronically under produces housing, especially in coastal markets." It further noted that:

> …low vacancy rates and price increases from 1980 to 2000 indicate a relative shortage of housing supply compared to demand. Also, the ratio of job and population growth to housing unit growth has increased, as relatively fewer housing units are built for each job created. Rapid levels of residential growth in Baja California and Southwestern Riverside County also support the concept of a shortage of housing in the San Diego region.

Because of historic trends, growth policies, and future projections in population, housing, and employment, and despite developable, vacant land in the SRAs 43, 55, and 42, San Diego is not expected to increase the rate of development within vacant lands beyond what is currently projected by the *SANDAG 2030 Cities/County Forecast*.

Riverside County

According to SCAG, Southern California has been growing eastward and is projected to continue to grow toward fringe areas (2001). Riverside County has been a main recipient of this growth trend. The population in Riverside County increased from 660,000 in 1980 to 1.5 million in 2000 according to the U.S. Census Bureau (2000). By 2025, Riverside County 's population is expected to be 2.84 million. With the increase in residential real estate prices in Orange County, Riverside County has become more attractive for many new homebuyers. Many people have moved from Los Angeles and Orange Counties to Riverside County for its lower cost of housing. The new residential real estate business has been booming in Riverside County due to the demand for new housing, and the past growth trend is projected to continue. Total employment in Riverside County is projected to increase from 446,000 jobs in 1997 to over 1 million jobs in 2025, a 4.4 percent increase annually. This compares to the five percent annual growth rate that occurred in the Riverside-San Bernardino Standard Metropolitan Statistical Area (SMSA) during the 1972 to 1999 period.

For land use and policy analysis, the county is divided into 19 area plans. Area 19 – Southwest Area Plan (SWAP), as its name implies, is located in the southwestern portion of Riverside County. Area 19 encompasses the incorporated cities of Murrieta and Temecula; the unincorporated communities of Glen Oaks Hills and the Pauba/Wolf Valley and Pechanga Indian Reservation; and the unincorporated areas near the Santa Rosa Plateau Ecological Area, French Valley, and the Cleveland National Forest. Area 19 is bounded on the west by the Orange County and the Santa Ana Mountains; San Diego County, and the Santa Margarita Mountains and Agua Tibia range to the south; and the Black Hills to the east. The Elsinore Area Plan is located northwest of Area 19, and includes the Cities of Lake Elsinore and Canyon Lake, as well as the unincorporated areas of El Cariso, Alberhill, Sedeco Hills, Wildomar, Gavilan Hills, and Meadowbrook. The Temescal Wash, which drains into Lake Elsinore, is located between the Santa Ana Mountains to the west and the Gavilan Hills to the east. The City of Riverside's Sphere of Influence extends into the Elsinore Area Plan. The Cleveland National Forest forms the western boundary of the area.

The *Riverside County Population and Employment Forecasts*[2] (Hoffman, 2000), prepared for the *Riverside County General Plan Update* (County of Riverside, 2002) provides population, household[3], and employment projections through the year 2020. The projection forecast indicates that the population within the SWAP will increase from 15,353 in 1994 to 79,656 in 2020, a 418.8 percent increase. The Elsinore Area Plan is projected to increase from 34,455 in 1994 to 72,067 in 2020, a 109.2 percent increase in population. Countywide, the population is projected to increase from 1,545,387 in 2000 to 2,874,277 in 2020, an increase of 86.0 percent.

The SWAP has large amounts of vacant land within both the incorporated and unincorporated areas. According to the County of Riverside General Plan, Southwest Area Plan (2002),

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[2] The *Riverside County Population and Employment Forecasts* presents three sets of countywide projections, in order to test alternative scenarios for the Riverside County General Plan update. These projects are based in whole or in part on recent SCAG projections, WRCOG, and Coachella Valley Association of Governments (CVAG) projections and employment trend analysis. The projections presented in this section are for Scenario 1, which uses SCAG population and employment projections.

[3] The *Riverside County Population and Employment Forecasts* do not provide projections of the number of housing units; rather projections of the number of households are provided. According to the U.S. Census Bureau, "a household includes all of the people who occupy a housing unit" and a housing unit is "a house, an apartment, a mobile home, a group of rooms, or a single room…occupied as separate living quarters."

approximately 70 percent of unincorporated areas within the planning area is devoted to open space, agricultural, and rural designations. Approximately 21 percent are incorporated areas of the county, Indian lands, or freeways. Only 7.2 percent of the land is designated as "community development" (i.e., residential, commercial, industrial, public facilities, or community center uses within unincorporated areas. Despite the seemingly limited areas for growth, the SWAP is large, with almost 183,000 acres. And the 7.2 percent of the unincorporated areas totals approximately 13,000 acres.

The Elsinore Area Plan has land use patterns similar to the SWAP; both areas have large areas of both incorporated and unincorporated land. Of the 126,307 acres within the Elsinore Area Plan, almost 67 percent, or 84,412 acres, of the area is designated by the Riverside County General Plan for open space or rural uses. (There are no agricultural uses designated anywhere within the area.) Approximately 11 percent, or 13,672 acres, are designated as community development.

6.4 EFFECTS OF THE PROPOSED PROJECT

Housing and economic growth in the study area is directed by the general plans for the County of Orange and adjacent cities in the study area. The adjacent cities include Rancho Santa Margarita, San Clemente, Mission Viejo, San Juan Capistrano, and Aliso Viejo. Indirectly, the development in any of the three counties of the study area, whether the development be housing, commercial, or industrial development, has the potential to affect the housing or economic growth in other portions of the study area because some residents in these counties commute to jobs in Orange County, while some residents of Orange County commute to jobs in northern San Diego and western Riverside Counties. The City of Oceanside in San Diego County, and the cities of Temecula, Murrieta and Lake Elsinore in Riverside County are the jurisdictions that are most likely to be affected by housing or economic growth in the project area.

To assess potential growth inducing impacts of the Ranch Plan, the development status of the growth inducement study area was evaluated. The area was divided into three major categories: (1) existing land uses; (2) planned land uses; and (3) unplanned lands. Existing land uses are those areas that are developed or dedicated as urban open space/recreational, public facilities, or transportation uses. Planned land uses are undeveloped areas that are designated for urban development in general plans and have a zoning designation for specific urban uses. These areas may also have entitlement through either an approved specific plan or tentative tract map. Unplanned land areas are those lands that are not designated for urban uses or permanent open space, but are designated with land uses that could be considered transitional or holding designations (e.g. agricultural). Overall, the potential for growth inducing impacts would be the greatest on the unplanned land uses.

To assess potential growth inducing impacts of the Ranch Plan, the geographic range or extent of any possible growth inducing impacts was evaluated. In general, the potential for growth inducing impacts would be the greatest on land within Orange County. In San Diego County, the MCB Camp Pendleton and the Cleveland National Forest are natural boundaries that would discourage growth induced by the Ranch Plan. Although I-5 traverses MCB Camp Pendleton, and some residents of San Diego County communities work in Orange County (and vice versa), the size of MCB Camp Pendleton is still a major impediment to commuters. Additionally, there are no opportunities to construct additional roadways that would facilitate growth to the south. Similarly, the Cleveland National Forest has no major roadways to San Diego County that a commuter could use, and there are no plans, either real or insubstantial, to construct roads through the Forest to San Diego County. With the Metrolink, commuting to northern San Diego

County from Orange County, and vice versa, is easier. However, high cost and commute time still prevents many commuters from taking advantage of this option. Lastly, according to SANDAG in its "Evaluation of Growth Slowing Policies for the San Diego Region" (2001), the entire San Diego region has and will continue to face a limited housing supply. The Evaluation notes that the region's housing growth did not keep pace with its job and population growth. As a result, San Diego County and its cities would be unlikely to promote or facilitate enough growth, both housing and economic, to serve not only its current and projected population, but also that of Orange County. As a result, development of the Ranch Plan is not expected to have growth inducing impacts in northern San Diego County.

Similarly, while western Riverside County does border Orange County to the northeast of the project site, commuting to southern Orange County from there (or the reverse commute) can be long and difficult due to the mountain range (Santa Ana Mountains), the long distance, amount of vehicular traffic, and lack of major highways. With the exception of Ortega Highway (SR-74), which is near capacity during commute hours and has safety problems, there are no other roads which commuters could use to travel easterly from southern Orange County to western Riverside County. All of these are obstacles to the inducement of housing or economic growth in western Riverside County. Additionally, Riverside County's Land Use Plan for both Area 19 and the Elsinore Area Plan generally reflects the predominantly rural character of the area by devoting approximately 80 percent of Area 19 and 67 percent of the Elsinore Area Plan to open space, agricultural, and rural designations. Only 18 percent of Area 19 and 11 percent of the Elsinore Area Plan are devoted to urban uses. While the county has far more unplanned land areas than either Orange or San Diego counties, current planning documents have placed limits on urban development by protecting the region's rural and agricultural areas. As a result, the proposed project is unlikely to directly substantially induce housing or economic growth in western Riverside County.

Currently, a small portion of western Riverside County currently takes access via easements over the Ranch Plan property. While development of Planning Area 9 would extend improved services within Orange County for a proposed small package treatment plant, the project would not provide connections to the property in Riverside County. Furthermore, the development in Planning Area 9 proposes the use of existing ranch roads; therefore, the circulation infrastructure would remain constrained and would not support substantial housing or economic growth in adjacent parcels in the western portion of Riverside County. Consequently, if growth-inducing impacts were to occur, they would only occur within Orange County.

Within Orange County, a number of factors would influence the location, intensity, and phasing of development. An adequate infrastructure base (i.e., water, sewer, drainage, fire protection, and schools) is necessary for urban development. If any of these services cannot be provided, development would be restricted or substantially slowed. The development of the Ranch Plan would provide a sufficient tie-in to existing utility systems to accommodate the demands of this project at full buildout. However, the project does not propose the construction of surplus capacity that would encourage urban development beyond what is proposed in the Ranch Plan. While the project does provide economic growth in an area currently undeveloped it would not result in a substantial growth on surrounding lands. Most of the surrounding areas are either already developed or are within public ownership, such as MCB Camp Pendleton, Caspers Wilderness Park and the Cleveland National Forest. The surrounding developed areas are not of the age or nature where redevelopment would be likely in response to the proposed project. The pubic ownership would eliminate the potential of future urban development. As a result, the Ranch Plan is not expected to induce housing or economic growth within southern Orange County.

In summary, the Ranch Plan would not remove obstacles to growth in the surrounding counties or areas within Orange County, induce unplanned growth, encourage economic activities that would result in adverse impacts to the environment, or require the expansion of one or more public services to areas which were not already planned to receive such services. All growth resulting from the project would be limited to the growth planned as part of the project.

Growth Inducement Study Area

Exhibit 6-1

The Ranch Plan

N W E S

7 0 7 Miles

R:/Projects/RMV/J008/Ex6-1_growth_041604.pdf

SECTION 7
CUMULATIVE IMPACTS

7.1 INTRODUCTION

The CEQA Guidelines (§15130) require that a project's cumulative impacts be discussed when "…the incremental effect is cumulatively considerable…" According to CEQA Guideline §15065(c), the term cumulatively considerable means "…that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects…" Specifically, CEQA Guidelines §15355 defines cumulative impacts as:

> "…two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> a) The individual effects may be changes resulting from a single project or a number of separate projects.
>
> b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."

When addressing cumulative impacts, Section 15130(b) of the CEQA Guidelines notes that the elements necessary to provide an adequate discussion of significant cumulative impacts encompass either:

a) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or

b) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency."

For the Ranch Plan, the cumulative evaluation will include specific projects, consideration of the adopted general plans for the local jurisdictions, and regional development projections.. Section 7.2 provides an overview of how the regional projections have been incorporated into the cumulative evaluation. Section 7.3 provides a brief summary of what the projects that have been identified as potential cumulative projects. The summary of the projects identifies impacts that are known or are anticipated to occur with implementation of each project listed. This information is based on completed environmental documents or based on discussions with the lead agency. This allows the cumulative impact analysis for the Ranch Plan to identify which projects would contribute to cumulative impacts for specific topical areas. Not all projects would contribute to significant cumulative impacts for each topical area. For example, not all projects would have impacts on prime farmland. Section 7.4 provides an evaluation of the cumulative projects and how these would contribute to cumulative impacts. The evaluation is done by topical area. Not all impacts associated with each cumulative project would contribute to a

cumulative impact. Some of the impacts are very site specific and would not compound the impacts associated with the Ranch Plan. In other cases, short-term impacts would not contribute to cumulative impacts because the construction of the cumulative project and the development of the Ranch Plan would not occur in the same time period or be in close proximity to each other.

7.2 REGIONAL GROWTH PROJECTIONS

For this project, one component of the cumulative analysis is the growth projected in the OCP-2000M[1] socioeconomic projections for the study area. As discussed in Section 4.3, Population, Housing and Employment, the OCP-2000M projections are countywide growth and development forecasts based on input from the County of Orange and the cities of Orange County. These projections reflect adopted land uses and future growth scenarios based on local land use policies. The OCP-2000 projections were approved by the County of Orange in July 2000 and submitted to SCAG for incorporation into regional planning efforts. In April 2001, SCAG adopted projections, with only minor modifications from the OCP-2000 numbers. Subsequent to the initial approval, these numbers were slightly modified and became known as OCP-2000M. The purpose of establishing countywide projections is to establish a consistent database for jurisdictions to use for planning efforts. The OCP-2000M projections are used as the demographic projections for this document to ensure consistency with the local and regional planning efforts, such as the Air Quality Management Plan, the Regional Transportation Plan, and Regional Growth Management Element.

To ensure that the adopted socioeconomic data is reflective of the current conditions in Orange County, the data sets are updated approximately every four to five years. By having an iterative process, the agencies that use this data (SCAG, County of Orange, and local jurisdictions) are able to factor in variables such as changes in employment patterns, economic considerations, and migration patterns that occur over time.

The OCP-2000M projections provide both long-term and mid-range projections. The OCP-2000M projections provide forecasts out to the year 2025. This allows a more comprehensive evaluation of certain categories of cumulative impacts than only relying on known projects identified by the local jurisdictions. It takes into account the effects of growth beyond the immediate study area. OCP-2000M is particularly useful in evaluating the cumulative impacts associated with traffic, air quality and noise, because it provides growth assumptions consistent with the local general plans with a long-range horizon year.

These projections are used as part of the cumulative analysis because they are the basis for the evaluation of long-term growth and are incorporated into the traffic modeling effort, which in turn is used for the noise and air quality analyses.

OCP-2000M is available for review at the County Planning and Development Services Department, 300 North Flower Street, Santa Ana, California, and at California State University at Fullerton, Center for Demographic Research, 2600 East Nutwood Avenue, Suite 750, Fullerton, California.

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[1] As discussed in Section 4.3, Population and Housing, the OCP-2004 dataset is not used in this analysis because the numbers have not been allocated to traffic analysis zones (TAZ), which is necessary for traffic modeling. To ensure consistency between the sections of this EIR, OCP-2000M is the basis for the evaluation. However, the findings of the analysis would not be substantially different because the differences between the two datasets are limited. See Section 4.3, Population and Housing for a comparison of the OCP-2000M and OCP-2004 datasets for the Community Analysis Areas surrounding the project site.

7.3 PROBABLE FUTURE PROJECTS

To determine which projects would contribute to cumulative impacts, the County of Orange considered known projects within the adjacent cities and counties. The Ranch Plan is located within Growth Management Areas (GMA) 9 and 11; therefore, projects within these GMAs were considered. Exhibit 7.3-1 depicts the GMA boundaries. The cumulative study area varies from one environmental topic to another depending upon the nature of impacts related to the topic. For example, cumulative aesthetic considerations encompass only the surrounding areas with direct views of the project site, while the cumulative loss of agricultural resources is a regional issue that is analyzed on a broader scale. Sources, such as www.CEQAnet.ca.gov, were used to identify projects that were being evaluated by agencies within south Orange County. This information was then sent to the jurisdictions with a request for confirmation that the list was comprehensive or, if it was found not to be comprehensive, with a request to identify projects that had not been included on the list. The jurisdictions contacted in September and October 2003 are listed in Table 7.3-1. Follow-up phone calls were made to obtain input. CDFG, the County of San Diego, the County of Riverside, and the City of Laguna Niguel did not identify cumulative projects for consideration.

TABLE 7.3-1
AGENCIES CONTACTED REGARDING CUMULATIVE PROJECTS

FEDERAL AGENCIES		
MCB Camp Pendleton	ACOE	USFWS
STATE AGENCIES		
CDFG	Caltrans	
COUNTY AND REGIONAL		
TCA	OCFA	San Diego
Riverside		
CITIES		
San Juan Capistrano	San Clemente	Mission Viejo
Rancho Santa Margarita	Laguna Niguel	Laguna Hills
Irvine	Lake Forest	Dana Point
UTILITIES		
Irvine Ranch Water District	Santa Margarita Water District	
Source: Bonterra Consulting, May 2004		

The responses received from the agencies were evaluated to determine if the projects would qualify as cumulative projects, that is, would the projects be considered as past projects, current projects, or probable future projects whose impacts would compound or increase impacts associated with the Ranch Plan. Based on this evaluation, certain projects did not qualify as cumulative projects. For example, the Natural Treatment Systems (NTS) project proposed by the Irvine Ranch Water District (IRWD) was identified through www.CEQAnet.ca.gov as a possible cumulative project; however, IRWD stated that since the NTS project would not be in the same watershed as the Ranch Plan, it would not contribute to cumulative impacts. Also, the OCFA identified the need for several new fire stations to serve the proposed Ranch Plan development. However, since the impacts associated with station development would be within the envelope of impacts addressed for the Ranch Plan, the impacts are addressed as project specific impacts rather than cumulative impacts.

Through research, two projects were identified on MCB Camp Pendleton as potential cumulative projects. However, after receiving input from MCB Camp Pendleton, the projects did not qualify as cumulative projects. The first project is the Helicopter Outlying Landing Field (HOLF) Mitigation Area. This 36-acre area in the northern portion of MCB Camp Pendleton is being restored with coastal sage scrub. The project is approximately halfway complete, with the

remainder of the site scheduled for restoration in fiscal year 2004 when funding is available. Because the project is a restoration project, the project would not contribute to cumulative impacts. The second project involves planned land uses at San Onofre State Beach. The General Development Plan for the San Onofre State Beach prepared by the California Department of Parks and Recreation identifies campgrounds, beach trails, a proposed 18-hole golf course, primitive trails, secondary park access from Avenida La Pata, and a tourist commercial site on the leasehold within MCB Camp Pendleton. A campground and trails to the beach have already been developed; the remaining uses are proposed. However, MCB Camp Pendleton indicated that the Base must approve development within the leasehold and that it does not support the additional proposed uses. Given the lack of support by MCB Camp Pendleton for the additional facilities, and the fact that the Department of Parks and Recreation has not programmed implementation of the uses on any capital improvements program, no significant impacts are anticipated from the San Onofre State Beach Land Uses because the project would not be seen as reasonably foreseeable.

The NCCP/HCP and the SAMP/MSAA are two planning efforts that are underway that would affect the Ranch Plan area. Federal lead agencies for the two efforts are the USFWS and ACOE, respectively. The CDFG is also participating in both efforts. The County is the local lead agency for the NCCP/HCP. As discussed in Section 2 of this EIR, these projects are seeking to protect natural resources, while allowing compatible land uses and appropriate development and growth. Based on the alternatives that have been formulated to date as part of these efforts (See Section 5, Alternatives), the impacts associated with these programs would be similar to those evaluated in this EIR. The NCCP/HCP and SAMP/MSAA Alternatives have identified development areas similar to, or the same as, the Ranch Plan Alternatives. Thus, these projects would not represent new cumulative impacts.

A summary of the significant impacts associated with each potential cumulative project is presented below; even though not all of the impacts listed would be cumulative impacts.

7.3.1 CALTRANS

Caltrans identified seventeen potential cumulative projects; however, one of these projects, SOCTIIP, is a joint planning effort with the TCA and FHWA. SOCTIIP is discussed below in Section 7.3.2. The remaining projects are at various stages of planning. One of the projects, the Avenida Vista Hermosa interchange has been completed. It is included as a cumulative project even though it is already constructed because it is a recently completed project. CEQA documents are currently being prepared for another two projects; though the documents are not available for public review. The remaining 13 projects have been identified as potential future projects though the CEQA documentation has not been initiated. The location of these projects is depicted in Exhibit 7.3-1.

Projects Where Construction Has Been Initiated

Avenida Vista Hermosa (Calle Frontera to I-5). The construction of this circulation system improvement project within the City of San Clemente has been completed. This improvement included the construction of a four-lane primary arterial with an interchange at I-5. The jurisdiction of the project was shared with the City of San Clemente (Project number C1 on Exhibit 7.3-2). A Finding of No Significant Impact/Mitigated Negative Declaration (FONSI/MND) was completed in August 1991. The following adverse impacts were identified in the environmental document, though all impacts were mitigated to a level of less than significant:

- Geology and Soils: The project would result in short-term construction impacts such as soil disturbance during construction. This impact would be reduced to a level considered

to be less than significant via temporary installation of erosion control devices, utilization of de-siltation devices, and a method of disposing of excess.

- Hydrology: The project would alter or affect the existing pond and downstream drainage course. This impact would be reduced to a level considered less than significant through the construction of a low retaining wall constructed near the top of the slope directly above the outlet of an existing eight-foot concrete arch culvert.

- Water Quality: The project would result in contaminated runoff from street surfaces. This impact would be reduced to a level considered less than significant via compliance with erosion control measures and the utilization of grease traps at collection points.

- Air Quality: The project would result in short-term construction impacts. Compliance with regulations requiring water for the control of dust, construction vehicles equipped with emission control equipment, as well as project phasing carefully planned to minimize disturbance to existing traffic patterns would reduce this impact to a level considered to be less than significant.

- Noise: The project would expose adjacent homes to short-term construction noise. This impact would be reduced to a less than significant level via compliance with the Noise Ordinance and the construction of noise barriers along residential areas.

- Wetlands and Riparian Vegetation and Biology: The project would have the potential of disturbing .01 acres of freshwater marsh habitat during heavy rains and the disturbance of .05 acres of wetland as a result of the alteration of the culvert. These impacts would be mitigated to a level considered less than significant via plan review and the approval of a final grading plan.

- Socioeconomics: The project would require the acquisition of approximately .08 acres of the rear yard of one adjacent residential property. This impact would be reduced to a level considered to be less than significant through compensation at fair market value.

- Public Services and Facilities: A construction related impact was the relocation of the Tri-Cities water main. This impact was reduced to a level considered less than significant through consultation with the MWD on a continuing basis during construction, as well as the notification of public utility companies well in advance of construction.

- Transportation and Circulation: The project would result in impact to existing pedestrian and bicycle traffic using the Avenida Vista Hermosa as a result of an increase in traffic in the project vicinity, and create a need for signalization control. These impacts were mitigated by the incorporation of PDFs for traffic signals, the restriction of pedestrian access to enhance safe movement, the addition of a fifth lane to provide for adequate length of weaving, and the construction of 15-foot wide right lanes for trucks on north and southbound loop on-ramps.

- Cultural Resources: The project would affect archaeological and paleontological resources. All impacts would be reduced to a level considered to be less than significant with implementation of Standard Conditions of Approval, compliance with existing regulations, and implementation of mitigation measures.

Projects Without Approved CEQA Documentation

Caltrans identified 15 cumulative projects where the CEQA documentation has not been approved. These projects have been further grouped by where they are in the project approval process. An early step in the project development process is the preparation of the Project Study Report (PSR). A PSR is an engineering report that outlines the scope, schedule, and estimated cost of a project. A final PSR is required before a project can be included in the State Transportation Improvement Program (STIP). After the completion of the PSR, a Project Report (PR) and Environmental Document is prepared[2]. It is through the PR process than an alternative is selected. Once the PR process is complete, then the project can proceed to the Plans, Specification and Estimates (PS&E) phase, then finally on to construction. The remaining cumulative projects identified by Caltrans have been divided into those where the PR is under preparation, those where the PSR is under preparation, and those where the PSR has not been initiated.

For those projects where there is no PSR or where the PSR is not available for review, there is very little detailed information on the potential impacts; however, a qualitative evaluation of the type of impacts likely associated with each project is provided based on the type of improvement proposed and the environment surrounding the project. The actual impact would vary dependent on the design proposed. None of these projects have funding for construction since they are not in the STIP. The STIP is a multi-year capital improvement program for transportation projects either on or off the State Highway System.

Projects Where the Project Report Has Been Initiated

SR-74 Ortega Highway (Calle Entradero to La Pata). This highway improvement, located in the City of San Juan Capistrano and unincorporated Orange County, would widen SR-74 to four lanes from Calle Entradera to approximately a quarter mile east of La Pata Avenue (Project number C2 on Exhibit 7.3-2.). The Project Report is in progress; however, no construction money has been programmed. The environmental document has not been approved. That impacts associated with the project would include potential impacts on farmland, noise impacts, cultural resources, land use and construction related impacts, such as short-term noise and air quality impacts and traffic delays during construction.

I-5 at Camino Capistrano. The project would widen Camino Capistrano south of San Juan Creek Road to four lanes with a three-lane “pinch point” south of the I-5 ramps (Project number C3 on Exhibit 7.3-2.). The southbound off- and on-ramps at the I-5/Camino Capistrano interchange would also be widened. The Project Report is in progress and construction funding is scheduled for FY 2005/2006. The environmental document has not been approved. The project is a joint project with the City of San Juan Capistrano. Impacts with the project would be construction related, such as short-term noise and air quality impacts and traffic delays during construction.

Projects Where the Project Study Report Has Been Initiated

I-5 at Alicia Parkway. This project would construct an auxiliary lane from the southbound offramp to the southbound onramp (Project number C4 on Exhibit 7.3-2). The PSR for this project is complete. Minimal impacts would be anticipated because the project would be within

[2] For locally funded projects a joint PSR/PR can be prepared. These projects must be non-controversial and found to be Categorically Excluded/Categorically Exempt, pursuant to NEPA and CEQA, respectively or already have completed environmental documentation. The PSR/PR process is not for projects that add additional capacity, such as addition of mixed-flow lanes.

the existing right-of-way. Based on the type of improvements proposed, the anticipated CEQA document would be a Categorical Exemption. Timing for implementation is uncertain because the improvement is within the TCA non-compete zone[3].

Ortega Highway Interchange. This highway improvement project would modify the I-5/Ortega Highway interchange ramp configuration (Project number C5 on Exhibit 7.3-2). The jurisdiction of the project is shared with the City of San Juan Capistrano. Conceptual studies are in progress; however, there is no City Capital Improvement Project (CIP) funding and no Caltrans State Transportation Improvement Program (STIP) funding approved for the improvements. Funding is committed for the design phase. Though the Project Study Report (PSR) has not been finalized, conceptual alternatives for interchange improvements have been presented at public meetings. Alternatives range from the No-Project Alternative, constructing a round-about, or realigning the interchange and Del Obispo Avenue.

At the PSR phase of the project only a Preliminary Environmental Analysis Report (PEAR), not full NEPA/CEQA documentation, is prepared. The PEAR identifies feasible alternatives, anticipated type of impacts associated with a proposed project, and order of magnitude of those impacts. It also recommends the type of environmental documentation required for the project. The Draft PEAR is not available. It is anticipated that the type of document ultimately prepared would be dependent on which alternatives advance to the next level of analysis.

I-5 at Oso Parkway. This project would improve the storage lane for the southbound off-ramp, the northbound on-ramp, and the northbound loop ramp at the I-5/Oso Parkway interchange (Project number C6 on Exhibit 7.3-2). The PSR is in progress. As a result, no environmental document has been prepared. However, the project would likely result in the following adverse impacts: short-term construction related air quality and noise impacts; public service impacts resulting from construction activities; and short-term traffic impacts resulting from detours and street closures.

I-5 Improvements: Caltrans identified five improvement projects to various portions of I-5. These projects, which are listed below, would provide for construction of high occupancy vehicle (HOV) lanes, interchange improvements or other improvements to enhance operation of the existing I-5. For these projects, Caltrans is preparing PSR/Project Development Support (PDS) documents. A PSR/PDS is a type of PSR that meets the legal requirement for facilitating programming of a project on the STIP, but identifies only the scope, schedule, and resources necessary to advance the project. Detailed right-of-way and construction cost estimates are deferred until a later date. For projects with a PSR/PDS, a supplemental document is required to program the remaining components of the project. Funding for design and construction have not been programmed for any of these projects. Because of the stage of development for these projects, detailed information on the potential impacts are not available in a public document. Given the nature of the projects, it is anticipated that impacts would be short-term construction related air quality and noise impacts; public service impacts resulting from construction activities; removal of vegetation adjacent to the freeway; potential minor land acquisition; and short-term traffic impacts resulting from detours and street closures. The following projects are in this category:

- I-5 (Camino Capistrano to Avenida Pico). This project would construct an HOV lane on I-5 between Camino Capistrano and Avenida Pico. (Project number C7 on Exhibit 7.3-2)

[3] The non-compete zone is an agreement between the TCA and Caltrans that prohibits improvements to freeway facilities that would undermine the economic viability of the toll road, unless compensation for lost tolls is paid to the TCA.

- I-5 at Avery Parkway. This project would reconstruct portions of the interchange (Project number C8 on Exhibit 7.3-2).

- I-5 at Camino Estrella. This project would construct an additional lane and bridge widening for the southbound auxiliary lane and southbound off-ramp at the I-5/Camino Estrella interchange (Project number C9 on Exhibit 7.3-2).

- I-5 at La Paz. This project would reconstruct the I-5/La Paz interchange (Project number C10 on Exhibit 7.3-2).

- I-5 at Crown Valley Parkway. This project would construct an additional lane to the southbound auxiliary lane and southbound off-ramp at the I-5/Crown Valley Parkway interchange (Project number C11 on Exhibit 7.3-2).

Projects Where the Project Study Report Has Not Been Initiated

There are five projects where the PSR has not been initiated. These are all defined as being evaluated as part of future studies; however, no timeframe for initiating those studies has been established. These five projects are further grouped as being improvements to I-5 or Ortega Highway.

<u>I-5 Improvements</u>: Four projects propose modifications to I-5, either through the construction of auxiliary lanes, ramp improvements, or a new on-ramp. The extent and nature of the impacts cannot be determined until preliminary concept alternatives are developed; however, given the nature of the projects, the following type of adverse impacts may occur: short-term construction related air quality and noise impacts; relocation/disturbance of public service and utilities impacts resulting from construction activities; short-term traffic impacts resulting from detours and street closures; and removal of vegetation, though the biotic value of the habitat may be limited given the proximity to the freeway.

- I-5 (Avenida Pico to Avenida Vista Hermosa). This project would add north- and south-bound auxiliary lanes on I-5 between Avenida Pico to Avenida Vista Hermosa to improve the circulation system (Project number C12 on Exhibit 7.3-2).

- I-5 at Camino Las Ramblas. This project would widen the northbound Camino Las Ramblas on-ramp to I-5 (Project number C13 on Exhibit 7.3-2).

- I-5 at Junipero Serra (Camino Capistrano to I-5 Ramps). This project includes the widening of the undercrossing at Junipero Serra Road between Camino Capistrano and the I-5 southbound ramps (Project number C14 on Exhibit 7.3-2).

- I-5 at Stonehill Drive. This roadway improvement project would construct a new southbound off-ramp from I-5 to Stonehill Drive (Project number C15 on Exhibit 7.3-2).

<u>Ortega Highway</u>: This project would widen Ortega Highway to four lanes from Antonio Parkway to the future SR-241 traversing the Ranch Plan project site (Project number C16 on Exhibit 7.3-2). This is consistent with the OCTA MPAH, though it is identified as being a future study. It is not possible to estimate the extent of the impacts without concept design plans for Ortega Highway and a selected alignment for the SR-241. However, given the location of the roadway and the characteristics of the area immediately adjacent to the roadway, it is anticipated that there would be potential impacts to: agricultural lands, including Prime Farmland; biotic

resources including sensitive habitat and species; landforms, due to the grading; cultural resources; land use; and aesthetics.

7.3.2 TRANSPORTATION CORRIDOR AGENCY

Four potential cumulative projects have been identified under the jurisdiction of TCA. Caltrans also shares jurisdiction of the projects. The location of these proposed projects are shown on Exhibit 7.3-2, with the exception of the alternatives for the SOCTIIP, which are shown in Exhibit 7.3-3. These are discussed below.

Projects Where Construction Has Been Initiated

SR-241 Northbound Widening. This highway improvement, currently near completion, widens the northbound SR-241 between Bake Parkway and Santa Margarita Parkway to provide four general-purpose lanes (Project number C17 on Exhibit 7.3-2). The project is consistent with the ultimate cross-section evaluated as part of the EIR completed in 1990 for SR-241. When the initial phase of SR-241 was constructed, the ultimate right-of-way was graded and mitigation implemented. This phase of development required a Nationwide Section 404 permit and Section 1600 agreement for improvements at stream crossings. Pursuant to the permits issued, the impacts associated with the project were mitigated through the restoration and development of wetland habitat and payment of fees for impacts to coastal sage scrub. Other impacts associated with this phase of construction would be limited to short-term construction impacts (i.e., construction related air quality and noise impacts and short-term traffic impacts). The short-term impacts would not contribute to cumulative impacts because the construction of the SR-241 improvements and the development of the Ranch Plan would not occur in the same time period or be in close proximity to each other.

Projects With Approved CEQA Documentation

SR-241 Widening. This highway improvement would widen the southbound SR-241 between Bake Parkway and Santa Margarita Parkway to provide four general-purpose lanes (Project number C18 on Exhibit 7.3-2). The project is consistent with the ultimate cross-section evaluated as part of the EIR completed in 1990 for SR-241. When the initial phase of SR-241 was constructed, the ultimate right-of-way was graded and mitigation implemented. This phase of develop will also require a Nationwide Section 404 permit and Section 1600 agreement for improvements at stream crossings. Though the permit has not been issued, it is reasonable to assume that the nature of the impacts and mitigation would be the same as for the northbound improvements. Other impacts associated with this phase of construction would be limited to short-term construction impacts (i.e., construction related air quality and noise impacts and short-term traffic impacts). The short-term impacts would not contribute to cumulative impacts because the construction of the SR-241 improvements and the development of the Ranch Plan would not occur in the same time period or be in close proximity to each other.

SR-73 (north of I-5). This highway improvement would widen SR-73 north of I-5 to provide a fourth general-purpose lane in the northbound direction (Project number C19 on Exhibit 7.3-2). The project would be consistent with the ultimate cross-section evaluated as part of the EIS/EIR for SR-73. Since grading of the ultimate right-of-way was done as part of the initial phase of construction the impacts associated with the widening would not be expected to be extensive. While the CEQA documentation is complete, permits from the regulatory and resource agencies may be required. While this project has been identified in the TCA Capital Improvement Program, there is no funding specifically identified for project implementation or a designated timeframe for its implementation. The project would likely result in short-term construction related traffic, air quality and noise impacts and minor vegetation removal.

SR-241 (Oso Parkway to Santa Margarita Parkway). This highway improvement would widen SR-241 between Oso Parkway and Santa Margarita Parkway to provide three general-purpose lanes in each direction to improve the circulation system (Project number C20 on Exhibit 7.3-2). The jurisdiction of the project is shared with Caltrans. The project would be consistent with the ultimate cross-section evaluated as part of the EIR for SR-241. When the initial phase of SR-241 was constructed, the ultimate right-of-way was graded and mitigation implemented. Since grading of the ultimate right-of-way was done as part of the initial phase of construction the impacts associated with the widening would not be expected to be extensive. While the CEQA documentation is complete, permits from the regulatory and resource agencies may be required. While this project has been identified in the TCA Capital Improvement Program, there is no funding specifically identified for project implementation or a designated timeframe for its implementation. The project would likely result in short-term construction related traffic, air quality and noise impacts and vegetation removal.

Projects Without Approved CEQA Documentation

SR-241 SOCTIIP. In May, 2004, the TCA, Caltrans and FHWA released for public review a Draft EIS/SEIR for the South Orange County Transportation Infrastructure Improvement Program (SOCTIIP). The purpose of SOCTIIP is to evaluate regional circulation needs in South Orange County. The potential extension of SR-241 south to I-5 and the County border is one component of the SOCTIIP. The extension of SR-241 would traverse the Ranch Plan project site. The SOCTIPP EIS/EIR evaluates six corridor alternatives for SR-241, each of which would consist of four mixed-flow lanes initially and six mixed-flow plus two HOV lanes ultimately. In addition, SOCTIIP includes one alternative to improve existing and master planned arterial highways, and one alternative to widen I-5 from the County border north to the I-405 interchange. The alternatives being evaluated in the SOCTIIP are described below. Additionally, the potential alignments for the SR-241 extension in relationship to the Ranch Plan site are depicted in Exhibit 7.3-3:

- The Far East Corridor-West (FEC-W): This toll road alternative would extend the existing SR-241 south from Oso Parkway to I-5 at the County line. This is the alignment alternative reflected in this Ranch Plan EIR, as well as in the General Plan, on the MPAH, and regional planning documents.

- The Far East Corridor-Modified (FEC-M): This toll road alternative would have the same start (Oso Parkway) and end (I-5) points as FEC-W, but would largely avoid the Donna O'Neill Land Conservancy with a more easterly alignment through the upper central portion of the toll road.

- The Central Corridor (CC): This toll road alternative would extend SR-241 south and connect to I-5 at Avenida Pico in the City of San Clemente. The alignment would cross Ortega Highway approximately one-quarter mile east of Antonio Parkway. This alignment would run east of San Juan Capistrano city limits, and then enters the City of San Clemente to parallel Avenida Pico before connecting to I-5.

- The Central Corridor-Avenida La Pata Variation (CC-ALPV): This toll road alignment would extend south from Oso Parkway to Avenida La Pata in San Clemente, where it would terminate.

- Alignment 7 Corridor-Far East Crossover-Modified (A7C-FEC-M): This toll road alternative would extend SR-241 south from Oso Parkway to I-5 at the County line. The alignment would cross Ortega Highway approximately one mile east of Antonio

Parkway. This alternative would follow the same general alignment as FEC-W throughout most of the Ranch Plan study area.

- Alignment 7 Corridor-Avenida La Pata Variation (A7C-ALPV): This toll road alternative would extend SR-241 south from Oso Parkway to Avenida La Pata in San Clemente, where it would terminate.

- Arterial Improvements Only (AOI): This alternative would improve Antonio Parkway/Avendia La Pata from Oso Parkway to Avenida Pico, to beyond its MPAH designation, providing one additional lane between Avenida Pico and San Juan Creek Road, and two additional lanes from San Juan Creek Road to Oso Parkway. Smart Street/Transportation System Management (TSM) improvements would be constructed in existing rights of way on Avenida Pico, Camino Las Ramblas, portions of Ortega Highway, and portions of Avenida La Pata.

- I-5 Widening (I-5): This alternative would provide additional general purpose, auxiliary and high occupancy vehicle (HOV) lanes on I-5 from approximately I-405 south to the County boundary in south San Clemente. Adding these lanes would require reconstruction of interchanges along the route and acquisition of property along I-5.

- No Build: In addition to the eight build alternatives identified above, two No Action alternatives, which assume different background land use levels, were also analyzed and are documented in the EIS/SEIR.

The extent and type of impacts associated with SOCTIIIP would vary dependent on the alternative selected. Selection of the I-5 Improvement alternative would have limited impacts on biotic resources; however, it would result in the displacement of existing uses and have substantial construction-related impacts. The toll road alternatives would have substantial impacts on biotic resources. The alternatives that connect to I-5 in the vicinity of Avenida Pico would also have displacement impacts. The following summarizes potential impacts of the various SOCTIIP alternatives.

- Air Quality: Each of the build alternatives would result in significant hydrocarbon (HC), carbon monoxide (CO), nitrogen oxide (NO_X) and fine particulate matter (PM_{10}) air quality impacts during construction. Similarly, each of the build alternatives would result in significant CO and NO_X impacts during operations. The no build alternatives would not result in significant air quality impacts.

- Biological Resources: Each of the build alternatives would result in significant unavoidable impacts to wildlife and vegetation as well as threatened and endangered species. Biological impacts are fully addressed in Section 7.4 of this EIR.

- Farmland: By converting farmland to non-agricultural use and conflicting with the Williamson Act, each of the six toll road alternatives would result in significant impacts to farmland as would the arterial improvements only (AIO) alternative. Neither the I-5 alternative nor either of the two no build alternatives would significantly impact farmland.

- Aesthetics: All the SOCTIIP alternatives, except the No Build Alternative, would result in significant aesthetic impacts by altering the visual quality of the area. The I-5 alternative, arterial improvements only, and those SR-241 alternatives that connect with I-5 in the vicinity of Avenida Pico would result in impacts to the existing urban environment by removing buildings and landscaping. The level of impact and nature of the impact would

be different than the impacts associated with the construction of SR-241 through undeveloped areas. The toll road alternatives would result in substantial amounts of grading, removal of vegetation, and construction of an urban component in areas that are currently undeveloped. This would change the visual character and setting of the area.

- Cultural Resources: Each of the build alternatives would have potentially significant adverse impacts on cultural resources. Because of the extensive amount of earth-moving activities that would be required for the construction, all of the build alternatives, including the AIO alternative, could result in potentially significant adverse impacts to archeological resources. Similarly disturbance of historic resources is possible with the I-5 and SR-241 alternatives.

- Hydrology and Drainage: The CC and A7C-ALPV alternatives would result in significant adverse impacts due to encroachment of roadway elements on the Cañada Chiquita floodplain. With incorporation of project design features, none of the other alternatives would have significant hydrology and drainage impacts.

- Noise: Implementation of the mitigation measures identified in the SOCTIIP EIS/SEIR would reduce construction-related impacts for each of the build alternatives except I-5 to a level considered less than significant. The I-5 alternative would include nighttime demolition along I-5 and, therefore, result in significant noise impacts. All the long-term significant adverse noise impacts associated with the SOCTIIP build alternatives could be reduced to below a level of significance with implementation of the mitigation measures discussed in the SOCTIIP EIS/SEIR. However, if mitigation is not implemented at any location, there would be a significant adverse noise impact at that location.

- Land Use: By requiring the temporary use of land to accommodate construction-related activities, conflicting with adopted land use plans, and dividing existing communities, each of the SOCTIIP build alternatives would result in significant unavoidable adverse impacts with respect to land use.

- Socioeconomic Impact: None of the SOCTIIIP alternatives would result in adverse impacts related to Environmental Justice, however, the CC, A7C-ALPV, and I-5 alternatives would result in unavoidable adverse impacts related to socioeconomics by displacing residential and/or commercial uses and inducing growth.

- Recreation: Each of the SOCTIIP would result in adverse impacts on one or more existing and/or planned recreation resources which cannot be mitigated to below a level of significance due to the fact that they would result visual, air quality, transportation or noise impacts that could reduce individuals' enjoyment of recreation facilities. In addition, the FEC-M, FEC-W, CC, A7C-FEC-M, and I-5 alternatives would result in the acquisition of recreation lands.

- Military Impacts: Three SOCTIIP alternatives (FEC-W, FEC-M and A7C-FEC-M) would result in significant unavoidable impacts on military operations on MCB Camp Pendleton. This alignment traverses San Onofre State Beach, which is leased from the Department of the Navy. The roadway would sever this acreage from the remainder of the base, which could result in limitations on the future effectiveness of those acres for military training operations.

- Water Quality: The SOCTIIP Alternatives, with the exception of the No Build Alternative, would have the potential of having water quality impacts associated with pollutants in runoff from the roadway. However, current regulations require that the water be treated prior to release into downstream waters; therefore, potentially significant short-term adverse impacts to water quality would be mitigated to below a level of significance.

7.3.3 COUNTY OF ORANGE

Thirteen potential cumulative projects have been identified in unincorporated Orange County. The projects are various stages of processing and completion. The locations of these projects are shown in Exhibit 7.3-4.

Projects Where Construction Has Been Initiated

Ladera Ranch. The Ladera Ranch Planned Community project, evaluated in EIR 555 and currently under construction, is located south of the Las Flores Planned Community, west of Chiquita Ridge, and east of the Crown Valley Parkway Bridge (Project number OC1 on Exhibit 7.3-4). The project is planned for 8,100 housing units, 25 acres of commercial and industrial uses, 1,600 acres of open space, 59 acres of parks and public facilities, and 11 acres of urban activity center. Currently, over half of this project is built. All mass grading is complete. The EIR identified the following as significant impacts:

- Geology, Soils, and Seismicity: Geotechnical constraints were identified as a significant potential impact. Compliance with the grading code, Unified Building Code and Standard Conditions of Approval would reduce the impacts to less than significant. However, the project would have significant landform alteration impacts because of the cuts and fills necessary to alleviate geological instabilities within the development areas. Landform alteration was identified as an unavoidable, significant impact.

- Hydrology and Water Quality: Construction activities would increase the amount of erosion onsite thereby increasing sedimentation in Trabuco and San Juan creeks. Construction equipment would also increase the chance of toxins entering the creeks. While compliance with the requirements of NPDES stormwater permits, the Orange County DAMP, and specific County requirements of the county's stormwater permits would be mandatory, the level of significance would remain potentially significant after mitigation. However, the project would be in full compliance with federal, state and local water quality programs and an urban runoff management plan was prepared to reduce the impacts to the extent feasible.

- Traffic: There would be 16 intersections operating at a deficient LOS in the year 2020, 13 of which are significant project-related impacts. In the year 2000, there would be four project-related deficient intersections. The project applicant would pay a pro-rata share for improvements at intersections that are deficient without the project and provide improvements to intersections that would experience unacceptable LOS due to project impacts. The level of significance after mitigation would remain significant.

- Noise: There would be short- and long-term noise impacts associated with project development. Compliance with the Noise Ordinance and participation on a pro rata share for a noise mitigation program would reduce the impacts to a level of less than significant.

- Air Quality: Construction impacts for CO, NO_x, PM_{10} and ROC would exceed SCAQMD thresholds. Regional mobile source emissions would result in significant increases in emissions for CO, NO_x, ROC, and PM_{10}. Implementation of measures in compliance with SCAQMD Rules 402 and 403 would reduce construction emissions and fugitive dust, and the implementation of a transportation demand management plan for the urban activity center would identify project trip reduction strategies thereby reducing employee-related trips by 15 percent. Impacts would continue to remain significant after these measures are implemented.

- Land Use: Project implementation would result in the conversion of almost 50 percent of undeveloped and low intensity uses to high intensity urban uses. Even though mitigation would provide for the preservation of approximately 1,600 acres for open space surrounding the development area, the level of significance after mitigation would remain significant.

- Biological Resources: Project development would result in the loss of 2,244.40 acres of annual grassland and 61.44 acres of coastal sage scrub (39.83 acres attributed to the land development area and 21.61 acres as roadway impacts). This would substantially affect several sensitive raptor species, as well as several sensitive bird and reptile species. This would remain a significant impact that can only be partially mitigated through the permanent preservation protection of an area of approximately 1,600 acres of natural habitat preserved in permanent open space. Impacts associated with the loss of natural habitat would include displacement of wildlife, habitat fragmentation, and the loss of habitats that support sensitive wildlife species.

- Public Health and Safety: Potential impacts to construction workers if there were unauthorized releases from the two underground jet fuel pipelines that traverse the land development area, was identified in the EIR. These impacts would be reduced to a level considered not significant via well abandonment documentation prior to the issuance of a grading permit, testing conducted for the potential of methane gas migration within 300 feet of any oil prior to the issuance of a grading permit, and the submission of a design for barriers to public access to any exploratory oil wells.

- Public Services, Utilities, and Energy: Project development would have a potential to affect both fire protection services and emergency response times due to the increase in emergency calls. Impacts would be reduced to a level considered not significant as a result of an agreement with the County to contribute on a pro-rated share for the provision of a new fire facility. Impacts to schools, libraries and other public services would be reduced to less than significant through implementation of standard conditions of approval and implementation of a cooperative agreement with CUSD.

- Cultural Resources: The project has the potential to directly affect 18 known cultural resource sites. There is also the potential of four sites to be indirectly affected. Impacts would be reduced to levels considered not significant through implementation of standard conditions of approval.

- Aesthetics: Project implementation would alter the views of the surrounding areas during construction; however, the uses proposed would be a continuation of surrounding development. No significant impacts were identified.

Antonio Parkway (Oso Parkway to southern boundary of Ladera Ranch). This project, recently completed, widened Antonio Parkway from Oso Parkway to the southern boundary of Ladera

Ranch to six lanes(Project number OC2 on Exhibit 7.3-4). EIR 555 addressed the construction of Antonio Parkway to its ultimate six lane configuration, in conjunction with the development of the Ladera Ranch Planned Community. A four-lane facility from Oso Parkway to Ortega Highway was constructed as part of the initial phase of the project. Grading for the ultimate facility was completed as part of the initial phase of construction. Impacts associated with the roadway are within the impacts identified as part of Ladera Ranch.

Arroyo Trabuco Golf Course. EIR 580, certified in 2002, evaluated environmental impacts of this project. The site is located west of Ladera Ranch (Project number OC3 on Exhibit 7.3-4). The project site encompasses approximately 230 acres, of this 55 acres would remain as natural, ungraded land. Currently, all grading activities on the site are complete. The following potential environmental impacts were identified in the EIR:

- Land Use: There were no significant land use impacts identified; however, in relation to the proposed Arroyo Trabuco Regional Riding and Hiking Trail, the applicant would be required to provide a recreation trail for riding and hiking purposes prior to the recordation of the applicable subdivision map and/or issuance of a building permit.

- Mineral Resources: There would be a reduction in the availability of sand and gravel mineral resources. This would be considered a significant and unavoidable impact of the proposed project.

- Hydrology and Drainage: During construction, there would be a potential for soil erosion and water quality impacts. Project design features and Orange County Standard Conditions of Approval would reduce these impacts to a level considered less than significant via the implementation of a WQMP and use of BMPs

- Traffic and Circulation: The ICU increase at the intersection of Marguerite Parkway/Avery Parkway could be one percent or more, representing a significant impact if the proposed banquet facilities were used for weekday, midday events. The installation of a signal at the Plata Place/Avery Parkway intersection would reduce this impact to a level considered less than significant.

- Air Quality: Construction of the project would result in significant short-term impacts from NO_x and PM_{10} during the peak day and in the peak quarter, and sensitive receptors would be exposed to substantial concentration of PM_{10} during construction. These impacts would remain significant, even with full compliance with SCAQMD regulations, including Rule 402, the Nuisance Rule, and Rule 403, Fugitive Dust.

- Noise: Surrounding sensitive receptors would be subjected to noise impacts; however, compliance with the applicable noise ordinances and design of the public address system would reduce these impacts to less than significant.

- Biological Resources: The loss of 11.7 acres of coastal sage scrub, 36.2 acres of annual grassland, 15.1 acres of Valley needlegrass grassland, and 9.3 acres of disturbed Valley needlegrass grassland would be considered a significant impact. There would be the disturbance of 0.21 acres of freshwater marsh and 0.31 acres of disturbed wetland, the loss of 12.41 acres of riparian habitats, the disturbance of 0.33 acres of sycamore trees, the temporary disturbance of 6.49 acres of open water, all of which would be considered a significant impact. The dedication of 359 acres of open space including natural habitats and other vegetative cover types in conjunction with the project applicant re-vegetating/restoring 3.0 acres of coastal sage scrub, 18.2 acres of native

grassland, and 16.0 acres of wetland and riparian habitat within the limits of the project or in the dedicated open space would reduce these impacts to a less than significant level.

The project could have a significant impact on the coastal California gnatcatcher and the least Bell's vireo due to direct and indirect impacts to the habitat for these species, coastal sage scrub (gnatcatcher) and southern willow scrub (vireo). The above-mentioned dedication, in addition to a construction monitoring program, project design features, and a 20-year cowbird trapping program would mitigate impacts to less than significant.

The proposed project would impact 0.095 acres of ACOE jurisdictional waters/wetlands and permanent impacts to CDFG jurisdictional total 2.065 acres. The Section 404 and Section 1603 Streambed Alteration Agreement, with conditions, and development of a Resource Management Plan (REMP) would reduce the impact to a level considered less than significant.

- Cultural Resources: Grading and excavation activities could impact unknown archaeological resources and paleontological resources. The retention of a County-certified archaeologist and paleontologist to observe grading activities and to salvage and catalogue archaeological resources or fossils as well as create follow-up reports would reduce this impact to a level considered less than significant.

Crown Valley Parkway Bridge. The project is the phased construction of Crown Valley Parkway across the Arroyo Trabuco within the City of Mission Viejo and in unincorporated Orange County (Project number OC3 on Exhibit 7.3-4). This roadway improvement project would widen Crown Valley Parkway to seven lanes. The initiation phase provided a four-lane bridge structure and was completed in 2001. Construction of the second phase, which will provide widening to the full seven-lane width, will be initiated in 2004. The following potential environmental impacts were identified in the EIR associated with construction of the project. Most of the impacts occurred within the first phase of construction because the abutments for the ultimate width were constructed at that time. The widening of the bridge would occur within the footprint of the impact area from the initial construction.

- Land Use: The project would impact the slopes of the common property for the Cordova Canyon homeowners association and parcels owned by the Mission Viejo Company and Santa Margarita Company. Implementation of project-specific mitigation measures would reduce any impact to a level considered less than significant.

- Geophysical: The abutment for the bridge structure would be exposed to rainfall and possible erosion until the ultimate project is constructed. Mitigation would reduce these impacts to a level considered less than significant.

- Air Quality: The project would result in short term construction-related emissions that exceed SQAMD thresholds. The level of impact would remain significant after mitigation.

- Noise: The long-range traffic volumes utilizing the proposed project would result in noise levels in excess of County standards at the All Bright Preschool on Crown Valley Parkway. Mitigation would include provisions for an 8-foot wall near the daycare center thereby reducing impacts to a level considered less than significant.

- Biological Resources: The removal of up to 11.8 acres of habitat, which included 2.83 acres of Venturan-Diegan Transition coastal sage scrub, 2.96 acres of annual and ruderal grasslands, 0.98 acres of Southern Coastal Needlegrass Grassland and 4.4 acres of riparian communities, would be a significant impact. Construction activities would have adverse impacts on water quality; affect four pairs of coastal California gnatcatcher's and two least Bell's vireo; and remove suitable habitat for nesting and foraging for a variety of raptor species. Mitigation would involve placing a conservation easement over coastal sage scrub occupied by the California gnatcatcher, reseeding the abutment slopes, the replacement of riparian habitat, the development of erosion and sediment control measures, and surveying the project site prior to construction for the presence of active nests. The level of significance after mitigation would be less than significant for all biological impacts.

- Aesthetics: The proposed project would alter viewsheds. Mitigation measures for biological resources would help to minimize visual intrusion of the project and reduce any impact to a level considered less than significant.

- Cultural Resources: The project would result in the possibility of impacts to archaeological and paleontological resources. Adherence to specific mitigation measures would reduce these impacts to a less than significant level.

- Public Services and Facilities: Construction activities for the project would result in the possible need for detours or blocked access points resulting in temporary delays for emergency services. Development of a construction phasing and detour plan would be submitted to the OCFA and the Sheriff's Department to mitigate any impacts to a level considered less than significant.

- Public Services and Facilities: The project would possibly impact an existing electrical line within the area. Coordination with SDG&E regarding possible relocation of the existing 12 kv lines would reduce any impact to a level considered to be less than significant.

Projects With Approved CEQA Documentation

Saddleback Meadows. This project would cover 222 acres, located east of El Toro Road and north of Upper Oso Reservoir (Project number OC5 on Exhibit 7.3-4) and develop 283 new homes and 159 acres of open space. The Board of Supervisors certified the Subsequent EIR 566 in 2002. Development of the project was delayed due to litigation; however, this was resolved in May 2004. Based on the Subsequent EIR, the following potential impacts were identified:

- Land Use: The residential use would be a potentially incompatible use with the Rama Krishna Monastery and St. Michael's Abbey. This impact was mitigated to less than a significant impact through the dedication of 83.25 acres to the County, which would provide a topographic and natural space buffer between uses.

- Hydrology/Water Quality: The project would result in increase impervious surface, resulting in an increase in storm flow runoff. Maintaining natural drainage patterns and revegetation of areas deemed to be over-grazed and subject to high runoff and erosion, as well as construction of structures designed to accommodate a 100-year storm event would reduce the impact to less than significant. Additionally, the implementation of BMPs would reduce pollutants that would be contained in the urban runoff to the

maximum extent feasible. Standard County Conditions require a storm water permit to be issued before grading begins and a permit identifying all BMPs used on-site to control predictable pollutant runoff. The SWRCB would require a SWPPP and WQMP.

- Noise: The project would contribute to short-term noise impacts associated with construction activities. Intervening terrain, compliance with the Orange County noise ordinance, and implementation of Standard County Conditions would reduce the impact on noise sensitive uses to a less than significant level.

- Public Services: The project would result in potential impacts on schools and libraries; however, payment of school and library development fees would reduce the impact to less than significant. Additional population generated by the project would increase the need for additional police and fire protection services and impact existing response times. Implementation of Standard County Conditions, increased funding mechanisms (taxes) and a disclosure to prospective buyers that the area may be outside of the response time standards of the OCFA would reduce this impact to a less than significant level.

- Utilities and Service Systems: Additional population generated by the project would consume increased amounts of electricity, natural gas, and water. However, the planned capacity of existing electrical, natural gas, and water distribution services would not be exceeded. Compliance with Standard County Conditions would lessen these impacts to less than significant.

- Recreation: The proposed project would result in significant impacts to existing local public recreational facilities. The dedication of a recreation easement to the County, and the construction of improvements and a trail rest stop and trail rest area, would reduce recreational impacts to below a level of significance.

- Aesthetics/Visual: The project would alter existing landforms and involve substantial grading. However, the project's rural character and preservation of more than 70 percent of the property within natural open space result in a less than significant impact.

- Geophysical: The project would result in seismic hazards and other geotechnical constraints. Conformance with the UBC and Orange County codes would ensure less than significant impact.

- Transportation/Traffic: The project would generate increased traffic near the project site. Project design, signalization and Standard County Conditions would ensure a less than significant impact.

- Air Quality: Construction and operation of the project would generate pollutant emissions. Incorporation of a comprehensive dust control program would ensure that impacts would be less than significant. Long-term, project-specific operational impacts would be less than SCAQMD significance thresholds and would not be significant. The project site would be located within a non-attainment air basin, and its contribution to cumulative impacts is considered a significant adverse air quality impact.

- Biological Resources: Impacts would include habitat fragmentation, exotic species invasion, lighting, domestic pet intrusion/predation and increased human intrusion. Approximately 1.45 acres of streambed would be impacted. Impacts to coastal sage scrub and coast live oak woodland would be mitigated for both on- and off-site, and a

wildlife movement corridor would be incorporated into the tract map. Design features; Standard County Conditions; compliance with CDFG Section 1600, ACOE Section 404 and USFWS ESA requirements; and other mitigation measures would reduce impacts to a less than significant level.

- Cultural Resources: The project would have an impact on potential paleontological and archaeological resources. Compliance with Standard Conditions of Approval for cultural resources would reduce these impacts to a level considered less than significant.

Saddle Creek/Saddle Crest. This project would develop residential and open space uses on 113.5 acres of land in the vicinity of El Toro Road and Live Oak Canyon Road (Project number OC6 on Exhibit 7.3-4). Saddle Creek would build 127 housing units and Saddle Crest would build 35 units, for a total of 162 dwelling units. Recirculated Draft EIR 578 (August 2002) is currently in litigation with a court decision anticipated in early June 2004. The following potential environmental impacts were identified in the EIR:

- Air Quality: Daily PM_{10} emissions associated with construction activities would exceed the SCAQMD significance threshold for PM_{10} of 150 pounds per day. Construction emissions would substantially exceed the average daily NOx significance threshold stipulated by SCAQMD. These impacts would be unavoidable significant adverse impacts.

- Biological Resources: The impact to jurisdictional waters and wetlands would be considered significant due to the fragmentation of direct tributaries to Aliso Creek and related habitat. The contribution to regional losses of coastal sage scrub, chaparral, and woodland habitats would represent a cumulatively significant impact; the loss of habitat for many common species including at least 25 sensitive species (not listed as threatened or endangered), would be cumulatively significant. Impacts to oak, sycamore trees and oak woodlands are considered significant and unavoidable.

- Geophysical Resources: There would be the potential for substantial adverse effect to property or people related to slope stability, landslides, and/or erosion. These impacts would be mitigated to less than significant levels via project design features and compliance with the grading code and the Uniform Building Code.

- Water Quality: There would be the potential to significantly degrade surface water or groundwater quality during construction and after construction is complete. However, this impact would be mitigated to a less than significant level via implementation of project design features.

- Noise: There would be short-term construction noise impacts; however, compliance with the County's Noise Ordinance would ensure the impact would be less than significant. Project-related long-term noise levels would be less than significant through implementation of design features.

- Hazards: There would be a potential risk to people and structures with a "High Severity Fire Zone." This impact would be mitigated to a less than significant level via the incorporation of fuel modification zones as required by the OCFA. There would be impact to emergency response time. This impact would be mitigated via the participation of both the OCFA and OC Sheriff's Department in mutual and automatic aid agreements.

- Public Services: Potential impacts to schools in the SVUSD would be reduced to a less than significant level through payment of school impact fees. A few residences would be outside of the response time standards of the Orange County Fire Authority. This impact would be mitigated to a less than significant level via the provision of evidence of disclosure to prospective buyers.

- Hydrology and Drainage: Potential flood hazard impacts would be considered to be less than significant because the project site is not within a 100-year floodplain. Compliance with Orange County requirements and standards would reduce potential drainage and water quality impacts to less than significant.

- Transportation and Circulation: They project would result in impacts to the local circulation network. The project would participate in the roadway fee program established by the County as well as applicable adopted programs to supplement funding for improvements to Santiago Canyon Road and modified programs on a fair share basis for project-specific impacts to the Santiago Canyon Road/Live Oak Canyon Road intersection. With mitigation, impacts would be less than significant.

- Aesthetics: There would be impacts to the visual character of the area. There would be less than significant aesthetic impacts because the project would not affect major ridgelines. The project would be low-density and rural in character and therefore consistent with F/TSP Resource Overlay Component. Further, impacts would not be adverse to F/TSP-identified "visually significant viewpoints."

- Cultural/Scientific Resources: Grading and excavation activities would impact unknown archaeological resources and paleontological resources. Impacts to archaeological and historical resources would be reduced to a less than significant level via compliance with Standard County Conditions such as surface collection, grading monitoring and salvaging, recording and repository. Impacts to paleontological resources would be reduced to a less than significant level via compliance with Standard County Conditions such as surveying, grading, monitoring and salvaging, and cataloging.

- Utilities and Service Systems: The project would result in increased demand for utility and service services beyond what is currently available. With implementation of improvements proposed by the project, any impacts would be reduced to less than significant levels.

Prima Deshecha Landfill. The County of Orange Integrated Waste Management Department prepared Final EIR 575 to address the potential impacts associated with the adopted 2001 Prima Deshecha Landfill General Development Plan (GDP) (Project number OC7 on Exhibit 7.3-4). The GDP, and associated EIR, provided a programmatic evaluation for the full build-out of landfill operations through 2064, the end uses of the landfill property in the post-closure period, and construction activities at the site needed for landslide stabilization purposes in Zone 1. The County is currently preparing a second amendment to the GDP and a Supplemental EIR (SEIR 597) to address potential changes in the area of disturbance at the site associated with additional slope stabilization efforts; project features required for minimization of biological impacts associated with full build-out of Zone 4; development of a conceptual pre-mitigation plan to address all impacts through full-build-out, and available project-level information for on-site features such as a desilting basin between Zones 1 and 4. These documents will also address project mitigation features associated with obtaining state and federal resource agency permits and authorizations needed for implementation of the approved 2001 GDP.

The potential impacts associated with the 2001 GDP are identified below.

- Topography: Implementation of the conceptual grading plan will result in significant topographic alteration of site. Incorporation of mitigation measures will ensure that site will not have a manufactured appearance and will be compatible with the existing natural terrain.

- Land Use and Planning: The project would have the possibility to create impacts due to activities and operations at the site that might conflict with adjacent, existing, or planned land uses. Agency negotiated design modifications and mitigation measures would be incorporated, as needed, to ensure less than significant impact.

- Geophysical: The project would have the potential to impact the stability of cut, fill and lined slopes; there is the possibility of soil erosion and the possibility of activating existing landslides if development areas are not stabilized. Incorporation of applicable mitigation measures would reduce these impacts to a level considered less than significant.

- Air Quality: Fugitive dust from construction, equipment operation and vehicular traffic would continue on a localized and periodic basis and there may be a minor short-term increase associated with landslide remediation features. Measures to minimize short-term construction would be incorporated into project plans, thereby reducing any impacts to a less than significant level.

- Noise: There is the possibility of localized increases in noise due to on-site construction of landslide remediation measures. Project design features would reduce any impacts to a level considered to be less than significant.

- Biological Resources: The project would result in the removal of coastal sage scrub, riparian resources and potentially impact special status habitats and special status species. Vegetation removal and habitat disturbance impacts of land-filling uses could affect nesting sites for listed bird species and raptors, as well as dens for coyotes, bobcats and mountain lions. Consultations and mitigation plans developed with the USFWS and CDFG would reduce impacts considered to be less than significant.

- Aesthetics: Land-filling uses would be visible from off-site vantage points and from recreational areas around the site. Changes in topography would have the possibility of impacting the view from on- or off-site areas. These impacts would be reduced to a level considered less than significant via MOU requirements, and viewshed protection measures which reduce the visibility of landfill operations to a minimum from viewpoints in adjacent housing developments.

- Cultural and Scientific Resources: The project will result in significant earth movement thereby having the potential to impact resources. Strict adherence to mitigation measures and Project Design Features would reduce any impacts to a less than significant level.

- Recreation: Impacts to hiking, riding and biking trails in the area will be reduced below significance through the implementation of mitigation measures to maintain regional access.

The potential impacts associated with the Second Amendment to the 2001 GDP are identified below:

- Utilities and Service Systems: The project would result in an increased need for potable or reclaimed water on the site for long-term bio-mitigation maintenance. It has not been determined whether additional water sources are required for this purpose. A thorough evaluation of alternatives would be conducted with a view toward minimization of impacts.

- Hydrology and Water Quality: The project would have the possibility of depleting groundwater supplies as well as a subsurface source of spring flows for the Prima Deshecha Cañada watercourse. The impacts would be fully analyzed and design alternatives developed to reduce impacts. Landfill operations would necessitate substantial movement of on-site material. Adherence to specific mitigation measures would reduce this impact to a level considered less than significant.

- Biological Resources: The second amendment would have the possibility to impact special status/State endangered species at the site (Brodiaea) as well as Federally listed species at the site (least Bell's vireo and California gnatcatcher). The proposed action will impact Prima Deshecha Canada stream and associated resources and, accordingly, will constitute an impact on waters of the US. Consultation with the appropriate federal and State agencies and development of a comprehensive pre-mitigation plan will reduce these impacts to below significance.

Projects without Approved CEQA Documentation

La Pata Avenue. This roadway project would construct an extension of La Pata Avenue from south of Ortega Highway to the San Clemente city limits (Project number OC8 on Exhibit 7.3-4). Neither the EIR nor the NOP have been prepared. The County is currently conducting a feasibility study. The project would likely result in the following adverse impacts:

- Biological: Portions of the roadway would affect an existing wildlife corridor; as well as the loss of natural habitat.

- Geological: Existing landforms would be altered and the roadway would traverse an area with extensive landslides.

- Air Quality: Short-term air quality impacts related to temporary construction emissions would occur; however, the project may result in long-term air quality benefits by reducing the long-term operation emissions associated with congestion.

- Noise: There would be both short-term and long-term noise impacts, though the significance of the impacts would be dependent upon the alignment selected and its proximity to noise sensitive uses.

- Aesthetics: The project would potentially result in a substantial amount of grading, with potential aesthetic impacts.

Alton Parkway. This roadway construction project would include the extension of Alton Parkway from Irvine Boulevard to immediately south of the SR-241 (Project number OC9 on Exhibit 7.3-4). Preparation of the EIR is in progress. The following potential environmental impacts were identified in the NOP for the EIR:

- Land Use and Planning: The proposed alternative would traverse the Musick Jail Facility. This would result in the need to reconfigure the approved jail expansion. This would be a significant impact; however, modifying the jail concept plan to allow the proposed facility to increase to six stories rather than four stories would reduce the land use impact to less than significant.

- Agricultural Resources: The proposed project would result in the direct loss of Prime Farmland, in addition to the loss of land set aside for agricultural purposes on the Musick Jail Facility.

- Hydrology/Water Quality: The project would result in the alteration of the Borrego Canyon Wash, a natural drainage channel. Construction of the roadway would result in an incremental increase in the amount of runoff and associated pollutants. Incorporation of design features, such as natural treatment basins and retention basins, would mitigate the impacts to less than significant.

- Biological Resources: The project would result in the removal of natural habitat, including wetlands and coastal sage scrub. California gnatcatchers have been identified within the project study area. Additionally, there is suitable habitat for the least Bell's vireo. Alton Parkway is a planned activity within the Central/Coastal NCCP/HCP; therefore, the impacts to identified species as a result of the roadway construction were incorporated into the NCCP/HCP Reserve design.

- Cultural Resources: The project would have potential impacts on cultural resources in the area, specifically, a known archaeological site.

- Air Quality: Temporary construction emissions associated with the project may exceed SCAQMD thresholds.

- Aesthetics: Construction of currently approved and pending projects in the vicinity would permanently alter the nature and appearance of the area through the loss of undeveloped areas. Additionally, a component of the project is modification to the approved expansion of the Musick Jail Facility.

Dana Point Harbor Revitalization Project. This project would refurbish and expand existing retail and restaurant buildings and would involve the construction of an additional 25,000 square feet of retail uses, reconfiguration of all existing surface parking areas to provide a total of 1,452 parking spaces, new boater loading and drop-off areas, approximately 800 dry stack boat storage spaces and improvements to boater service and public restroom buildings (Project number OC10 on Exhibit 7.3-4). It would also reserve opportunities for the future expansion and/or reconstruction of the Dana Point Marina Inn as well as provide for additional boat-trailer parking and new dry-stack boat storage spaces. An EIR is in progress. Based on the NOP distributed in October 2003, the EIR will address the following potential impacts:

- Aesthetics: The EIR would examine the impact of the proposed change in views as well as potential lighting impacts.

- Air Quality: The EIR would examine baseline air quality, assess traffic and construction impacts as well as operational impacts for consistency with SCAQMD guidelines.

- Cultural and Paleontological Resources: The EIR would examine the project's potential to disturb unknown archaeological and paleontological resources.

- Geology and Soils: The EIR would examine the project's location in a seismic region and how it would result in a change of existing topography.

- Hydrology and Water Quality: The EIR would examine increases in pollutant loadings in drainages, storm water runoff, and the impact of the replacement and/or construction of impervious surfaces. Analysis regarding how the project would impact the water quality within the Harbor and its association with flood hazards would be included.

- Land Use: The EIR would examine the compatibility of the project with existing and planned surrounding land uses. Amendments to the existing Dana Point Harbor Planned Community Project as well as to the General Plan, Municipal Zoning Code and Local Coastal Plan are expected.

- Noise: The EIR would examine the baseline noise levels and assess the impact of traffic and operation noise generated by the land uses as well as its compliance with noise regulations. Short-term construction related noise would also be examined.

- Public Services and Facilities: The EIR would examine the location of infrastructure and the capacity of same in serving the existing and proposed land uses. Potential impacts to fire safety, and police and emergency services would also be addressed.

- Recreation: The EIR would examine the renovation of existing recreational facilities as well as the reconfiguration of parking, park and picnic areas.

- Terrestrial and Marine Biological Resources: The EIR would examine on-site habitat areas as well as any impacts to local and regional resource management plans.

- Transportation/Traffic/Parking: The EIR would examine potential transportation, traffic and parking impacts as well as existing conditions and the analysis of the vehicular and pedestrian circulation.

Robinson Ridge Development Project. EIR 594 is being prepared and will evaluate the potential impacts associated with the proposed Robinson Ridge project, located east of the Trabuco Canyon Road/Plano Trabuco Road intersection in the Foothill/Trabuco Specific Plan (F/TSP) area of unincorporated Orange County (Project number OC11 on Exhibit 7.3-4). The 89.4-acre project includes a maximum of 206 single-family residential lots, a bluff top park, a neighborhood park, trails and open space. Based on the NOP the following potential environmental impacts will be addressed in the EIR:

- Land Use and Planning: The proposed project is consistent with the policies of the Orange County General Plan and the F/TSP. However, a technical amendment to the Foothill/Trabuco Specific Plan will be required to make the F/TSP consistent with the General Plans of the City of Rancho Santa Margarita and the County of Orange. The potential for significant impact exists.

- Agriculture: The proposed project would convert the existing 89.4-acre container stock nursery usage on the project site to residential and public uses. Approximately 60 acres of farmland would be lost. This would be considered a potentially significant impact.

- Geology & Soils: The City of Rancho Santa Margarita's General Plan indicates that the area containing the project site is susceptible to collapsible soils and ground subsidence hazards. This impact would have less than significant impact via mitigation.

- Hydrology & Water Quality: The project would result in a net increase in irrigation water required for yards. Portions of the site lie down slope from a retention basin with the Robinson Ranch. While unlikely, failure of the retention basin could release stored water onto the project site. The extreme northwest corner of the bluff face area has the potential to be impacted by flooding in a 100-year flood event as it is located adjacent to Trabuco Creek. These impacts would be mitigated via mitigation measures (which would include the non-development of the northwest corner of the bluff face area) that would reduce potential impacts to less than significant levels.

- Transportation & Circulation: A technical amendment to the F/TSP would be required to make it consistent with the General Plans of the City of Rancho Santa Margarita and the County of Orange as there is the potential for significant impact. EIR 594 would include a traffic study and appropriate PDFs and mitigation measures that would avoid or reduce potential projects impacts.

- Air Quality: The project site is located with a non-attainment air basin and there is the potential for significant impact. During grading and construction activities, impacts would be elevated. The project would also affect air quality during the occupancy phase. The EIR would include an Air Quality Technical Report based upon the standards of the SCAQMD and mitigation measures that avoid or reduce potential impacts.

- Noise: Site grading and construction would result in short-term noise impacts to adjacent residential neighborhoods. There is the potential for significant impact; however, mitigation measures are expected to avoid or reduce potential project-related noise impacts.

- Biological Resources: Some clearing of natural vegetation within the existing commercial nursery would be required. This would include the possible removal of eucalyptus windrows. Some clearing of vegetation with the wash area would also be required. A Tree Management and Preservation Plan would be prepared as part of the Area Plan. Further, natural communities such as coastal sage scrub and southern coast live oak riparian forest could potentially be impacted by project development. Mitigation measures are expected to reduce potential project related impacts to less than significant levels.

- Cultural & Scientific Resources: The area in which the project is located is rich in archaeological/paleontological resources. Mitigation measures would reduce potential project related impacts to below a level of significance.

- Recreation: The proposed project includes several acres of recreation and open space, which includes a portion of the Plano Trabuco Bluff Top Linear Park, open space, and a landscape buffer. The project would avoid or reduce project impacts on recreation and open space.

- Aesthetics: Conceptual plans for the proposed project indicate the future development would not substantially alter existing gradients on the project site, with the exception of certain areas adjacent to the surrounding existing residences to maintain their existing view opportunities. Mitigation measures would reduce impacts to less than significant levels.

- Mineral Resources: The extreme northwest portion of the site has the potential for mineral resources. This area is not proposed for development and is designated for open space. Less than significant impacts are expected.

- Hazards: The proposed project's location between an extremely urbanized area and natural vegetation would result in a greater potential for wildland and urban fires. Mitigation measures would avoid or reduce project related hazards.

- Public Services: The proposed project would result in the need for expanding public services, including fire protection, police services and schools. The Draft EIR will include mitigation measures to avoid or reduce potential project related impacts.

- Utilities & Public Service Systems: The project would result in the need for the expansion of the existing utilities and service systems. The Draft EIR would provide an analysis of the project's potential impacts on electrical service, natural gas service, communications, wastewater, water treatment facilities, drainage and solid waste collection. It is expect that impacts would be reduced to less than significant levels as a result of mitigation measures.

- Population & Housing: The project proposes a maximum of 203 single-family residential units, which is less than the maximum 314 dwelling units allowed by the F/TSP. Less than significant impacts are expected.

7.3.4 CITY OF SAN JUAN CAPISTRANO

The potential cumulative projects identified by the City of San Juan Capistrano are depicted in Exhibit 7.3-5 and discussed below

Projects Where Construction has been Initiated

Serra Plaza. This involves the construction of two new two-story office building and surface parking to complete development of the 5.2-acre property (Project number SJC1 on Exhibit 7.3-5). The project site encompasses approximately 5.2 acres within the downtown area in the City of San Juan Capistrano. The site is bound by Del Obispo Street on the north and Paseo Adelanto on the south; the Metrolink railroad right-of-way is located immediately east of the property and existing Sycamore Plaza is located south of the site. Site development would occur in a single phase, preceded by site preparation and grading activities. Occupancy of the new development is anticipated for spring 2004. An EIR was prepared for Serra Plaza, which identified the following impacts:

- Transportation and Circulation: The project would result in an increase of delay to the a.m. peak hour LOS at several intersections, including one that is already operating at a degraded LOS. These impacts would be reduced to levels considered to be less than significant as a result of mitigation measures requiring applicable signal phasing and the construction of additional traffic lanes when necessary.

- Cultural Resources: The project would be located within an area of the City identified as having a high likelihood of possessing cultural materials. To reduce this impact to a less than significant level, the City required a County-certified archaeologist on-site to monitor all grading and applicable salvage operations. The project site does not contain any historic structures.

Ortega Animal Hospital and Commercial Kennel. A Mitigated Negative Declaration was prepared for approval to construct the Ortega Animal Hospital and Commercial Kennel project at 27341 Ortega Highway in San Juan Capistrano (Project number SJC2 on Exhibit 7.3-5). The property is situated within the Commercial Office Zone district, which allows veterinary offices and clinics as a conditional use subject to approval of a conditional use permit. On July 30, 2002, the Environmental Administrator determined the project would not have a significant effect on the environment because mitigation measures would reduce impacts to a level of insignificance. These impacts included:

- Aesthetics: The project would result in the removal or relocation of all trees within the project site. These impacts would be reduced to levels considered to be less than significant via mitigation requiring the relocation of 13 trees within the project site and the boxing of three for future use.

- Air Quality: The project would have the potential for creating objectionable odors to the surrounding residential and commercial developments and result in short-term particulate matter emissions. These impacts would be reduced to a level considered less than significant via mitigation requiring strict guideless as to proper disposal and daily cleaning of the facility and the submission of dust control plans/procedures for managing/reducing dust and PM_{10} emissions.

- Cultural Resources: The project has the potential to impact prehistoric and historic archaeological resources. This impact would be reduced to a level considered less than significant via the retention of a certified archaeologist who would monitor all grading and excavation.

- Geology & Soils: The project would require excavation that would occur in close proximity to an existing retaining wall which straddles the east property line of the Ortega Plaza. This impact potential would be reduced via compliance with mitigation requiring the submission of a subsurface geotechnical investigation completed by a licensed geologist, a requirement that the design for the retaining wall to be completed by a professional engineer, and the installation of movement detectors on the site.

- Hydrology & Water Quality: The project would result in an increase in the impervious surface coverage by 20 percent thereby having the potential of discharges of pollutant runoff into surface waters. This impact can be mitigated via compliance with mitigation measures requiring the submission of a hydraulic/hydrologic report and adherence to the City's adopted storm water management regulations and policies.

- Noise: The project would result in an increase in noise levels in the vicinity. This impact would be reduced to a level considered less than significant via mitigation requiring the submission of an acoustical study pre- and post-construction.

- Transportation: The project would increase short-term traffic impacts associated with construction. This impact would be reduced to a level considered less than significant via mitigation requiring the approval of a haul route, the submission of revised plans providing for emergency access at the easterly terminus of the parking lot and providing a conception design for the main access drive.

San Juan Law Center. A Mitigated Negative Declaration was prepared for approval of conceptual development plans to construct a two story, 5,963 square foot professional office building and an amendment to the Specific Development. The project would be located at

27345 Ortega Highway, immediately east of the Ortega Animal Hospital under construction and west of the Mystic Gardens Nursery (Project number SJC3 on Exhibit 7.3-5). On January 27, 2004 the Environmental Administrator determined the project would not have a significant effect on the environment because proposed mitigation measures would reduce impacts to a level below significant. Impacts included:

- Air Quality: The project would result in short-term particulate matter emissions. This impact would be reduced to a level considered less than significant via mitigation requiring the preparation of dust control plans/procedures for managing/reducing dust and PM_{10} and the requirement that the project would cease grading activities if wind speeds exceed 25 miles per hour.

- Cultural Resources: The project has the potential to impact prehistoric and historic archaeological resources. This impact would be reduced to a level considered less than significant via the retention of a certified archaeologist who would monitor all grading and excavation.

- Geology & Soils: The project would construct retaining walls adjacent to the Ortega Animal Hospital and residential parcels to the north. This impact potential would be reduced via compliance with mitigation requiring the submission of a subsurface geotechnical investigation completed by a licensed geologist, a requirement that the design for the retaining wall be completed by a professional engineer, and the installation of movement detectors on the site.

- Hydrology & Water Quality: The project would result in an increase in impervious surface coverage by 20 percent thereby having the potential of discharging pollutant runoff into surface waters. This impact can be mitigated via compliance with mitigation measures requiring the submission of a hydraulic/hydrologic report, adherence to the City's adopted storm water management regulations and policies, compliance with NPDES requirements and storm water management design incorporating BMPs.

- Transportation: The project would result in direct impacts to three intersections in the project vicinity. These impacts would be reduced to less than significant levels via mitigation requiring the applicant to pay for the project's fair share financial participation in addition to payment of CCFP fees of the total estimated cost of future improvements, the approval of a haul route, and the restriction of hours of ingress/egress to exclude the AM and PM peak periods.

Honeyman Ranch. The Honeyman Ranch, located north of the intersection of Ortega Highway on Rancho Viejo Road, proposed the subdivision of the 78.6-acre property into 129 single-family residential lots and open space (Project number SJC4 on Exhibit 7.3-5). Discretionary actions would include a zone change, hillside management regulations, and approval of a tentative tract map. Impacts are as follows:

- Transportation: The project would result in impacts to several intersections, including Ortega Highway/I-5 southbound ramps, Ortega Highway/I-5 northbound ramps, Ortega Highway/Del Obispo, and Ortega Highway/Rancho Viejo Road. These impacts would be reduced via compliance with mitigation measures requiring intersection-specific improvements.

- Noise: Vehicular noise generated along Rancho Viejo Road would impact proposed residences. This impact can be reduced to a level considered less than significant via

mitigation requiring the construction of a noise wall up to eight feet in height within the property line of the project site along the frontage of Rancho Viejo Road.

- Air Quality: The project would result in short-term impacts as a result of PM_{10} generated during grading. This impact would be reduced to a level considered less than significant via compliance with mitigation measures requiring the use of low emissions mobile construction equipment, the encouragement of rideshare and transit programs, the watering of active grading sites at least twice a day, cleansing of the tires leaving the site to reduce particular matter transfer to paved streets, and a limitation of traffic speeds on unpaved roads.

- Biological Resources: The project would result in impacts to sensitive plant species, tree resources, nesting birds, and sensitive wildlife. The impacts would be reduced to levels considered to be insignificant as a result of compliance with mitigation measures requiring spring focus surveys, the surveying of trees to determine if they meet the City's heritage tree criteria, a nesting survey, a trapping program, and the installation of fencing along the common boundary between homes abutting the adjacent open space to control domestic pet predation.

- Cultural Resources: There would be significant and unavoidable impacts to the Ardley Leck House, a historical resource. The home would be demolished. A mitigation measure requiring advertisement for a period of 60 days in the Orange County Register and the National Trust for Historic Preservation magazine stating the house is available for relocation would partially reduce this impact. However, if at the end of the advertisement period there is no person willing to relocate the building, it will be demolished. As such, this would continue to be considered a significant and unavoidable impact.

- Hydrology/Water Quality: The project would result in increased runoff volume, change the hydrology of the site, increase the potential for erosion and siltation, and create more impervious surface area than currently exists. These impacts can be reduced to less than significant levels via the implementation of mitigation measures requiring the construction of a stormwater detention basin, compliance with a hydraulic analysis recommendations, the submission and approval of a WQMP, and the construction of a grassy swale bio-filter. The potential short-term impact of siltation and construction-related pollutants is considered a significant impact.

- Geology/Soils: The project site includes the presence of potentially expansive soils and is likely to be subject to moderate-to-major seismic activity during the life of the project. These impacts would be considered less than significant as a result of mitigation measures requiring compliance with geotechnical recommendations and applicable provisions of the Soils Subsidence Remediation Program.

- Hazards: There is a potential that on-site soils contain residual agricultural chemicals as a result of past agricultural land use (1948-1980). This impact would be reduced to a level considered less than significant via the installation of subsurface borings to collect and analyze soil samples, as well as the removal of any hazardous soils, if found. The project would have the potential for lead-based paints being present on the project site. This impact would be reduced to a less than significant level via its removal in accordance with regulatory guidelines.

- Public Services: The project would impact fire related services. This impact would be reduced to a level considered less than significant as a result of incorporated Project Design Features such as adherence to Very High Fire Hazard Severity Zone standards.

Projects with Approved CEQA Documentation

T. 15701, Cobblestone-Stonefield. This project would subdivide the 3.24-acre property into a maximum of eight single-family lots at the southwest corner of Del Obispo Street and Calle Aspero (Project number SJC5 on Exhibit 7.3-5). Potential impacts from this project were evaluated in an Initial Study Mitigated Negative Declaration (IS/MND). The IS/MND states that the project would not exceed significance thresholds with respect to the following environmental resources: agriculture, biological resources, cultural resources, hazards and hazardous materials, land use, mineral resources, population and housing, public services, and utilities. Additionally, the IS/MND listed the following impacts that would result from construction and/or implementation of the proposed project; however, with implementation of mitigation measures impacts would be reduced to a level of less than significant.

- Aesthetics: The proposed project would not comply with the City's policy objectives regarding aesthetic impacts, and would impact mature specimen trees. Approval of design concepts for the proposed project, and implementation of mitigation measures regarding preservation of specimen trees would reduce the impact to a less than significant level.

- Air Quality: Construction of the project result in significant air quality impacts. Compliance with a dust control plan, consistent with SCAQMD guidelines, would reduce the impacts to a level of insignificance.

- Geology and Soils: The project would require substantial grading and a retaining wall. To mitigate for potential soils impacts, the project would be required to comply with all applicable city grading ordinances, policies, and conditions.

- Hydrology/Water Quality: The project would increase the amount of impervious surface almost four-fold. Erosion could also be a problem if constructed during the wet winter months. Erosion control measures would be required to conform to city standards, implement BMPs, and the project would adhere to a stormwater management and drainage plan.

- Noise: Construction noise would affect a nearby residential neighborhood. Construction would adhere to the municipal code noise ordinance, and all equipment would be properly maintained to minimize noise.

- Transportation/Traffic: Proposed street geometry would not provide the minimum emergency ingress/egress standards of the OCFA. As a result, mitigation measure would require that the subdivision be designed to meet City and OCFA requirements, and provide necessary signage regarding on-street parking. Construction would also result in significant traffic delays. A haul route plan will restrict truck ingress and egress.

Casa de Amma Assisted Living Facility. A Mitigated Negative Declaration was prepared to address the request for an architectural control/Floodplain Land Use Permit for the construction of an assisted living facility for adults with learning disabilities (Project number SJC6 on Exhibit 7.3-5). The project site is located north of Calle Arroyo between Rancho Viejo Road and Paseo Tirador within the Ortega Business Center Planned Community. On July 30, 2002, the

Environmental Administrator determined the project would not have a significant effect on the environment. Impacts are as follows:

- Aesthetics: Project grading may extend into the drip-line of existing trees on Calle Arroyo, designated as a scenic street by the Ortega Planning Community, and proposed parking lot lighting may be in excess of municipal code standards. Impacts can be reduced to less than significant levels via mitigation requiring all grading to be prohibited within the drip-line of the trees and the submission of a revised lighting plan consistent with City codes.

- Air Quality: The project would result in short term particulate matter emissions. This impact would be reduced to a level considered less than significant via mitigation requiring the preparation of a dust control plans/procedures for managing/reducing dust and PM_{10} and the requirement that the project would cease grading activities if wind speeds exceed 25 miles per hour.

- Cultural Resources: The project has the potential to impact prehistoric and historic archaeological resources. This impact would be reduced to a level considered less than significant via the retention of a certified archaeologist who would monitor all grading and excavation.

- Geology and Soils: The project is situated in an area of moderate or high risk potential for liquefaction and would require substantial grading to construct the habitable basement portion of the structure. This impact would be reduced via compliance with mitigation requiring a subsurface geotechnical investigation and design of the retaining walls by a professional engineer.

- Hydrology and Water Quality: The project site would be located within the AO Zone and a special flood hazard area inundated by the 100 year flood. Impacts can be reduced to less than significant via mitigation requiring the preparation and submission of a grading plan which place pad elevation a minimum of one foot above the base flood elevation.

- Noise: The project design includes the incorporation of an outdoor sports-court and an open swimming pool. These features would potentially impact noise levels in the area. This impact would be reduced via the installation of exterior intercom systems, the prohibition of any exterior sound amplification devices, and restricted use between the hours of 10:00 p.m. and 6:00 a.m. seven days a week.

- Transportation: The project would result in short term traffic impacts associated with construction. This impact would be reduced via the submission and approval of a haul route.

San Juan Meadows. The project would construct 275 single-family detached dwellings and 165 senior housing units, a public use site and 72 acres of open area (Project number SJC7 on Exhibit 7.3-5). EIR 92-02, San Juan Meadows (July 1992) identified a number of significant impacts. As a result of minor changes to the project, a Mitigated Negative Declaration was approved for the project on November 12, 1996. The impacts are as follows:

- Earth: The project involves substantial grading associated with implementing the landfill closure and preparing the property for development. Impacts would be reduced to less than significant levels via compliance with mitigation measures requiring remedial

grading to stabilize and buttress unstable slopes and geologic units and the creation of naturally contoured building pads.

- Air Quality: The project would result in impacts to air quality as a result of construction equipment operations during grading and development, automobile traffic to and from the site after development and gas flare emissions associated with the landfill closure. Compliance with mitigation measures requiring adherence to traffic control measures and construction-related air quality impacts would reduce these impacts to less than significant levels. However, cumulative regional air quality impacts would remain significant and unavoidable.

- Biology: The project would result in significant impacts to plant communities as a result of grading and development as well as the potential to disturb existing gnatcatcher populations on the project site. All impacts would be reduced to less than significant levels via adherence to mitigation measures requiring the submission of grading and erosion control plans, a coastal sage scrub mitigation plan, a wetland mitigation plan, and a landscape plan.

- Noise: The project would result in potentially significant noise impacts to future residents associated with increased traffic level. Compliance with mitigation measures requiring the preparation and submission of an acoustical analysis would reduce this impact to less than significant levels.

- Transportation: The existing plus project levels of service at Camino Capistrano/San Juan Creek Road and at Valle Road/La Novia Avenue-I5 NB ramps would be at unacceptable levels, and would not satisfy signal warrants at any un-signalized intersection. Adherence with mitigation requiring the widening of La Novia Avenue, the inclusion of improvement plans for La Novia for adequate sight distance insuring acceptable design techniques, and the project's contribution of its fair share of the total intersection and roadway improvements would reduce impacts to less than significant levels.

- Utilities: The project would result in significant additional demand for potable and non-potable water resources. This impact would be reduced to a level considered to be less than significant via the submission of public improvement plans including all water facilities and the preparation and submission of revisions to CDP 81-02.

- Aesthetics: The project would result in significant impacts to area viewsheds. These impacts can be reduced to levels considered to be less than significant via compliance with mitigation measures requiring contour grading, the incorporation of horizontal architectural elements for senior housing, a landscaping easement, and colors complimenting the ambience of the proposed project site.

Pacifica San Juan Final SEIR. The 256.7-acre Pacifica San Juan site comprises the southern two-thirds of the 391.6-acre Forster Canyon Planned Community (PC), which is located in the southern portion of the City of San Juan Capistrano (Project number SJC8 on Exhibit 7.3-5). The Pacifica San Juan Final SEIR (September 2, 2003) identifies the impacts of the proposed revisions to the Pacifica San Juan portion of the Forster Canyon Comprehensive Development Plan. The revised land plan and grading concept was developed to address several changes in circumstances since the original project approval. In addition to the grading related changes, an increase of 68 dwelling units, for a total of 418 units is requested. The SEIR identified the following impacts:

- Geotechnical Resources: The project would be subjected to the possibility of on-site landslides. This impact would be reduced to a level considered to be less than significant as a result of mitigation requiring the submission of geotechnical reports satisfying the City.

- Water: There would be an impact to the existing Water Facilities Construction and Service Agreement. This impact would be considered less than significant as a result of mitigation requiring development in accordance with the Agreement for Modifications to Water Facilities to Serve Tract 14196, the execution and entrance by the developer into the final amended Improvement and Reimbursement Agreement for Facilities, and the provision of adequate fire flow as specified by OCFA.

- Air Quality: The project would contribute to emissions of ROG, NO_x and would continue to exceed the threshold of significant of SCAQMD. While mitigation measures can partially reduce these impacts, they would continue to be unavoidable and significant.

- Traffic and Circulation: The project would increase traffic volume in the area. This impact can be reduced to a level considered less than significant via mitigation requiring the installation of applicable signage, the addition of applicable roadway and turning lanes, and the re-striping of roads as necessary.

- Noise: The project would increase noise levels in the area as a result of construction. These impacts can be reduced via compliance with the Noise Ordinance and construction of a temporary noise barrier to shield stationary construction equipment.

Projects without Approved CEQA Documentation

JSerra High School (South Campus). This project, located between Junipero Serra Road and I-5 west of Camino Capistrano, would develop an approximately 29.2 acre vacant site to provide recreational amenities to support the North Campus of the private high school, which is located across the street in three converted office buildings (Project number SJC9 on Exhibit 7.3-5). The campuses would be connected with a pedestrian bridge. The high school would serve grades 9 through 12 and would have capacity of 2,200 students. The following impacts were identified in the Draft EIR:

- Aesthetics: The apparent building height, scale, and massing of the proposed performing arts complex and gymnasium may constitute visually obstructive structures. Athletic field lighting poles would break General Plan designated ridgelines from various viewing points on and off the project site, be visually offensive structures within view of two General Plan designated Scenic Highways and also result in a substantial increase in the ambient lighting level in the community. These impacts would be partially mitigated via the revision of the project landscape plan, submission of a revised lighting and photometric plan and conformance with City and Industrial and Systems Engineering standards. However, each of these impacts would remain significant and unavoidable.

- Air Quality: The project would result in short-term construction-related emissions of criteria pollutants NO_2 and ROG in excess of SCAQMD thresholds. These impacts would be reduced to a level considered less than significant with mitigation.

- Biological Resources: The project would remove portions of southern arroyo willow riparian forest and a “blue line stream,” introduce invasive plant species, and remove

nesting habitat for raptors and the burrowing owl. These impacts would be reduced to levels considered to be less than significant with mitigation requiring the creation of a wetlands mitigation plan, precluding the use of invasive and non-native plant species, and requiring a raptor nest survey and a burrowing owl survey.

- Cultural Resources: Archaeological site CA-ORA-855 is located in the northwestern portion of the project site. Present day Juaneno Indians consider the project site to be sacred and human remains have been encountered during previous field investigation excavations on the site. The project has the potential to impact these burial and cremation sites from future maintenance of school facilities. The project would change the setting and appearance of the site, and as a result would impact the qualities that make the site eligible under 15064.5(a)(3)(A) of the CEQA Guidelines.

- Geology/Soils: The project site would be located in a seismically active region, and conditions underlying the project site would potentially include expansive soils. These impacts would be considered less than significant after mitigation requiring compliance with geotechnical recommendations and requiring that the project be built in accordance with seismic design provisions.

- Hazards and Hazardous Materials: There may be potential impacts to groundwater from hydrocarbons emanating from a LUST and historical usage of pesticides. The school would be considered a sensitive receptor. Project related hazards would be associated with storage of pool chemicals. These impacts would be reduced to a level considered less than significant via the performance of an ESA on the project site evaluating the potential for presence of pesticide residues and the development of a chemical usage plan in coordination with OCFA.

- Hydrology and Water Quality: The project would result in an increase in impervious surface, potential for siltation and discharge of construction-related pollutants, as well as the possibility of common urban pollutants infiltrating groundwater. These impacts would be reduced to levels considered less than significant with implementation of mitigation measures requiring compliance with a hydrology analysis, the approval of an Erosion Control Plan, Water Quality Management Plan and a SWPPP, as well as a post-construction stormwater management plan.

- Noise: The project would have potential impacts on nearby residences. This impact would be considered less than significant after mitigation requiring the redesign of the site plan incorporating a minimum six-foot high masonry wall near the Casitas Capistrano townhomes.

- Public Services: Parking may not be adequate to offset potential emergency access requirements resulting from concurrent major events held on the project site. This impact would be reduced to a level considered less than significant through an upgrade of signal lights, contracting with a City-approved emergency medical service provider during special events, as well as OCFA review of street improvement plans.

- Transportation and Traffic: Five intersections would be impacted by the project. Implementation of the recommended mitigation measures would result in less than significant impacts to all significantly impacted intersections. However, mitigation for addition of a second northbound left-turn lane to reduce impacts at I-5 northbound and Junipero Serra Road would require Caltrans approval. Since the approval and timing are uncertain, this impact would remain significant and unavoidable.

- Utilities: The project's water demand would require the construction of an extensive on-site water system to supply domestic and non-domestic water, and the project would generate a substantial amount of solid waste. These impacts would be reduced to a level considered to be less than significant via mitigation requiring the submission of a hydraulic analysis, the construction of a separate water service connection, the dedication of water rights to the City, and the coordination of the project applicant and City staff to develop and implement a Solid Waste Reduction/Recycling Management Program.

Whispering Hills. The project proposes a General Plan Amendment, zone change, development agreement, vesting tentative tract map and Comprehensive Development Plan for the construction of 155 single-family dwelling units on the eastern edge of the City by La Pata Avenue (Project number SJC10 on Exhibit 7.3-5). The City of San Juan Capistrano certified an EIR for a larger project in 2002. An addendum EIR has been prepared addressing the current proposal. The following areas of impact were identified:

- Aesthetic impacts associated with grading,
- Air quality impact from construction activities were identified as significant,
- Biological resource associated with habitat removal; however, resource and regulatory permits have been approved, which incorporate mitigation that reduces the impact to less than significant
- Geotechnical constraints were identified but would be mitigated with standard building practices
- Water resource impacts would be associated with increased runoff. Compliance with the DAMP and conditions of approval would reduce impacts.

Ortega Ranch Offices. Located at Rancho Viejo Road and Ortega Highway, this project proposes the construction of an 11 building office complex with 153,251 gross square feet (Project number SJC11 on Exhibit 7.3-5).

Mammoth Offices. Currently under review, this project proposes a two building office complex with 103,832 gross square feet. The project is located at Rancho Viejo Road and Via Escolar (Project number SJC12 on Exhibit 7.3-5).

Rancho Viejo Office Park. Located at Rancho Viejo Road north of Spotted Bull Lane, this project proposes 67,720 gross square feet of office space (Project number SJC13 on Exhibit 7.3-5). The project is currently under review and projects 47percent of the space to be used for medical office uses and 53 percent for commercial office uses.

Valle Ranch. Currently under review, this project proposes 44,400 gross square feet of office space south terminus of Valle Road (Project number SJC14 on Exhibit 7.3-5).

M&M Petroleum. A proposed service station, convenience store and car wash is proposed at the corner of the Ortega Highway and I-5 northbound onramp (Project number SJC15 on Exhibit 7.3-5. The site was previously used as a gas station. The project proposes nine fuel pumps, 5,940 square feet of supporting uses.

San Juan Golf Course. Located on San Juan Creek Road, the project proposes construction of a new 9,500 gross square foot club house, 298 dwelling units, 96 room assisted living facility, and a 28 bed skilled nursing facility (Project number SJC16 on Exhibit 7.3-5).

Belladonna Estates. Located on Del Obispo Street south of Calle Aspero, the project proposes the development of 32 custom lots (Project number SJC17 on Exhibit 7.3-5). The City anticipates preparing a Mitigated Negative Declaration for the project.

St Margaret's Episcopal School Master Plan. This project, located at Ortega Highway and La Novia Avenue proposes a number of improvements, including a 450 seat performing art center, 18,455 gross square foot church facilities and an additional 151 students at the private school (Project number SJC18 on Exhibit 7.3-5). The City anticipates preparing a Mitigated Negative Declaration for the project.

Capistrano Unified School District Administrative Offices. The project proposes 125,000 gross square feet of administrative offices for the school district. The facilities would be located at the southerly terminus of Valle Road (Project number SJC19 on Exhibit 7.3-5). The impacts associated with the project were addressed as part of the Pacifica San Juan Final SEIR.

7.3.5 CITY OF SAN CLEMENTE

Nine potential cumulative projects have been identified in the City of San Clemente. Of these, six are roadway improvement projects that are components associated with development of specific plans within the city. These roadway improvements are reflected on the City General Plan and the impacts of each have been evaluated as part of the Specific Plan in which it is located. The roadway improvements that fall within this category:

- Avenida La Pata (Avenida Pico to Avenida Vista Hermosa). Avenida La Pata would be constructed as a six-lane major arterial from Avenida Pico to Avenida Vista Hermosa (Project number SC1 on Exhibit 7.3-6). The project is 0.6 miles long and involves 9.35 acres of right-of-way. Avenida La Pata is currently completed from Avenida Pico to Calle Saluda, and is proposed for the area north of Calle Saluda. This roadway improvement project is considered part of the Forester Ranch Specific Plan.

- Avenida Talega (east of Avenida Vista Hermosa). This project would extend Avenida Talega as a four-lane secondary arterial east of Avenida Vista Hermosa(Project number SC2 on Exhibit 7.3-6). The roadway extension, which is approximately 1.7 miles, would affect approximately 18 acres of natural habitat, including grasslands and coastal sage scrub. This improvement is part of the Talega Valley Specific Plan. The project is already partially built.

- Avenida Vista Hermosa (Camino Vera Cruz to north of Avenida La Pata). This roadway development project provided a four-lane primary arterial (Avenida Vista Hermosa) from Camino Vera Cruz to north of Avenida La Pata (Project number SC3 on Exhibit 7.3-6). The project is 1.18 miles long and affects 14.9 acres of right-of-way. This roadway improvement project is considered as part of the Forester Ranch Specific Plan. The project has already been completed.

- Avenida Vista Hermosa (Calle Frontera to I-5). This roadway development project was for the construction of a four-lane primary arterial (Avenida Vista Hermosa) from Calle Frontera to the interchange at I-5 (Project number SC4 on Exhibit 7.3-6). The project is 0.45 miles long and affected 6.91 acres of right-of-way. Potential impacts from this

project were evaluated in the environmental document supporting the San Clemente General Plan. The project is already constructed.

- Camino Vera Cruz (west of Avenida Vista Hermosa). This roadway development project would construct a four-lane secondary road (Camino Vera Cruz) west of Avenida Vista Hermosa (Project number SC5 on Exhibit 7.3-6). This roadway improvement project is considered as part of the Forester Ranch Specific Plan. The project has already been completed.

- Avenida La Pata (Avenida Vista Hermosa to North City limits). This project includes the extension of Avenida La Pata from Avenida Vista Hermosa to the north city limits (Project number SC6 on Exhibit 7.3-6). Potential impacts from this project were evaluated in the environmental document supporting the San Clemente General Plan.

Projects Under Construction

Talega Valley Specific Plan. The Talega Specific Plan Area encompasses 3,510 acres straddling the jurisdictional boundaries of the City of San Clemente and the Talega Joint Planning Authority for the County of Orange. The project provides for almost 5,000 dwelling units; 112.3 acres for business uses, including business park, commercial, sports complex, hotel, and institutional uses; 1978.8 acres for open space, including conservancy lands; 271.9 acres for a golf course and parklands; and 152.9 acres for miscellaneous uses (e.g., an elementary school and roads) (Project number SC7 on Exhibit 7.3-6). Potential impacts from this project were evaluated in a Final Supplemental EIR, which determined that the following impacts would occur:

- Land Use: The proposed development would potentially affect open space areas, including the Mission Rancho Viejo Land Conservancy; could disrupt the planned foothill transportation corridor; and would potentially conflict with the city's open space requirements, regional Master Plan of Arterial Highways, existing development in Rancho San Clemente, and Forster Specific Plan. In addition, the proposed structures could potentially intrude into the line-of-sight of surrounding ridgelines. Mitigation measures would reduce impacts to less than significant levels.

- Traffic and Circulation: The proposed project would contribute to congestion on roadway segments and at intersections. Implementation of various roadway improvements would reduce impacts to less than significant levels.

- Biological Resources: The proposed project would alter drainages and affect wetland habitat, result in habitat fragmentation, and remove native vegetation that supports sensitive species. Erosion and sedimentation would increase. Mitigation measures include adherence to CDFG and ACOE permit requirements, the retention of and creation of natural open space areas, a network of contiguous corridors, and pre-construction raptor surveys. In addition, landscape plans shall exclude invasive species, and will include setbacks, dense edge screening/buffers, and guidelines for preserving stands of oak woodland resources. An erosion and sedimentation control plan, revegetation, and implementation of BMPs and NPDES requirements would reduce erosion and sedimentation. After mitigation, impacts would be less than significant.

- Landform/Visual Quality: The project would alter the rural, natural character of the site to an urban and suburban manmade landscape, and grading associated with the project would result in substantial landform alteration. A landscape plan would be developed

that conforms to the city's Conservation/Open Space Element, Scenic Highways Element, and parks and Recreation Element. Additionally, development would conform to guidelines in the Specific Plan Amendment related to ridgeline silhouettes. After mitigation, impacts would not be fully mitigated.

- Geology: The project would be constrained by such geologic conditions as slope instability, problematic soil conditions, seismic activity, poor rippability of bedrock materials, and erosion. Conceptual, rough, and precise grading plans shall conform to recommendations in the Geotechnical study related to these geologic conditions. After mitigation, impacts would not be significant.

- Cultural Resources: If the project requires excavation for utilities and/or building foundations, or scarification and compaction for fill, the project could intrude into an archaeological site. Preservation *in situ* and protection from permanent structures and plantings would reduce impacts to levels that would be less than significant.

- Paleontological Resources: The proposed project would result in the loss of significant fossils during site excavation and grading operations. An on-site paleontologist would be retained to monitor mass grading operations, and halt grading should fossils be uncovered/exposed during grading. Any fossils found would be collected, preserved, and donated to a curation facility. After mitigation, impacts would be less than significant.

- Hydrology/Water Quality: The proposed project would increase the amount of surface runoff, and would increase levels of urban pollutants carried in surface water. As a result, the developer would construct drainage improvements necessary to accommodate post-development runoff within the site boundaries. Additionally, BMPs would be implemented. Mitigation would reduce impacts to less than significant levels.

- Air Quality: The project would contribute to long-term air quality impacts resulting from an increase in vehicular trips, as well as short-term impacts from dust associated with construction. The project would develop bikeway, walkway, carpool, and bus facilities, and suppress dust during construction. After mitigation, impacts would be less than significant.

- Noise: Future noise-sensitive uses would be exposed to unacceptable traffic noise levels, and construction noise could impact adjacent noise sensitive uses. Residential lots and dwellings would be attenuated against existing and projected noise, and compliance with the city's Noise Ordinance would reduce impacts to less than significant levels.

- Public Services and Facilities: The proposed project would result in an increased demand for water, electricity, natural gas, police and fire protection service, and recreational facilities. In addition, the project would not meet the city of San Clemente and City of Orange standards for minimum distance from fire stations and response times, and would create two neighborhood parks which do not meet the city's design criteria. New infrastructure would be constructed to provide necessary utilities and services, and design elements would be included in the project to conserve water and energy. Developer fees would also reduce police and fire service, school, and park impacts. After mitigation, impacts would be less than significant.

- Public Safety: Geologic hazards associated with slope stability and seismicity could affect future development. In addition, impacts to fire protection service would create a potential fire hazard. Mitigation measures listed for other resource areas would reduce impacts to less than significant levels.

Forster Ranch Specific Plan Amendment. Development planning and processing for Forster Ranch has been in progress since 1974. The Final EIR for the Forster Ranch Specific Plan, certified by the City of San Clemente on February 18, 1998 evaluates an amendment to the Forster Ranch Specific Plan. The principal elements of the amendment include a redistribution and reduction in dwelling units, provision for 192 acres of public institutional uses east of the Primary Ridgeline, the realignment of Avenida La Pata to the east, and the extension of Camino Vera Cruz(Project number SC8 on Exhibit 7.3-6). The EIR identified the following impacts:

- Land Use: Alteration of land uses planned east of the ridgeline would result in a significant decrease in diversity of uses and potential inconsistency with City directives for the Town Center Area, and would fail to meet minimum open space requirements for the Specific Plan area. These impacts would be reduced to levels considered to be less than significant via mitigation requiring a finding by the City that land uses would be consistent with overall objectives for the Town Center Area Plan, and modified to provide additional acres of open space to meet the General Plan open space requirement.

- Biological Resources: The project would impact the local thread-leaved Brodiaea population.

- Visual Resources: There would be visual impacts resulting from grading within the 200-foot setback area of the Primary Ridgeline. This impact would be partially mitigated by re-contouring of the graded area within the setback zone, and revegetation of the graded area with drought tolerant native species

- Cultural Resources: There would be the potential for adverse impacts on archaeological sites. This impact would be reduced to a level considered to be less than significant via strict adherence to mitigation measures requiring a certified archaeologist to be present to monitor initial grading.

- Traffic and Circulation: The project would impact traffic circulation. This impact would be reduced to less than significant levels via compliance with mitigation requiring an ultimate intersection and access concept plan.

- Noise: The project would add to noise levels in the project vicinity. This impact would be reduced to less than significant levels via compliance with mitigation requiring a detailed site-specific acoustic analysis to be performed prior to grading, the submission of building specifications describing acoustical design features of the structures, the limitation of construction hours, and compliance with State of California standards for noise attenuation.

- Population and Housing: The project would not allow for affordable housing. This impact would be reduced to less than significant levels via creation of an agreement with the City to meet affordable housing requirements established in the City's Housing Element.

- Community Services: Additional population generated by the project would increase the need for additional police and fire protection services. This impact would be reduced to a level considered less than significant via evidence from the Orange County Sheriff's Department and OCFA stating services can be provided to the proposed land uses.

Marblehead Coastal. On August 5, 1998, the San Clemente City Council certified the Marblehead Coastal Final EIR 95-01 (SCH No. 95091037). The development plan included 436 residential units, 60.4 acres of regional serving commercial uses, 1.0 acre of coastal commercial uses, 9.4 acres of pubic open space, 49.5 acres of private open space, and 13.6 acres of circulation facilities (Project number SC9 on Exhibit 7.3-6). Subsequent to certification of EIR 95-01, the City Council recommended modifications that have resulted in four Addendums to EIR 95-01. Addendum No. 4 to Final EIR 95-01 was approved by the City Council on December 9, 2003.

An EIR was prepared for this project, and approved by the California Coastal Commission. The EIR determined that no impacts would result in the following impact areas: San Onofre Emergency Evacuation Plan, solid waste facilities, and fire protection/emergency medical services. The following environmental impacts were identified in the EIR:

- Transportation and Circulation: The proposed project would result in a capacity deficiency at Avenida Pico west of I-5 and cumulative LOS impacts at several intersections. Improvements targeted with the City's Regional Circulation Financing and Phasing Program, and contribution to a fair share basis for arterial improvements would reduce impacts to a level that would be less than significant.

- Noise: Exterior noise levels at nearby houses could exceed 65 dB CNEL both during and after construction of the proposed project. Standard construction mitigation measures, construction of a six-foot subdivision perimeter wall, and inclusion of structural components for some two-story developments would mitigate these impacts to a level that would be less than significant.

- Air Quality: The proposed project would create project-related source emissions that would exceed SCAQMD thresholds for CO, ROC, and NOx, which cumulatively exacerbate the existing adverse ambient condition within the South Coast Air Basin. Grading for and construction of the proposed project would also result in significant quantities of fugitive dust and other pollutant emissions. A variety of mitigation measures would be implemented to reduce these impacts. However, even after the implementation of these measures, short- and long-term emissions would remain significant and unavoidable.

- Soils and Geology: No unavoidable significant geotechnical impacts would result, provided that standard engineering practices and mitigation measures related to site-specific soils and geologic constraints are implemented.

- Population and Housing: The proposed project would not result in significant adverse population and housing impacts; no mitigation measures would be necessary.

- Cultural/Scientific Resources: The potential destruction of archaeological and paleontological resources by grading and/or excavation is considered a significant impact. Standard cultural resource mitigation measures would reduce these site-specific impacts to a level that would be less than significant.

- Public Services and Facilities: The proposed project and resulting increased demand on public services and facilities would necessitate the need for new, additional, improved, or replacement water and sewer facilities, police protection service, and school facilities. As a result, no mitigation measures are necessary.

- Hydrology and Flood Control: Pollutants could accumulate in detention basins; therefore, periodic removal is necessary. Compliance with the Stormwater Management Plan, basin maintenance plan, and completion of project-level engineering and hydraulic studies would result in impacts that would be less than significant.

- Aesthetics: Potential park improvements and ball field lighting could result in intrusive ambient light conditions during nighttime periods. Pre-notification of all prospective home buyers would reduce this impact to a level that would be less than significant.

- Biological Resources: Removal of vegetation, and disruption of plant communities and habitats would result in remnant habitat fragments that would be isolated islands of low habitat value. On-site mitigation measures would preserve or restore wetlands, sage scrub, needlegrass grasslands, and Blockman's dudleya habitat. Off-site mitigation measures would restore wetlands and would enable the Southern Subregion NCCP habitat reserve system (through funding contributions) to restore/enhance a portion of the NCCP reserve.

- Recreation: The proposed payment of in-lieu park fees and dedication of parkland in excess of the City's Park Acquisition and Development Code would render the increased demand for parks and recreational facilities less than significant.

7.3.6 CITY OF MISSION VIEJO

Two potential cumulative projects have been identified in the City of Mission Viejo. These are discussed below.

Projects With Approved CEQA Documentation

Mission Hospital Project. The project would expand the existing hospital, located off Crown Valley Parkway east of I-5, to create 402,000 additional square feet for medical offices and an additional 100 hospital beds (Project number MV1 on Exhibit 7.3-6). The following potential environmental impacts were identified in the EIR:

- Aesthetics: The project would create a new source of substantial light and glare. These impacts would be reduced to a level less than significant via compliance with mitigation measures requiring a detailed lighting plan and lighting design to minimize power consumption and to confine direct rays to the premises.

- Air Quality: The project would violate an air quality standard or contribute to an existing or projected air quality violation. Projected air quality impacts would be reduced to less than significant levels via mitigation. However, short-term grading and demolition emissions would remain significant impacts during Phase 1 and Phase 2 after mitigation. Long-term operational emissions would also remain significant for CO, NO_x and PM_{10} after mitigation.

- Land Use: The project would conflict with an applicable land use plan, policy or regulation. This impact would be reduced to less than significant levels via mitigation requiring the approval of a Planned Development Permit.

- Noise: The project would create a temporary or periodic increase to existing ambient noise levels in the project vicinity and would expose people to or generate excessive groundborne noise levels. These impacts would be mitigated to a level considered less than significant via compliance with the City of Mission Viejo Noise Ordinance.

- Transportation/Circulation: The project would cause an increase in traffic in relation to existing traffic load and would potentially have an inadequate parking supply. This impact can be reduced to a level considered less than significant via mitigation measures requiring the applicant to be responsible for circulation system improvements as well as the submission of CC&R's, and a construction-phasing plan for Phase 1 and Phase II of the expansion.

Crown Valley Parkway Widening Project (I-5 east to Trabuco Creek Bridge). The City of Mission Viejo has prepared a Mitigated Negative Declaration for their portion of the construction of the Crown Valley Parkway from the I-5 east to the Trabuco Creek Bridge (Project number MV2 on Exhibit 7.3-6). Construction is expected to begin in 2004. The following impacts have been identified:

- Aesthetics: The project would have a substantial adverse effect on scenic resources, and create a new source of substantial light or glare. These impacts can be reduced to a level considered less than significant via compliance with applicable mitigation measures.

- Air Quality: The project would violate air quality standards and expose sensitive receptors to substantial pollutant concentrations. These impacts would be reduced to a level considered less than significant via the implementation of applicable mitigation measures.

- Cultural Resources: The project would cause a substantial adverse change in an archaeological resource and directly or indirectly destroy a unique paleontological resource or site. Adherence to specific mitigation measures would reduce these impacts to a less than significant level.

- Geology and Soils: The project would expose people or structures to rupture of a known earthquake fault, strong seismic ground shaking, landslides, result in soil erosion and would be located on expansive soil. All impacts would be reduced to a level less than significant via compliance with applicable mitigation measures.

- Hydrology and Water Quality: The project would have the potential to degrade water quality. This impact would be reduced to a level considered to be less than significant via the implementation of mitigation measures.

- Noise: The project would expose people to excess noise levels, a permanent increase in ambient noise levels and a substantial temporary or periodic increase in ambient noise levels in the project vicinity. These impacts would be reduced to a level considered less than significant via compliance with mitigation measures.

- Transportation/Traffic: The project would have potential impacts on emergency access during construction. Once completed, the project would result in improved level of service. This impact would be considered less than significant via compliance with applicable mitigation measures.

7.3.7 CITY OF RANCHO SANTA MARGARITA

One potential cumulative project has been identified in the City of Rancho Santa Margarita. This is discussed below.

Projects With Approved CEQA Documentation

Rancho Santa Margarita General Plan (RSMGP). This project would construct a City Hall and Community Center for the City of Rancho Santa Margarita at 22112 and 22232 El Paseo. The project would include an approximately 24,000-square-foot City Hall building immediately adjacent to a 25,000-square-foot Community Center, separated by a courtyard piazza. An Initial Study/Negative Declaration was prepared for this project in August 2003. The Initial Study/Negative Declaration determined the project is covered under the Program Environmental Impact Report for the City of Rancho Santa Margarita General Plan, certified and adopted on December 19, 2002. As a result, the Initial Study concluded there would be no impact as a result of the implementation of the City Hall/Community Center project.

7.3.8 CITY OF IRVINE

Three potential cumulative projects have been identified in the City of Irvine. All of these projects have completed CEQA documentation. The locations of these projects are depicted in Exhibit 7.3-7 and are discussed below.

Projects With Approved CEQA Documentation

Great Park. This project would develop residential, open space, recreation, research and development, and tourist uses. The proposed project is located in the center of Orange County on the site of the former MCAS El Toro (Project number I-1 on Exhibit 7.3-7). The project would create 3,625 dwelling units, 6,585,594 square feet for commercial and industrial uses, and 2,583 acres for open space. The EIR for the project has been completed but is under litigation. Annexation of the land to the City of Irvine has been recorded. The following impacts were identified in the EIR:

- Traffic/Circulation: The project would cause a substantial increase in traffic and street capacity over existing conditions. Mitigation measures would reduce impacts to less than significant levels.

- Air Quality: The project would result in significant impacts associated with fugitive dust, motor vehicle emissions, and construction emissions. Development impacts cannot be completely mitigated. They are significant unavoidable impacts.

- Public Health and Safety: Project impacts would include construction activities resulting in the possible disturbance of structures and soils containing asbestos containing materials and lead based paint. Additionally, both population and structures would be adjacent to a high fire risk area. Mitigation measures would reduce these impacts to a less than significant level.

- Geology and Seismicity: The project would result in the potential for seismic impacts such as groundshaking, expansive soils, soil erosion and the loss of topsoil. These impacts would be reduced to a less than significant level via the implementation of mitigation measures.

- Hydrology/Water Quality: Project impacts would include wind and water-related erosion, violation of water quality standards and waste discharge standards, an increase in surface runoff, and in flooding. Mitigation measures, BMPs and Project Design Features would reduce these impacts to a level considered less than significant.

- Agricultural Resources: Project impacts would convert 575 acres of Prime Farmland, 63 acres of Unique Farmland and 46 acres of Farmland of Statewide Importance to non-agricultural use and would involve changes in the existing environment, which could result in conversion of existing farmland to non-agricultural use. These impacts cannot be completely mitigated and would be considered significant and irreversible.

- Biological Resources: The project would result in fragmentation of habitat and to wetland habitat, cause destruction and/or damage to trees, and conflict with the City of Irvine's Urban Forestry Ordinance. Adherence to the mitigation program which includes the Habitat Preserve would reduce these impacts to a less than significant level.

- Paleontological Resources: The project would have the potential for disturbing resources such as Pleistocene terrestrial vertebrates as well as resources in the coastal plain and washes in the northeast, northwest and southern portions of PA51. These impacts would be reduced to a less than significant level via the implementation of standard mitigation measures.

- Cultural Resources: The project may substantially impact an archaeological resource or uncover previously unknown human remains. These impacts would be considered less than significant via adherence to standard mitigation measures.

- Aesthetics: Project implementation would lead to significant impacts if light sources were directed into or near residential uses and create new sources of glare. Mitigation would reduce these impacts to a level considered to be less than significant.

- Population and Housing: A significant impact to the jobs/housing ratio would occur. No mitigation would be available to rectify this impact and it would remain a significant and unavoidable impact.

- Public Services and Facilities: The project would have the potential for impacts associated with the construction and operation of public facilities, police services, fire and emergency services, parks and recreation, and school services. It presents the possibility of impacts related to the construction of new potable water facilities, recycled water facilities, new wastewater facilities, new solid waste facilities, and new energy and communication facilities. These impacts would be reduced via mitigation measures that would reduce impacts to levels considered less than significant.

Northern Sphere. This project includes residential, retail, research and industrial, and open space uses. The project would create 12,350 dwelling units, 730,000 square feet for retail uses, 6,566,000 square feet for research and industrial uses, and 4,650 acres of open space (Project number I-2 on Exhibit 7.3-7). The following impacts were identified in the EIR.

- Aesthetics: The project would have a substantial adverse effect on a scenic vista and introduction of nighttime illumination. This impact would be less than significant with the incorporation of mitigation measures and preservation of key ridgelines and open space.

- Agricultural Resources: The project would result in the conversion of approximately 3,100 acres of Important Farmland to non-agricultural uses. This impact would be significant and unavoidable, even with mitigation.

- Air Quality: The project would violate air quality standards and contribute to existing and projected air quality violations. There would be significant unavoidable impacts in the short term and long term.

- Biological Resources: The project would impact coastal sage scrub, as well as federal or state-listed species and NCCP/HCP covered and conditionally covered species as follows: coastal sage scrub; locations of the California gnatcatcher; locations of the cactus wren, one pair of least Bell's vireo; and two colonies of intermediate/Foothill Mariposa lily. Impacts are addressed through compliance and implementation of the NCCP/HCP and would not be considered significant. Impacts to non-NCCP species and habitats would be considered less than significant via mitigation measures, permit authorizations (Section 404, Section 401) and coordination with the SAMP/MSAA.

- Cultural Resources: The project may impact twenty-one prehistoric sites and five historic sites recorded in PA 6. None have been tested so they would be assumed to be "historical resources." Impacts to these sites would be reduced to less than significant via the implementation of mitigation measures.

- Geology and Soils: The project would expose people to seismic ground-shaking, ground failure, liquefaction, landslides, the erosion or loss of topsoil, an unstable geologic unit, expansive soil, and soils incapable of adequately supporting the use of septic tanks or alternative waste waster disposal system. These impacts would be less than significant as a result of compliance with the City of Irvine Grading and Excavation Code.

- Hazards and Hazardous Materials: The project would expose people to risk of loss as a result of wildfires. The impact would be mitigated to a less than significant level via compliance with existing OCFA Regulations and Standard Conditions. The project would be located on a site containing hazardous materials related to agricultural use (pesticide, fertilizer, etc.). These impacts would be reduced to a level considered less than significant via the implementation of mitigation measures.

- Hydrology/Water Quality: There would be the potential for short-term and long-term changes in water quality. These impacts would be reduced to a less than significant level via the incorporation of mitigation measures, regulatory permits, BMPs and the submission of a WQMP and drainage reports. Adherence to these mitigation measures as well as compliance with Existing Regulations and Standard Conditions would reduce impacts to a level considered not significant.

- Land Use/Planning: The project would represent a significant change in on-site land uses. This would be a less than significant impact because the project would be consistent with the goals and policies of Irvine's General Plan and Regional Comprehensive Plan and Guide policies and be in compliance with the County's General Plan.

- Noise: Area roadways would have the potential to impact future structures within the Northern Sphere area and construction activities would produce short-term noise impacts. These impacts would be reduced to less than significant levels via mitigation measures, project design features and compliance with the Noise Ordinance.

- Population/Housing: Because of the promotion of jobs/housing balance goals and consistency with the City of Irvine's General Plan and OCP-2000M's estimates for job growth, there would be no population/housing impacts considered to be significant.

- Public Services: Implementation of the project would increase demands on the OCFA and emergency and medical services and would impact police protection, schools, and other public facilities. In order to reduce impacts to less than significant levels, the landowner would comply with all applicable OCFA codes, Crime Prevention through Environmental Design Guidelines, and other mitigation measures.

- Recreation: There would be increased demands on existing recreational facilities. The proposed project would include the construction of new recreational facilities, thereby serving to reduce any impacts to less than significant levels.

- Transportation/Traffic: Impacts to identified freeway/tollway mainline segments and ramps would remain significant if the necessary improvements are not implemented by regional transportation agencies. This would be a significant unavoidable impact to freeway/tollway ramps and mainline segments.

- Utilities and Service Systems: The project would increase consumption of electricity and natural gas, affect telephone service, and affect wastewater treatment facilities. Impacts would be considered less than significant as a result of compliance with applicable mitigation measures and state codes and guidelines.

Spectrum 8. The project would create 10,212,352 square feet of General Industrial and Medical and Science uses (Project number I-3 on Exhibit 7.3-7). The following potential environmental impacts were identified in the EIR:

- Agricultural Resources: The project would result in the conversion of 612 acres of Prime Farmland to non-agricultural uses. No feasible mitigation measures are available to offset this loss. Impact remains significant.

- Air Quality: The project would result in significant air quality impacts associated with construction emissions in the short-term, operational emissions in the long-term, and inconsistency with assumptions in the AQMP for year 2010. These impacts cannot be completely mitigated and are considered to be significant unavoidable impacts.

- Biological Resources: The project would result in possible impacts to raptor foraging and nesting habitat as a result of the removal of eucalyptus windrows. The implementation of mitigation measures would reduce impact to a level considered less than significant.

- Cultural Resources: The project would result in the possibility of impacting historical resources and fossil locations. Adherence to specific mitigation measures would reduce these impacts to a less than significant level.

- Geology and Soils: The project would result in the possibility of loss of onsite soil volume, and seismic-related settlement and compressibility. Compliance with existing regulations would reduce any impact to levels considered to be less than significant.

- Hydrology and Water Quality: The project would result in an increase in surface runoff as a result of the change in land use from agricultural to medical and science uses. This impact would be less than significant as a result of adherence to mitigation measures.

- Noise: Short term construction noise impacts would occur as would long-term impacts related to project-generated vehicles on the site access roads. The project would result in the exceedance of the 3-dBA-increase criterion for eight roadway segments surrounding the project site. These impacts would be reduced to a level considered less than significant as a result of adherence to existing regulations and project-specific mitigation measures.

- Population and Housing: The project would result in substantial population growth and increase the need for housing in Irvine, and would allow development not accounted for in the General Plan, the City's MEA or the regional housing need projections. No feasible mitigation measures are available and the impacts would remain significant.

- Transportation and Traffic: The project would result in the possibility of Sand Canyon Avenue and Irvine Blvd. not meeting performance criteria for peak intersection volumes for the year 2025 scenario. In the 2020 build-out scenario, a portion of Trabuco Rd. and five other intersections would be affected. Mitigation measures would reduce these impacts to a level considered to be less than significant.

- Utilities and Service Systems: The project would result in increased demand for electrical, natural gas, telephone, cable, water, sewer and solid waste facilities. Compliance with existing codes would reduce any impacts to a level considered less than significant.

7.3.9 CITY OF LAKE FOREST

City of Lake Forest Phase 2 Opportunities Study. The City of Lake Forest is currently reevaluating land that historically was in the 65 CNEL contour from MCB El Toro. With the annexation of this land to the City of Irvine, the future use of the site as an airport is no longer proposed. With the elimination of the noise impact, sensitive land uses, such as residential uses, would be permissible. The City is evaluating whether to redesignate land currently approved for industrial and commercial uses as residential. At this time, there is not a specific proposal or environmental document. However, given the general characteristics of residential uses compared to industrial and commercial uses, the overall number of vehicle trips and the associated air emissions would be expected to be reduced from what has already been approved. The Growth Management Area is jobs rich; therefore, the provision of additional housing opportunities would be beneficial.

Phase 2 analyses have led to a plan integrating vacant properties with each other, thereby linking the northern and southern areas of the community. Upon completion of Phase 1 of the Opportunities Study, the City concluded the potential exists to establish criteria for land use re-designations lessening or fully mitigating impacts to the community. Land use re-designations could create a balanced and more fully integrated community and provide for desired community facilities and amenities. The findings during Phase 2 have led to the development of a plan to realize project objectives and the inclusion of needed public facilities. A detailed

environmental analysis of the proposed land use changes would be required to fully understand the impacts. The Phase 2 studies are meant to provide the background data for the City Council to make an informed decision regarding a more in-depth analysis as part of a Phase 3 General Plan Amendment and EIR process.

7.3.10 CITY OF DANA POINT

Projects With Approved CEQA Documentation

One potential cumulative project has been identified in the City of Dana Point. This is discussed below.

Dana Point Headlands. The City of Dana Point released the Final EIR (SCH No. 98051062) for this project in March 1999. The project would develop a maximum of 185 residential units and a 150-room hotel upon 48.6 acres of the Headlands property, and 9 acres of visitor/recreation/commercial land uses (Project number DP1 on Exhibit 7.3-6). The project would amend the Dana Point General Plan and Local Coastal Plan. The following potential environmental impacts were identified in the FEIR:

- Aesthetics: The project would have adverse effect on scenic vistas and alter the existing visual character of the site and its surroundings. Compliance with standard conditions of approval and General Plan policies would reduce impacts to a level considered less than significant.

- Air Quality: The project would not allow land uses that would generate any changes in climate or atmospheric conditions. Construction operations would result in short-term objectionable odors. Short-term construction impacts would be considered less than significant as a result of compliance with mitigation measures.

- Earth Resources/Topography: Geotechnical constraints on the site include the possibility of landslide movement, active sea cliff and bluff retreat, groundwater buildup, soil erosion, ground shaking, seismically induced landslides, tsunami run-up, and short term construction-related impacts. The use of mitigation measures, standard conditions of approval, and BMPs would serve to reduce these impacts to less than significant levels.

- Coastal Resources/Coastal Engineering: Project development would impact beaches, shore protection, coastal recreation (surfing), stormdrains (coastal erosion). Compliance with General Plan policies, mitigation measures, and BMPs would serve to reduce these impacts to less than significant levels.

- Coastal Resources/Marine Biology: Project development would impact grading, inter-tidal resources, shoreline construction, the Californian grunion, onshore storm drain construction, sand bottom habitat, reef habitat and sensitive species, recreation activities), visitor use, contribute to beach erosion, and impact salinity, spills, and storm drains. Compliance with General Plan policies, mitigation measures and BMPs would serve to reduce these impacts to less than significant levels.

- Biological Resources: The project would impact coastal sage scrub, wildlife, depredation by feral or domestic cats, night lighting, and noise. These impacts would be reduced to levels considered less than significant via the implementation of BMPs, mitigation measures, standard conditions of approval and compliance with General Plan policies.

- Hydrology and Water Quality: The project would alter existing drainage patterns and the amount of impervious soils and affect the quantity and quality of the runoff. However, impacts would not be considered significant due to existing standard conditions of approval, compliance with General Plan policies and implementation of mitigation measures.

- Noise: The project would create short-term construction noise and long-term operational noise. These impacts would be reduced to a level considered less than significant via compliance with mitigation measures, and existing standard conditions of approval.

- Public Services: The project would increase demand for public services and facilities, including schools, emergency response services, and water and wastewater. Compliance with standard conditions of approval, General Plan policies and mitigation measures would reduce any impact to a level considered less than significant.

- Cultural Resources: The project would impact fine-grained facies of the San Onofre Breccia, the Monterey Formation, CA-Ora-12, CA-Ora-75, and Native American cultural values. All impacts would be reduced to a level considered to be less than significant via the implementation of standard conditions of approval, compliance with General Plan policies and mitigation measures.

- Transportation/Traffic: The project would have a potentially significant impact on the intersection of Del Obispo Street/Dana Point Harbor Drive and PCH under existing and summer conditions, and signalization. The impacts would be reduced to a level considered less than significant via the implementation of mitigation measures, standard conditions of approval, and compliance with General Plan policies.

7.3.11 SANTA MARGARITA WATER DISTRICT

Two potential cumulative projects have been identified under the jurisdiction of SMWD. These are discussed below.

Projects With Approved CEQA Documentation

Chiquita Water Reclamation Plant Phase III. The Santa Margarita Water District prepared an Initial Study and Mitigated Negative Declaration (May 2001) addressing the specific improvements proposed for the Phase III Chiquita Water Reclamation Plant Phase III expansion, which is a component of the buildout of the facility as previously addressed in the FEIR for the Trabuco Basin Wastewater Treatment Facilities. The project site is located in the center of Planning Area 2 and has been identified as Not A Part (NAP) on the project exhibits. Improvements would include tertiary treatment to the wastewater treatment process, an increase in capacity for primary and secondary treatment, and the expansion of the influent pump station to include variable flow control devices. The following impacts were identified:

- Geologic and Soils: The project would have the potential to result in or expose people to impacts involving fault rupture, erosion, changes in topography and unstable soils conditions as a result of grading. These impacts would be reduced to a level considered to be less than significant via the inclusion of standard Project Design Features as well as erosion control measures such as the use of sandbags during construction.

- Air Quality: The project construction would potentially exceed short-term air quality standards. This impact would be reduced to a level considered to be less than

significant via implementation of measures reducing PM_{10} dust emissions including the use of watering and other dust control measures during project construction.

- Biological Resources: The project would result in potential impacts to endangered threatened or rare species or their habitats. This impact would be reduced via implementation of a measure requiring surveys for gnatcatchers be conducted and the limitation of construction noise to 60 CNEL at an occupied site.

- Hazards: The construction of the project would involve the use of fossil fuel, oil and associated substances. However, observance of standard construction safety measures would reduce the risk of explosion or release of hazardous substances to a level below significant.

Projects Without Approved CEQA Documentation

Seasonal Storage Facility Alternatives. SMWD's long-term planning for the water district has identified the potential need for two seasonal storage facilities, one for domestic and one for recycled non-domestic water. The facilities would be built in compliance with the requirements of the California Division of Safety of Dams (DSOD) design standards. The purpose of these facilities is to store water supply during the winter months when more supply is available and demands are low, then use the water during summer months when the demands are in excess of supply.

While only two seasonal storage facilities (one domestic and one non-domestic) would be constructed, SMWD has identified multiple potential sites. The *Future Seasonal and Emergency Water Storage Needs,* prepared by Henry Miedema and Associates in July 2003, recommended further evaluation for four potential sites for each of the domestic and the non-domestic seasonal storage facilities[4]. The locations of these potential facilities are depicted on Exhibit 7.3-8. The following is a description of each potential facility.

Domestic Seasonal Storage Facility Alternatives

- Plano Trabuco Site--Located at Plano Trabuco Road and Trabuco Canyon Road, just outside the SMWD boundary, this site is currently a nursery. The reservoir would be an excavated storage basin with a high water level (HWL) of 1310 feet and an estimated capacity of 620 acre-feet. This site is outside of the Ranch Plan boundaries.

- Upper Chiquita Site--Located in a side canyon on the west side of Chiquita Canyon, north of Oso Parkway, this site would include a conventional earthfill dam and reservoir. The reservoir would have a HWL of 820 feet and an estimated capacity of 860 acre-feet. This site is outside of the Ranch Plan boundaries.

- Lower Chiquita Site--Located in a tributary canyon on the east side of Chiquita Canyon, one canyon north of the Chiquita Water Reclamation Plant. The reservoir would be a conventional earthfill dam with a HWL of 450 feet and an estimated storage volume of 1,239 acre-feet. This site is in Planning Area 2.

- Upper Cristianitos Site--Located in a tributary canyon on the east side of Cristianitos Canyon. The reservoir would be a conventional earthfill dam with a HWL of 700 feet and

[4] The *Future Seasonal and Emergency Water Storage Needs* study evaluated 20 different potential sites based on location, hydraulics, capacity potential, geographic dispersion, geotechnical constraints, land uses, and environmental sensitivity.

an estimated storage volume of 1,520 acre-feet. This site is in Planning Area 9, in an area designated for Open Space.

Recycled Non-Domestic Seasonal Storage Facility Alternatives

- Trampas Canyon Reservoir is an existing reservoir that is used for tailings from the Oglebay-Norton sand plant within Trampas Canyon. The reservoir has been partially filled with silica sand mine tailings; however the current capacity is estimated at approximately 2,200 acre-feet. This site is within the development area for Planning Area 5.

- San Juan Creek East 3 Site is located in a tributary canyon on the south side of Verdugo Canyon east of Ortega Highway. The reservoir would be a conventional earthfill dam with a HWL of 600 feet and an estimated storage volume of 6,630 acre-feet. This site is in Planning Area 9 in an area designated for Rural Residential and Open Space.

- Trampas Canyon Pit Site is located in a mined pit on the Oglebay-Norton sand plant within Trampas Canyon. The reservoir would have a HWL of 475 feet and an estimated storage volume of 2,020 acre-feet. This site is in Planning Area 5, in an area designated for Suburban Residential.

- Gabino West Site is located in a tributary canyon on the north side of Gabino Canyon. The reservoir would be a conventional earthfill dam with a HWL of 600 feet and an estimated storage volume of 1,925 acre-feet. This site is east of Planning Area 7 in Planning Area 9 in an area designated for Open Space.

The water district has not initiated the environmental process or design of these facilities. The anticipated impacts associated with the seasonal storage facilities would be impacts on biotic resources as a result of grading and inundation of the selected locations. This would result in the removal of resources, though the actual resources would be dependent on the area to be inundated. Effects downstream of the selected sites would also need to be considered because, dependent on design, the project could change the characteristics of the streams that receive flows from the selected sites. Compatibility with surrounding land uses would also need to be considered. Other issues include water quality, short-term construction impacts, and land use compatibility issues.

7.3.12 CAPISTRANO UNIFIED SCHOOL DISTRICT

<u>Projects Where Construction Has Been Initiated</u>

San Juan Hills High School. The Initial Study and Addendum to Final Revised and Recirculated EIR Whispering Hills Estates for San Juan Hills High School was prepared on September 26, 2002. The FEIR was certified on December 2, 2002 by the CUSD Board. The CUSD is constructing a sixth high school in the District serving 1,600 students estimated for San Juan Capistrano, as well as the 400 students committed from the second phase of the Ladera project. The high school would be located in the southeastern portion of the City containing 72.77 graded acres and would provide a useable area of approximately 43.18 acres (Project number CUSD1 on Exhibit 7.3-6). The impacts associated with this project are as follows:

- <u>Aesthetics:</u> The project would degrade the existing visual character or quality of the site and its surroundings. As noted in the FEIR, the high school site would include park buffering and landscape improvements to reduce impacts to a less than significant level.

- Air Quality: The project would degrade existing air quality standards and expose sensitive receptors to substantial pollutant concentrations. As stated in the FEIR, the CUSD would be required to consult with the local air quality management district to ensure schools are not sited in direct proximity to facilities emitting hazardous air emissions. No changes from the FEIR were identified in the IS and Addendum.

- Biological Resources: The project would result in impacts to wildlife and habitat removal. The project would remove 5.48 acres of riparian vegetation, of which 2.84 acres are under ACOE jurisdiction and 3.81 acres are under CDFG jurisdiction. Construction would also impact approximately 70 acres of coastal sage scrub habitat and less than two acres of native grassland. Project design features developed as a result of consultation with USFWS resulted in changes in the project design to further avoid, reduce and mitigate impacts to sensitive biological habitat areas. No changes have occurred to biological resources from the analysis provided in the FEIR.

- Cultural Resources: The project could result in impacts to cultural resources. Mitigation measures were designed in the FEIR to minimize potential impacts to cultural resources in the event any are discovered during construction.

- Geology and Soils: The project site would be exposed to strong seismic shaking. Mitigation measures were designed to minimize impacts due to strong seismic ground shaking, and to minimize seismic-related ground failure. The project would also be exposed to the possibility of landslides. Ongoing site investigation has resulted in a change in the measures proposed to mitigate this impact via design changes reflected in the augmentation of canyon sub-drain system with hydraugers, and increased elevation of the final grades of the soccer and varsity baseball fields.

- Hazards: The school location is approximately 3,000 feet from the Prima Deshecha landfill, which is greater than the minimum standard 1,500-foot setback as set by CUSD. A Phase I ESA report concurred with the previous assessment in the EIR and identified no hazards or potential hazards.

- Hydrology and Water Quality: The high school project would modify the existing "blueline" stream in the East Canyon. Mitigation would included the preparation of a detailed stream impact analysis and incorporation of permit requirements, including BMPs, into the final project design.

- Land Use: The project would encroach upon the City's designated setback of 200 feet from major ridgelines. This would not be considered an impact because CUSD is not bound under state law by Ridgeline Protection Ordinance.

- Transportation and Traffic: The project would cause an increase in traffic. Mitigation requiring the District to enter into a license agreement including indemnification of the County of Orange for the use of La Pata Avenue for school access until such time as it is fully improved to its MPAH designation, the construction of road improvements by the District, and the assignment of a proctor or security guard near the terminus of Camino Lacouague and the School to prevent cars from using the Camino Lacouague cul-de-sac as a drop off location, would reduce this impact to less than significant.

7.3.13 CLEVELAND NATIONAL FOREST

Cleveland National Forest Land Management Plan

The Pacific Southwest Region of the U.S. Forest Service recently published for public review and comment draft revised Land Management Plans for the southern California National Forests (Angeles, Cleveland, Los Padres and San Bernardino) and an accompanying draft Environmental Impact Statement (DEIS). According to the U.S. Forest Service; the land management plans for each of the four forests are independent. The draft revised land management plans are based on the preferred alternative identified for each of the Forests. Of relevance to the cumulative impact analysis for the Ranch Plan EIR, is the Cleveland National Forest (CNF) revised draft Land Management Plan as the CNF is upstream of the project study area. The purpose of the revised land management plans for all four of the southern California National Forests is to:

1. guide all natural resource management activities on the forests,
2. address changed conditions and direction that have occurred since the original plans were adopted, and
3. meet the objectives of federal law, regulation, and policy.

The Preferred Alternative for addressing these purposes in the CNF is Alternative 2. According to the DEIS, Alternative 2 was originally developed as the "Proposed Action" for land management revisions and was available for public comment in 2001. Alternative 2 has been modified from earlier versions to provide additional protection for species-at-risk through species management strategies and land management plans design criteria (standards). The primary theme of the Preferred Alternative for the CNF is maintaining biological diversity and ecological integrity while providing a gradual increase in recreation opportunities. Compared to other alternatives, there is a higher level of investment in:

- Reconstruction of existing degraded facilities and the construction of new facilities to accommodate projected recreation demand in an environmentally sustainable way. More intensive user controls are employed that are designed to minimize conflicts with users and with sensitive environmental resources. Investment increase in mitigation that allows use levels to continue. The effective use of conservation education occurs, and Forest Staff would enlist the support of local communities, partners, and volunteers to promote a stewardship ethic and enhance visitor services.

- Avoiding and minimizing effects to species-at-risk with little focus on restoration of habitats. A conservation strategy is employed that focuses on using an adaptive management approach to meet conservation objectives in species-at-risk habitat.

7.4 CUMULATIVE IMPACT ANALYSIS

This section analyzes potential cumulative impacts to the environment that could be associated with implementation of the Proposed Project in concert with the cumulative projects and projected growth, including the above-listed probable future projects. As discussed above, the OCP-2000M projections are used for projecting regional growth that would occur within the study area, even though this growth is not currently tied to specific projects[5]. The County of Orange has reviewed this issue and determined that the level of growth that would occur with the cumulative projects is provided for in the OCP-2000M projections. These data were then

[5] For a discussion of the relationship of OCP-2000M to the recently adopted OCP-2004 dataset, please refer to Section 4.3, Population and Housing.

used to evaluate the potential for cumulative impacts as a result of implementing the Proposed Project.

The thresholds of significance used in each of the sections to evaluate project specific impacts would also be applicable to the cumulative evaluation. For the cumulative evaluation, these thresholds would be used to evaluate whether the cumulative projects considered would create a significant impact on the environment.

It is important to note that a quantification of cumulative impacts is not feasible for some impact topics and would be speculative. As identified above, in some cases no environmental document has been prepared and impacts are unknown. In other instances, the impacts have not been quantified. Therefore, much of the cumulative evaluation is a qualitative judgment regarding the combined effects of the relationship among the above-listed projects.

In some cases, application of the identified project mitigation program may reduce the significance of cumulative impacts as well as project impact.

7.4.1 LAND USE AND PLANNING

As discussed in Section 4.1, development of the Ranch Plan would result in two potential impacts associated with land use and planning. These project specific impacts are:

- There is the potential for residential uses in Planning Area 8 to experience disturbance from helicopter flights and artillery training exercises, especially those occurring during night hours. This impact can be mitigated to a level of less than significant. (Impact 4.1-1)

- The Ranch Plan would provide 14,000 dwelling units, or approximately 68 percent of the development assumed in local and regional planning documents. This shortfall in the amount of housing provided may contribute to a long-term regional housing deficit. This would be a significant unavoidable impact. (Impact 4.1-2)

The cumulative land use evaluation considered foreseeable development in GMAs 9 and 11.

There would be no other cumulative projects that would result in the impacts to Planning Area 8 or other portions of the Ranch Plan, similar in nature to those identified in Impact 4.1-1. Mitigation measures have been incorporated that would reduce this impact to less than significant. There would be no cumulative impact.

Section 4.1, Land Use, also discussed the potential impact on training operations at MCB Camp Pendleton if incompatible uses were permitted in Planning Area 8. The potential impact on training would be an operational impact; however, should there be a need to relocate or modify training operations there may be physical impacts associated with relocation of operations (i.e., noise on areas not currently subject to elevated noise levels and physical impacts if new facilities are needed to support the relocated operations). There are no other cumulative projects that propose residential development as close to MCB Camp Pendleton training operations as the Ranch Plan. The Talega Valley Specific Plan also has development in relative close proximity to the base, as well as other existing residential developments on the MCB Camp Pendleton boundary; however, these areas are not subject to the overflight conditions to the extent the proposed uses in Planning Area 8 would be. The Ranch Plan would represent the last major development project that would have the potential of providing noise sensitive uses in close proximity to the Base. The mitigation measures (consistency with the RCUZ and buyer notification program) proposed to reduce potential incompatible land use impacts would

also reduce potential pressure on the Base to modify their training operations. Another project that would have potential impacts on military training operations would be if the Far East Alignment Alternative for SOCTIIP were adopted. This alternative would encroach on base property isolating a portion of the Base. However, the nature of the Ranch Plan project's effect on training operations would be of a different nature because there would not be a direct encroachment on the base. The project would not contribute to a cumulative land use impact.

The project impact associated with the regional planning consistency would be an unavoidable impact associated with the project. The Great Park is another project where the growth assumptions vary by what was assumed in OCP-2000M; however, that project would provide for additional residential development. OCP-2000M had assumed non-residential uses in proximity to MCB El Toro. The Great Park project would allow a mix of uses, including residential uses. There would be no cumulative impact regarding the consistency with regional planning programs.

7.4.2 AGRICULTURAL RESOURCES

As discussed in Section 4.2, development of the Ranch Plan would result in two impacts associated with Agricultural Resources. These project specific impacts are:

- The project would result in the development of urban uses on lands designated as Important Farmland. The project would result in the removal of 266 acres of Prime Farmland, 32.9 acres of Farmland of Statewide Importance, and 528.3 acres of Unique Farmland. In the aggregate, development of the project would result in the loss of 827.2 acres of Important Farmland. This would be a significant unavoidable impact. (Impact 4.2-1)

- The project would result in the early removal of 1,856 acres from the existing Williamson Act contract and the associated Agricultural Preserve. This would be a significant unavoidable impact. (Impact 4.2-2)

Even with implementation of the mitigation program, the proposed project would have a significant, unavoidable impact on agricultural resources.

The cumulative agricultural resources evaluation considered foreseeable development in GMAs 9 and 11. In addition to the proposed project, the projects listed below would contribute to regional losses in Important Farmland:

- Alton Parkway -- The proposed project would result in the loss of Prime Farmland in addition to agricultural land set aside for the Musick Jail Facility.

- SOCTIIP – The draft EIS/EIR identified conversion of Important Farmland with seven of the ten alternatives being evaluated. Only the I-5 Improvements and the two No Action alternatives would not result in impacts to Important Farmland. The impact ranged from 53 acres with the AIO alternative to 424 acres with the A7C-ALPV alternative.

- Ladera Ranch -- Removal of approximately eight acres of Prime Farmland.

- Great Park -- Conversion of 574 acres of Prime Farmland, six acres of Unique Farmland, and 46 acres of Farmland of Statewide Importance to non-agricultural use.

- Northern Sphere -- Conversion of approximately 3,100 acres of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland to non-agricultural uses.

- Spectrum 8 -- Conversion of 612 acres of land designated as Prime Farmland to non-agricultural uses.

- Robingson Ridge—Conversion of approximately 60 acres of Important Farmland.

Although some of the impacts listed above have been anticipated and are consistent with respective jurisdictional planning efforts, the implementation of the Ranch Plan and the above cumulative projects contribute to the cumulative loss of Important Farmland. The Ranch Plan would thus have project specific impacts and contribute to cumulative significant impacts on agricultural resources. There are no other projects that involve a cancellation of a Williamson Act contract; therefore, the project would not contribute to a cumulative impact associated with the Agricultural Preserve.

7.4.3 POPULATION AND HOUSING

As discussed in Section 4.3, the project would not have any adverse impacts in this topical area; therefore, it would not contribute to cumulative population, employment or housing impacts. The adjusted jobs/housing ratio for the project site would be approximately 1.7, thereby exceeding SCAG's regional jobs/housing ratio of 1.33. As a result, the project site would be jobs rich thereby helping with the relative job shortage for the Growth Management Area.

7.4.4 GEOTECHNICAL

As discussed in Section 4.4, development of the Ranch Plan would result in the five impacts associated with geotechnical constraints. These project specific impacts are:

- Development on the project site would be subject to ground shaking associated with seismic activity. This impact can be mitigated to a level of less than significant. (Impact 4.4-1) .

- The project has the potential to expose persons and structures to on-site landslides. This impact can be mitigated to a level of less than significant. (Impact 4.4-2).

- Planning areas contain compressible and expansive soils. This impact can be mitigated to a level of less than significant. (Impact 4.4-3).

- Grading activities would expose soils to erosion. This impact can be mitigated to a level of less than significant. (Impact 4.4-4).

- Several of the planning areas proposed for development contain areas of shallow groundwater and development would be susceptible to liquefaction. Potentially significant impacts can be mitigated to a level of less than significant. (Impact 4.4-5).

With implementation of the mitigation program, the project specific impacts would be reduced to less than significant. While geotechnical impacts may be associated with the foreseeable projects, by the very nature of the impacts (i.e., landslides and expansive and compressible soils) the constraints are site specific. The proposed project, as well as the foreseeable projects, would be required to comply with the applicable state and local requirements, including, but not limited to the Uniform Building Code and the Grading Code. As such, the project specific impacts, as well as the impacts associated with other projects, would be reduced to a less than significant level. Seismic impacts are also addressed through compliance with applicable codes and design standards. For these reasons, the project's contribution to cumulative geotechnical and soils impacts is less than significant.

Cumulative impacts associated with landform alteration are more of an aesthetic issue than a geotechnical constraint. This is addressed is Section 7.4.10. Erosion and downstream sedimentation is addressed as a water quality issue in Section 7.4.5.

7.4.5 WATER RESOURCES

As discussed in Section 4.5, development of the Ranch Plan would result in the six impacts associated with water resources. These project specific impacts are:

- Development of the project will result in increases in the rate and amount of surface flow runoff within certain portions of the developed watershed(s). However, these increases are relatively small and will be fully mitigated through the use of flood control detention basins. (Impact 4.5-1)

- Development of the project may result in reduced coarse sediment yields within certain sub-basins, especially during construction periods. However, these decreases are relatively minor when comparing existing and post-construction conditions. (Impact 4.5-2)

- In the absence of mitigation, development of the project would alter certain in-channel sediment transport processes, potentially affecting streambed/stream bank stability. (Impact 4.5-3)

- In the absence of mitigation, development of the project would have significant adverse impacts on storm water quality vis-à-vis increases in certain pollutants of concern, impacts to groundwater quality and increases in stream temperature. (Impact 4.5-4)

- Implementation of the project will result in significant and unavoidable impacts in the amount of pathogens entering into stormwater runoff. (Impact 4.5-5)

- In the absence of mitigation, implementation of the project would adversely impact water balance (i.e., inflows –versus- outflows) within the affected watershed(s) and sub-basins. (Impact 4.5-6)

As discussed in Section 4.5, the Ranch Plan study area extends through two major regional watersheds, ala San Juan Creek and San Mateo Creek, each which includes large tributary sub-watersheds or sub-basins. *See* Exhibit 4.5-2. For purposes of addressing cumulative impacts related to water resources, analyses were performed relative to proposed development within these watersheds, with particular emphasis upon the large-scale/individual development projects located within the study area.

<u>Hydrology</u>

In the absence of mitigation measures, future development within the watersheds could produce adverse cumulative impacts on the hydrologic processes operating within the study area. Additional urbanized uses and increases in impervious surface areas within the study area could produce, if left unmitigated, increases in runoff volume, velocity and peak discharge rates, as well as lead to potential erosion and sedimentation impacts. As identified in Section 4.5, surface runoff generated by the Ranch Plan will be mitigated so that releases to the downstream creeks will correspond to existing peak flowrates and runoff volumes. Specific mitigation would be accomplished through the use of flow duration and water quality (FD/WQ) basins for the flow control system. It is assumed/anticipated that other proposed future projects within the regional watersheds (e.g., the SOCTIIP project) will be required to incorporate similar

hydrologic facilities/flow control programs in order to mitigate these impacts. With implementation of similar flow control programs, no substantial adverse cumulative impacts should occur with respect to hydrology within the watersheds.

Water Quality

Section 4.5 describes the programs and processes that will be implemented to collect and treat runoff generated within the Ranch Plan project area. The individual treatment regimes include a variety of BMPs, including the use of wetlands and detention ponds, that will reduce water quality impacts to a level of insignificance. However, Section 4.5 recognizes that development of the project may result in increases in pathogen levels (i.e., bacteria counts) above target limits. When combined with the discharges of pathogens from other proposed projects in the watershed, the potential exists for a cumulative increase in pathogen levels downstream in the receiving creek(s) or ocean that may exceed acceptable thresholds.

With the exception of potential pathogen load increases, the project is not expected to produce significant impacts with respect to any other pollutants of concern. However, from a cumulative impacts standpoint, analyses suggest that a potential exists for future development within the watersheds to contribute toward water quality impacts involving increases in water temperature and trace metal loads. The proposed SOCTIIP and Avenida La Pata improvements have the potential to produce cumulative increases in the temperature of runoff and dry-weather flows in downstream waters due to sheeting of warmer waters from asphalt/improved rights-of-way. Furthermore, increased trace metal loads generated from these right-of-way projects (e.g., residue associated with brake pad degeneration) have the potential of contributing to cumulatively significant impacts within the watersheds. It is anticipated/expected that all future projects within the watersheds will implement treatment and mitigation programs that will reduce pollutants of concern to levels of insignificance prior to downstream discharge.

7.4.6 TRANSPORTATION AND CIRCULATION

Analysis of transportation and circulation-related cumulative impacts is contained in Section 4.6, Transportation and Circulation, of this Program EIR. The findings on significant cumulative impact are set forth in Section 4.6, as well. Within the section the existing plus project plus cumulative conditions were evaluated. The traffic forecasts use 2025 demographic data as the basis for the cumulative setting. These projections are the basis for long-range transportation planning in Orange County, and hence provide an appropriate cumulative database for long-range analysis purposes. Other sources include the General Plans of the cities in the study area. The cumulative traffic analysis assumes the proposed development projects identified in Section 7.3 of this Program EIR.

The cumulative analysis addresses three scenarios, each with different transportation system assumptions for the portion of the study area outside the project area:

1. Committed circulation system
2. Committed circulation system plus La Pata Avenue extension
3. Committed circulation system plus La Pata Avenue extension and the SR-241 extension

Each scenario includes the proposed project (including the proposed MPAH amendments) and year 2025 cumulative land use assumptions for the remainder of the study area. A summary of the 2025 deficiencies under each of the three scenarios can be seen in Exhibits 4.6-15 through 4.6-17. These represent the locations at which cumulative impacts are identified and for which transportation improvements are identified. Additionally, Table 4.6-15 through 4.6-17 provide a

listing of the intersection deficiencies, freeway ramp, and freeway mainline, respectively, for each scenario in tabular form. Up to 20 intersections, dependent on scenario, would be cumulatively impacted by the project.

7.4.7 AIR QUALITY

Analysis of air quality-related cumulative impacts is contained in Section 4.7, Air Quality, of this Program EIR. The findings on significant cumulative impact are set forth in Section 4.7, as well.

Section 4.7, Air Quality, of this Program EIR addresses; existing plus project buildout; and year 2025 cumulative air quality impacts. The same cumulative development assumptions set forth for the traffic study were used in the assessment of cumulative air quality impacts.

7.4.8 NOISE

Analysis of noise-related cumulative impacts is contained in Section 4.8, Noise, of this Program EIR. The findings on significant cumulative impact are set forth in Section 4.8, as well.

Section 4.8, Noise, of this Program EIR addresses; existing plus project buildout; and year 2025 cumulative noise impacts. The same cumulative development assumptions set forth for the traffic study were used in the assessment of cumulative noise impacts.

7.4.9 BIOLOGICAL RESOURCES

The study area for cumulative impacts to biological resources is the NCCP planning area, i.e., all of the Southern Subregion excluding the Cleveland National Forest. Past projects have been addressed through the baseline condition, i.e., impacts have been documented through the NCCP database, and mitigation is documented through the already protected open space described in Section 4.9, Biological Resources. The focus of this cumulative impact section is on present (i.e., current, under construction) and probable future projects.

Section 4.9, Biological Resources, addresses the impacts to biological resources that would result from implementation of the Proposed Project. As discussed in Section 4.9, prior to implementation of avoidance, minimization, and mitigation measures the Proposed Project would have potentially significant or significant impacts. To avoid repetitiveness, the identified impacts are not re-stated here; the reader is referred to Section 4.9.4.

With implementation of the mitigation program described in Section 4.9.5, including the application of minimization and avoidance measures, and where feasible, mitigation measures for those impacts that remain significant after implementation of minimization and avoidance measures, the Proposed Project would have significant unavoidable impact on biological resources, specifically:

- The Proposed Project would result in significant impacts to two slope wetlands located in the Chiquita sub-basin (Significant Impact 4.9-23);
- Linkage K and G; and
- Cumulative pathogens.

For this analysis, only those projects (including the proposed project) listed below that would contribute to cumulative impacts to biological resources such that cumulative conflicts with the SRP Reserve Design Tenets, general policies contained in the Draft Planning Guidelines,

SAMP/MSAA Tenets, and Draft Watershed Planning Principles would occur, thus affecting the overall RMV Conservation Strategy have been evaluated.

SOCTIIP – Based on the alignments identified, the SOCTIIP would result in impacts to biological resources, involving removal of natural habitats including, but not limited to, natural grasslands, coastal sage scrub, woodlands, riparian and wetlands and chaparral. Impacts to sensitive, Threatened, and Endangered plant and wildlife species would also result from implementation of the SOCTIIP.

Ladera Ranch – Development of Ladera Ranch would result in the loss of 2,244.40 acres of annual grassland and 61.44 acres of coastal sage scrub. As noted previously, this would substantially affect several sensitive raptor species, as well as several sensitive bird and reptile species. This would remain a significant impact that can only be partially mitigated through the permanent protection and preservation of approximately 1,600 acres of open space including approximately 334 acres of coastal sage scrub, 1,214 acres of grasslands, seven acres of chaparral, and 28 acres of riparian. The Chiquita Ridge vernal pool also lies within and is preserved by the Ladera Open Space.

La Pata Avenue – Although an alignment has not been selected, the extension of a portion of La Pata Avenue would likely affect an existing wildlife corridor, as well as loss of natural habitat.

Prima Deshecha Landfill – The second amendment to the GDP has the potential to impact thread-leaved brodiaea, California gnatcatcher, and least Bell's vireo. Impacts to jurisdictional waters would also occur.

SMWD Seasonal Storage Facilities – SMWD has identified the need for two seasonal storage facilities, one for domestic and one for non-domestic water. Eight potential sites have been identified for further evaluation by SMWD. Each of the potential sites has the potential to impact biological resources.

Cleveland Nation Forest Revised Draft Management Plan - Activities effecting landscape connectivity are transportation routes and associated functions and lands activities such as changes in land holdings through acquisition, exchange, donation or conveyance, or purchase exchanges

Each of the above projects is discussed in further detail below. As was done for the Proposed Project, the above projects whose impacts could contribute to cumulative biological resource impacts are reviewed in the context of the significance criteria set forth in Section 4.9.4. Section 4.9.4 notes that the Draft Southern NCCP/HCP Planning Guidelines and Draft SAMP/MSAA Watershed and Sub-basin Planning Principles encompass the Appendix G significance criteria, as do the SRP Reserve Design Tenets and SAMP/MSAA Tenets. For this reason, this cumulative impact analysis focuses more on consistency with these significance criteria, primarily the broader SRP Reserve Design Tenets, SAMP/MSAA Tenets, general policies in the Draft Planning Guidelines and Draft Watershed Principles and less on absolute impact numbers (e.g., acres of habitat types and number of species impacted), although absolute numbers are also discussed. The focus on the broader tenets and principles is appropriate for cumulative impact analysis as this analysis is intended to give the reader a broad view of the Proposed Project in the context of other current and probable future projects. In evaluating cumulative impacts, the impacts of the current and future probable projects are compared with those of the project as a useful point of reference. However, the focus is not on the comparison per se, but rather on the contribution of the projects to cumulative effects.

SOCTIIP

As described previously, the TCA, Caltrans, and FHWA are evaluating the SOCTIIP. At this time, the SOCTIIP is currently undergoing NEPA/CEQA review. The SOCTIIP EIS/EIR evaluates eight build alternatives and two no build alternatives. According to the recently released Draft EIS/EIR, Section 5.3.9 Cumulative Impacts Related to Biological Resources, the TCA and FHWA reviewed the cumulative impacts resulting from the SOCTIIP alternatives as well as an earlier iteration of the Proposed Project and the B-8 alternative. According to the Draft SOCTIIP EIS/EIR the FEC-M, FEC-W and A7C-FEC-M alternatives would result in the greatest fragmentation effects of the alternatives examined and would result in cumulative adverse impacts. Tables 7.4-1 through 7.4-4 (excerpted from the SOCTIIP DEIS/SEIR) sets forth the impacts by vegetation and species for these alternative alignments.

For purposes of this cumulative impact analysis, these three alternatives are re-examined in light of the significance criteria established for this EIR. These three alternatives were identified as the likely worst-case scenarios when combined with the proposed project based on their locations relative to existing biological resources, particularly key locations of NCCP/HCP Planning Species. In addition, as noted in the SOCTIIP EIS/EIR, these alternatives “traverse the greatest amount of relatively undisturbed open space” and thus are likely to have the greatest impact on biological resources.

It should be noted that impacts resulting from implementation of any of the SOCTIIP alternatives may or may not be additive with those of the Proposed Project. In instances where the impacts of the Proposed Project and the SOCTIIP overlap, e.g., in Planning Area 3, impacts to species and vegetation are not additive; the same impact would not be counted twice, however in areas where impacts are different, e.g., different bridge locations for the SOCTIIP crossing and the Cristianitos Road crossing of San Juan Creek, these impacts would be additive.

TABLE 7.4-1
PLANT COMMUNITY IMPACTS BY PROJECT ALTERNATIVE (ULTIMATE)[1]

Community	FEC		CC		A7C		AIO[2]	I-5[2]
	FEC-M	FEC-W	CC	CC-ALPV	A7C-ALPV	A7C-FEC-M		
Venturan-Diegan Coastal Sage Scrub (2.3)	443.86 (179.63)	422.72 (171.07)	202.45 (81.93)	188.21 (76.17)	216.69 (87.69)	391.02 (158.25)	74.43 (30.12)	21.35 (8.64)
Other Scrub (2.1, 2.4, 2.7)	0.83 (0.34)	0.83 (0.34)	3.57 (1.45)	0.00 0.00	0.38 (0.16)	0.83 (0.34)	0.00 0.00	2.94 (1.19)
Coastal Sage Scrub/ Grassland Ecotone (2.8)	20.30 (8.22)	16.02 (6.48)	38.83 (15.71)	32.46 (13.14)	23.21 (9.39)	8.67 (3.51)	23.45 (9.49)	0.00 0.00
Chaparral/sage Scrub Ecotone (3.1)	20.40 (8.26)	9.88 (4.00)	8.13 (3.29)	8.13 (3.29)	0.18 (0.07)	9.88 (4.00)	5.13 (2.08)	0.00 0.00
Chaparral Communities (3.2, 3.3, 3.7, 3.12)	96.72 (39.14)	141.89 (57.42)	48.50 (19.63)	48.50 (19.63)	69.15 (27.99)	158.93 (64.32)	4.86 (1.97)	0.74 (0.30)
Native Grassland (4.2, 4.3, 4.4)	98.04 (39.68)	34.99 (14.16)	10.18 (4.12)	10.18 (4.12)	6.15 (2.49)	23.55 (9.53)	0.36 (0.14)	0.00 0.00
Annual Grassland (4.1)	228.48 (92.47)	193.47 (78.30)	525.97 (212.86)	326.14 (131.99)	316.72 (128.18)	172.50 (69.81)	342.27 (138.52)	0.00 0.00
Ruderal Grassland (4.6)	43.40 (17.56)	33.67 (13.63)	16.29 (6.59)	6.49 (2.63)	2.16 (0.87)	28.03 (11.34)	27.22 (11.02)	49.25 (19.93)
Vernal Pools, Seeps, & Wet Meadows (5.0)	2.17 (0.88)	1.98 (0.80)	8.71 (3.52)	8.71 (3.52)	4.62 (1.87)	0.09 (0.04)	0.19 (0.08)	0.14 (0.06)
Marsh Communities (6.0)	5.20 (2.10)	4.61 (1.87)	11.51 (4.66)	9.59 (3.88)	10.00 (4.05)	4.38 (1.77)	0.00 0.00	0.44 (0.18)
Riparian Herb and Mule Fat Scrub (7.1, 7.3)	2.98 (1.21)	6.50 (2.63)	14.47 (5.86)	13.46 (5.45)	4.69 (1.90)	0.71 (0.29)	5.88 (2.38)	3.50 (1.42)
Other Riparian Communities (7.2, 7.4, 7.5, 7.6, 7.7, 7.8)	21.87 (8.85)	21.45 (8.68)	23.16 (9.37)	23.16 (9.37)	14.67 (5.94)	33.91 (13.72)	4.91 (1.99)	12.38 (5.01)
Coast Live Oak Woodland (8.1)	27.31 (11.05)	98.34 (39.80)	24.67 (9.99)	24.67 (9.99)	33.77 (13.67)	118.59 (47.99)	0.50 (0.20)	0.05 (0.02)
Blue Elderberry Woodland 98.4)	0.37 (0.15)	0.37 (0.15)	0.01 (0.00)	0.01 (0.00)	0.00 0.00	0.37 (0.15)	0.72 (0.29)	0.00 0.00
Lakes, Reservoirs, & Basins (12.0)	1.69 (0.68)	1.30 (0.53)	0.34 (0.14)	0.34 (0.14)	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00
Water Courses (13.0)	7.07 (2.86)	1.25 (0.51)	19.23 (7.78)	17.73 (7.18)	3.00 (1.21)	1.83 (0.74)	1.51 (0.61)	9.48 (3.84)
Cliff and Rock Communities (10.3)	5.41 (2.19)	5.54 (2.24)	2.49 (1.01)	2.49 (1.01)	0.00 0.00	3.98 (1.61)	0.00 0.00	0.00 0.00
Agriculture (14.0)	125.50 (50.79)	150.06 (60.73)	141.44 (57.24)	141.44 (57.24)	257.82 (104.34)	182.84 (74.00)	9.36 (3.79)	2.62 (1.06)
Developed, Disturbed, Graded (15.0, 16.0)	122.73 (49.67)	115.42 (46.71)	354.20 (143.34)	105.22 (42.58)	116.75 (47.25)	107.47 (43.49)	202.35 (81.89)	1,171.68 (474.18)
Total	**1,274.33** **(515.72)**	**1,260.29** **(510.04)**	**1,454.15** **(588.49)**	**966.92** **(391.31)**	**1,079.96** **(437.06)**	**1,247.58** **(504.90)**	**703.14** **(284.56)**	**1,274.56** **(515.82)**

(1) Data represent amount of plant community that will be impacted by each alternative. Units of measure are acres (hectares).
(2) Data are the same for the initial and ultimate corridor for "AIO" and "i-5". Numbers shown in both Tables 4.11-4 and 4.11-5 for comparison.

TABLE 7.4-2
SENSITIVE PLANT SPECIES IMPACTS BY PROJECT ALTERNATIVE (INITIAL AND ULTIMATE) [1]

Species[2]	FEC				CC				A7C				AIO	
	FEC-M (No. of populations)	***FEC-M*** *(No. of Plants)*	**FEC-W** (No. of populations)	***FEC-W*** *(No. of Plants)*	**CC** (No. of populations)	***CC*** *(No. of Plants)*	**CC-ALPV** (No. of populations)	***CC-ALPV*** *(No. of Plants)*	**A7C-ALPV** (No. of populations)	***A7C-ALPV*** *(No. of Plants)*	**A7C-FEC-M** (No. of populations)	***A7C-FEC-M*** *(No. of Plants)*	**AIO** (No. of populations)	***AIO*** *(No. of Plants)*
Coulter's saltbush (*Atriplex coulteri*)	2 2	*9* *9*	1 1	*6* *6*	12 16	*483* *1223*	12 16	*483* *1223*	1 1	*6* *6*	-	-	-	-
Thread-leaved brodiaea **(*Brodiaea filifolia*)**	5 6	*54* *94*	3 3	*23* *56*	-	-	-	-	2 2	*76* *76*	3 3	*23* *56*	-	-
Catalina mariposa lily (*Calochortus catalinae*)	4 4	*63* *79*	4 4	*63* *79*	11 11	*259* *266*	11 11	*259* *266*	29 29	*2501* *2501*	2 2	*14* *14*	-	-
Intermediate mariposa lily (*Calochortus weedii* var. *intermedius*)	8 10	*272* *323*	6 6	*192* *199*	4 4	*732* *737*	4 4	*732* *737*	9 9	*553* *833*	9 9	*587* *621*	-	-
Southern tarplant (*Centromadia* [*Hemizonia*] *parryi* spp. *australis)*	1 1	*338* *338*	1 1	*338* *338*	14 15	*29887* *37484*	14 15	*29887* *37484*	1 1	*736* *750*	1 1	*389* *415*	-	-
Many-stemmed dudleya (*Dudleya multicaulis*)	24 26	*2724* *2967*	19 19	*1659* *1659*	15 15	*1122* *1122*	15 15	*1122* *1122*	28 28	*6055* *6211*	15 16	*1196* *1228*	-	-
Beaked spikerush (*Eleocharis rostellata*)	-	-	-	-	1 1	*1500* *1500*	1 1	*1500* *1500*	-	-	-	-	-	-
Palmer's grapplinghook (*Harpagonella palmeri*)	6 6	*1820* *1820*	3 3	*102* *102*					17 17	*19785* *19785*	1 1	*42* *42*	-	-
California juniper (*Juniperus californica*)	-	-	-	-	1 1	*1* *1*	1 1	*1* *1*	2 2	*2* *2*	1 1	*1* *1*	-	-

TABLE 7.4-2 (Continued)
SENSITIVE PLANT SPECIES IMPACTS BY PROJECT ALTERNATIVE (INITIAL AND ULTIMATE)[1]

Species[2]	FEC				CC				A7C				AIO	
	FEC-M (No. of populations)	***FEC-M*** *(No. of Plants)*	**FEC-W** (No. of populations)	***FEC-W*** *(No. of Plants)*	**CC** (No. of populations)	***CC*** *(No. of Plants)*	**CC-ALPV** (No. of populations)	***CC-ALPV*** *(No. of Plants)*	**A7C-ALPV** (No. of populations)	***A7C-ALPV*** *(No. of Plants)*	**A7C-FEC-M** (No. of populations)	***A7C-FEC-M*** *(No. of Plants)*	**AIO** (No. of populations)	***AIO*** *(No. of Plants)*
Small-flowered microseris (*Microseris douglasii* var. *platycarpha*)	8 8	*1702* *1828*	-	-	-	-	-	-	-	-	-	-	-	-
Salt spring checkerbloom (*Sidalcea neomexicana*)	-	-	-	-	-	-	-	-	1 1	*940* *1195*	-	-	-	-
Total	**58** **63**	***6982*** ***7458***	**37** **37**	***2383*** ***2439***	**58** **63**	***33984*** ***42333***	**58** **63**	***33984*** ***42333***	**90** **90**	***30654*** ***31359***	**32** **33**	***2252*** ***2377***	-	-

(1) Impacts for the initial project alignments are located on top of each cell and for the ultimate impacts are located on the bottom of each cell.
The numbers of plants in italics represent the amount of each plant species that will be impacted from each alternative.
(2) Number of populations and estimate of number of individuals of sensitive species located within the footprint.
Numbers should be used for comparing alternatives, because population numbers will change annually due to climatic changes.

TABLE 7.4-3
SENSITIVE WILDLIFE IMPACT BY ALTERNATIVE [1]

Species		FEC				A7C	
		FEC-M-Init	FECT-M-Ult	FEC-W-Init	FEC-W-Ult	A7C-FEC-M-Init	A7C-FEC-M-Ult
FISH							
Arroyo chub[2]	*Gila orcutti*	x	x	x	x	x	x
REPTILES/AMPHIBIANS							
Coastal rosy boa[3]	*Lichonura trivirgata rosefusca*	x	x	x	x		
Coastal western whiptail[3]	*Cnemidophorus tigris multiscutantus*	x	x	x	x	x	x
Coast patch-nosed snake[3]	*Salvadora hexalepis virgultea*	x	x	x	x		
Coronado Island skink[3]	*Eumeces skilktonianus interparietalis*	x	x	x	x	x	x
Orange-throated whiptail[3]	*Cnemidophorus hyperythrus beldingi*	x	x	x	x	x	x
Red diamond rattlesnake[3]	*Crotalus exsul*	x	x	x	x	x	x
San Bernardino ringneck snake[3]	*Diadophis punctatus*	x	x	x	x	x	x
San Diego banded gecko[3]	*Coleonyx variegatus abbotti*	x	x	x	X		
San Diego horned lizard[3]	*Phrynosoma coronatum blainvillei*	x	x	x	x	x	x
Silvery legless lizard[3]	*Aniella pulchra*	x	x	x	X		
Southwestern pond turtle[3]	*Clemmys marmorata pallida*	x	x	1	1		
Two-striped garter snake[3]	*Thamnophis hammondii*	x	x	1	1	x	x
Western spadefoot toad[3]	*Scaphiopus hammondii*	x	x	x	x	x	x
BIRDS[4]							
Common barn owl[5]	*Tyto alba*					1	1
Cooper's hawk[5]	*Accipiter cooperi*	2	1	1	1	1	1
Ferruginous hawk	*Buteo regalis*						
Grasshopper sparrow	*Ammodramus savannarum*	10	10	6	6	10	10
Horned lark	*Eremiphila alpestris*					1	1
Loggerhead shrike	*Lanius ludovicianus*						
Prairie falcon	*Falco mexicanus*	1	1	1	1		
Red-shouldered hawk[5]	*Buteo lineatus*	1	1	2	2		
Red-tailed hawk[5]	*Buteo jamaicensis*	3	3	2	2	2	2
Rufous-crowned sparrow	*Aimophila ruficeps*	15	16	11	12	10	12
San Diego cactus wren	*Campylorhynchus brunneicapillus couesi*	8	8	5	5	7	7
Yellow-breasted chat	*Icteria virens*						
Yellow warbler	*Dendroica petechia*						
MAMMALS							
Pallid bat[3]	*Antrozous pallidus*						
Pocketed free-tailed bat[3]	*Nyctinomops femorosaccus*						
Western mastiff bat[3]	*Eumops perotis*	x	x	x	x		

(1) Data represents certain species or amount of species that will be impacted from each alternative.
(2) Potential impacts to these fish species (marked with an "x") have been determined likely (but not quantified) if occupied drainages are crossed at any point by a project alternative.
(3) These species' presence (marked with an "x") is determined likely (but not quantified) based on the habitats present and data collected from transect/pitfall studies.
(4) Impacts to bird species (other that raptors) are represented as the number of observed use areas affected.
(5) Refers to the presence of an active nest of the species.

TABLE 7.4-4
SUMMARY OF DIRECT IMPACTS TO THREATENED AND ENDANGERED SPECIES

Species[2]	FEC				CC				A7C				AIO	
	FEC-M Initial	FEC-M Ultimate	FEC-W Initial	FEC-W Ultimate	CC Initial	CC Ultimate	CC-ALPV Initial	CC-ALPV Ultimate	A7C-ALPV Initial	A7C-ALPV Ultimate	A7C-FEC-M Initial	A7C-FEC-M Ultimate	AIO Initial	AIO Ultimate
Thread-leaved brodiaea[1] (*Brodiaea filifolia*)	5 54	6 94	3 23	3 56	-	-	-	-	2 76	2 76	3 23	3 56	-	-
Tidewater goby[2] (*Eucyclogobius newberryi*)	x	x	x	x	-	-	-	-	-	-	x	x	-	-
Southern stellhead trout[2] (*Onchorhynchus mykiss*)	x	x	x	x	-	-	-	-	-	-	x	x	-	-
Arroyo toad[3] (*Bufo californicus)*	1	2	1	2	-	-	-	-	-	-	1	2	-	1
Peregrine falcon[3] (*Falco peregrinus*)	-	-	-	-	1	1	1	1	-	-	-	-	-	-
Coastal California gnatcatcher[4] (*Polioptila californica californica*)	13	13	12	12	10	11	7	8	11	13	15	16	6	1
Least Bell's vireo[4] (*Vireo bellii pusillus*)	-	-	-	-	1	1	1	1	1	1	-	-	2	-

(1) Number of populations (top) and number of individuals (bottom), respectively.
(2) Potential impacts to these fish species (mark with an "x" have been determined likely (but not qualified) if occupied drainages are crossed at any point by a project alternative.
(3) Impacts are represented as the number of individuals affected.
(4) Impacts are represented as the number of observed use areas affected.

SRP Reserve Design Tenets

The following table reviews consistency of the Proposed Project and each of the three SOCTIIP alternatives selected for review.

TABLE 7.4-5
CONSISTENCY OF SOCTIIP ALTERNATIVES WITH SRP TENETS

SRP Tenet	Proposed Project (B-4)	FEC-M	FEC-W	A7C-FEC-M
1) Conserve target species throughout the planning area	Table 4.9-36 reviews the level of conservation of target/planning species within RMV Open Space and within RMV Open Space and already protected open space. As noted, in general the RMV Open Space in conjunction with previously protected open space areas, provides for the protection of the majority of Planning Species, including major and important populations in key locations where identified, and their habitats, with the exception of the grasshopper sparrow and mud nama.	See Exhibit 7.4-2, -3, and -4 below for impacts to Planning Species. The Upper Chiquita Canyon Conservation Area will partially mitigate these impacts. The conservation area was established by the TCA in anticipation of potential future impacts from implementation of SOCTIIP. The conservation area includes approximately 1,200 acres, supporting a major population of the gnatcatcher.	See Exhibit 7.4-2, -3, and -4 below for impacts to Planning Species. The Upper Chiquita Canyon Conservation Area will partially mitigate these impacts. The conservation area was established by the TCA in anticipation of potential future impacts from implementation of SOCTIIP. The conservation area includes approximately 1,200 acres, supporting a major population of the gnatcatcher.	See Exhibit 7.4-2, -3, and -4 below for impacts to Planning Species. The Upper Chiquita Canyon Conservation Area will partially mitigate these impacts. The conservation area was established by the TCA in anticipation of potential future impacts from implementation of SOCTIIP. The conservation area includes approximately 1,200 acres, supporting a major population of the gnatcatcher.
2) Larger Reserves are better	As noted in Section 4.9.4, the RMV Open Space contributes to six major habitat blocks of 28,891 acres when considered with already protected open space in the Southern Subregion.	With the FEC-M, partial fragmentation of the following habitat blocks would occur: Upper Chiquita, San Mateo and Donna O'Neill Conservancy. The Upper Chiquita block would be fragmented as the corridor crosses Gobernadora Creek. Dependant upon the design of the bridge structure proposed at this location, it is likely that the fragmented area would continue to function as a habitat linkage/ wildlife movement corridor. The Donna O'Neill Conservancy block would similarly be fragmented by the FEC-M. Bridges/undercrossings are proposed in two locations adjacent to the Conservancy to provide for continued wildlife movement particularly for larger more mobile species like coyotes, bobcats and mountain lions. Smaller less mobile terrestrial species, like small mammals and reptiles would be more affected by the fragmentation. Of the three partial fragmentations the most significant in terms of the design of the RMV Open Space is the partial fragmentation of the San Mateo habitat block in Central San Juan/upper Cristianitos. The FEC-M through this area will be parallel to movement of wildlife from San Juan Creek a long Cristianitos Creek to Camp Pendleton (linkage N). Along this linkage three bridges/ undercrossings are proposed between upper Cristianitos Creek and Gabino	With the FEC-W, similar fragmentation of the Upper Chiquita block would occur as the FEC-M. Fragmentation of the Donna O' Neill Conservancy block would increase although a proposed bridge/undercrossing would likely provide for the continued movement of wildlife particularly larger more mobile species like coyotes, bobcats and mountain lions. Smaller less mobile terrestrial species, like reptiles and small mammals would be more affected by the fragmentation. FEC-W would fragment the San Mateo block in Central San Juan/upper Cristianitos less than the FEC-M, as the alignment would be on the western edge of the block. Movement along linkage J east to west would be addressed by provision of a bridge over San Juan Creek.	With the A7C-FEC-M, fragmentation of the Upper Chiquita block would not occur, but partial fragmentation of the lower Chiquita block would occur. However, the proposed bridge over San Juan Creek would likely allow the fragmented area to continue to function as a habitat linkage/wildlife movement corridor. The A7C-FEC-M would not fragment the San Mateo block. However, similar to the FEC-W, the A7C-FEC-M would fragment the Donna O'Neill Conservancy block. A proposed bridge/ undercrossing would likely provide for the continued movement of wildlife particularly larger more mobile species like coyotes, bobcats and mountain lions. Smaller less mobile terrestrial species, like reptiles and small mammals would be more affected by the fragmentation. Both types of species would be affected in the upper portion of the fragmented area.

TABLE 7.4-5 (Continued)
CONSISTENCY OF SOCTIIP ALTERNATIVES WITH SRP TENETS

SRP Tenet	Proposed Project (B-4)	FEC-M	FEC-W	A7C-FEC-M
		Creek to facilitate wildlife movement, particularly for larger more mobile wildlife. Smaller less mobile terrestrial wildlife will likely be isolated on either side of the FEC-M. The function of the isolated habitat would also be affected by the fragmentation.		
3) Keep reserve areas close. Link reserves with corridors	As noted in Section 4.9.4, all of the six habitat blocks described above are interconnected; however, several potential linkage areas (I, N, G and M) reflect some degree of conflict, as noted in the consistency analysis.	The FEC-M would fragment the habitat blocks as described above. Habitat linkages/wildlife movement corridors potentially affected by the FEC-M include D, H and N. Linkage D is the Chiquita Narrows and both an avian and large mammal connection. Construction of the toll plaza would result in lighting impacts and present a barrier to movement from Chiquadora Ridge to Sulphur Canyon and beyond. Larger mammal species would require an undercrossing or bridge to facilitate movement through linkage D. Such a structure is proposed by the TCA. Linkage H may be affected by lighting of the proposed toll plaza on Chiquadora Ridge. Linkage N is affected as described above (see Tenet 2), wildlife following linkage N would likely move to the west of Cristianitos Creek. Linkages G, J, O and Q would not be affected.	The FEC-W would affect the habitat blocks as described above. Habitat linkages/wildlife movement corridors potentially affected by the FEC-W include D and H. Linkages D and H would be affected as described for the FEC-M. Linkages G, J, O and Q would not be affected.	The A7C-FEC-M would fragment the habitat blocks as described above. Habitat linkages/wildlife movement corridors potentially affected by the FEC-M include D, E and K. Impacts to linkage D would be as described for the FEC-M and FEC-W. Linkage E is also both an avian and large mammal connection. Larger mammal species would require a culvert or bridge to facilitate movement through linkage E. No such structure is proposed by the TCA. Restoration of the corridor slopes with coastal sage scrub may facilitate avian movement; but proximity of the toll plaza and an interchange may decrease potential benefits to restoration of the slopes. Linkage K provides dispersal opportunities for California gnatcatchers and other avian species such as cactus wren from Chiquita Ridge to populations in San Juan Capistrano and San Clemente. Restoration of the corridor slopes may facilitate avian movement. Linkages J, O and Q would not be affected.
4) Keep habitat contiguous	As noted in Section 4.9.4, the six habitat blocks exhibit little internal fragmentation; i.e., existing development or disturbance that disrupts the habitat contiguity of the blocks.	The FEC-M would fragment the habitat blocks and described above for Tenet 2, thus introducing internal fragmentation and disrupting the contiguity of the habitat blocks.	The FEC-W would fragment the habitat blocks and described above for Tenet 2, thus introducing internal fragmentation and disrupting the contiguity of the habitat blocks.	The A7C-FEC-M would fragment the habitat blocks and described above for Tenet 2, thus introducing internal fragmentation and disrupting the contiguity of the habitat blocks.
5) Reserves should be biologically diverse	As noted in Section 4.9.4, overall the combined RMV Open Space and already protected open space protects the large majority of the major vegetation communities. Protection ranges from a low of 63 percent for grassland and a high of 89 percent for chaparral. Coastal sage scrub is 85 percent conserved.	As noted above for Tenet 1 regarding protection of target species and as detailed in Exhibit 7.4-2, -3, and -4, the FEC-M would impact habitats proposed for protection under the RMV Open Space, thus potentially having a negative impact on the overall diversity of habitat types within the open space. However,	As noted above for Tenet 1 regarding protection of target species and as detailed in Exhibit 7.4-2, -3, and -4, the FEC-W would impact habitats proposed for protection under the RMV Open Space thus potentially having a negative impact on the overall diversity of habitat types within the open space.	As noted above for Tenet 1 regarding protection of target species and as detailed in Exhibit 7.4-2, -3, and -4, the A7C-FEC-M would impact habitats proposed for protection under the RMV Open Space thus having a potentially negative impact on the overall diversity of habitat types within the open space.

TABLE 7.4-5 (Continued)
CONSISTENCY OF SOCTIIP ALTERNATIVES WITH SRP TENETS

SRP Tenet	Proposed Project (B-4)	FEC-M	FEC-W	A7C-FEC-M
	Protection of the major vegetation communities is also balanced within the San Juan and San Mateo watersheds, as well as in relation to elevation gradients, although there is slight bias toward protection of higher elevation habitats.	impacts would generally be proportional within the San Juan and San Mateo watersheds. There would be an additional impact bias towards lower elevation habitats.	However, impacts would generally be proportional within the San Juan and San Mateo watersheds. There would be an additional impact bias towards lower elevation habitats.	There would a slight bias towards additional impacts in the San Juan watershed as well from low elevation habitats.
6) Protect reserves from encroachment	The Proposed Project circulation system compliance with General Policy 4 (roads and infrastructure to be located outside the open space to the maximum extent feasible) is reviewed in Section 4.9.4. Protection of long-term, indirect effects/encroachment (i.e., fuel management zones, exotic species, harmful chemicals, lighting, human and pet access) would be assured by compliance with Draft NCCP/ HCP Planning Guidelines, General Policy 5 requirements.	The effect of the FEC-M on the RMV Open Space is reviewed above. Lighting will be a potential impact at the mainline toll plazas and at interchanges. No other lighting is proposed. According to the SOCTIIP DEIS/EIR, all lights will be shielded to reduce spillover effects. However, lighting at the toll plazas will affect the RMV Open Space as both toll plaza locations are in key linkages/corridors (D, H and N) as noted above. The DEIS/EIR specifies a mitigation measure that prohibits the planting of any non-native, exotic, invasive weed species as part of the corridor landscaping. Thus exotic species would not be artificially introduced to the RMV Open Space. Fires of anthropogenic origins are common along roadways. To mitigate for this impact, Caltrans standards of roadway design call for a 14-foot area from the edge of pavement to be free of any vegetation. Runoff from roadways can contain pollutants of concern, namely heavy metals. The DEIS/EIR describes a Water Quality Management Plan that includes bioswales and other facilities to treat roadway runoff prior to release. In addition, the FEC-M would be fenced its entire length prohibiting persons from exiting the corridor and accessing the RMV Open Space.	The effect of the FEC-W on the RMV Open Space is reviewed above. Lighting will be a potential impact at the mainline toll plazas and at interchanges. No other lighting is proposed. According to the SOCTIIP DEIS/EIR, all lights will be shielded to reduce spillover effects. However lighting at the toll plazas will affect the RMV Open Space as both toll plaza locations are in linkages/ corridors (D and H) as noted above. The DEIS/EIR specifies a mitigation measure that prohibits the planting of any non-native, exotic, invasive weed species as part of the corridor landscaping. Thus exotic species would not be artificially introduced to the RMV Open Space. Fires of anthropogenic origins are common along roadways. To mitigate for this impact, Caltrans standards of roadway design call for a 14-foot area from the edge of pavement to be free of any vegetation. Runoff from roadways can contain pollutants of concern, namely heavy metals. The DEIS/ EIR describes a Water Quality Management Plan that includes bioswales and other facilities to treat roadway runoff prior to release. In addition, the FEC-W would be fenced its entire length prohibiting persons from exiting the corridor and accessing the RMV Open Space.	The effect of the A7C-FEC-M on the RMV Open Space is reviewed above. Lighting will be a potential impact at the mainline toll plazas and at interchanges. No other lighting is proposed. According to the SOCTIIP DEIS/EIR, all lights will be shielded to reduce spillover effects. However lighting at the toll plazas will affect the RMV Open Space as both toll plaza locations are in linkages/corridors (D and H) as noted above. The DEIS/EIR specifies a mitigation measure that prohibits the planting of any non-native, exotic, invasive weed species as part of the corridor landscaping. Thus exotic species would not be artificially introduced to the RMV Open Space. Fires of anthropogenic origins are common along roadways. To mitigate for this impact, Caltrans standards of roadway design call for a 14-foot area from the edge of pavement to be free of any vegetation. Runoff from roadways can contain pollutants of concern, namely heavy metals. The DEIS/EIR describes a Water Quality Management Plan that includes bioswales and other facilities to treat roadway runoff prior to release. In addition, the A7C-FEC-M would be fenced its entire length prohibiting persons from exiting the corridor and accessing the RMV Open Space.

TABLE 7.4-5 (Continued)
CONSISTENCY OF SOCTIIP ALTERNATIVES WITH SRP TENETS

SRP Tenet	Proposed Project (B-4)	FEC-M	FEC-W	A7C-FEC-M
7) Watershed Planning Principles/Southern Science Advisors Tenet 7, Terrains/ Hydrology.	Fundamental to the open space planning design for the Proposed Project is the precept that the long-term functioning of habitat systems is significantly dependant on the long-term interactions between terrains and hydrology. As noted previously, from a terrains perspective, emphasis has been placed on protecting sources of coarse sediment important to maintaining the function of stream-associated habitats for species such as the arroyo toad, protecting the geomorphology of the creek systems, surface and groundwater flows and addressing eroding clay soils so that the current sources of fine sediments detrimental to aquatic habitats can be eliminated.	Design of FEC-M considered many factors, including geotechnical factors (proximity of slides, rippability of material etc.). However design of the FEC-M did not specifically consider the long-term interactions between terrains and hydrology that influence the functioning of habitat systems. Nevertheless, the FEC-M does avoid the sources of coarse sediment in Verdugo and middle Gabino Canyon, and the sands of the Chiquita and Gobernadora valley floors. FEC-M could help address eroding clay soils in the Cristianitos sub-basin by providing some level of soil stabilization and remediation as a result of landscaping.	Design of FEC-W considered many factors, including geotechnical factors (proximity of slides, rippability of material etc,). However design of the FEC-W did not specifically consider the long-term interactions between terrains and hydrology that influence the functioning of habitat systems. Nevertheless, the FEC-W does avoid the sources of coarse sediment in Verdugo and middle Gabino Canyon, and the sands of the Chiquita and Gobernadora valley floors. FEC-W would not address eroding clay soils in the Cristianitos sub-basin, but would not have adverse impact.	Design of A7C-FEC-M considered many factors, including geotechnical factors (proximity of slides, rippability of material etc,). However design of the A7C-FEC-M did not specifically consider the long-term interactions between terrains and hydrology that influence the functioning of habitat systems. Nevertheless, the A7C-FEC-M does avoid the sources of coarse sediment in Verdugo and middle Gabino Canyon, and the sands of the Chiquita and Gobernadora valley floors. A7C-FEC-M would not address eroding clay soils in the Cristianitos sub-basin, but would not have adverse impacts.

TABLE 7.4-6
IMPACTS OF SOCTIIP ALIGNMENTS ON PLANNING SPECIES

Planning Species	FEC-M	FEC-W	A7C-FEC-M
Arroyo Toad	Crosses major population in San Juan Creek west of key location.	Crosses major population in San Juan Creek west of key location.	Crosses major population in San Juan Creek west of key location.
Coastal California Gnatcatcher	Impacts Chiquita Canyon, Western Gobernadora/ Chiquadora Ridge, Wagon Wheel major population/key location.	Impacts Chiquita Canyon, Western Gobernadora/ Chiquadora Ridge, Wagon Wheel major population/key location.	Impacts Chiquita Canyon, Western Gobernadora/ Chiquadora Ridge, Wagon Wheel major population/key location. Larger impacts than FEW-M or FEC-W because it continued south along Chiquadora Ridge.
Least Bell's Vireo	No impact.	No Impact.	Bridge would cross at southern tip of important population/key location in lower Gobernadora at San Juan Creek.
Southwestern Willow Flycatcher	No Impact.	No Impact.	No Impact.
Riverside Fairy Shrimp	No Impact.	No Impact.	Grading possibly would affect vernal pool hydrology on Radio Tower Road mesa.
San Diego Fairy Shrimp	No Impact.	No Impact.	Grading possibly would affect vernal pool hydrology on Radio Tower Road mesa.
Thread-leaved Brodiaea	Alignment would impact the eastern portion of the Cristianitos Canyon important population and the Trampas Canyon important population.	No impact.	Alignment on Chiquadora Ridge likely would impact major population/key location and specifically the location with 2,000 flowering stalks.
Cactus Wren	Impacts in Chiquita Canyon/Chiquadora Ridge and Cristianitos Canyon.	Impacts in Chiquita Canyon/Chiquadora Ridge, Trampas Canyon, upper Cristianitos Canyon, and Donna O'Neill Conservancy.	Impacts in Chiquita Canyon/Chiquadora Ridge, Trampas Canyon, and Donna O'Neill Conservancy.
Cooper's Hawk	Potential impacts to nest sites in Middle Chiquita, Trampas Canyon, and Donna O'Neill Conservancy.	Potential impacts to nest sites in Middle Chiquita and Donna O'Neill Conservancy.	Potential impacts to nest sites in Middle Chiquita, Trampas Canyon and Donna O'Neill Conservancy.
Grasshopper Sparrow	Alignment impacts Chiquita Ridge/Chiquadora portion of major population/key location and Cristianitos, Lower Gabino/Blind Canyons important population/key location.	Alignment impacts Chiquita Ridge/Chiquadora portion of major population/key location and southern portion of Cristianitos, Lower Gabino/ Blind Canyons important population/key location.	Alignment impacts Chiquita Ridge/Chiquadora portion of major population/key location and southern portion of Cristianitos, Lower Gabino/ Blind Canyons important population/key location.
Merlin	Alignment would impact key foraging habitat in Chiquita Canyon and potential foraging habitat in Cristianitos Canyon.	Alignment would impact key foraging habitat in Chiquita Canyon.	Alignment would impact key foraging habitat in Chiquita Canyon.
Tricolored Blackbird	No impact on nesting sites.	No impact on nesting sites.	No impact on nesting sites.
White-tailed Kite	No direct impacts to nest sites.	Potential impact to nest site on Donna O'Neill Conservancy.	Potential impact to nest site on Donna O'Neill Conservancy.
Yellow Warbler	Bridge over San Juan Creek/ds Bell Canyon important population and upper edge of Lower Gobernadora Creek important population.	Bridge across upper edge of Lower Gobernadora Creek important population.	No impact.
Yellow-breasted Chat	Bridge over San Juan Creek/ds Bell Canyon important population and upper edge of Lower Gobernadora Creek important population.	Bridge across upper edge of Lower Gobernadora Creek important population.	
Western Spadefoot Toad	Alignment appears to just skirt Upper Cristianitos important population to east and Lower Gabino Creek important population to west.	No impacts.	Grading possibly would affect vernal pool hydrology on Radio Tower Road mesa in areas occupied by spadefoot toad.

TABLE 7.4-6 (Continued)
IMPACTS OF SOCTIIP ALIGNMENTS ON PLANNING SPECIES

Planning Species	FEC-M	FEC-W	A7C-FEC-M
Orange-throated Whiptail	Alignment impacts Chiquita Canyon/Wagon Wheel Canyon, Chiquadora Ridge and southern portion of the Gobernadora/Central San Juan Creek (south of the creek) important populations/key locations.	Alignment impacts Chiquita Canyon/Wagon Wheel Canyon and Chiquadora Ridge important populations/key locations.	Alignment impacts Chiquita Canyon/Wagon Wheel Canyon and Chiquadora Ridge important populations/key locations.
San Diego Horned Lizard	Alignment impacts western edge of Chiquita Canyon/Wagon Wheel Canyon important population/key location.	Alignment impacts western edge of Chiquita Canyon/Wagon Wheel Canyon important population/key location.	Alignment impacts western edge of Chiquita Canyon/Wagon Wheel Canyon important population/key location.
Southwestern Pond Turtle	Alignment appears to just skirt Upper Cristianitos important population to east.	No impacts.	No impacts.
Chaparral Beargrass	No impact.	No impact.	No impact.
Coulter's Saltbush	Alignment would impact Upper Cristianitos important population.	No impact.	No impact.
Many-stemmed Dudleya	Alignment would impact the Chiquadora Ridge major population/key location and eastern portion of the Cristianitos Canyon major population/key location.	Alignment would impact the Chiquadora Ridge major population/key location and western edge of the Cristianitos Canyon major population/key location.	Alignment would impact the Chiquadora Ridge major population/key location, the eastern edge of the lower Chiquita Canyon important population and the western edge of the Cristianitos Canyon major population/key location.
Mud Nama	No impact.	No impact.	Grading possibly would affect vernal pool hydrology on Radio Tower Road mesa.
Salt Spring Checkerbloom	No impact.	No impact.	No impact.
Southern Tarplant	No impact.	No impact.	No impact.

SAMP/MSAA Tenets

The following table reviews consistency of the Proposed Project and each of the three SOCTIIP alternatives selected for review.

TABLE 7.4-7
CONSISTENCY OF SOCTIIP ALTERNATIVES WITH SAMP/MSAA TENETS

SAMP/MSAA Tenets	Proposed Project (B-4)	FEC-M	FEC-W	A7C-FEC-M
1) No net loss of acreage and functions of waters of the U.S./State	The Proposed Project is designed to protect the major terrains/hydrology functions of each sub-basin, as well as the major riparian/wetland systems; however, the proposed project would result in impacts to USACE and CDFG jurisdictions. The Habitat Restoration Plan identifies locations to mitigate impacts to USACE and CDFG jurisdictions such that no net loss of wetlands and non-wetland waters occurs.	The FEC-M alternative would result in impacts to 49.0 acres of USACE and CDFG jurisdiction. Mitigation such that no net loss of wetlands and non-wetland waters would be necessary.	The FEC-W alternative would result in impacts to 38.7 acres of USACE and CDFG jurisdiction. Mitigation such that no net loss of wetlands and non-wetland waters would be necessary.	The A7C-FEC-M alternative would result in impacts to 42.9 acres of USACE and CDFG jurisdiction. Mitigation such that no net loss of wetlands and non-wetland waters would be necessary.
2) Maintain/restore riparian ecosystem integrity	As noted above, the Proposed Project protects, and where feasible and beneficial, restores each of the major canyon systems as well as the mainstem creeks.	The FEC-M would maintain riparian ecosystem integrity, with the exception of Cristianitos Creek. Maintenance of the Cristianitos Creek riparian ecosystem would be compromised by the parallel proximity of the alignment with limited ability to buffer the creek.	The FEC-W would maintain riparian ecosystem integrity.	The A7C-FEC-M would maintain riparian ecosystem integrity.
3) Protect headwaters	Each of the headwaters areas not already urbanized is proposed to be protected and/or restored. The headwaters area of Trampas Creek is proposed for development, but this area has previously been significantly altered due to existing mining operations and development would be required to include BMPs for stormwater flows.	The FEC-M would not impact headwaters for Chiquita, Gobernadora, Trampas or Talega Creek. Impacts to Cristianitos headwaters would occur.	The FEC-W would not impact headwaters for Chiquita, Gobernadora, Cristianitos, Trampas or Talega Creeks.	The A7C-FEC-M would not impact headwaters for Chiquita, Gobernadora, Cristianitos, Trampas or Talega Creeks.
4) Maintain/protect/restore riparian corridors	The Proposed Project would protect all major riparian corridors. Where necessary, bridge structures and/or culverts are proposed to maintain the riparian corridors. In addition, restoration is proposed where beneficial.	The FEC-M would protect all major riparian corridors, with the exception of Cristianitos Creek. Bridge structures are proposed to maintain riparian corridors for Gobernadora, San Juan and Talega Creeks. Maintenance of the Cristianitos Creek riparian corridor would be compromised by the parallel proximity of the alignment with limited ability to buffer the creek.	The FEC-W would protect all major riparian corridors. Where necessary, bridge structures and/or culverts are proposed to maintain the riparian corridors.	The A7C-FEC-M would protect all major riparian corridors. Where necessary, bridge structures and/or culverts are proposed to maintain the riparian corridors.
5) Maintain/and or/restore floodplain connection	The Proposed Project maintains all existing floodplain connections and proposes to restore the Canada Gobernadora floodplain connection consistent with the Habitat Restoration Plan.	The FEC-M maintains all existing floodplain connections. However, FEC-M proposes a bridge structure over Gobernadora Creek, which may or may not provide for restoration of the floodplain connection depending upon the final design of this bridge.	The FEC-W maintains all existing floodplain connections. However, FEC-W proposes a bridge structure over Gobernadora Creek, which may or may not provide for restoration of the floodplain connection depending upon the final design of this bridge.	The A7C-FEC-M maintains all existing floodplain connections and would allow for re-connection of the Gobernadora floodplain.

TABLE 7.4-7 (Continued)
CONSISTENCY OF SOCTIIP ALTERNATIVES WITH SAMP/MSAA TENETS

SAMP/MSAA Tenets	Proposed Project (B-4)	FEC-M	FEC-W	A7C-FEC-M
6) Maintain and/or restore sediment sources and transport equilibrium	The Proposed Project protects all of the significant sources of coarse sediment in order to assure the continued generation of such sediments important for riparian/wetlands habitat systems and focuses development and/or restoration in areas where fine sediments are generated that can cause deleterious effects on riparian habitats and associated species.	The FEC-M protects all of the significant sources of coarse sediment (Verdugo and middle Gabino). According to the SCOTIIP DEIS/SEIR, "construction of the FEC-M Alternative does not affect the quantity of sediment transported by the watershed because most sediment loading occurs in the higher elevations of the watershed where velocities are higher" (pg. 4.9-20). Long term erosion and deposition are not expected to be adverse for Canada Gobernadora, San Juan Creek or Cristianitos Creek.	The FEC-W protects all of the significant sources of coarse sediment (Verdugo and middle Gabino). According to the SCOTIIP DEIS/SEIR, "construction of the FEC-W Alternative does not affect the quantity of sediment transported by the watershed because most sediment loading occurs in the higher elevations of the watershed where velocities are higher" (pg. 4.9-18). Long term erosion and deposition are not expected to be adverse for Canada Gobernadora or San Juan Creek.	The A7C-FEC-M protects all of the significant sources of coarse sediment (Verdugo and middle Gabino). According to the SCOTIIP DEIS/SEIR, "construction of the A7C-FEC-M Alternative does not affect the quantity of sediment transported by the watershed because most sediment loading occurs in the higher elevations of the watershed where velocities are higher"(pg. 4.9-23). Long term erosion and deposition are not expected to be adverse for Canada Gobernadora.
7) Maintain adequate buffer for the protection of riparian corridors	Under the Proposed Project, all major riparian corridors are adequately buffered.	Under the FEC-M adequate buffers for protection of riparian corridors are provided, with the exception of Cristianitos Creek, the alignment is generally perpendicular to the major riparian corridors and proposes bridge structures where it crosses mainstem creeks. The FEC-M would parallel Cristianitos Creek, west of the proposed development in PA 7. Construction of the FEC-M would reduce the buffer between developed uses in PA 7 from the recommended 200 feet minimum (average 500 feet).	Under the FEC-W adequate buffers for protection of riparian corridors are provided. The alignment is generally perpendicular to the major riparian corridors and proposes bridge structures where it crosses mainstem creeks.	Under the A7C-FEC-M adequate buffers for protection of riparian corridors are provided. The alignment is generally perpendicular to the major riparian corridors and proposes bridge structures where it crosses mainstem creeks.
8) Protect riparian areas and associated habitats of listed and sensitive species	The Proposed Project would protect riparian areas and associated habitats for listed and sensitive species. See Table 4.9-36 and the tenets above.	Based on the WES landscape level delineation for the SOCTIIP, this alternative would impact a maximum of 49.0 acres of jurisdictional wetlands. Plant community impacts to riparian herb, mule fat scrub and other riparian communities would total 24.85 acres. No impacts to least Bell's vireo would occur with this alternative.	Based on the WES landscape level delineation for the SOCTIIP, this alternative would impact a maximum of 38.7 acres of jurisdictional wetlands. Plant community impacts to riparian herb, mule fat scrub and other riparian communities would total 27.95 acres. No impacts to least Bell's vireo would occur with this alternative.	Based on the WES landscape level delineation for the SOCTIIP, this alternative would impact a maximum of 42.9 acres of jurisdictional wetlands. Plant community impacts to riparian herb, mule fat scrub and other riparian communities would total 34.62 acres. No impacts to least Bell's vireo would occur with this alternative.

Watershed Planning Principles

The following table reviews consistency of the Proposed Project and each of the three SOCTIIP alternatives selected for review.

TABLE 7.4-8
CONSISTENCY OF SOCTIIP ALTERNATIVES WITH WATERSHED PLANNING PRINCIPLES

Watershed Planning Principle	Proposed Project (B-4)	FEC-M	FEC-W	A7C-FEC-M
1) Recognize and account for the hydrologic response of different terrains at the sub-basin and watershed scale.	As noted in Section 4.9.4, the Proposed Project is consistent with this principle, as the Proposed Project has accounted for the hydrologic responses of different terrains, e.g., the sandy soils of the Chiquita main valley floor and major alluvial side canyons and the hardpan clays in Gobernadora.	Design of FEC-M considered many factors, including geotechnical factors (proximity of slides, rippability of material etc.). However design of the FEC-M did not specifically consider the long-term interactions between terrains and hydrology that influence the functioning of habitat systems. Nevertheless, the FEC-M does avoid the sources of coarse sediment in Verdugo and middle Gabino Canyon, and the sands of the Chiquita and Gobernadora valley floors. FEC-M could help address eroding clay soils in the Cristianitos sub-basin by providing some level of soil stabilization and remediation as a result of landscaping.	Design of FEC-W considered many factors, including geotechnical factors (proximity of slides, rippability of material etc.). However design of the FEC-W did not specifically consider the long-term interactions between terrains and hydrology that influence the functioning of habitat systems. Nevertheless, the FEC-W does avoid the sources of coarse sediment in Verdugo and middle Gabino Canyon, and the sands of the Chiquita and Gobernadora valley floors. FEC-W would not address eroding clay soils in the Cristianitos sub-basin, but would not have adverse effects.	Design of A7C-FEC-M considered many factors, including geotechnical factors (proximity of slides, rippability of material etc.). However design of the A7C-FEC-M did not specifically consider the long-term interactions between terrains and hydrology that influence the functioning of habitat systems. Nevertheless, the A7C-FEC-M does avoid the sources of coarse sediment in Verdugo and middle Gabino Canyon, and the sands of the Chiquita and Gobernadora valley floors. A7C-FEC-M would not address eroding clay soils in the Cristianitos sub-basin, but would not have adverse effects.
2) Emulate, to the extent feasible, the existing runoff and infiltration patterns in consideration of specific terrains, soil types, and ground cover.	As described in Section 4.9.4 and further described in Section 4.5 Water Resources, the WQMP used the SWMM model to estimate the effects of the proposed development on the hydrologic water balance. As further described in the WQMP and the consistency analysis in Section 4.9.4 careful attention to terrain types, runoff and infiltration patterns was made during the design of the proposed project to ensure that existing runoff and infiltration patterns would be maintained.	As noted above, design of the FEC-M considered many factors, however maintenance of the existing runoff and infiltration patterns was not specifically considered in the design of the alignment.	As noted above, design of the FEC-W considered many factors, however maintenance of the existing runoff and infiltration patterns was not specifically considered in the design of the alignment.	As noted above, design of the A7C-FEC-M considered many factors, however maintenance of the existing runoff and infiltration patterns was not specifically considered in the design of the alignment.
3) Address potential effects of future land use changes on hydrology.	The SWMM was used with a continuous rainfall record of 53 years to predict runoff volumes and flows for three scenarios; 1) predevelopment or existing condition, 2) post-development condition without BMPs and 3) post-development with BMPs.	The SOCTIIP DEIS/EIR includes a section on hydrology, which discuss the effects of the FEC-M on existing hydrology. According to the DEIS/EIR, the FEC-M will increase the peak flow rate and runoff volume for local drainage areas impacted by this alternative. On a regional level increased impervious area will increase peak flow and runoff volume in the San Juan Creek Watershed although these impacts are very minor (pg. 4.8-11).	The SOCTIIP DEIS/EIR includes a section on hydrology, which discuss the effects of the FEC-W on existing hydrology. According to the DEIS/EIR, the FEC-W will increase the peak flow rate and runoff volume for local drainage areas impacted by this alternative. On a regional level increased impervious area will increase peak flow and runoff volume in the San Juan Creek Watershed although these impacts are very minor (pg. 4.8-19).	The SOCTIIP DEIS/EIR includes a section on hydrology, which discuss the effects of the A7C-FEC-M on existing hydrology. According to the DEIS/EIR, the A7C-FEC-M will increase the peak flow rate and runoff volume for local drainage areas impacted by this alternative. On a regional level increased impervious area will increase peak flow and runoff volume in the San Juan Creek Watershed although these impacts are very minor (pg. 4.8-35).

TABLE 7.4-8 (Continued)
CONSISTENCY OF SOCTIIP ALTERNATIVES WITH WATERSHED PLANNING PRINCIPLES

Watershed Planning Principle	Proposed Project (B-4)	FEC-M	FEC-W	A7C-FEC-M
4) Minimize alterations of the timing of peak flows of each sub-basin relative to the mainstem creeks	To address County Flood Control planning and management considerations, a HEC-1 analysis has been completed for the pre and post-project 2, 5 and 100-year events. HEC-1 was used to determine the comparative effects of the Proposed Project compared with pre-project conditions. These analyses are in addition to the SWMM modeling prepared for the WQMP. Potential impacts on the timing of peak flows have been analyzed and will be addressed through the use of the combined control system.	See above.	See above.	See above.
5) Maintain and/or restore the inherent geomorphic structure of major tributaries and their floodplains.	Chapter 4 of the WQMP presents flow control and water quality control strategies in response to the geographic-specific conditions found in each sub-basin.	According to the SOCTIIP DEIS/SEIR, the FEC-M would not present adverse impacts to the floodplains of Canada Gobernadora, San Juan Creek or Cristianitos Creek as the maximum increase in surface water elevation is 0.38 feet for Cristianitos Creek. (Pg. 4.8-11)	According to the SOCTIIP DEIS/SEIR, the FEC-W would not present adverse impacts to the floodplains of Canada Gobernadora or San Juan Creek as the maximum increase in surface water elevation is 0.34 feet for San Juan Creek. (Pg. 4.8-19)	According to the SOCTIIP DEIS/SEIR, the A7C-FEC-M would not present adverse impacts to the floodplains of San Juan Creek, as the maximum increase in surface water elevation is 0.03 feet. (Pg 4.8-35)
6) Maintain coarse sediment yields, storage and transport processes.	The Proposed Project avoids the sandy and crystalline terrains that protect significant sources of coarse sediments. Further each significant source of coarse sediments – the sandy terrains in Chiquita and Gobernadora sub-basins and the crystalline terrains in Verdugo Canyon, middle Gabino and La Paz Canyon – is avoided in such a way that sediment transport and storage processes between hillslope, tributaries, sub-basin channels and mainstem creeks are avoided. Avoidance is achieved by means of protecting physical contiguity in these areas and through avoidance of structures that would impede sediment movement in tributaries and in mainstem creeks.	The FEC-M avoids the sources of coarse sediment in Verdugo and middle Gabino, and the sands of the Chiquita and Gobernadora valley floors. FEC-M could help address eroding clay soils in the Cristianitos sub-basin.	The FEC-W avoids the sources of coarse sediment in Verdugo and middle Gabino, and the sands of the Chiquita and Gobernadora valley floors. FEC-W would not address eroding clay soils in the Cristianitos sub-basin.	The A7C-FEC-M avoids the sources of coarse sediment in Verdugo and middle Gabino, and the sands of the Chiquita and Gobernadora valley floors. A7C-FEC-M would not address eroding clay soils in the Cristianitos sub-basin.

TABLE 7.4-8 (Continued)
CONSISTENCY OF SOCTIIP ALTERNATIVES WITH WATERSHED PLANNING PRINCIPLES

Watershed Planning Principle	Proposed Project (B-4)	FEC-M	FEC-W	A7C-FEC-M
7) Utilize infiltration properties of sandy terrains for groundwater recharge and to offset potential increases in surface runoff and adverse effects to water quality.	With the Proposed Project WQMP, all dry season non-storm wet season flows and 1-2 year stormwater flows in accordance with County DAMP requirements will receive water quality treatment prior to the discharge of stormwater runoff into native or restored habitat areas or to groundwater systems. Three components of the Combined Control System provide important water quality functions using natural treatment system approaches: (1) Flow Duration Control and Water Quality Treatment (FD/WQ) Basin; (2) Infiltration Basin; and (3) Bioinfiltration Swale. The flow duration control and water quality treatment basin provides the initial flow and water quality treatment control functions to the system. Where appropriate i.e., in sandy terrains, infiltration basins and bioinfiltration swales are proposed to provide additional water quality treatment control.	As noted previously, the design of the FEC-M does not specifically consider the infiltrative properties of sandy terrains. However, the SOCTIIP DEIS/SEIR does include project design features comprised of both pollution prevention BMPs and treatment BMPs which will provide treatment of pollutants and contaminants for both surface water and ground water in excess of MEP.	As noted previously, the design of the FEC-W does not specifically consider the infiltrative properties of sandy terrains. However, the SOCTIIP DEIS/SEIR does include project design features comprised of both pollution prevention BMPs and treatment BMPs which will provide treatment of pollutants and contaminants for both surface water and ground water in excess of MEP.	As noted previously, the design of the A7C-FEC-M does not specifically consider the infiltrative properties of sandy terrains. However, the SOCTIIP DEIS/SEIR does include project design features comprised of both pollution prevention BMPs and treatment BMPs which will provide treatment of pollutants and contaminants for both surface water and ground water in excess of MEP.
8) Protect existing groundwater recharge areas supporting slope wetlands and riparian zones; and maximize groundwater recharge of alluvial aquifers to the extent consistent with aquifer capacity and habitat management goals.	With regard to the filtration functions associated with the specific terrains of each sub-basin, the Proposed Project WQMP identifies different flow management/water quality treatment strategies deriving in significant part from the infiltration characteristics of the soils/geology within each sub-basin and thus addresses the recharge of slope wetlands and alluvial aquifers.	Slope wetlands would not be affected by the FEC-M alternative and stormwater runoff from the FEC-M is unlikely to recharge alluvial aquifers.	Slope wetlands would not be affected by the FEC-W alternative and stormwater runoff from the FEC-W is unlikely to recharge alluvial aquifers.	Slope wetlands would not be affected by the A7C-FEC-M alternative and stormwater runoff from the A7C-FEC-M is unlikely to recharge alluvial aquifers.

Ladera Ranch

Ladera Ranch is currently completing construction therefore all impacts to biological resources have occurred and have been mitigated as described below. As with the Proposed Project, the conflicts or contributions of the Ladera Ranch project are examined in light of the broader SRP Reserve Design Tenets, SAMP/MSAA Tenets, and Watershed Planning Principles.

SRP Reserve Design Tenets

1) Conserve target species throughout the planning area

Mitigation for the Ladera Ranch project has contributed to the conservation of target/planning species throughout the planning area. The Chiquita Ridge vernal pool also lies within and is preserved by the Ladera Open Space. This vernal pool is identified as *a key location* for both the San Diego and Riverside fairy shrimp, mud nama, and western spadefoot toad. Key locations 1 and 2 for the California gnatcatcher also lie partially within the Ladera Open Space, approximately 42 locations are within the Ladera Open Space. Key location 1 for the least Bell's vireo, gnatcatcher, yellow warbler, and yellow-breasted chat lies within the Arroyo Trabuco CDFG conservation easement that is managed according to the Ladera Open Space Management Plan. Key location 5 for thread-leaved brodiaea is also located within Ladera Open Space. Impacts to ACOE and CDFG wetlands resulting from construction of Ladera Ranch were mitigated by creation of wetland habitats in the Gobernadora Ecological Restoration Area (GERA) that is identified as a key location (#2) for least Bell's vireo, a key location (#1) for southwestern willow flycatcher, a key location (#4) for southern tarplant, a key location (#2) for yellow warbler, a key location (#2) for yellow-breasted chat and a key location (#1) for grasshopper sparrow.

2) Larger Reserves are better

3) Keep reserve areas close. Link reserves with corridors

4) Keep habitat contiguous

The Ladera Open Space encompasses a large portion of habitat linkage/wildlife movement corridor C along Chiquadora Ridge and habitat linkage/wildlife movement corridor D at Chiquita Narrows, both of which provide connectivity to other already protected open spaces, i.e., the Arroyo Trabuco and Las Flores Open Space, thus keeping protected open space areas close and contributing to the protection of a contiguous habitats within a larger open space system.

5) Reserves should be biologically diverse

As noted above, mitigation for the Ladera Ranch project included permanent protection and preservation of approximately 1,600 acres of open space including approximately 334 acres of coastal sage scrub, 1,214 acres of grasslands, seven acres of chaparral, and 28 acres of riparian. Habitat types within the Ladera Open Space are diverse and contribute to the functions of a larger interconnected system of protected open space.

6) Protect reserves from encroachment

The Ladera Open Space is protected from encroachment by limiting public access to public trails and bikeways and designated scenic lookout locations. Trails, bikeways, and scenic lookouts are fenced to eliminate encroachment into the open space by non-authorized persons. There is no lighting within the Ladera Open Space. An ongoing annual control program controls

exotic, invasive non-native species. The treatment of dry season flow and storm-water flows which have the potential to convey pollutants of concern occurs within Ladera Ranch via the Arroyo Trabuco Basin, Sienna Botanica, and Horno Basin prior to release to Horno Creek within the southern portion of the Ladera Open Space.

SAMP/MSAA Tenets

1) No net loss of acreage and functions of waters of the U.S./State

2) Maintain/restore riparian ecosystem integrity

As described above, mitigation of impacts to waters of the U.S/State by the Ladera Ranch project was accomplished through the creation of wetland habitats including southern willow scrub, alkali meadow, and alkali marsh within GERA and Chiquita Canyon. Both the ACOE and CDFG have concurred that the mitigation for Ladera Ranch has achieved performance standards. GERA and Chiquita Canyon support key locations of planning species as described above, thus no net loss of acreage and function of waters of the U.S/State has been achieved and riparian ecosystem integrity within Gobernadora Creek and Chiquita Creek has been restored. In addition, the Sienna Botanica (re-created Horno Creek) provides both water quality treatment and incidental wildlife habitat value though the native plantings that are part of the bioswale.

3) Protect headwaters

The headwaters of Horno Creek impacted by construction of Ladera Ranch were re-created via construction of the Sienna Botanica.

4) Maintain/protect/restore riparian corridors

The wetlands mitigation in GERA and Chiquita Canyon is protected via a conservation easement in favor of CDFG, thus the riparian corridor for both Gobernadora Creek and Chiquita Creek has been restored (as discussed above), protected and maintained.

5) Maintain/and or/restore floodplain connection

Part of the creation of the mitigation acres in Gobernadora and Chiquita involved the restoration of floodplain connections such that overbank flows from Gobernadora and Chiquita Creek could be an integral part of the supporting hydrology. The Horno Creek floodplain connection was severed by construction of Ladera Ranch, although 25-year events and less can be accommodated by the Sienna Botanica. Events above this size are diverted to the storm drain system and discharged into the Arroyo Trabuco or Horno basins for detention and water quality treatment.

6) Maintain and/or restore sediment sources and transport equilibrium

Coarse sediments continue to be transported downstream through the Arroyo Trabuco Basin, Sienna Botanica, and Horno Basin.

7) Maintain adequate buffer for the protection of riparian corridors

8) Protect riparian areas and associated habitats of listed and sensitive species

As noted previously, Gobernadora Creek and Chiquita Creek are buffered by the mitigation habitats created adjacent to them, thus protecting their riparian corridors, which support habitats for such species as least Bell's vireo and southwestern willow flycatcher.

Watershed Planning Principles

Ladera Ranch is constructed in clay/silty terrains, which seal quickly under rainfall, producing rapid runoff when compared to sandy terrains. Impervious surfaces associated with developed uses respond in a similar fashion. The Runoff Management Plan for Ladera Ranch addressed the pre-project and post-project hydrology, and recommended construction of the Arroyo Trabuco and Horno basins to address peak flows exiting Horno Creek and entering San Juan Creek. As noted above, the Horno Creek floodplain connection was severed by construction of Ladera Ranch, although 25-year events and less can be accommodated by the Sienna Botanica. Events above this size are diverted to the storm drain system and discharged into the Arroyo Trabuco or Horno basins for detention and water quality treatment. Coarse sediments continue to be transported downstream through the Arroyo Trabuco Basin, Sienna Botanica, and Horno Basin. Both the Arroyo Trabuco and Horno basins provide for detention and infiltration and treatment of pollutants by bioinfiltration. No slope wetlands were impacted by construction of Ladera Ranch. No alluvial aquifer was impacted by construction of Ladera Ranch.

La Pata Avenue

As noted previously, neither the NOP nor the EIR have been prepared for the proposed extension of La Pata Avenue from south of Ortega Highway to the San Clemente city limits. Therefore, there is limited information available regarding the location of alternative alignments for this project. However, based on personal communications with staff at the County of Orange, the feasibility study is looking at two potential alternative alignments; a "west" alignment and an "east" alignment that would lie west and east of Prima Deshecha Landfill, respectively. No information is available regarding the exact alignments; therefore, the analysis of the extension of La Pata focuses on those resources which contribute to the RMV Conservation Strategy that could be affected by the proposed extension. A tenet/principle specific analysis is not possible given the limited information available.

The extension of La Pata on either a "west" or "east" alignment is within and in the vicinity of the Prima Deshecha Landfill the eastern portion of which is considered to be part of the already protected open space and is included within the Lower Chiquita habitat block because of its current largely undeveloped nature and its future as natural open space (portions of the landfill may be more active recreational open space). Extension of La Pata may fragment the lower portion of this habitat block. Within this area, habitat linkage/wildlife movement corridor K is identified by the Draft Southern NCCP/HCP Planning Guidelines as providing dispersal opportunities for California gnatcatchers and other species between Chiquita Ridge and gnatcatcher populations in San Juan Capistrano and San Clemente, as well as eastward dispersal between Trampas Canyon and the Talega development to the Donna O'Neill Conservancy, Cristianitos Canyon, and MCB Camp Pendleton. While gnatcatchers are known to travel distances and will cross roadways, extension of La Pata could affect this habitat linkage/wildlife movement corridor. Revegetation of the roadway slopes with coastal sage scrub and elimination of lighting will facilitate the continued function of this linkage and could reduce the cumulative impacts of the project.

Prima Deshecha Landfill

The County is currently preparing a second amendment to the GDP and a Supplemental EIR to address potential changes in the area of disturbance at the site associated with slope stabilization efforts; project features required for minimization of biological impacts associated with full build-out; development of a conceptual pre-mitigation plan to address all impacts through full build-out; and available project-level information for on-site features such as a desilting basin between Zones 1 and 4. It is anticipated that development of a comprehensive pre-mitigation plan will reduce any identified impacts to a level of less than significance, particularly in the event that such mitigation programs can be complimentary to the Adaptive Management Plan. No impacts to the major population, important population or *key locations* of gnatcatchers, least Bell's vireo or thread-leaved brodiaea are anticipated to result from the second amendment to the GDP, although impacts to individuals may occur. Upon closure of the landfill, Prima will contribute natural open space and restored habitats to the Lower Chiquita habitat block and contribute to the habitat linkage/wildlife movement corridor K which is identified by the Draft Southern NCCP/HCP Planning Guidelines as providing dispersal opportunities for California gnatcatchers and other species between Chiquita Ridge and gnatcatcher populations in San Juan Capistrano and San Clemente, as well as eastward dispersal between Trampas Canyon and the Talega development to the Donna O'Neill Conservancy, Cristianitos Canyon and MCB Camp Pendleton.

SMWD Seasonal Storage Facilities

As noted previously, SMWD has identified the potential need for two seasonal storage facilities, one for domestic and one for non-domestic water. Eight alternative potential sites have been identified (four each for domestic and non-domestic) for further evaluation by SMWD. These potential storage facility sites have the potential to contribute to cumulative impacts to biological resources. As with the Proposed Project, the conflicts or contributions of the seasonal storage facility sites are examined in light of the broader SRP Reserve Design Tenets, SAMP/MSAA Tenets, and Watershed Planning Principles.

Table 7.7-9 sets forth the impacts by vegetation and species for these alternative potential sites.

The SMWD reservoir sites will result in impacts to several sensitive species. The Upper Chiquita reservoir site would result in direct impacts on four known locations of California gnatcatcher, and one location of grasshopper sparrow. The Lower Chiquita reservoir site would result in the loss of three known locations of California gnatcatcher, one location of the cactus wren, eight locations of grasshopper sparrow, one location of the orange-throated whiptail, one location of the southern California rufous crowned sparrows, and one locations of a red-tailed hawk nest. The Upper Cristianitos reservoir site would result in the loss of one location of the cactus wren and one location of red-tailed hawk nest. The Gabino site would result in the loss of one location of thread-leaved brodiaea, supporting 398 individuals.

TABLE 7.4-9
IMPACTS TO VEGETATION COMMUNITIES/LANDCOVERS FROM THE SMWD SEASONAL STORAGE FACILITIES WITH THE STUDY AREA

Vegetation/Land Cover	Upper Chiquita	Lower Chiquita	Upper Cristianitos	San Juan Creek East 3	Gabino Site	Total Permanent Impacts within RMV (acres)
Grassland	2.3		3.4	1.9	2.8	8.1
Coastal Sage Scrub	9.6	3.3	30.5	51.9	0.4	86.1
Riparian	0.8		10.9	36.5		47.4
Open Water		0.2				0.2
Freshwater Marsh						0.0
Watercourses						0.0
Vernal Pools						0.0
Woodland						0.0
Forest						0.0
Chaparral			1.2	57.3	0.1	58.6
Cliff & Rock						0.0
Subtotal-Natural Habitats						**200.4**
Developed	0.3**					0.3**
Disturbed	0.2**					0.2**
Agriculture	3.4	35.6				35.6
Subtotal-Non-habitat Land Covers						**36.1**
Total	***16.6***	***39.1***	***46.0***	***147.6***	***3.3****	***236.5***

Acreage only includes portion of reservoir in OS.
** these impacts are pipeline impacts on RMV, the reservoir is not on RMV

It should be noted that impacts resulting from implementation of any of the SMWD alternatives may or may not be additive with those of the Proposed Project. In instances where the impacts of the Proposed Project and the potential season storage site overlap, e.g., in Planning Area 5, impacts to species and vegetation are not additive; the same impact would not be counted twice; however, in areas where impacts are different, e.g., The Upper Cristianitos site, these impacts would be additive.

SRP Tenets

The following table reviews consistency of the Proposed Project and five potential seasonal storage facility sites. Three locations, Plano Trabuco, Trampas Canyon, and Trampas Canyon Pit, are not reviewed here for the following reasons: 1) Plano Trabuco is not reviewed here as the proposed site is an existing nursery, has very limited onsite biological resources (i.e., little native habitat), and is not a key connectivity location. The adjacent Arroyo Trabuco is the habitat linkage/wildlife movement corridor and the arroyo would be unaffected by a proposed facility at the adjacent nursery site. 2) Trampas Canyon and Trampas Canyon Pit are not reviewed here, as they are located entirely within proposed development–Planning Area 5–and as such would not cause cumulative impacts beyond those attributable to the Proposed Project, i.e., as noted above, impacts within Planning Area 5 would not be additive. The Gabino West site is located partially the conventional residential and partially within the estate residential proposed for Planning Area 7. Gabino West is reviewed in this analysis because this facility

TABLE 7.4-10
CONSISTENCY OF SMWD POTENTIAL SEASONAL STORAGE FACILITY SITES WITH SRP TENETS

SRP Tenet	Proposed Project (B-4)	Upper Chiquita Site	Lower Chiquita Site	Upper Cristianitos Site	San Juan Creek East 3 Site	Gabino West Site
1) Conserve target species throughout the planning area	Table 4.9-36 review s the level of conservation of target/planning species within RMV Open Space and within RMV Open Space and already protected open space. As noted, in general the RMV Open Space in conjunction with previously protected open space areas, provides for the protection of the majority of Planning Species, including major and important populations in key locations where identified, and their habitats, with the exception of the grasshopper sparrow and mud nama.	The Planning Species of relevance to this site is the gnatcatcher. Impacts to gnatcatchers in *key location* 1 may occur as a result of implementation of a facility at this site. However, provisions for this facility in this location were made at the time the USFWS issued the Section 7 Biological Opinion for the FTCN-Oso Section.	The Planning Species of relevance to this site is the gnatcatcher. Impacts to gnatcatchers in *key location* 1 may occur as a result of implementation of a facility at this site.	The Planning Species of relevance to this site is the cactus wren. Impacts to cactus wrens may occur as a result of implementation of a facility at this site.	The Planning Species of relevance to this site is the cactus wren. Impacts to cactus wrens may occur as a result of implementation of a facility at this site.	The Planning Species of relevance to this site are the arroyo toad and thread-leaved brodiaea. This site supports the largest cluster of brodiaea on RMV totaling approximately 6,100 flowering stalks, is one of only two major populations present on RMV, and represents about 65% of the brodiaea on RMV. The Proposed Project includes an avoidance/minimization measure to avoid this population. Assuming the Proposed Project would avoid this population, implementation of a facility at this site would impact this population. A second important issue is runoff into arroyo toad habitat and the potential for creating additional breeding habitat for bullfrogs, which already occupy the Cristianitos mining ponds. These potential impacts could be managed by controlled runoff into Gabino in a way that could enhance the breeding habitat for the toad and through a bullfrog eradication program.

TABLE 7.4-10 (Continued)
CONSISTENCY OF SMWD POTENTIAL SEASONAL STORAGE FACILITY SITES WITH SRP TENETS

SRP Tenet	Proposed Project (B-4)	Upper Chiquita Site	Lower Chiquita Site	Upper Cristianitos Site	San Juan Creek East 3 Site	Gabino West Site
2) Larger Reserves are better	As noted in Section 4.9.4, the RMV Open Space contributes to six major habitat blocks of 28,891 acres when considered with already protected open space in the Southern Subregion.	The Upper Chiquita site is location is a small canyon north of Oso Parkway, west of existing SR-241. This canyon is not part of any habitat block therefore implementation of the facility in this canyon would not reduce the acreage of, or fragment a habitat block.	The lower Chiquita Canyon site is located at a major side canyon above the Chiquita treatment plant. This canyon is not part of any habitat block therefore implementation of the facility in this canyon would not reduce the acreage of, or fragment a habitat block.	The upper Cristianitos site is located near the top of the Cristianitos sub-basin within the San Mateo habitat block. Implementation of the facility in this location would reduce the acreage of this block. Due to the location of the site on the southern periphery of the habitat block fragmentation is more limited than if the facility were located in the core of the block.	San Juan Creek East 3 site is located in a tributary canyon on the south side of Verdugo Canyon east of Ortega Highway within the San Mateo habitat block. The overall acreage of the habitat block would be reduced. Due to the location of the site on the northern periphery of the habitat block fragmentation is more limited than if the facility were located in the core of the block.	Gabino West is located in Cristianitos Canyon northerly of Gabino Creek within Planning Area 7. As this facility is located within a proposed development area, no habitat blocks are affected.
3) Keep reserve areas close. Link reserves with corridors	As noted in Section 4.9.4, all of the six habitat blocks described above are interconnected; however, several potential linkage areas (I, N, G and M) reflect some degree of conflict, as noted in the consistency analysis.	The Upper Chiquita site does not affect any identified habitat linkages/wildlife movement corridors.	Although the lower Chiquita site is not within any habitat block, it does lie within a key habitat linkage/wildlife movement corridor (E) that links the Lower Chiquita habitat block to the Upper Chiquita habitat block. A small reservoir may not be incompatible with the linkage as long as adequate uplands are conserved to convey terrestrial species.	The upper Cristianitos site is located north of habitat linkage/wildlife movement corridor N and would not affect this linkage.	San Juan Creek East 3 site is located south of habitat linkage/wildlife movement corridor J and would not affect this linkage.	Gabino West is located east of habitat linkage/wildlife movement corridor N and would not affect this linkage.
4) Keep habitat contiguous	As noted in Section 4.9.4, the six habitat blocks exhibit little internal fragmentation; i.e., existing development or disturbance that disrupts the habitat contiguity of the blocks.	As noted above, this site is not within a habitat block and therefore would not affect the contiguity of habitat within a block.	As noted above, this site is not within a habitat block and therefore would not affect the contiguity of habitat within a block.	As noted above, this site is on the periphery of a habitat block, thus the core of the block would remain contiguous but habitat at the southern boundary would be affected.	As noted above, this site is on the periphery of a habitat block, thus the core of the block would remain contiguous but habitat at the northern boundary would be affected.	As noted above this site is not within a habitat block and therefore would not affect the contiguity of habitat within a block.

TABLE 7.4-10 (Continued)
CONSISTENCY OF SMWD POTENTIAL SEASONAL STORAGE FACILITY SITES WITH SRP TENETS

SRP Tenet	Proposed Project (B-4)	Upper Chiquita Site	Lower Chiquita Site	Upper Cristianitos Site	San Juan Creek East 3 Site	Gabino West Site
5) Reserves should be biologically diverse	As noted in Section 4.9.4, overall the combined RMV Open Space and already protected open space protects the large majority of the major vegetation communities. Protection ranges from a low of 63 percent for grassland and a high of 89 percent for chaparral. Coastal sage scrub is 85 percent conserved. Protection of the major vegetation communities is also balanced within the San Juan and San Mateo watersheds.	As noted above this site is not within a habitat block and therefore would not affect the diversity of habitat within a block.	As noted above this site is not within a habitat block and therefore would not affect the diversity of habitat within a block.	Habitat types that would be affected by this site include coastal sage scrub, riparian and to a lesser degree grassland and chaparral. This site is proposed as a domestic reservoir and would be covered due to water quality concerns, thus habitat impacts would be permanent.	Habitat types that would be affected by this site include coastal sage scrub, riparian and to a lesser degree grassland and chaparral. These habitat types would be replaced by open water and likely some associated infrastructure such as access roads, pumps and similar facilities necessary to support functioning of the reservoir. Loss of upland habitat would be replaced by open water, which has value to certain aquatic avian species for foraging and resting habitat.	As noted above this site is not within a habitat block and therefore would not affect the diversity of habitat within a block.
6) Protect reserves from encroachment	The Proposed Project circulation system compliance with General Policy 4 (roads and infrastructure to be located outside the open space to the maximum extent feasible) is reviewed in Section 4.9.4. Protection of long-term, indirect effects/ encroachment (i.e., fuel management zones, exotic species, harmful chemicals, lighting, human and pet access) would be assured by compliance with Draft NCCP/HCP Planning Guidelines, General Policy 5 requirements.	The siting requirements for reservoirs, particularly the elevation and capacity requirements generally mean that reservoirs are located in higher elevation canyons in open space. Thus reservoirs by design generally conflict with this tenet. Although this site is located outside of a habitat block, it is located within open space in the Upper Chiquita Canyon Conservation Area. Provisions for this facility in this location were made at the time the USFWS issued the Section 7 Biological Opinion for the FTCN-	The siting requirements for reservoirs, particularly the elevation and capacity requirements generally mean that reservoirs are located in higher elevation canyons in open space. Thus reservoirs by design generally conflict with this tenet. Although this site is located outside of a habitat block, it is located within open space internal to Planning Area 2 in a key linkage as noted previously. Protection of long-term, indirect effects/encroachment (i.e., fuel management zones, exotic species, harmful chemicals,	The siting requirements for reservoirs, particularly the elevation and capacity requirements generally mean that reservoirs are located in higher elevation canyons in open space. In this instance this site is located within both open space and a habitat block and thus would represent an encroachment. Protection of long-term, indirect effects/encroachment (i.e., fuel management zones, exotic species, harmful chemicals, lighting, human and pet access) would be assured by compliance	The siting requirements for reservoirs, particularly the elevation and capacity requirements generally mean that reservoirs are located in higher elevation canyons in open space. In this instance this site is located within both open space and a habitat block and thus would represent an encroachment. Protection of long-term, indirect effects/encroachment (i.e., fuel management zones, exotic species, harmful chemicals, lighting, human and pet access) would be assured by compliance	As noted previously this site is located in Planning Area 7 and thus does not represent an encroachment into either open space or a habitat block.

TABLE 7.4-10 (Continued)
CONSISTENCY OF SMWD POTENTIAL SEASONAL STORAGE FACILITY SITES WITH SRP TENETS

SRP Tenet	Proposed Project (B-4)	Upper Chiquita Site	Lower Chiquita Site	Upper Cristianitos Site	San Juan Creek East 3 Site	Gabino West Site
		Oso Section. Protection of long-term, indirect effects/encroachment (i.e., fuel management zones, exotic species, harmful chemicals, lighting, human and pet access) would be assured by compliance with Draft NCCP/HCP Planning Guidelines, General Policy 5 requirements.	lighting, human and pet access) would be assured by compliance with Draft NCCP/HCP Planning Guidelines, General Policy 5 requirements.	with Draft NCCP/HCP Planning Guidelines, General Policy 5 requirements.	with Draft NCCP/HCP Planning Guidelines, General Policy 5 requirements.	
Watershed Planning Principles/Southern Science Advisors Tenet 7, Terrains/ Hydrology.	Fundamental to the open space planning design for the Proposed Project, is the precept that the long-term functioning of habitat systems is significantly dependent on the long-term interactions between terrains and hydrology. As noted previously, from a terrains perspective, emphasis of the proposed project design has been placed on protecting sources of coarse sediment important to maintaining the function of stream-associated habitats for species such as the arroyo toad, protecting the geomorphology of the creek systems, surface and groundwater flows, and addressing eroding clay soils so that the current sources of fine sediments detrimental to aquatic habitats can be eliminated.	The interaction of terrains and hydrology on the long-term functioning of habitat systems was not considered during the site selection process for each of the alternative storage facility sites. However, this site would not affect the production and transport of coarse sediments. The site is not located within Chiquita Creek, thus stream geomorphology and associated habitat would not be directly unaffected. However, the alluvial side canyons in Chiquita play a significant role in infiltrating low volume storms to groundwater and high volume storms to the main stem channel, thus Chiquita Creek may be indirectly affected by the storage facility proposed for this site.	The interaction of terrains and hydrology on the long-term functioning of habitat systems was not considered during the site selection process for each of the alternative storage facility sites. However, this site would not affect the production and transport of coarse sediments. The site is not located within Chiquita Creek, thus stream geomorphology and associated habitat would not be directly unaffected. However, the alluvial side canyons in Chiquita play a significant role in infiltrating low volume storms to groundwater and high volume storms to the main stem channel, thus Chiquita Creek may be indirectly affected by the storage facility proposed for this site.	The interaction of terrains and hydrology on the long-term functioning of habitat systems was not considered during the site selection process for each of the alternative storage facility sites. However, this site would not affect the production and transport of coarse sediments. Cristianitos sub-basin produces fine sediments, which can be a detriment to downstream species. Implementation of a facility in this location could help stabilize the fine sediment production for this area.	The interaction of terrains and hydrology on the long-term functioning of habitat systems was not considered during the site selection process for each of the alternative storage facility sites. The Verdugo sub-basin is an important source of sand and gravel for San Juan Creek that mobilizes during episodic events. Implementation of a facility in this site could affect this sediment production. This site is located in a tributary to Verdugo Creek, thus stream geomorphology and associated habitats could be affected by a facility in this location.	The interaction of terrains and hydrology on the long-term functioning of habitat systems was not considered during the site selection process for each of the alternative storage facility sites. However, to the degree that the Cristianitos sub-basin currently sheds fine sediments that could be addressed by implementation of development or implementation of the storage facility in this location would be a benefit for downstream resources.

may impact resources that would be avoided by the proposed development in Planning Area 7 through the application of minimization and avoidance measures set forth in Section 4.9.5.

SAMP/MSAA Tenets

The following table reviews consistency of the Proposed Project and seven potential seasonal storage facility sites. As with the SRP Tenets, the potential sites located in Trampas Canyon and Trampas Canyon Pit are not reviewed here, as they are located entirely within proposed development–Planning Area 5–and as such would not cause cumulative impacts beyond those attributable to the Proposed Project. Plano Trabuco is also not reviewed here as the proposed site is an existing nursery, has very limited onsite biological resources (i.e., little native habitat), and is not a key connectivity location. The adjacent Arroyo Trabuco is the habitat linkage/wildlife movement corridor and the arroyo would be unaffected by a proposed facility at the adjacent nursery site.

TABLE 7.4-11
CONSISTENCY OF SMWD POTENTIAL SEASONAL STORAGE FACILITY SITES WITH SAMP/MSAA TENETS

SAMP/MSAA Tenet	Proposed Project (B-4)	Upper Chiquita Site	Lower Chiquita Site	Upper Cristianitos Site	San Juan Creek East 3 Site	Gabino West Site
1) No net loss of acreage and functions of waters of the U.S./State	The Proposed Project is designed to protect the major terrains/ hydrology functions of each sub-basin, as well as the major riparian/wetland systems. The Habitat Restoration Plan identifies locations to mitigate impacts to USACE and CDFG jurisdictions such that no net loss of wetlands and non-wetland waters occurs.	Implementation of the facility at this site would result in impacts to acreage and function of waters of the U.S/State. SMWD would need to mitigate these impacts such that no net loss of acreage and functions occurred.	Implementation of the facility at this site would not result in impacts to acreage and function of waters of the U.S/State.	Implementation of the facility at this site would result in impacts to acreage and function of waters of the U.S/State. SMWD would need to mitigate these impacts such that no net loss of acreage and functions occurred.	Implementation of the facility at this site would result in impacts to acreage and function of waters of the U.S/State. SMWD would need to mitigate these impacts such that no net loss of acreage and functions occurred.	This site is located within Planning Area 7. Impacts beyond those attributable to the development uses; particularly in the estate area, may occur. If such impacts were to occur, SMWD would need to mitigate these impacts such that no net loss of acreage and functions occurred.
2) Maintain/restore riparian ecosystem integrity	As noted above, the Proposed Project protects, and where feasible and beneficial, restores each of the major canyon systems as well as the mainstem creeks.	As noted above, no direct impacts on the ecosystem integrity of Chiquita Creek are anticipated; however, ecosystem integrity may be affected by construction of the facility in one of the alluvial canyons that play an important role in the movement of groundwater and storm-flows to Chiquita Creek.	As noted above, no direct impacts on the ecosystem integrity of Chiquita Creek are anticipated; however, ecosystem integrity may be affected by construction of the facility in one of the alluvial canyons that play an important role in the movement of groundwater and storm-flows to Chiquita Creek.	Riparian ecosystem integrity would be affected by implementation of this facility in this location since it would impact both riparian vegetation and the headwaters of Cristianitos Creek.	Riparian ecosystem integrity would be affected by implementation of this facility in this location since it would impact riparian vegetation within the tributary to Verdugo.	This site is located within Planning Area 7. Impacts beyond those attributable to the development uses; particularly in the estate area, may occur. However, such impacts would not affect the riparian ecosystem integrity of Gabino Creek, as implementation of the facility or the developed uses may better control fine sediments compared to the existing condition.
3) Protect headwaters	Each of the headwaters areas not already urbanized is proposed to be protected and/or restored but restoration measures for upper Gabino Canyon and upper Cristianitos Creek are	Implementation of a facility at this storage site would not impact the headwaters of Chiquita Creek.	Implementation of a facility at this storage site would not impact the headwaters of Chiquita Creek.	Implementation of a facility at this storage site would be a conflict with this tenet as the facility would be located within the headwaters of Cristianitos Creek.	Implementation of a facility at this storage site would not impact the headwaters of Verdugo Creek, although the headwaters of the tributary would be affected.	Implementation of a facility at this storage site would not impact the headwaters of Gabino Creek, although the headwaters of the tributary would be affected.

TABLE 7.4-11 (Continued)
CONSISTENCY OF SMWD POTENTIAL SEASONAL STORAGE FACILITY SITES WITH SAMP/MSAA TENETS

SAMP/MSAA Tenet	Proposed Project (B-4)	Upper Chiquita Site	Lower Chiquita Site	Upper Cristianitos Site	San Juan Creek East 3 Site	Gabino West Site
	subject to the above questions regarding funding feasibility. The headwaters area of Trampas Creek is proposed for development, but this area has previously been significantly altered due to existing mining operations and development would be required to include BMPs for stormwater flows.					
4) Maintain/protect/ restore riparian corridors	The Proposed Project would protect all major riparian corridors. Where necessary, bridge structures and/or culverts are proposed to maintain the riparian corridors. In addition, restoration is proposed where beneficial.	As noted above, this site would not directly affect the Chiquita Creek riparian corridor, although indirect effects may occur.	As noted above, this site would not directly affect the Chiquita Creek riparian corridor, although indirect effects may occur.	The Cristianitos riparian corridor would be affected by implementation of a site at this storage facility.	As noted above, the Verdugo riparian corridor could be affected by a storage facility at this location.	The Gabino Creek riparian corridor would not be affected by implementation of a storage facility in this location.
5) Maintain and/or restore floodplain connection	The Proposed Project maintains all existing floodplain connections and proposes to restore the Canada Gobernadora floodplain connection consistent with the Habitat Restoration Plan.	As noted above, this site would not directly affect the Chiquita Creek floodplain connection, although indirect effects may occur.	As noted above, this site would not directly affect the Chiquita Creek floodplain connection, although indirect effects may occur.	The Cristianitos floodplain connection would be affected by implementation of a storage facility at this site.	As noted above, the Verdugo floodplain connection could be affected by a storage facility at this location.	The Gabino Creek floodplain connection would not be affected by implementation of a storage facility in this location.
6) Maintain and/or restore sediment sources and transport equilibrium	The Proposed Project protects all of the significant sources of coarse sediment in order to assure the continued generation of such sediments important for riparian/wetlands	This site would not affect the production and transport of coarse sediments.	This site would not affect the production and transport of coarse sediments.	This site would not affect the production and transport of coarse sediments. Cristianitos sub-basin produces fine sediments, which can be a detriment to downstream species. Implementation of a	The Verdugo sub-basin is an important source of sand and gravel for San Juan Creek that mobilizes during episodic events. Implementation of a	The Cristianitos sub-basin currently sheds fine sediments that could be addressed by implementation of development or implementation of the facility in this location thus

TABLE 7.4-11 (Continued)
CONSISTENCY OF SMWD POTENTIAL SEASONAL STORAGE FACILITY SITES WITH SAMP/MSAA TENETS

SAMP/MSAA Tenet	Proposed Project (B-4)	Upper Chiquita Site	Lower Chiquita Site	Upper Cristianitos Site	San Juan Creek East 3 Site	Gabino West Site
	habitat systems and focuses development and/or restoration in areas where fine sediments are generated that can cause deleterious effects on riparian habitats and associated species.			storage facility in this location could help stabilize the fine sediment production for this area.	storage facility in this site could affect this sediment production. This site is located in a tributary to Verdugo Creek thus stream geomorphology and associated habitats could be affected by a facility in this location.	providing a benefit for downstream resources.
7) Maintain adequate buffer for the protection of riparian corridors	Under the Proposed Project, all major riparian corridors are adequately buffered.	As noted above, this site would not directly affect the Chiquita Creek riparian corridor, although indirect effects may occur.	As noted above, this site would not directly affect the Chiquita Creek riparian corridor, although indirect effects may occur.	The Cristianitos riparian corridor would be affected by implementation of a storage facility at this site.	As noted above, the Verdugo riparian corridor could be affected by a storage facility at this location.	The Gabino Creek riparian corridor would not be affected by implementation of a storage facility in this location.
8) Protect riparian areas and associated habitats of listed and sensitive species	The Proposed Project would protect riparian areas and associated habitats for listed and sensitive species. See Table 4.9-36 and the tenets above.	No direct impacts to riparian areas and associated species are anticipated to result from implementation of the storage facility at this site.	No direct impacts to riparian areas and associated species are anticipated to result from implementation of the storage facility at this site.	The Cristianitos riparian corridor would be affected by implementation of a storage facility at this site; as a result associated habitats for sensitive species may be affected.	As noted above, the Verdugo riparian corridor could be affected by a storage facility at this location; therefore, impacts to associated habitats of sensitive and listed species may be affected.	The Gabino Creek riparian corridor would not be affected by implementation of a storage facility at this location; therefore, impacts to associated habitats of sensitive and listed species would not be affected.

Watershed Planning Principles

The following table reviews consistency of the Proposed Project and seven potential seasonal storage facility sites. As with the SRP and SAMP/MSAA Tenets, the potential site located in Trampas Canyon Pit is not reviewed here, as it is located entirely within proposed development–Planning Area 5–and as such would not cause cumulative impacts beyond those attributable to the Proposed Project.

TABLE 7.4-12
CONSISTENCY OF SMWD POTENTIAL SEASONAL STORAGE FACILITY SITES WITH WATERSHED PLANNING PRINCIPLES

Watershed Planning Principle	Proposed Project (B-4)	Upper Chiquita Site	Lower Chiquita Site	Upper Cristianitos Site	San Juan Creek East 3 Site	Gabino West Site
1) Recognize and account for the hydrologic response of different terrains at the sub-basin and watershed scale.	As noted in Section 4.9.4, the Proposed Project is consistent with this principle, as the proposed project has accounted for the hydrologic responses of different terrains, e.g., the sandy soils of the Chiquita main valley floor and major alluvial side canyons and the hardpan clays in Gobernadora.	Hydrologic response was not considered during the site selection process for each of the alternative sites. However, this site would not affect the production and transport of coarse sediments. The site is not located within Chiquita Creek, thus stream geomorphology and associated habitat would not be directly unaffected. However the alluvial side canyons in Chiquita play a significant role in infiltrating low volume storms to groundwater and high volume storms to the main stem channel, thus Chiquita Creek may be indirectly affected by the facility proposed for this site.	Hydrologic response was not considered during the site selection process for each of the alternative sites. However, this site would not affect the production and transport of coarse sediments. The site is not located within Chiquita Creek, thus stream geomorphology and associated habitat would not be directly unaffected. However the alluvial side canyons in Chiquita play a significant role in infiltrating low volume storms to groundwater and high volume storms to the main stem channel, thus Chiquita Creek may be indirectly affected by the facility proposed for this site.	Hydrologic response was not considered during the site selection process for each of the alternative sites. However, this site would not affect the production and transport of coarse sediments. Cristianitos sub-basin produces fine sediments, which can be a detriment to downstream species. Implementation of a facility in this location could help stabilize the fine sediment production for this area.	Hydrologic response was not considered during the site selection process for each of the alternative sites. The Verdugo sub-basin is an important source of sand and gravel for San Juan Creek that mobilizes during episodic events. Implementation of a facility in this site could affect this sediment production. This site is located in a tributary to Verdugo Creek thus stream geomorphology and associated habitats could be affected by a facility in this location.	Hydrologic response was not considered during the site selection process for each of the alternative sites. However, to the degree that the Cristianitos sub-basin currently sheds fine sediments that could be addressed by implementation of development or implementation of the facility in this location this would be a benefit for downstream resources.
2) Emulate, to the extent feasible, the existing runoff and infiltration patterns in consideration of specific terrains, soil types and ground cover.	As described in Section 4.9.4 and further described in Section 4.5 Water Resources, the WQMP used the SWMM model to estimate the effects of the proposed development on the hydrologic water balance. As further described in the WQMP and the consistency analysis in Section 4.9.4, careful attention to terrain types, runoff and infiltration patterns was	By design, implementation of the facility in this location would not emulate the existing runoff and infiltration patterns, as the facility would be designed to store water thus runoff from adjacent areas would be captured and infiltration would not occur. Infiltration would be prevented by construction of an impermeable lining.	By design, implementation of the facility in this location would not emulate the existing runoff and infiltration patterns, as the facility would be designed to store water thus runoff from adjacent areas would be captured and infiltration would not occur. Infiltration would be prevented by construction of an impermeable lining.	By design, implementation of the facility in this location would not emulate the existing runoff and infiltration patterns, as the facility would be designed to store water thus runoff from adjacent areas would be captured and infiltration would not occur. Infiltration would be prevented by construction of an impermeable lining.	By design, implementation of the facility in this location would not emulate the existing runoff and infiltration patterns, as the facility would be designed to store water thus runoff from adjacent areas would be captured and infiltration would not occur. Infiltration would be prevented	By design, implementation of the facility in this location would not emulate the existing runoff and infiltration patterns, as the facility would be designed to store water thus runoff from adjacent areas would be captured and infiltration would not occur. Infiltration would be prevented

TABLE 7.4-12 (Continued)
CONSISTENCY OF SMWD POTENTIAL SEASONAL STORAGE FACILITY SITES WITH WATERSHED PLANNING PRINCIPLES

Watershed Planning Principle	Proposed Project (B-4)	Upper Chiquita Site	Lower Chiquita Site	Upper Cristianitos Site	San Juan Creek East 3 Site	Gabino West Site
	made during the design of the proposed project to ensure that existing runoff and infiltration patterns would be maintained.				by construction of an impermeable lining.	by construction of an impermeable lining.
3) Address potential effects of future land use changes on hydrology.	The SWMM was used with a continuous rainfall record of 53 years to predict runoff volumes and flows for three scenarios; 1) predevelopment or existing condition, 2) post-development condition without BMPs and 3) post-development with BMPs.	No evaluation of the potential effects of the proposed facility on hydrology has been conducted by SMWD at this time; however, as noted above by design implementation of the facility would have an effect on hydrology.	No evaluation of the potential effects of the proposed facility on hydrology has been conducted by SMWD at this time; however, as noted above by design implementation of the facility would have an effect on hydrology.	No evaluation of the potential effects of the proposed facility on hydrology has been conducted by SMWD at this time; however, as noted above by design implementation of the facility would have an effect on hydrology.	No evaluation of the potential effects of the proposed facility on hydrology has been conducted by SMWD at this time; however, as noted above by design implementation of the facility would have an effect on hydrology.	No evaluation of the potential effects of the proposed facility on hydrology has been conducted by SMWD at this time; however, as noted above by design implementation of the facility would have an effect on hydrology.
4) Minimize alterations of the timing of peak flows of each sub-basin relative to the mainstem creeks.	To address County Flood Control planning and management considerations, a HEC-1 analysis has been completed for the pre and post-project 2, 5 and 100-year events. HEC-1 was used to determine the comparative effects of the "B" Alternatives compared with pre-project conditions. These analyses are in addition to the SWMM modeling prepared for the WQMP. Potential impacts on the timing of peak flows have been analyzed and will be addressed through the use of the combined control system.	No evaluation of the potential effects of the proposed facility on the timing of peak flows has been conducted by SMWD at this time; however, as noted above by design implementation of the facility would have an effect on peak flows.	No evaluation of the potential effects of the proposed facility on the timing of peak flows has been conducted by SMWD at this time; however, as noted above by design implementation of the facility would have an effect on peak flows.	No evaluation of the potential effects of the proposed facility on the timing of peak flows has been conducted by SMWD at this time; however, as noted above by design implementation of the facility would have an effect on peak flows.	No evaluation of the potential effects of the proposed facility on the timing of peak flows has been conducted by SMWD at this time; however, as noted above by design implementation of the facility would have an effect on peak flows.	No evaluation of the potential effects of the proposed facility on the timing of peak flows has been conducted by SMWD at this time; however, as noted above by design implementation of the facility would have an effect on peak flows.

TABLE 7.4-12 (Continued)
CONSISTENCY OF SMWD POTENTIAL SEASONAL STORAGE FACILITY SITES WITH WATERSHED PLANNING PRINCIPLES

Watershed Planning Principle	Proposed Project (B-4)	Upper Chiquita Site	Lower Chiquita Site	Upper Cristianitos Site	San Juan Creek East 3 Site	Gabino West Site
5) Maintain and/or restore the inherent geomorphic structure of major tributaries and their floodplains.	Chapter 4 of the WQMP presents flow control and water quality control strategies in response to the geographic-specific conditions found in each sub-basin.	The interaction of terrains and hydrology on the long-term functioning of habitat systems was not considered during the site selection process for each of the alternative sites. However, this site would not affect the production and transport of coarse sediments. The site is not located within Chiquita Creek, thus stream geomorphology and associated habitat would not be directly unaffected. However the alluvial side canyons in Chiquita play a significant role in infiltrating low volume storms to groundwater and high volume storms to the main stem channel, thus Chiquita Creek may be indirectly affected by the facility proposed for this site.	The interaction of terrains and hydrology on the long-term functioning of habitat systems was not considered during the site selection process for each of the alternative sites. However, this site would not affect the production and transport of coarse sediments. The site is not located within Chiquita Creek, thus stream geomorphology and associated habitat would not be directly unaffected. However the alluvial side canyons in Chiquita play a significant role in infiltrating low volume storms to groundwater and high volume storms to the main stem channel, thus Chiquita Creek may be indirectly affected by the facility proposed for this site.	The interaction of terrains and hydrology on the long-term functioning of habitat systems was not considered during the site selection process for each of the alternative sites. However, this site would not affect the production and transport of coarse sediments. Cristianitos sub-basin produces fine sediments, which can be a detriment to downstream species. Implementation of a facility in this location could help stabilize the fine sediment production for this area.	The interaction of terrains and hydrology on the long-term functioning of habitat systems was not considered during the site selection process for each of the alternative sites. The Verdugo sub-basin is an important source of sand and gravel for San Juan Creek that mobilizes during episodic events. Implementation of a facility in this site could affect this sediment production. This site is located in a tributary to Verdugo Creek thus stream geomorphology and associated habitats could be affected by a facility in this location.	The interaction of terrains and hydrology on the long-term functioning of habitat systems was not considered during the site selection process for each of the alternative sites. However, to the degree that the Cristianitos sub-basin currently sheds fine sediments that could be addressed by implementation of development or implementation of the facility in this location this would be a benefit for downstream resources.
6) Maintain coarse sediment yields, storage and transport processes.	The Proposed Project avoids the sandy and crystalline terrains that protect significant sources of coarse sediments. Further, each significant source of coarse sediments – the sandy terrains in Chiquita and Gobernadora sub-basins and the crystalline	This site would not affect the production and transport of coarse sediments.	This site would not affect the production and transport of coarse sediments.	This site would not affect the production and transport of coarse sediments. Cristianitos sub-basin produces fine sediments, which can be a detriment to downstream species. Implementation of a storage facility at this location could help	The interaction of terrains and hydrology on the long-term functioning of habitat systems was not considered during the site selection process for each of the alternative sites. The Verdugo sub-	The Cristianitos sub-basin currently sheds fine sediments that could be addressed by implementation of development or implementation of the facility in this location thus providing a benefit for downstream resources.

TABLE 7.4-12 (Continued)
CONSISTENCY OF SMWD POTENTIAL SEASONAL STORAGE FACILITY SITES WITH WATERSHED PLANNING PRINCIPLES

Watershed Planning Principle	Proposed Project (B-4)	Upper Chiquita Site	Lower Chiquita Site	Upper Cristianitos Site	San Juan Creek East 3 Site	Gabino West Site
	terrains in Verdugo Canyon, middle Gabino and La Paz Canyon – is avoided in such a way that sediment transport and storage processes between hillslope, tributaries, sub-basin channels and mainstem creeks are avoided by means of protecting physical contiguity in these areas and through avoidance of structures that would impede sediment movement in tributaries and in mainstem creeks.			stabilize the fine sediment production for this area.	basin is an important source of sand and gravel for San Juan Creek that mobilizes during episodic events. Implementation of a storage facility at this site could affect this sediment production. This site is located in a tributary to Verdugo Creek thus stream geomorphology and associated habitats could be affected by a facility in this location.	
7) Utilize infiltration properties of sandy terrains for groundwater recharge and to offset potential increases in surface runoff and adverse effects to water quality.	All dry season non-storm wet season flows and 1-2 year stormwater flows in accordance with County DAMP requirements will receive water quality treatment prior to the discharge of stormwater runoff into native or restored habitat areas or to groundwater systems. Three components of the Combined Control System provide important water quality functions using natural treatment system approaches : (1) Flow Duration Control and Water Quality Treatment (FD/WQ) Basin; (2) Infiltration Basin; and (3) Bioinfiltration Swale.	By design, implementation of the facility in this location would not utilize infiltration properties of sandy terrains for groundwater recharge, as infiltration would be prevented by construction of an impermeable lining.	By design, implementation of the facility in this location would not utilize infiltration properties of sandy terrains for groundwater recharge, as infiltration would be prevented by construction of an impermeable lining.	By design, implementation of the facility in this location would not utilize infiltration properties of sandy terrains for groundwater recharge, as infiltration would be prevented by construction of an impermeable lining.	By design, implementation of the facility in this location would not utilize infiltration properties of sandy terrains for groundwater recharge, as infiltration would be prevented by construction of an impermeable lining.	By design, implementation of the facility in this location would not utilize infiltration properties of sandy terrains for groundwater recharge, as infiltration would be prevented by construction of an impermeable lining.

TABLE 7.4-12 (Continued)
CONSISTENCY OF SMWD POTENTIAL SEASONAL STORAGE FACILITY SITES WITH WATERSHED PLANNING PRINCIPLES

Watershed Planning Principle	Proposed Project (B-4)	Upper Chiquita Site	Lower Chiquita Site	Upper Cristianitos Site	San Juan Creek East 3 Site	Gabino West Site
	The flow duration control and water quality treatment basin provides the initial flow and water quality treatment control functions to the system. Where appropriate (i.e., in sandy terrains), infiltration basins and bioinfiltration swales are proposed to provide additional water quality treatment control.					
8) Protect existing groundwater recharge areas supporting slope wetlands and riparian zones; and maximize groundwater recharge of alluvial aquifers to the extent consistent with aquifer capacity and habitat management goals.	With regard to the filtration functions associated with the specific terrains of each sub-basin, WQMP identifies different flow management/water quality treatment strategies deriving in significant part from the infiltration characteristics of the soils/geology within each sub-basin and thus addresses the recharge of slope wetlands and alluvial aquifers.	No slope wetlands would be affected by implementation of a facility at this location. Groundwater recharge would be affected by a facility at this location as noted above.	No slope wetlands would be affected by implementation of a facility at this location. Groundwater recharge would be affected by a facility at this location as noted above.	No slope wetlands would be affected by implementation of a facility at this location. Groundwater recharge would be affected by a facility at this location as noted above.	No slope wetlands would be affected by implementation of a facility at this location. Groundwater recharge would be affected by a facility at this location as noted above.	No slope wetlands would be affected by implementation of a facility at this location. Groundwater recharge would be affected by a facility at this location as noted above.

Cleveland Nation Forest Revised Draft Management Plan

Regarding the CNF revised draft management plan, of particular relevance to the Ranch Plan project, the proposed RMV Open Space and the RMV Open Space Adaptive Management Plan are the proposals concerning Wildlife Movement/Landscape Corridors and Invasive Species. Protection of identified wildlife movement corridors/habitat linkages will occur within the Proposed Project as described in the Biological Resources Section. To assure an interconnected landscape from the RMV Open Space to the CNF, protection of offsite wildlife movement/landscape corridors within CNF is necessary. According to the DEIS, National Forest activities effecting landscape connectivity are transportation routes and associated functions and lands activities such as changes in land holdings through acquisition, exchange, donation or conveyance, or purchase exchanges.

Activities associated with lands primarily include acquisition of National Forest System lands. Acquisition of lands occurs through exchange, donation or purchase. Generally there are no effects from lands acquired, although lands acquired are occasionally in need of restoration, which could have a long-term beneficial effect on species, and may have short-term negative effects from resulting restoration work. (i.e., erosion during restoration work, use of herbicides to control undesirable, non-native invasive species, or noxious weeds, use of equipment - direct mortality of animals or plants, noise). Lands acquired can increase the net habitat for specie, but conveyance of land can result in loss of habitat in parcels disposed of, loss of corridors used for migration and dispersal and less ability to manage surrounding National Forest System lands effectively by isolating parts of the National Forest from the rest.

The following effects to landscape connectivity may be associated with transportation corridors (roads) and may cause loss of individuals or habitat: habitat fragmentation, loss of habitat from transportation construction activities: sedimentation, loss of vegetated habitat. (mowing and/or clearing), loss/injury due hazard material spills from equipment, (oil, gas, or chemicals), increased risk of Hazmat spills along transportation corridors, train derailments and truck crashes, increased risk of species removal by forest users via transportation corridors, species disturbance and displacement due to noise, crushing by vehicles, equipment, trucks, and trains, introduction of non-native species. (revegetation plantings, domestic animal abandonment, exotic weed seeds transferred by motorized/mechanized vehicles) and increased risk of wildfires and associated loss of habitat and individuals.

Regarding Invasive Species, the DEIS notes that: “Under alternatives 2 through 6, revised forest plan direction would provide a province-wide strategy for invasive species that includes objectives for education, prevention, control, restoration and research. Revised forest plan standards would decrease the risk that invasive nonnative plants and animals become established on the National Forests of southern California. There would be less risk that seeds, mulches or animal feed used on National Forest System land would be contaminated by weed seeds. There would be less risk that vehicles and machines authorized to travel off-road (such as fire engines) would introduce invasive nonnative plants. There would be less risk that special-use permittees would use or dispose of invasive nonnative plants and animals.

In alternatives 2 through 6, invasive nonnative species would continue to persist at many current locations and may also increase in range and abundance. This is due to the current presence of numerous populations of invasive nonnative plants and animals on the forests, the presence of numerous vectors such as people and vehicles, and the continued disturbance of many acres of land. This would occur despite revised forest plan direction, concurrent efforts to control invasive nonnative plants and animals, and increased opportunities to implement control measures. About 60 miles of stream would be treated annually for invasive nonnative species

such as arundo and tamarisk, and about 300 acres of uplands would be treated for a variety of invasive nonnative plants."

Conclusion

Based on the consistency analysis above, the current and probable future projects analyzed have the potential for cumulative impacts when combined with the Proposed Project. Although the individual projects would have varying effects on biological resources as in the case of the SOCTIIP alternative, the combined effects of all the projects together with the Proposed Project would result in the following cumulative impacts: 1) reduced connectivity between proposed habitat blocks, 2) more pronounced internal fragmentation of habitat blocks, 3) greater impacts to *key locations* of planning species, and 4) reduced ability to fully implement the recommendations of the Adaptive Management Plan regarding restoration of coastal sage scrub/valley grassland. Depending on the alternative selected, particularly which SOCTIIP alternative, significant unavoidable cumulative impacts could occur.

7.4.10 AESTHETICS

As discussed in Section 4.10, development of the Ranch Plan would result in six impacts associated with aesthetics. These project specific impacts are:

- Grading activities would significantly alter the existing visual characteristics and topography of the site. This would be a significant unavoidable impact. (Impact 4.10-1)

- The visual character of the project site visible from several viewpoints will be significantly altered through implementation of the project. This would be a significant unavoidable impact. (Impact 4.10-2)

- Foreground, middleground, and background ridgelines located in landscape zones would be significantly impacted by project grading to allow for the implementation of proposed land uses. This would be a significant unavoidable impact. (Impact 4.10-3)

- Views from some recreational area vantage points within wilderness parks would be significantly impacted by project grading and associated development activities. Changes in the character would be significant. This would be a significant unavoidable impact.(Impact 4.10-4)

- Some views from Ortega Highway would be significantly impacted by project grading and development activities. This impact can be mitigated to a level of less than significant. (Impact 4.10-5)

- The project would introduce new sources of nighttime lighting and the potential for glare. The change in character of the project site through the introduction of land uses requiring night lighting and the potential for the use of building materials resulting in glare is considered significant. This would be a significant unavoidable impact. (Impact 4.10-6)

The mitigation program identified in Section 4.10.7 would lessen the proposed project impact. However, to the extent that the open space appearance of the heretofore undeveloped portion of the site would be irreversibly lost and grading and development of areas of the site would significantly affect scenic viewshed areas, these significant impacts would be unavoidable. In addition, after mitigation, there would also be an incremental increase in light levels that are considered significant and unavoidable.

When evaluating cumulative aesthetic impacts a number of factors must be considered. In order for a cumulative aesthetic impact to occur, the proposed elements of the cumulative projects would need to be seen together or in proximity to each other. If the projects were not in proximity to each other, the viewer would not perceive them in the same scene. Therefore, even though projects such as the Dana Point Headlands or Alton Parkway may both be identified as changing the visual character of their project areas, since they are not in close proximity to the Ranch Plan they would not contribute to a cumulative aesthetic impact. The Prima Deshecha Landfill, though in close proximity to the proposed Ranch Plan development areas, would not be visible from the same locations. The landfill is separated from the Ranch Plan and other sensitive views, such as Ortega Highway, by ridgelines.

The context in which a project is being viewed will also influence the significance of the aesthetic impact. The contrast a project has with its surrounding environment may actually be reduced by the presence of other cumulative projects. If most of an area becomes urbanized, the contrast of the project with the natural surrounding may be less since it would not stand out in contrast as much. However, the community character can become dramatically changed if cumulative projects are added to the visual environment. This also applies to landform impacts.

Three projects have been identified that, when combined with the Ranch Plan, would have the potential for cumulative aesthetic impacts. These are SOCTIIP, Talega Valley Specific Plan, and Ladera Ranch. Each of these projects has or would require substantial landform alteration. These projects would contribute to many of the same types of visual impacts as the proposed project.

All the SOCTIIP build alternatives would require substantial landform alteration through an area that is undeveloped or developing. Specific visual impacts, as presented in the SOCTIIP Draft EIS/SEIR, are summarized below:

- The FEC-M alternative would result in the removal of oak trees in the area encompassing the east hills of Canada Gobernadora, San Juan Creek, Christianitos Canyon and the southeast part of the Donna O'Neill Land Conservancy.

- With alternatives FEC-W, FEC-M and A7C-FEC-M, a soundwall would be constructed adjacent to the residences in the Talega PC closest to the Avenida Pico access ramps; the soundwall would block views to the east. In addition, these alternatives would result in a significant reduction in visual quality for users of San Onofre State Beach and residents in the San Onofre 1 and San Mateo Point housing areas of Camp Pendleton. In addition, alternatives FEC-W, FEC-M and A7C-FEC-M would block views of the ocean at San Onofre Beach and conflict with San Diego County policies related to scenic highways.

- The CC alternative would result in substantially adverse visual impacts for residents to the south and east of San Clemente High School , east of I-5, and in the east part of the Marblehead Inland community as well as motorists on I-5. In addition, Alternative CC would conflict with policies of the City of San Clemente related to scenic corridors and aesthetic resources – especially hillsides, physically divide the Talega community from the rest of the City of San Clemente, and conflict with policies of the County of Orange related to scenic highways.

The Talega Valley Specific Plan and Ladera Ranch Planned Community are currently under construction. These projects are immediately adjacent to the project site[6] and provide a similar type development as what is proposed by the Ranch Plan. These projects also altered the rural, natural character of the area, transforming it into a suburban manmade landscape. These projects extended the urban boundary out to the Ranch Plan site. Consistent in nature with the Planned Communities is the San Juan Hills High School being constructed immediately adjacent to the project in San Juan Capistrano. The extensive grading associated with the projects has resulted in substantial landform alteration. These projects also introduced lighting into an area that previously had no lighting.

When considering the Ranch Plan together with these projects, there would be a cumulative impact associated with the change in the character of the study area and its surroundings. Combined, the setting will be substantially transformed from a rural, natural area to a suburban environment. When evaluating these changes to the thresholds of significance, there would be a cumulative significant impact associated with degrading the existing visual character, substantial landform alteration that would adversely affect the visual quality of the area, and the creation of light or glare that extends beyond the physical limits of the project site.

7.4.11 CULTURAL

As discussed in Section 4.11, the Ranch Plan has the potential to significantly impact cultural resources. The following three impact areas were identified.

- Grading and construction activities would have a significant impact on the following NRHP- and CRHR-eligible/potentially eligible archaeological sites: CA-ORA-535, -656, -753, -754, -882, -997, -1043, -1048, -1121, -1222, -1134, -1136, -1137, -1138, -1449, -1551, -1552, -1555, -1556,-1559, -1560, and -1565 have been determined to be eligible for the NRHP and CRHR. This impact can be mitigated to a level of less than significant. (Impact 4.11-1)

- Implementation of the project would have a significant impact on historic sites CA-ORA-29, 30-176631, 30-176633, 30-176634, and 30-176635, which have been determined to be eligible or potentially eligible for the NRHP or CRHR. This impact can be mitigated to a level of less than significant. (Impact 4.11-2)

- The proposed project would result in the disturbance and destruction of certain rock units identified as having a high likelihood of containing fossils. This disturbance would potentially result in the destruction of unique or important paleontological resources and is considered a significant impact. This impact can be mitigated to a level of less than significant. (Impact 4.11-3)

With implementation of the proposed mitigation program listed in Section 4.11, potential impacts to prehistoric archaeological, historical, and paleontological resources would be reduced to a level considered less than significant.

Although the project, in conjunction with the effects of past projects, other current projects, and probable future projects would result in the disturbance of prehistoric archaeological resource sites, historic sites and paleontological resources throughout the region, standard conditions of approval and mitigation measures required for each project would reduce the impacts to less than significant. As with the Ranch Plan, testing and data recovery is routinely required of

[6] Ladera Ranch is north of Planning Area 1 and Talega Valley is south of Planning Areas 5 and 6 and west of Planning Areas 7 and 8. San Juan Hills High School is west of Planning Area 11.

projects prior to and during grading activities. The site-specific nature of the resources reduces the potential for cumulative impacts. It is through the data recovery process that many fossils and artifacts have been discovered. As a result, anticipated development in the project region would not contribute to a significant cumulative impact on archaeological or paleontological resources or result in a significant cumulative loss in regional history or prehistory.

7.4.12 RECREATION

As discussed in Section 4.12, the Ranch Plan would not have any direct adverse physical impact on recreational facilities due to increased demand on facilities.

The cumulative projects, as well as the growth associated with the adopted projections, would result in increased demand for recreational facilities. All of the projects that propose development of new residential units are required by law to either provide parkland or pay fees toward parklands. This would reduce the potential cumulative impact associated with demand for and increased usage of the park system.

Direct or indirect impacts to specific recreational facilities must also be considered. This would be site-specific and only consider cumulative impacts that have the potential to impact the same recreational facilities as the Ranch Plan. To this end, all the toll road alternatives of SOCTIIP have the potential for cumulative impacts. Both the Ranch Plan and the toll road alternatives would have an effect on the inland portion of San Onofre State Beach as well as the Donna O'Neill Land Conservancy and the proposed San Juan Creek Regional Park. Development of Planning Area 8 would be visible from the inland portion of San Onofre State Beach, though it would have no direct impacts related to physical deterioration of the park. The Ranch Plan would extend the urban development that is adjacent to the park. This was determined to be an insignificant impact because of the distance of Ranch Plan development from the park facilities and because of other urban components in the area (development in the City of San Clemente and I-5) further reducing the likelihood of the Ranch Plan's population's use of the park. The nature of the impacts associated with the toll road alternatives would be very different because they would have a direct impact on San Onofre State Beach, the Donna O'Neill Land Conservancy and the proposed San Juan Creek Regional Park. Considering the nature of the two projects, the Ranch Plan would not contribute to a significant cumulative impact on the inland portion of San Onofre State Beach, the Donna O'Neill Land Conservancy, or the proposed San Juan Creek Regional Park because it would not contribute to, or accelerate, a substantial physical deterioration of the facilities.

7.4.13 MINERAL RESOURCES

As discussed in Section 4.13, development of the Ranch Plan would result in two impacts associated with mineral resources. The identified project specific impacts are:

- The inability to extract the mineral resources at the ONIS site beyond 2013, with the resultant loss of a resource of local value. This would be a significant unavoidable impact. (Impact 4.13-1).

- Implementation of the Ranch Plan would result in the inability to extract the sand and gravel within San Juan Creek. The Orange County General Plan, as well as by the California DMG, have identified this resource as a locally important mineral resource recovery site. This would be a significant unavoidable impact. (Impact 4.13-2)

These project specific impacts would remain significant after mitigation. The only other cumulative project identified that would preclude mining operations or result in the loss of

availability of a known mineral resource that would be of value to the region would be the Arroyo Trabuco Golf Course project. The golf course project, which is under construction, precludes the extraction of certain mineral resources in the Arroyo Trabuco. The resources in the Arroyo Trabuco were also identified in the General Plan and by the California DMG as a locally important mineral resource zone. Therefore, the Ranch Plan, combined with the Arroyo Trabuco Golf Course, would contribute to a cumulative impact on mineral resources in the region. There are no effective and feasible mitigation measures to reduce this cumulative impact.

7.4.14 HAZARDS

As discussed in Section 4.14, the proposed project has the potential to encounter unknown hazardous materials during grading and construction activities. The following nine project specific impacts were identified:

- There is the potential of exposing future sensitive uses to health risks if residual pesticides were to exceed levels established in the state and federal standards for health-sensitive uses. This impact can be mitigated to a level of less than significant. (Impact 4.14-1)

- Buildings and other improvements built before 1980 have the potential of containing asbestos-containing materials and lead-based paint. This impact can be mitigated to a level of less than significant. (Impact 4.14-2)

- There is the potential of contamination in the vicinity of AGTs and UGTs. (Impact 4.14-3)

- The possibility of soil contamination exists, associated with minor soil stains identified on site. This impact can be mitigated to a level of less than significant. (Impact 4.14-4)

- There is the possibility of chemical contamination in the truck washout recycling pond and site operations area within the Catalina Pacific Concrete (CPC) lease. This impact can be mitigated to a level of less than significant. (Impact 4.14-5)

- East of the Cow Camp maintenance shop area (Planning Area 3) old equipment and discarded scraps were buried, posing the potential for soil contamination. (Impact 4.14-6)

- Contamination was only partially removed when certain USTs in Planning Area 5 were removed in 1990, 1991, and 1997. This impact can be mitigated to a level of less than significant. (Impact 4.14-7)

- The chemical composition of the tailings within Trampas Dam has not been conclusively determined. There is a potential impact on future sensitive uses in the area. This impact can be mitigated to a level of less than significant. (Impact 4.14-8)

- Two pistol ranges represent a potential lead and/or copper hazard. This impact can be mitigated to a level of less than significant. (Impact 4.14-9)

- Grading may result in the damage or disturbance to abandoned oil wells. This could result in the release of methane gas. This impact can be mitigated to a level of less than significant. (Impact 4.14-10)

- Grading activities will require the relocation of a portion of the Santa Fe Pipeline, which traverses Planning Areas 1, 5, 6, 7, and 8. Relocation would be required in Planning Areas 1 and 8. During relocation there is an increased potential for soil contamination. This impact can be mitigated to a level of less than significant. (Impact 4.14-11)

- The above-ground tank installed by O'Connell Landscaping without permits and the housekeeping violations may result in contamination of surrounding soil. This impact can be mitigated to a level of less than significant. (Impact 4.14-12)

After mitigation, project specific impacts due to hazardous materials would be reduced to a level that is less than significant. Although some of the cumulative projects listed also have potential impacts associated with hazardous materials, the environmental concerns associated with hazardous materials are site specific. Each project is required to address any issues related to hazardous material or wastes. Federal, state, and local regulations require mitigation to protect against site contamination by hazardous materials. Therefore, there would be no cumulative hazardous materials impacts.

7.4.15 PUBLIC SERVICES AND FACILITIES

As discussed in Section 4.15, the proposed project has the potential for impacts on public services and facilities. The following eight project specific impacts were identified:

- Due to the remoteness of the low-density development in the eastern portions of Planning Area 7 and the estates in Planning Area 9, OCFA would not be able to provide adequate fire protection to these areas and meet adopted performance standards. (Impact 4.15-1)

- The removal of Crown Valley Parkway from the MPAH would reduce the effectiveness of Fire Station 58 and result in service levels below adopted performance standards for the northern portion of Planning Area 2. (Impact 4.15-2)

- The distance to the nearest hospital would cause delays in transport and greater use of OCFA staff. As a result, staff would not be available at the stations for other emergency calls. This may have an adverse effect on meeting adopted performance objectives. (Impact 4.15-3)

- Use of the existing ranch roads for access in Planning Area 9 may not meet OCFA standards for emergency access. (Impact 4.15-4)

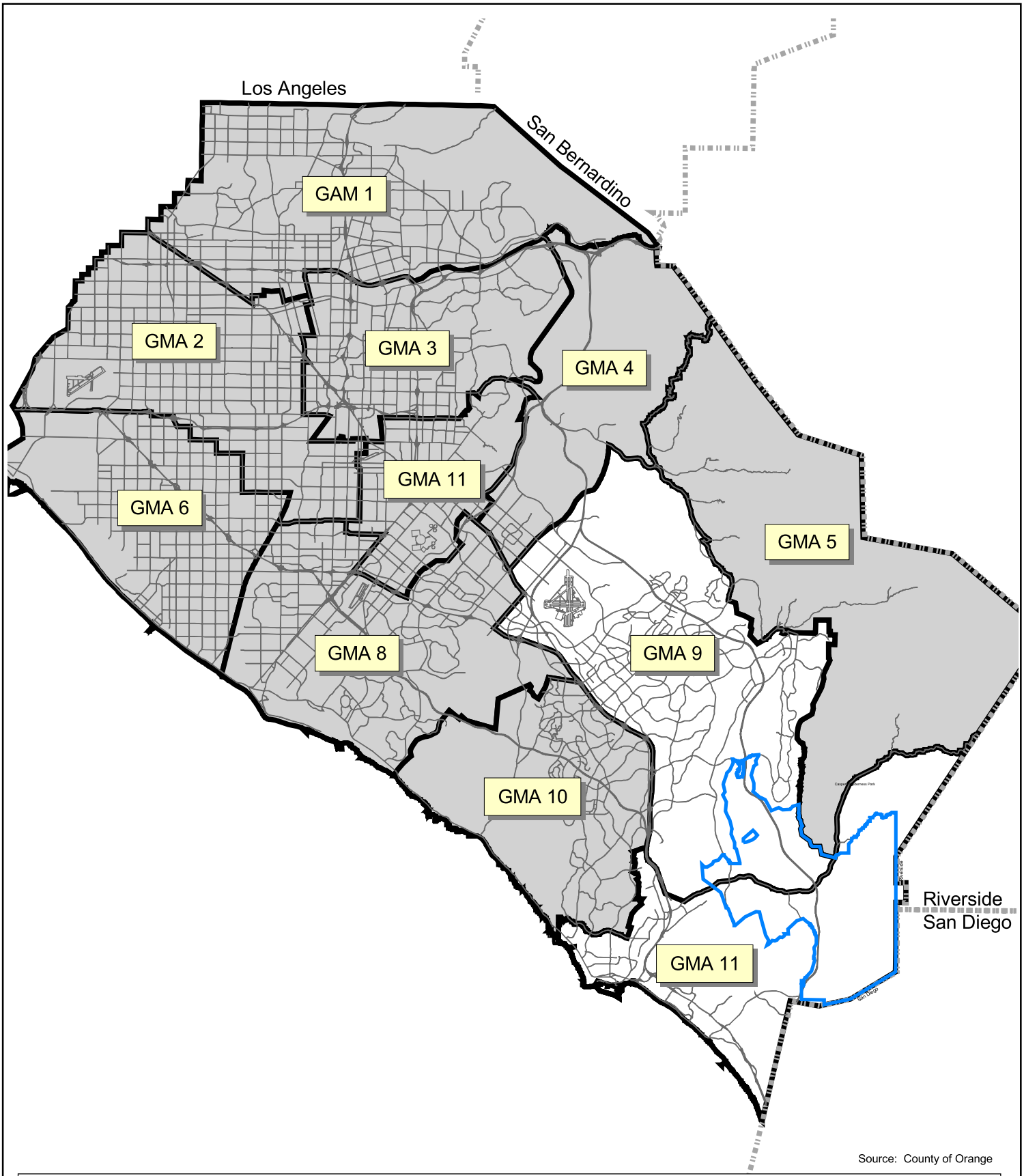
As discussed in Section 4.15-4, implementation and development of the Ranch Plan will result in increased demand for domestic and non-domestic water supplies to serve Project area residents, businesses and uses. Notwithstanding, the June 2003 Water Supply Assessment ("WSA") prepared by SMWD reflects that total projected water supplies available to SMWD during the next 20 years will be more than sufficient to satisfy the domestic and non-domestic water demands of the Project. Accordingly, the Ranch Plan will not create or otherwise cause any significant impacts related to water supply.

From a cumulative impacts standpoint, the WSA similarly manifests that implementation of the Ranch Plan in concert with other local and regional development projects will not adversely

affect water supply resources and distribution. The WSA states that total projected water supplies available to SMWD through 2025 – based on normal, single-dry and multiple-dry year conditions – will be sufficient to accommodate both the Ranch Plan water demands and the demands associated with existing and planned future uses in SMWD's service area. Notably, this supply sufficiency assessment presumes complete build-out of SMWD's remaining service area (i.e., full development of Coto de Caza, Talega, Ladera Ranch and the Ranch Plan) within the 20-year planning horizon, and declares that no water availability issues are expected to occur during said period. Furthermore, from a regional perspective, the WSA discusses SMWD's reliance on imported water supplied by MWD and MWD's concurrent and future obligations to its larger service area. As reflected in the WSA, MWD prepared a supply report in 2003 which (i) assumed regional growth consistent with the figures/projections adopted by SCAG for its Regional Transportation Plan and (ii) addressed specific supply challenges occasioned by issues involving, among others, the Colorado River, the State Water Project and the prolonged drought in Southern California. The conclusion drawn in the 2003 report is that MWD will be able to meet with existing supplies 100 percent of its member agencies' projected demands over the next 20 years during average and wet years, and 100% of its member agencies' projected demands over the next 15 years during single and multiple dry years. With the addition of planned supplies under development, MWD will be able to meet 100 percent of its member agencies projected demands through Year 2030, even under a repeat of the worst drought.

In short, development of the Ranch Plan and other cumulative projects will not create any significant water supply impacts on a local or regional level.

After mitigation, the project specific impacts on public services and facilities would be mitigated to a level of less than significant, with the exception of the fire protection services. The provision of public services and facilities by nature takes into consideration a much larger service area, rather than just project boundaries. Through coordination with the service and utility providers, the cumulative needs of the area have been considered. For example, the emergency service providers take into consideration surrounding development when considering staffing and station locations. The utility providers know their larger commitment when determining the need for substations and distribution facilities. Sizing of facilities, as well as locations, take these factors into consideration. As a result, there would be no cumulative impacts associated with public services and facilities.



Source: County of Orange

Growth Management Areas

Exhibit 7.3-1

The Ranch Plan

N W E S

0 5 Miles

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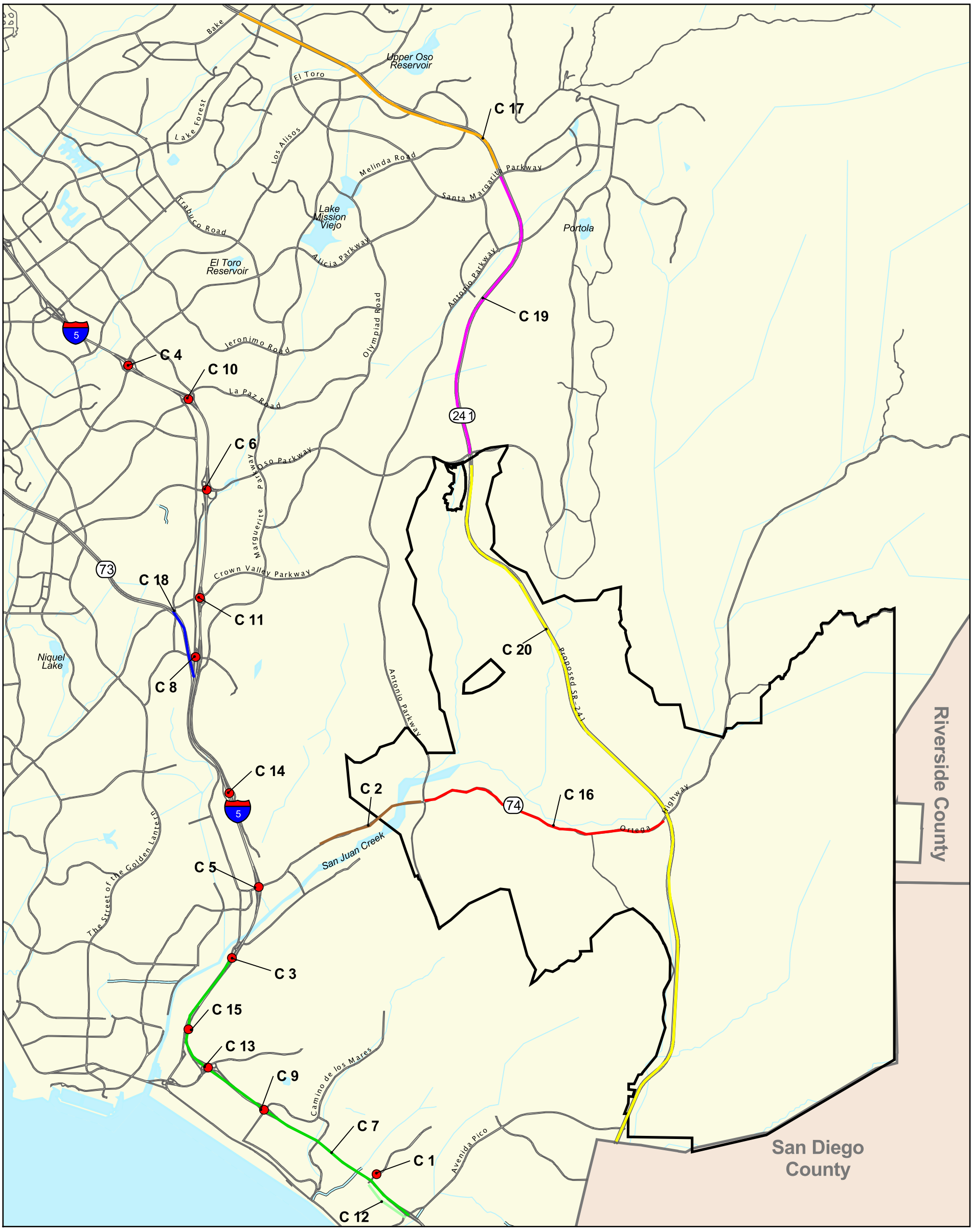

Caltrans Cumulative Projects

Exhibit 7.3-2

The Ranch Plan

N W E S

7000 0 7000 Feet

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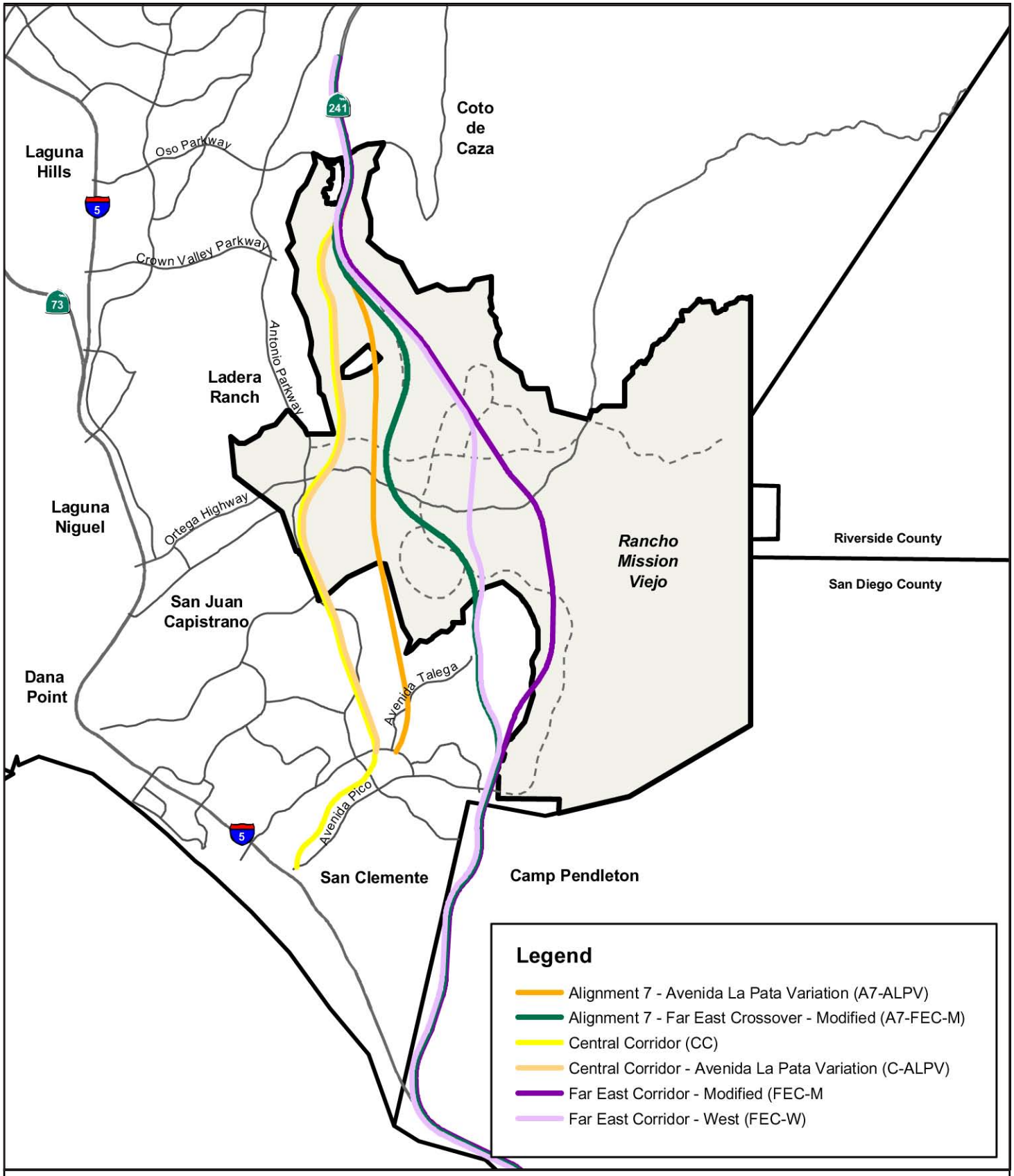
C 1: Avenida Vista Hermosa (Calle Frontera to I-5)
C 2: SR-74 Ortega Highway
C 3: I-5 at Camino Capistrano
C 4: I-5 at Alicia Parkway
C 5: Ortega Highway Interchange
C 6: I-5 at Oso Parkway
C 7: I-5 (Camino Capistrano to Avenida Pico)
C 8: I-5 at Avery Parkway
C 9: I-5 at Camino Estrella
C 10: I-5 at La Paz
C 11: I-5 at Crown Valley Parkway
C 12: I-5 (Avnida Pico to Avenida Vista Hermosa)
C 13: I-5 at Camino Las Ramblas
C 14: I-5 at Junipero Serra
C 15: I-5 at Stonehill Drive
C 16: SR-74 Ortega Highway
C 17: SR-241 (north of Santa Margarita Parkway)
C 18: SR-73 (north of I-5)
C 19: SR-241 (Oso Parkway to Santa Margarita Parkway)
C 20: SR-241 SOCTIIP



SOCTIIP Alternatives

Exhibit 7.3-3

The Ranch Plan

1" = 10,000'

N
W E
S

Source: SOCTIIP

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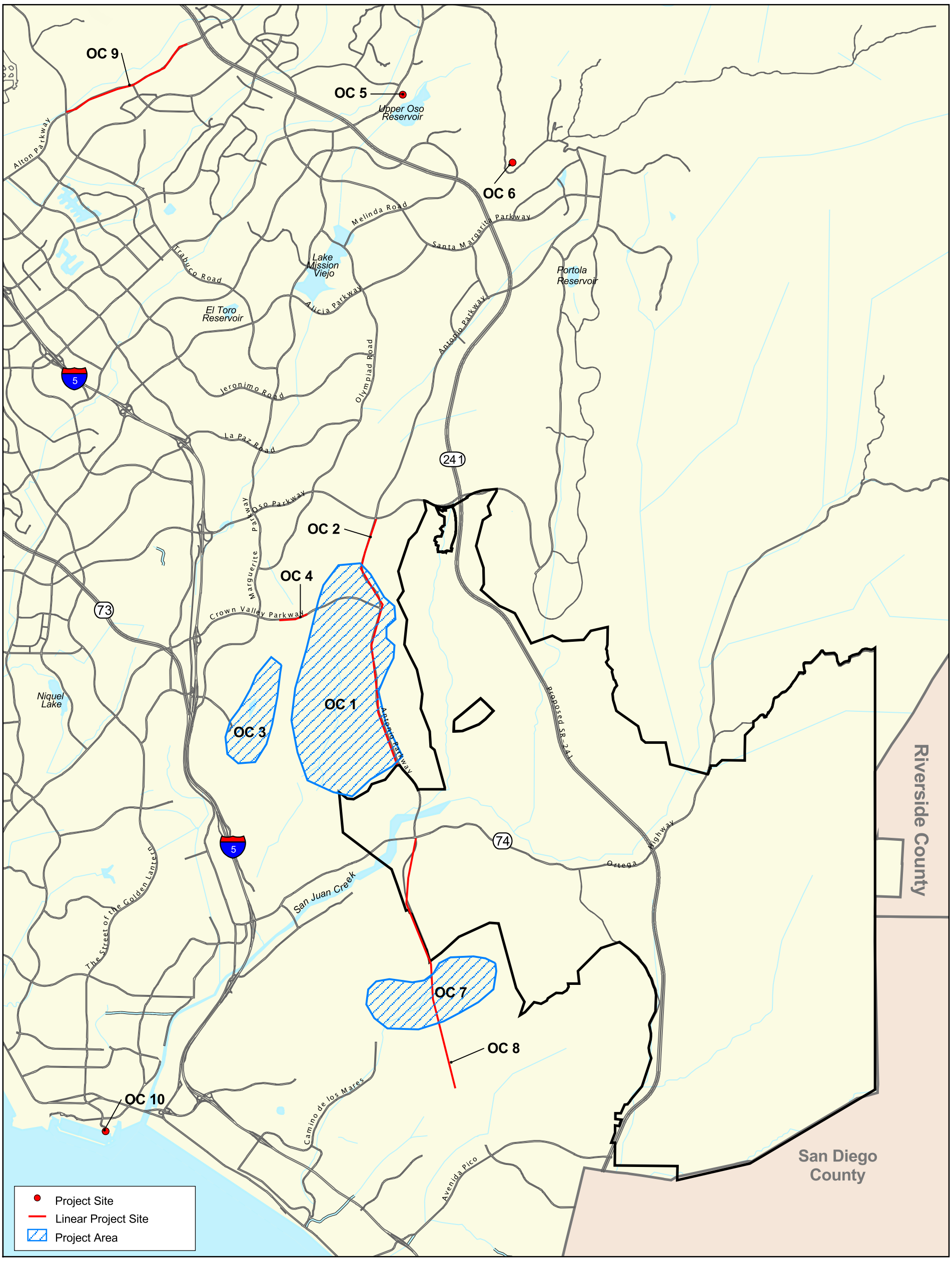

Orange County Cumulative Projects

Exhibit 7.3-4

The Ranch Plan

N W E S

7000 0 7000 Feet

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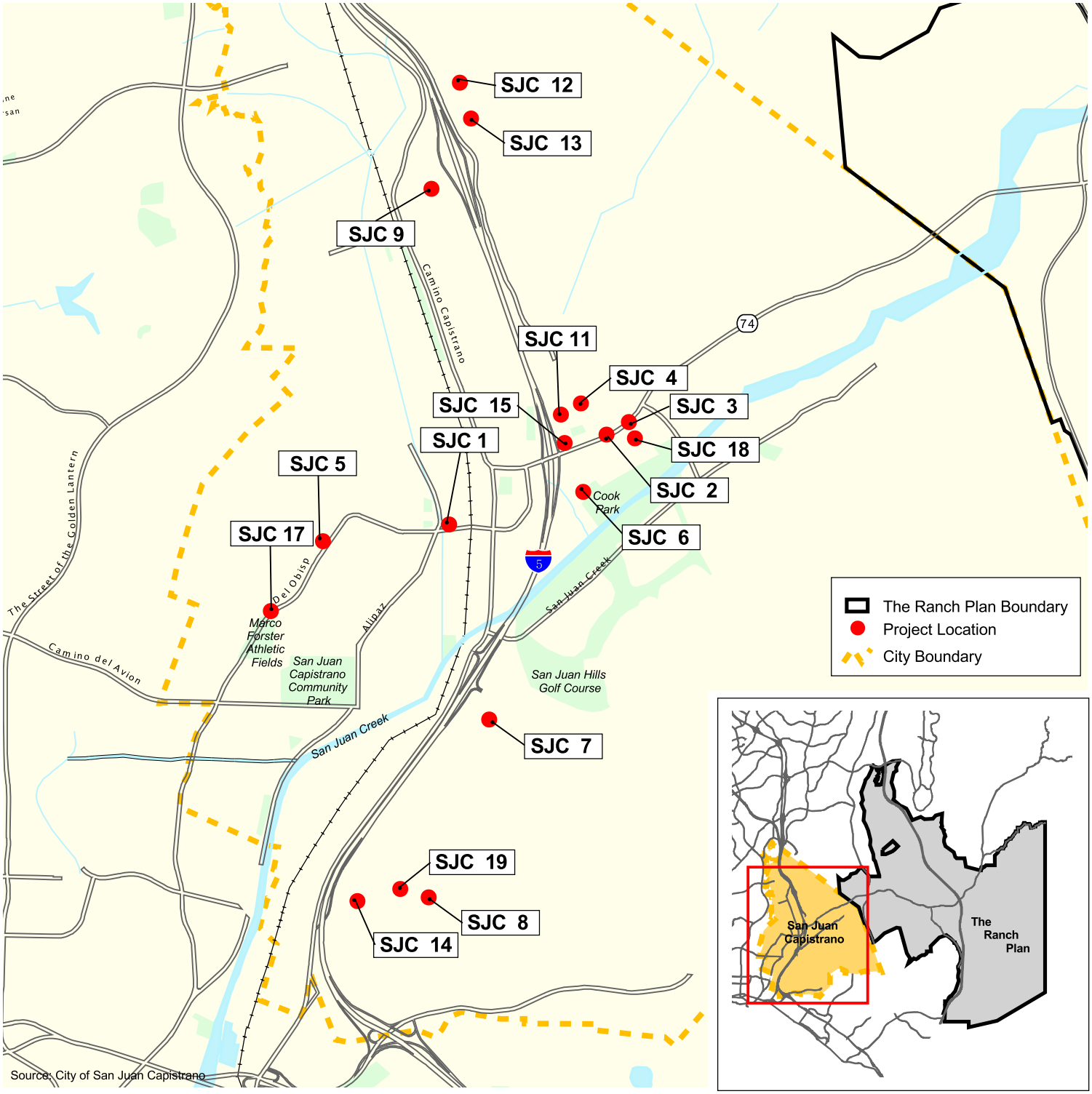
County of Orange Cumulative Projects

OC 1: Ladera Ranch
OC 2: Antonio Parkway
OC 3: Arroyo Trabuco Golf Course
OC 4: Crown Valley Bridge Widening
OC 5: Saddleback Meadows
OC 6: Saddle Creek/Saddle Crest
OC 7: Prima Deshecha Landfill
OC 8: La Pata Avenue
OC 9: Alton Parkway
OC 10: Dana Point Harbor



San Juan Capistrano Cumulative Projects

Exhibit 7.3-5

The Ranch Plan

N W E S

0.5 0 0.5 Miles

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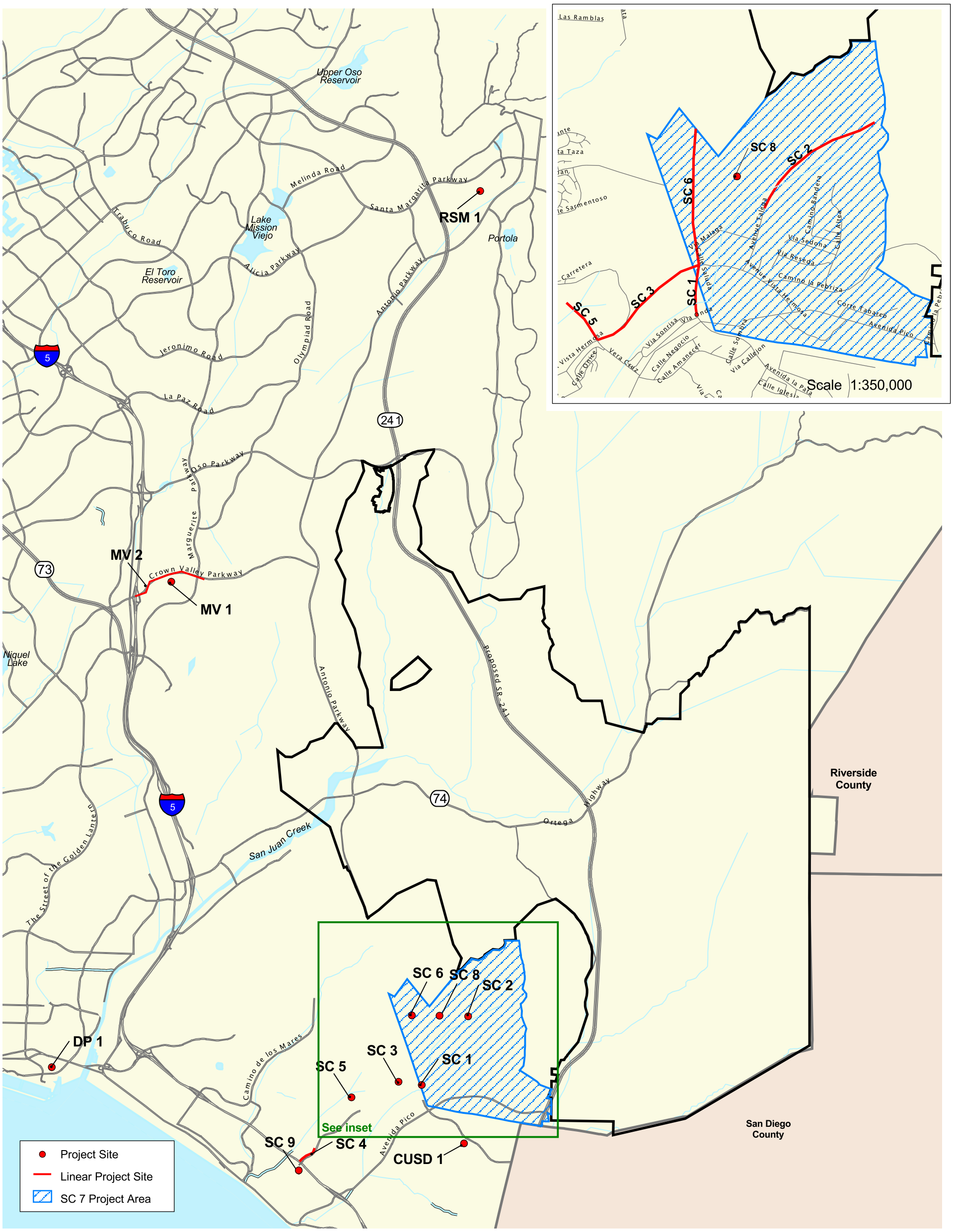
SJC 1: Sierra Plaza
SJC 2: Ortega Animal Hospital
SJC 3: San Juan Law Offices
SJC 4: TTM 16221 Honeyman Ranch
SJC 5: T. 15701, Cobblestone-Stonefield
SJC 6: Casa de Amma
SJC 7: TTM 14343 San Juan Meadows
SJC 8: Pacifica San Juan (formerly Pacific Point)
SJC 9: AC 02-07 Junipero Serra High School
SJC 10: Whispering Hills
SJC 11: Ortega Ranch Offices
SJC 12: Mammoth Offices
SJC 13: Rancho Viejo Office Park
SJC 14: Valle Ranch
SJC 15: M&M Petroleum
SJC 16: San Juan Golf Course
SJC 17: Belladonna Estates
SJC 18: St Margaret's Episcopal School Master Plan
SJC 19: CUSD Administration Offices



General Cumulative Projects

The Ranch Plan

Exhibit 7.3-6

N W E S

7000 0 7000 Feet

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San Clemente Cumulative Projects

SC 1: Avenida La Pata (Avenida Pico to Avenida Vista Hermosa)

SC 2: Avenida Talega (east of Avenida Vista Hermosa)

SC 3: Avenida Vista Hermosa (Camino Vera Cruz to north of Avenida La Pata)

SC 4: Avenida Vista Hermosa (Calle Frontera to I-5)

SC 5: Camino Vera Cruz (north of Avenida Hermosa)

SC 6: Avenida La Pata (Avenida Vista Hermosa to City limits)

SC 7: Talega Valley Specific Plan

SC 8: Forster Ranch - location unknown

SC 9: Marblehead Coastal - location unknown

Mission Viejo Cumulative Projects

MV 1: Mission Hospital Master Plan

MV 2: Crown Valley Parkway (I-5) east of Trabuco Creek Bridge)

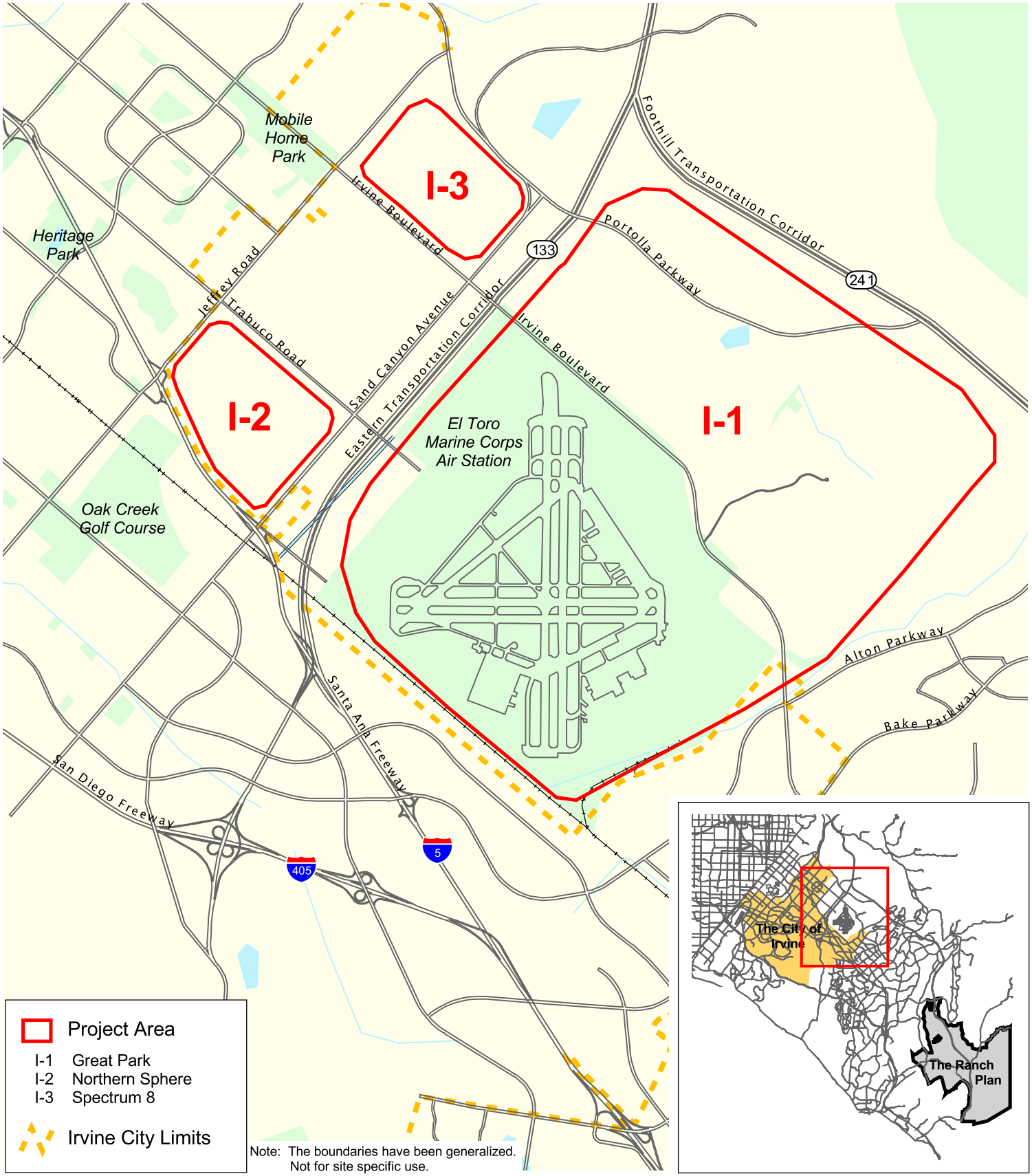
Rancho Santa Margarita Cumulative Projects

RSM 1: Rancho Santa Margarita City Hall/Community Center

CUSD 1: San Juan Hills High School

City of Dana Point

DP 1: Headlands



City of Irvine Cumulative Projects

Exhibit 7.3-7

The Ranch Plan

N W E S

0.75 0 0.75 Miles

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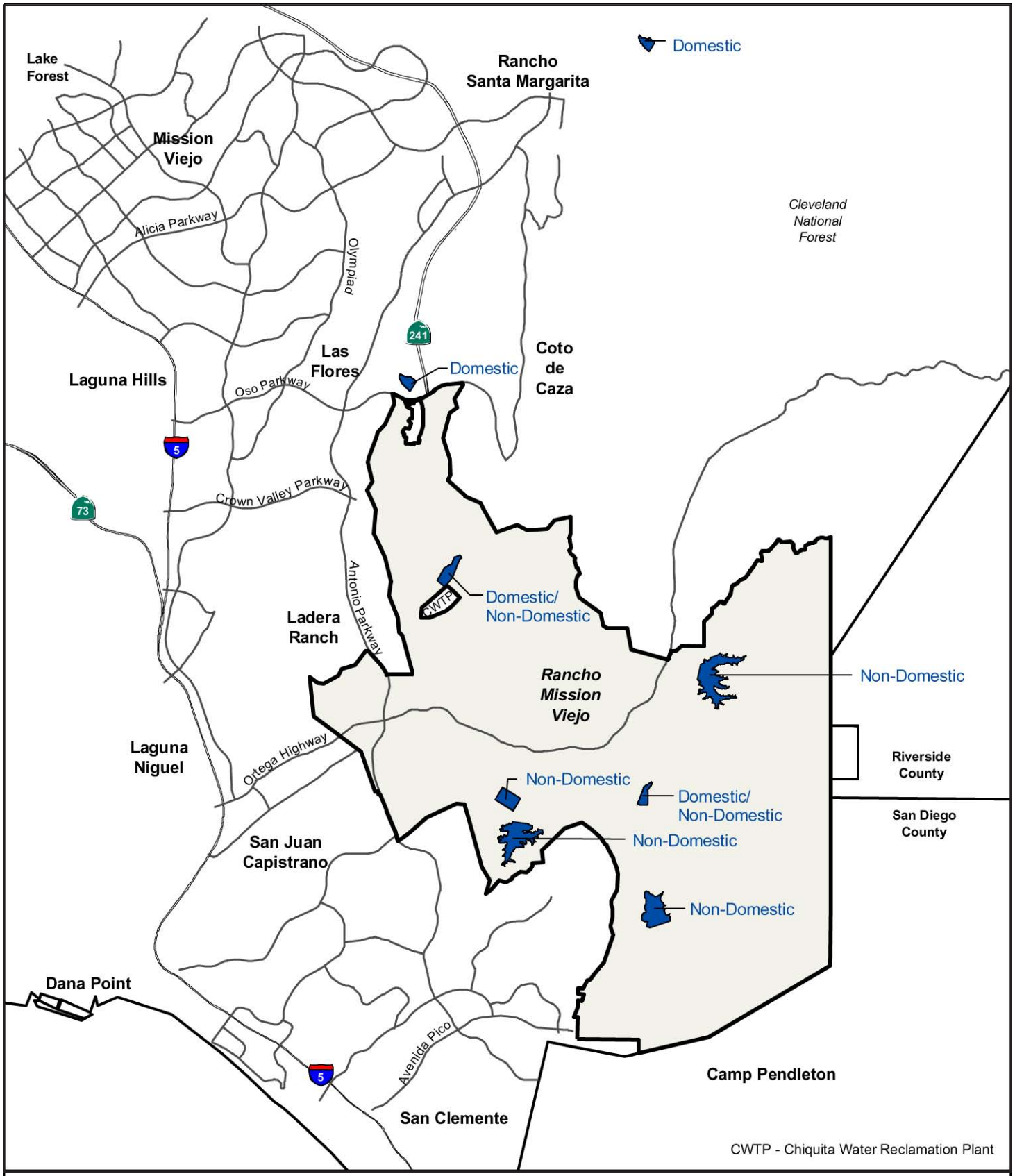

Reservoir Site Alternatives

Exhibit 7.3-8

The Ranch Plan

1" = 10,000'

N
W E
S

Source: SMWD

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SECTION 8
PERSONS AND ORGANIZATIONS CONSULTED

8.1 PERSONS AND AGENCIES CONSULTED

FEDERAL AGENCIES

U.S. Army Corps of Engineers ..... Jae Chung

STATE OF CALIFORNIA

California Highway Patrol
Office of Public Affairs, Capistrano Area Office
Public Affairs Officer ..... Christopher Goodwin

Department of Parks and Recreation
State Parks Division, San Diego Region
Manager ..... Richard Rozelle

Planning Division
Southern Service Center
Administrative Assistant ..... CeCe Valdez

Santiago Canyon College
Earth and Space Sciences, Astronomy Department
Professor ..... Morrie Barembaum

University of California, Irvine
Astronomy Department
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LOCAL GOVERNMENT

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SECTION 10
GLOSSARY OF TERMS

ACOUSTICS: The physical qualities of a room or other enclosures (such as size, shape, amount of noise) that determine the audibility and perception of speech and music.

ACRE: A unit of land equal to 43,560 square feet.

ADVERSE IMPACT: A term used to describe unfavorable, harmful, or detrimental environmental changes. Adverse impacts may be significant or not significant. (See Significant Impact)

AFFORDABLE HOUSING: Under state and federal statutes, housing which costs no more than 30 percent of gross household income. Housing costs include rent or mortgage payments, utilities, taxes, insurance, homeowner association fees, and other related costs.

AGRICULTURAL LAND USE: The use of land primarily for farming, ranching, horse breeding, dairy farming and other forms of food and crop production. From a planning perspective, agricultural land use connotes primary economic use of the property.

AIR BASIN: An area designated by the Air Resources Board for air quality planning purposes.

AIR POLLUTANT: A material in the ambient air that produces air pollution.

AIR QUALITY MANAGEMENT PLAN: A document describing how the SCAQMD plans to achieve federal and state air quality standards by year 2010, as required by the federal Clean Air Act Amendments and the California Clean Air Act.

AIR QUALITY MODEL: An algorithmic relationship between pollutant emissions and pollutant concentrations used in the prediction of a project's pollutant impact.

AIR QUALITY STANDARD: The specified average concentration of an air pollutant in ambient air during a specified time period at or above which undesirable effects may be produced.

AIR TOXICS: Any air pollutant for which a national ambient air quality standard (NAAQS) does not exist (i.e. excluding ozone, carbon monoxide, PM10, sulfur dioxide, nitrogen dioxide) that may reasonably be anticipated to cause cancer, developmental effects, reproductive dysfunctions, neurological disorders, heritable gene mutations or other serious or irreversible chronic or acute health effects in humans.

AMBIENT NOISE: The background noise associated with a given environment, usually a composite of sounds from many sources near and far.

ANNEXATION: The incorporation of land area into the jurisdiction of an existing city with the resulting change in the boundaries of that city.

APPLICANT: Applicant means a person who proposes to carry out a project which needs a lease, permit, license, certificate, or other entitlement for use or financial assistance from one or more public agencies when that person applies for the governmental approval or assistance.

APPROVAL: Approval means the decision by a public agency which commits the agency to a definite course of action in regard to a project intended to be carried out by any person. The exact date of approval of any project is a matter determined by each public agency according to its rules, regulations, and ordinances. Legislative action in regard to a project often constitutes approval. With private projects, approval occurs upon the earliest commitment to issue or the issuance by the public agency of a discretionary contract, grant, subsidy, loan, or other form of financial assistance, lease, permit, license, certificate, or other entitlement for use of the project.

AQUIFER: A natural underground formation that is saturated with water, and from which water can be withdrawn.

ARTERIAL ROAD: A vehicular right-of-way whose primary function is to carry through traffic in a continuous route across an urban area while also providing some access to abutting land.

ARTIFACT: A single, portable man-made or man-altered object; usually culturally diagnostic.

ASSISTED HOUSING: Housing that has been subsidized by federal, state, or local housing programs.

AT-GRADE CROSSING: The crossing of two channels of transportation at the same elevation or level.

ATMOSPHERIC STABILITY: The resistance to or enhancement of vertical air movement related to the vertical temperature profile.

ATTAINMENT AREA: An area considered to have air quality as good as or better than the National Ambient Air Quality Standard as defined in the Clean Air Act. An area may be an attainment area for one pollutant and a non-attainment area for others.

AVERAGE DAILY TRAFFIC: Generally used to measure the total two-directional traffic volumes passing a given point on a roadway.

A-WEIGHTED DECIBEL SOUND LEVEL (dBA): (See decibel, A-Weighted)

BACKGROUND CONCENTRATION: Air pollutant concentration due to natural sources and distant unidentified man-made sources.

BACKGROUND VIEW: View beginning at a distance from the observer and extending as far toward the horizon as the eye can detect the presence of objects. Skylines or ridge lines against other land surfaces are the strongest visual elements of the "background."

BASE FLOOD: A flood having a one percent change of being equaled or exceeded in any given year.

BASIN PLAN: A water quality control plan developed by a Regional Water Quality Control Board (RWQCB) for a specific geographic area. The Basin Plan identifies beneficial uses of waters, the water quality objectives needed to maintain these beneficial uses, and an implementation plan.

BENEFICIAL USES: The resources, services, and qualities of state waters that may be protected against quality degradation. The uses include, but are not limited to, domestic, municipal, agricultural and industrial supply, power generation, recreation, aesthetic enjoyment, navigation, and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. The specific uses such as “cold freshwater habitat” and “water contact recreation” are defined in Section 2 of the Regional Water Quality Control Boards’ Basin Plans. Beneficial Uses are defined in California Water Code Section 13050.

BENTONITIC: An absorptive and colloidal clay used as a sealing agent or carrier.

BERM: An embankment, usually extended in a linear alignment. Berms can function as visual screens, noise attenuators, and surface water diverters.

BLIND THRUST: A very low angle reverse fault that does not reach the ground surface.

BMP (Best Management Practice): A BMP is any program, technology, process, siting criteria, operating method, measure, or device which controls, prevents, removes, or reduces pollution.

BRECCIA: A composite rock composed of angular fragments of more ancient rocks bound together by a natural cement.

BUILDOUT: The year in which project construction has been completed.

CALIFORNIA CODE OF REGULATIONS (CCR): The regulations that implement California laws.

CALIFORNIA DEPARTMENT OF TRANSPORTATION (Caltrans): The state government agency responsible for the construction, maintenance, and operation of state and federal highways in California

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA): The California Environmental Quality Act, California Public Resources Code Sections 21000 et seq.

CANTONMENT AREA: An area containing military barracks, drill training areas and other troop support facilities.

CARBON DIOXIDE (CO2): A colorless gas that enters the atmosphere as the result of natural and artificial combustion processes. It is also a normal part of the ambient air.

CARBON MONOXIDE (CO): An invisible, odorless, tasteless, and toxic gas. It is primarily generated by motor vehicles, but is found in trace quantities in the natural atmosphere.

CASITAS: Attached or detached residential units in association with a residential neighborhood or a golf course.

CATCH BASIN: A storm drain inlet having a sump below the outlet to capture settled solids.

CENSUS: The office United States decennial enumeration of the population conducted by the federal government.

CLASTS: Fragments of rock.

COHESIONLESS SOIL: A soil that when unconfined has little or no strength when air-dried, and that has little or no cohesion when submerged.

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL): A noise compatibility level established by California Administrative Code, Title 21, Section 5000. Represents a time-weighted 24-hour average noise level based on the A-weighted decibel. The CNEL scale includes an additional 5 dB adjustment to sounds occurring in the evening (7 p.m. to 10 p.m.) and a 10 dB adjustment to sound occurring in the late evening and early morning between (10 p.m. and 7 a.m.).

CONGESTION MANAGEMENT PLAN/PROGRAM: Administered by the Orange County Transportation Authority.

CONTIGUOUS: Lands or legal subdivisions having a common boundary; lands having only a common corner are generally not contiguous.

CONTOUR GRADING: A grading technique which uses curvilinear, horizontal, and vertical undulations in order to simulate the characteristics of natural topography.

CONVENTIONAL SINGLE FAMILY DETACHED: A residential development wherein each dwelling unit is detached and situated on a lot of record and the units are constructed at a net density of less than nine (9) dwelling units per net acre and have a minimum lot size of three thousand (3000) square feet.

CRITERIA POLLUTANT: Air pollutants for which the federal or state government have established ambient air quality standards or criteria for outdoor concentrations in order to protect public health.

CUMULATIVE IMPACT: Cumulative impact refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

DEBITAGE: Debris; waste products or by-products of the manufacturing process. Lithic debitage would thus include unused flakes, exhausted cores, and broken artifacts.

DECIBEL (dB): A unit for expressing the relative intensity (loudness) of sounds. The decibel is the logarithm of the ratio of the intensity of a given sound to the faintest sound discernible by the human ear.

DECIBEL, A-WEIGHTED (dBA): A-weighting is a frequency correction that correlates overall sound pressure levels with the frequency response of the human ear.

DENSITY: The gross site area which shall include local roadways, slopes, and open space areas, unless otherwise specified.

DESIGN CAPACITY: The capacity at which a street, water distribution pipe, pump or reservoir, or a wastewater pipe or treatment plant is intended to operate.

DETENTION DEVICE: Facilities designed to collect and temporarily detain the initial volume of storm water runoff for a specified period of time to permit settlement of particulate pollutants.

DEVELOPMENT AGREEMENT: An agreement between a developer and a city or redevelopment agency that contains all of the terms and conditions for the maintenance, planning and development of a property, and legally governs the relationship between the agency and developer until the development has been completed.

DEVELOPMENT IMPACT FEES: A fee or tax imposed on developers to pay for the costs to the community of providing services to a new development. It is a means of providing a fund for financing new improvements without resorting to deficit financing.

DIATOMACEOUS: Consisting of or abounding in diatoms or their siliceous remains.

DIATOMS: Minute planktonic unicellular or colonial algae with silicified skeletons.

DIP-SLIP: A fault in which the primary displacement is along the dip of the fault and parallel to the direction of the fault plane.

DIRECT EFFECTS: Effects which are caused by an action and occur at the same time and place.

DISCOIDAL: Stone artifact having a circular shape. Specific to earlier periods of prehistory. Actual function uncertain.

DISPERSION: The process by which atmospheric pollutants disseminate due to wind and vertical stability.

DRAINAGE AREA: The portion of the earth's surface from which precipitation or other runoff flows to a given location. With respect to a highway, this location may be a culvert, the farthest point of a channel, or an inlet to a roadway drainage system.

DRAINAGE SWALE: A storm drainage conveyance structure designed to intercept, divert, and convey surface runoff (generally sheet flow) to prevent erosion and reduce pollution loading.

DWELLING UNIT: Used in quantifying residential land use.

ECOFACTS: An object or substance found in an archaeological site which is of natural origin but which nonetheless provides direct information pertinent to human activity. Examples might include various faunal remains (e.g., charred animal bone, marine shell), or floral remains (e.g., seeds and pollen).

EFFECTS: "Effects" and "impacts" as used in the CEQA Guidelines are synonymous. Effects include: (a) Direct or primary effects which are caused by the project and occur at the same time and place; (b) Indirect or secondary effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary 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. Effects analyzed under CEQA must be related to a physical change.

ELDERLY HOUSEHOLD: As defined by HUD, elderly households are one- or two-member (family or non-family) households in which the head or spouse is age 62 years or older.

EMISSION FACTOR: The rate at which pollutants are emitted into the atmosphere by one source or a combination of sources.

ENCROACHMENT: The occupancy of project right-of-way by non-project structures or objects of any kind or character; also, activities of other parties within the operating right-of-way.

ENDANGERED SPECIES: A species or subspecies of plant or animal whose prospects of survival and reproduction are in immediate jeopardy. (See Threatened Species)

ENVIRONMENT: The physical conditions which exist within the area which will be affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved shall be the area in which significant effects would occur either directly or indirectly as a result of the project. The "environment" includes both natural and man-made conditions.

ENVIRONMENTAL DOCUMENTS: Environmental documents means Initial Studies, Negative Declarations, draft and final EIRs, documents prepared as substitutes for EIRs and Negative Declarations under a program certified pursuant to Public Resources Code Section 21080.5, and documents prepared under NEPA and used by a state or local agency in the place of an Initial Study, Negative Declaration, or an EIR.

ENVIRONMENTAL IMPACT REPORT: A detailed statement prepared under the California Environmental Quality Act (CEQA) describing and analyzing the significant environmental effects of a project and discussing ways to mitigate or avoid the effects. The term “EIR” may mean either a draft or a final EIR depending on the context. A Draft EIR means an EIR containing the information specified in CEQA Guidelines §§15122 through 15131. A Final EIR means an EIR containing the information contained in the draft EIR, comments either verbatim or in summary received in the review process, a list of persons commenting, and the response of the Lead Agency to the comments received. The final EIR is discussed in detail in CEQA Guidelines §15132.

ENVIRONMENTAL PROTECTION AGENCY: The federal agency with primary responsibility for the implementation of federal environmental statutes, including the Clean Water Act, Clean Air Act, Safe Drinking Water Act, and the Resource Conservation and Recovery Act. California is included within EPA Region IX, headquartered in San Francisco.

EPICENTER: The part of the earth’s surface directly above the focus of an earthquake.

EQUIVALENT NOISE LEVEL (Leq): A single-number representation of the fluctuating sound level in decibels over a specified period of time. It is a sound-energy average of the fluctuating level.

EROSION CONTROL: The stabilization of cut and fill slopes and other areas.

EROSION: The process by which material is removed from the earth's surface (including weathering, dissolution, abrasion, and transportation), most commonly by wind or water. The process can be intensified by clearing, grading, or excavation of the land surface.

ESTATE DWELLINGS: A residential development wherein each dwelling unit is detached and situated on a lot of record and the units are constructed at a net density of one (1) dwelling unit per net acre.

FAIR MARKET RENT (FMR): Fair Market Rents are freely set rental rates defined by HUD as the median gross rents charged for available standard units in a county or Standard Metropolitan Statistical Area (SMSA). Fair Market Rents are used for the Section 8 Rental Program and other HUD programs and are published annually by HUD.

FAIR SHARE PARTICIPATION: Applied to funding of the future transportation improvements.

FALL: A fall is a movement of unattached soil or rock from a steep slope along a surface on which little or no shear displacement takes place. The material descends mainly through the air by falling

FARMLAND OF LOCAL IMPORTANCE: Lands of importance to the local agricultural economy, as determined by each county's board of supervisors and local advisory committee. Each county has developed its own definition of Farmland of Local Importance.

FARMLAND OF STATEWIDE IMPORTANCE: Lands similar to Prime Farmland but with minor shortcomings, such as greater slopes or with less ability to hold and store moisture. These lands have the same reliable source of adequate quality irrigation water available during the growing season as required for Prime Farmland. The land must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date.

FAULT: A fracture in the earth's crust forming a boundary between rock masses that have shifted. An active fault is a fault that has moved recently and which is likely to again. An inactive fault is a fault which shows no evidence of movement in recent geologic time and no potential for movement in the relatively near future.

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA): The federal agency under which the National Flood Insurance Program is administered.

FELDSPAR: The feldspar group is a fairly large group of minerals that make up the greatest percentage of minerals found in the Earth's crust.

FINE PARTICULATE MATTER (PM10): PM10 causes a greater health risk than larger-sized particles, since these fine particles can be inhaled more easily and irritate the lungs by themselves and in combination with gases.

FLOOD: A general and temporary condition of partial or complete inundation of normally dry land areas from: 1) overflow of inland or tidal waters; 2) the unusual and rapid accumulation or runoff of surface waters from any source; 3) mudslides (i.e., mudflows) which are proximately caused by flood, as previously described), and are akin to a river of liquid and flowing mud on the surface of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current; 4) the collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding the cyclical levels which result in flood.

FLOODPLAIN: Any land area susceptible to being inundated by flood waters from any source.

FLOW: A flow is a sudden movement of a soil mass in which individual particles travel separately in a fluid motion. Debris and mudflows are rapid and can be related to excess rainfall on slopes often where vegetation has been removed. Debris flows often have the consistency of cement and can result in catastrophic effects to structures.

FOOTPRINT (Building): The outline of the ground area covered by a building.

GENERAL PLAN: A compendium of city or county policies regarding long-term development, in the form of maps and accompanying text. A General Plan is a legal document required of each local agency by the State of California Government Code Section 65301 and adopted by a city council or board of supervisors.

GEOMORPHIC: Relating to the form or surface features of the earth.

GLARE: A light source, either reflected or direct, that is annoying or distracting.

GRADING: Alteration of existing slope and shape of the ground surface.

GRAZING LAND. Lands on which the existing vegetation is suited to the grazing of livestock.

GROSS SITE AREA: The area within the lot lines of a parcel of land before public streets, alleys, easements, or other areas to be dedicated or reserved for public use have been deducted.

GROSS SQUARE FEET: GROSS FLOOR AREA. The total building area of all floors within the walls of all structures except elevator and other vertical shafts (including stairwells) and elevator equipment areas. Parking structures shall not be considered building area for the purposes of calculating allowable floor area ratios.

GROUNDWATER RECHARGE: The natural process of infiltration and percolation of rainwater from land areas or streams through permeable soils into water-holding rocks that provide underground storage ("i.e., aquifers").

GROUNDWATER: The term usually refers to the “saturated” zone in the ground where all the pore space between the soil particles is occupied by water.

GROWTH MANAGEMENT PLAN (GMP): A plan developed by the Southern California Association of Governments (SCAG) that contains demographic projections (i.e., housing units, employment, and population for its six-county region (i.e., Los Angeles, Orange, Riverside, San Bernardino, Ventura, and Riverside counties). The plan provides recommendations for local governments to better accommodate the growth projected by occur and reduce environmental impacts.

GROWTH MANAGEMENT PLAN: Included as a component of the General Plans of the Cities and the County of Orange.

GROWTH MANAGEMENT: The use by a community of a wide range of techniques in combination to determine the amount, type, and rate of development desired by the community and to channel that growth into designated areas. Growth management policies can be implemented through growth rates, zoning, capital improvement programs, public facilities ordinances, urban limit lines, standards for levels of service, and other programs.

GRUBBED: Vegetation that has been removed by mechanical or manual methods.

HABITAT: A place where a plant or animal naturally or normally lives or grows.

HAZARDOUS MATERIAL: A material or form of energy that could cause injury or illness to persons, livestock, or the natural environment.

HAZARDOUS WASTE: A waste or combination of wastes that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either cause or significantly contribute to an increase in mortality or an increase in serious irreversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. A hazardous waste possesses at least one of four characteristics–ignitability, corrosivity, reactivity, or toxicity–or appears on special EPA or state lists. Hazardous waste is regulated under the federal Resource Conservation and Recovery Act and the California Health and Safety Code.

HILLSIDE AREA: Any property containing slope areas of 20 percent or greater. The steepness of a slope is defined as the relationship (the ratio) between the changes in elevation (rise) and the horizontal distance (run) over which that change in elevation occurs. The percent of steepness of any given slope is determined by dividing the rise by the run on the natural slope of land, multiplied by 100.

HOME BASED BUSINESS ENCLAVE: Attached or detached residential neighborhood comprised of dwelling units that allow opportunities for small, entrepreneurial business owners to operate out of their homes.

HORIZONTAL AND VERTICAL BUILDING ENVELOPES: The maximum width and height of a structure based on minimum setback requirements and maximum building height limitations for the zone within which the project is located. These envelopes may be used to evaluate visual impacts when specific architectural plans are not provided for subdivision review.

HOUSEHOLD INCOME: The total income of all the persons living in a household. A household is usually described as very low income, low income, moderate income, and upper income based upon household size and income, relative to the regional median income.

HOUSEHOLD: The U.S. Census Bureau defines a household as all persons living in a housing unit whether or not they are related. A single person living in an apartment as well as a family living in a house is considered a household. Household does not include individuals in dormitories, prisons, convalescent homes, or other group quarters.

HOUSING AND COMMUNITY DEVELOPMENT, CALIFORNIA DEPARTMENT OF (HCD): The state department responsible for administering state-sponsored housing programs and for reviewing housing elements to determine compliance with state housing law.

HOUSING AND URBAN DEVELOPMENT, U.S. DEPARTMENT OF (HUD): The cabinet level department of the federal government responsible for housing, housing assistance, and urban development at the national level. Housing programs administered through HUD include Community Development Block Grant (CDBG), HOME, and Section 8.

IMPACT: The effect, influence, or imprint of an activity or the environment. Impacts include: direct or primary effects which are caused by the project and occur at the same time and place; indirect or secondary effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary 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.

IMPERVIOUS SURFACE: Ground surface that cannot be penetrated by water. Includes paved and compacted surfaces, as well as those covered by buildings.

INCOME CATEGORY: Four categories are used to classify a household according to the median income for the county. Under state housing statutes, these categories are as follows: Very Low (0 to 50% of county median); Low (50% to 80% of county median); Moderate (80% to 120% of county median); and Upper (over 120% of county median).

INDIRECT IMPACT: Effects caused by an action that 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.

INDIRECT SOURCE: Any structure or installation which attracts an activity which creates emissions of pollutants. For example, a major employment center, a shopping center, an airport, or a stadium can all be considered to be indirect sources.

INFILTRATION SYSTEM: An infiltration basin designed to capture runoff volume from the water quality design storm and infiltrate it to the soil.

INFILTRATION: The introduction of underground water, such as groundwater, into wastewater collection systems. Infiltration results in increased wastewater flow levels.

INFLOW: Surface water, such as rainfall runoff, that enters a wastewater collection system through manhole covers and joints or cracks in pipes. Inflow results in increased wastewater flow levels.

INFRASTRUCTURE: Permanent utility installations, including roads, water supply lines, sewage collection pipes, and power and communications lines.

INITIAL STUDY: Under CEQA, a preliminary analysis prepared by the Lead Agency to determine whether an EIR, a Negative Declaration, or Mitigated Negative Declaration must be prepared, or to identify the significant environmental effects to be analyzed in an EIR.

INTERSECTION CAPACITY UTILIZATION METHOD (ICU): A method of analyzing intersection level of service by calculating a volume-to-capacity (V/C) ratio for each governing "critical" movement during a traffic signal phase. The V/C ratio for each phase is summed with the others at the intersection to produce an overall V/C ratio for the intersection as a whole. The ICU is usually expressed as a percent. The percent represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity. The V/C ratio represents the percent of intersection capacity used. For example, a V/.C ratio of 0.85 indicates that 85 percent of capacity is being used.

INTERSECTION CAPACITY: The maximum number of vehicles that has a reasonable expectation of passing through an intersection in one direction during a given time period under prevailing roadway and traffic conditions.

INVERSION LAYER: A condition in the atmosphere through which the temperature increases with altitude, holding cooler surface air down along with its pollutants.

JOBS/HOUSING BALANCE; JOBS/HOUSING RATIO: The jobs/housing ratio divides the number of jobs in an area by the number of employed residents. A ratio of 1.0 typically indicates a balance. A ratio greater than 1.0 indicates a net in-commute; less than 1.0 indicates a net out-commute.

JURISDICTION BY LAW: Jurisdiction by law means the authority of any public agency: (a) To grant a permit or other entitlement for use; (b) To provide funding for the project in question; or (c) To exercise authority over resources which may be affected by the project.

LAMINATED: Composed of layers of firmly united material.

LAND USE PLAN: An adopted map depicting the approximate location of residential, commercial, public, semi-public, and private uses, open space, and road systems with a statistical summary of areas and densities for these land uses.

LAND USE: The purpose or activity for which a piece of land or its building is designed, arranged, or intended, or for which it is occupied or maintained.

LANDFILL: An area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile.

LANDSLIDE COMPLEX: The association of geologic structure and deep-seated landsliding.

LEAD AGENCY: The public agency which has the principal responsibility for carrying out or approving a project. The Lead Agency will decide the type of environmental documentation that will be required for the project and will cause the document to be prepared.

LEFT-LATERIAL: Movement of a strike-slip fault where, if an observer were standing on one side of the fault, the opposite side would move to the left.

LENTICULAR: Having the shape of a double-convex lens, or relating to a lens.

LEVEL OF SERVICE: A scale used to evaluate circulation system performance based on intersection ICU values or volume/capacity ratios of arterial segments.

LIQUEFACTION: A geologic phenomenon in which surface and near-surface materials (soils, alluvium, etc.) behave like a liquid during seismic shaking, often causing failure of soils to support structures.

LITHIC: Of and pertaining to stone, as “lithic artifacts.”

LOCAL AGENCY: Local agency means any public agency other than a state agency, board, or commission. Local agency includes but is not limited to cities, counties, charter cities and counties, districts, school districts, special districts, redevelopment agencies, local agency formation commissions, and any board, commission, or organizational subdivision of a local agency when so designated by order or resolution of the governing legislative body of the local agency.

LOT: The area shown by a final map, official map, or parcel map recorded with the County Recorder.

MANUFACTURED SLOPE: A slope crated by grading that consists of cut and fill material.

MARKET RATE HOUSING: Housing which is available on the open market without any subsidy. The price for housing is determined by the market forces of supply and demand and varies by location.

MASS GRADING: A grading technique in which all lots, building pads, and streets are generally graded over the entire area resulting in the disruption of the majority of the onsite natural grade and vegetation and/often resulting in, but not required to result in, a successive pad/terrace configuration.

MATRIX: Something within or from which something else originates, develops, or takes form.

MAXIMUM CREDIBLE EARTHQUAKE: The largest Richter magnitude (M) seismic event that appears to be reasonably capable of occurring under the conditions of the presently known geological framework.

MAXIMUM EXTENT PRACTICABLE (MEP): The extent to which storm water management practices are required to be implemented to reduce storm water pollution. All management practices that are effective at reducing storm water pollution are required to be implemented, except when any of the following conditions are met: 1) other effective management practices would achieve greater or substantially the same pollution control benefits; 2) the management practices would not be technically feasible; 3) the cost of management practice implementation would greatly outweigh pollution control benefits; or, 4) implementation of the management practice would compromise other legal or institutional constraints, expectations, and obligations imposed by federal or state statute or case law.

MEDIAN INCOME: The annual income of each household size within a region which is defined annually by HUD. Half of the households in the region have incomes above the median and half have incomes below the median.

MIDDEN: The layer of soil which contains the byproducts of human activity as the result of the accumulation of these materials on their living surface. For prehistoric sites, a layer of soil that was stained to a dark color by the decomposition of organic refuse which also contained food bones, fragments of stone tools, charcoal, pieces of pottery, or other discarded materials. For historic sites, a similar layer of soil but with appropriate historic material remains often in a much thinner deposit.

MINISTERIAL: Describes a governmental decision involving little or no personal judgment by the public official as to the wisdom or manner of carrying out the project. The public official merely applies the law to the facts as presented, but uses no special discretion or judgment in reaching a decision. A ministerial decision involves only the use of fixed standards or objective measurements, and the public official cannot use personal, subjective judgment in deciding whether or how the project should be carried out. Common examples of ministerial permits include automobile registrations, dog licenses, and marriage licenses. A building permit is ministerial if the ordinance requiring the permit limits the public official to determining whether the zoning allows the structure to be built in the requested location, the structure would meet the strength requirements in the Uniform Building Code, and the applicant has paid his fee.

MITIGATION MEASURE: Action taken to reduce or eliminate environmental impacts. Mitigation includes: avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments.

MITIGATION: Mitigation refers to (1) avoiding the impact altogether by not taking a certain action or parts of an action; (2) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (3) rectifying the impact by repairing, rehabilitating, or restoring the impacted environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or, (5) compensating for the impact by replacing or providing substitute resources or environments.

MOBILE SOURCES: A source of air pollution that is related to transportation vehicles, such as automobiles or buses.

MUDFLOW (MUDSLIDE): A river flow or inundation of liquid mud down a hillside, usually as a result of a dual condition of loss of brush cover and the subsequent accumulation of water on or under the ground, preceded by a period of unusually heavy or sustained rain.

MULTIPLE-FAMILY: A residential structure wherein the number of permitted dwelling units per building site is two (2) or more and may include a variety of types of ownership including rental units.

NITROGEN DIOXIDE (NO2): A secondary contaminant formed through a reaction between nitric oxide (NO) and atmospheric oxygen, irritates the lungs at high concentrations and contributes to ozone formation.

NITROGEN OXIDES (NOX): Chemical compounds containing nitrogen and oxygen; reacts with volatile organic compounds, in the presence of heat and sunlight to form ozone. It is also a major precursor to acid rain.

NOISE BARRIER: A wall or other solid structure constructed with the objective of attenuating (i.e., reducing) noise behind the barrier; commonly, a noise wall along a roadway.

NOISE: Annoying, harmful, or unwanted sound.

NON-POINT SOURCE DISCHARGE: Discharge from a diffuse pollution source (i.e., without a single point of origin or not introduced into a receiving stream from a specific outlet).

NON-POINT SOURCE: Air pollution sources that are not at individual, stationary locations (i.e., mobile source or area source).

NON-STORM WATER DISCHARGE: Any discharge to a storm drain system or receiving water that is not composed entirely of storm water.

NORMAL: A type of fault with a dip angle of 45 to 90 degrees, in which the hanging wall (the block above the fault) moves downward relative to the footwall (the block below the fault).

NOTICE OF COMPLETION: A brief notice filed with the Office of Planning and Research (OPR) by a Lead Agency as soon as it has completed a draft EIR, and is prepared to send out copies for review.

NOTICE OF DETERMINATION: A brief notice to be filed by a public agency after it approves or determines to carry out a project which is subject to the requirements of CEQA.

NOTICE OF PREPARATION: A brief notice sent by a Lead Agency to notify responsible agencies, trustee agencies, and involved federal agencies that the Lead Agency plans to prepare an EIR for the project. The purpose of the notice is to solicit guidance from those agencies as to the scope and content of the environmental information to be included in the EIR.

NPDES (National Pollutant Discharge Elimination System): NPDES is the national program for administering and regulating discharges to waterways according to the Clean Water Act (CWA). In California, the State Water Resources Control Board and the nine Regional Water Quality Control Boards are responsible for administering the NPDES storm water program.

OBLIQUE: A fault with both strike-slip and dip-slip components.

OPEN SPACE: Land that has been left in its natural state and has not been developed with primary or accessory structures.

OTHER LAND: Lands which do not meet the criteria of any other category. (Natural Resource Conservation Service)

OZONE (O3): A compound consisting of three oxygen atoms that is the primary constituent of smog. It is formed through chemical reactions in the atmosphere involving volatile organic compounds, nitrogen oxides, and sunlight. Ozone can irritate the lungs as well as damage to trees, crops, and materials. There is a natural layer of ozone in the upper atmosphere which shields the earth from harmful ultraviolet radiation.

PARCEL: The basic unit of land entitlement. A designated area of land established by plat, subdivision, or otherwise legally defined and permitted to be used or built upon.

PASSENGER TRIPS: Relate to the volume of passenger service provided by public transportation–such as buses, trains, and aircraft.

PEAK HOUR OR PEAK PERIOD: Traffic volumes are not constant throughout the day. Peak hours are the times during which volumes are significantly higher than others. Most areas have two peak hours–morning while people travel to work and late afternoon or evening as they leave work and return home. In some cases as third, though usually smaller, peak occurs during the middle of the day. As development intensifies and traffic volumes increase, the durations of the peaks are extended until eventually the peak hour becomes a peak period which may last for two or three hours. Peak period volumes are important as these are the times of day when the most severe congestion occurs, and intersections must be designed to accommodate these volumes if smooth traffic flow is to be maintained.

PERCENT SLOPE: A common way of expressing the steepness of the slope of terrain, which is derived by dividing the change in elevation by the horizontal distance traversed. An increase of 20 feet elevation over a 100 foot distance is a 20 percent slope.

PERCOLATION: Downward movement of groundwater through soil and bedrock.

PERMEABILITY (soil): That quality of the soil that enables it to transmit water or air.

PESTICIDE: Any material used to control pests. Includes insecticides, herbicides, and rodenticides.

PHYSIOGRAPHIC: Physical geography of the earth.

PLANT COMMUNITY: A group of plant species commonly occurring together in roughly similar proportions.

PLANNED CONCEPT DETACHED: A subdivision of detached dwellings, which if b uilt on separate building sites are at a net density of eight (8) dwelling units per net acre or greater, or are built with more than one dwelling unit per building site at any density.

PM10 (see Fine Particulate Matter).

POINT SOURCE: A pollutant source that is fixed in location and that releases pollutants through a relatively small area, such as a air emissions stack or a pipeline outfall.

PRIME FARMLAND: Lands with the best combination of physical and chemical features able to sustain long-term production of agricultural crops. The land must be supported by a developed irrigation water supply that is dependable and of adequate quality during growing season. The land must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date. (Natural Resource Conservation Service)

PROJECT: Project means the whole of an action which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and that is any of the following: (a) an activity directly undertaken by any public agency including but not limited to public works construction and related activities clearing or grading of land, improvements to existing public structures, enactment and amendment of zoning ordinances, and the adoption and amendment of local General Plans or elements thereof pursuant to Government Code Sections 65100-65700; (b) an activity undertaken by a person which is supported in whole or in part through public agency contacts, grants, subsidies, loans, or other forms of assistance from one or more public agencies; (c) an activity involving the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies.

PROMINENT LANDFORM OR RIDGELINE: A visually prominent landform or ridgeline means any landform visible from the valley floor that forms a part of the skyline or is seen as a distinct edge against a backdrop of land at least 500 feet horizontally behind it.

PUBLIC AGENCY: Public agency includes any state agency, board, or commission and any local or regional agency, as defined in these Guidelines. It does not include the courts of the state. This term does not include agencies of the federal government.

PUMP STATION: A complete pumping installation, including a storage box, pump or pumps, standby pumps, connecting pipes, electrical equipment, pumphouse, and outlet chamber.

PYROCLASTIC: Formed by or involving fragmentation as a result of volcanic or igneous action.

RARE SPECIES: A condition in which a species or subspecies, although not currently threatened with extinction, exists in such small numbers throughout its range that it may be endangered if the quality of its environment worsens.

REACTIVE ORGANIC GASES (ROG): Classes of hydrocarbons (olefins, substituted aromatics, and aldehydes) that are likely to react with ozone and nitrogen dioxide in the atmosphere to form photochemical smog.

REGIONAL HOUSING NEEDS ASSESSMENT (RHNA): The Regional Housing Needs Assessment (RHNA) is based on state projections of population growth and housing unit demand and assigns a share of the region's future housing need to each jurisdiction within the SCAG region. These housing need numbers serve as the basis for the update of each California city and county Housing Element.

RESIDENTIAL LAND USE: Any parcel or area of land devoted to housing and ancillary uses.

RESOURCE SECTOR: An area judged to contain a significant deposit of construction-quality aggregate.

RESPONSIBLE AGENCY: A public agency which proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared an EIR or Negative Declaration. For the purposes of CEQA, the term "Responsible Agency" includes all public agencies other than the Lead Agency which have discretionary approval power over the project.

REVERSE: A type of fault similar to a normal fault, except the footwall moves downward relative to the hanging wall.

RICHTER SCALE: A logarithmic scale developed in 1935/36 by Dr. Charles F. Richter and Dr. Beno Gutenberg to measure earthquake magnitude by the amount of energy released, as opposed to earthquake intensity as determined by local effects on people, structures, and earth materials.

RIGHT-LATERAL: Movement of a strike-slip fault where, if an observer were standing on one side of the fault, the opposite side would move to the right.

RIGHT-OF-WAY (ROW): That portion of property which is dedicated or over which an easement is granted for public streets, utilities, or alleys.

RISK ASSESSMENT: The qualitative and quantitative evaluation of the risk posed to human health and/or the environment by the actual or potential presence and/or use of specific pollutants.

SANITARY SEWER: Underground pipes that carry off only domestic or industrial waste, not storm water.

SEDIMENT: Organic or inorganic material that is carried by or is suspended in water and that settles out to form deposits in the storm drain system or receiving waters.

SEDIMENTATION: Process by which material suspended in water is deposited in a body of water.

SENIOR HOUSING: A residential development of at least 35 dwelling units to be built specifically for senior citizens, age 55 years and over.

SENSITIVE RECEPTORS: Refers to sensitive populations, such as children, athletes, elderly, and sick, that are more susceptible to the effects of air pollution that the population at large.

SHALL: In accordance with CEQA Guidelines §15005, “shall” or “must” identifies a mandatory element which all public agencies are required to follow.

SHOULD: In accordance with CEQA Guidelines §15005, “should” identifies guidance provided by the Secretary for Resources based on policy considerations contained in CEQA, in the legislative history of the statute, or in federal court decisions which California courts can be expected to follow. Public agencies are advised to follow this guidance in the absence of compelling, countervailing considerations.

SIGNIFICANT IMPACT or SIGNIFICANT EFFECT ON THE ENVIRONMENT: As defined by CEQA, a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant. The lead agency will determine whether a project may have a significant effect on the environment based on substantial evidence in light of the whole record.

SIGNIFICANT IMPACT: As defined by CEQA, a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant. The lead agency will determine whether a project may have a significant effect on the environment based on substantial evidence in light of the whole record.

SINGLE-FAMILY HOUSING: A conventionally built house consisting of a single dwelling unit occupied by one household.

SLIDE: A slide is a downslope movement of a soil or rock mass occurring dominantly on shallower slopes at surfaces of rupture or on relatively thin zones of intense shear strain. The displaced mass often slides beyond the toe of the surface rupture covering the original ground surface of the slope. Slides consist of two main types: rotational and translational. Rotational slides move along a surface of rupture that is curved and concave. Translational slides move along a planar or undulating surface of rupture

SLOPE FACE: The slopes located directly below, or leading up to, the crest of a significant ridgeline or prominent landform.

SLOPE STEEPNESS: The relationship (the ratio) between the change in elevation (rise) and the horizontal distance (run) over which that change in elevation occurs. The percent of steepness of any given slope is determined by dividing the rise by the run on the natural slope of land, multiplied by 100.

SLOPE: Any area with a grade of 1:2 (vertical to horizontal) or more.

SOLID WASTE: Any non-hazardous garbage, refuse or sludge, which is primarily solid but may also include portions of liquid, semi-solid or contained gaseous material resulting from residential, industrial, commercial, agricultural, mining operations, and community activities.

SOUTH COAST AIR BASIN (SCAB): A geographic area defined by the San Jacinto Mountains to the east, the San Bernardino Mountains to the north, and the Pacific Ocean to the west and south. The SCAB is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS (SCAG): The Southern California Association of Governments (SCAG) is a regional planning agency which encompasses the counties of Imperial, Riverside, San Bernardino, Orange, Los Angeles, and Ventura.

SPREAD: A spread is a sudden lateral movement of a cohesive rock or soil mass along softer underlying material generally composed of homogenous clays or cohesionless fill. Spread includes a general subsidence of fractures of the mass of cohesive material into the softer underlying material. This type of landslide is often triggered by seismic activity.

STATE AGENCY: State agency means a governmental agency in the executive branch of the State Government or an entity which operates under the direction and control of an agency in the executive branch of State Government and is funded primarily by the State Treasury.

STATE IMPLEMENTATION PLAN (SIP): Documents prepared by states, and submitted to EPA for approval, which identifies actions and programs to be undertaken by the State and its subdivisions to implement their responsibilities under the Clean Air Act.

STATE TRANSPORTATION IMPROVEMENT PLAN (STIP): A capital improvement program of transportation projects funded with revenues from the State Highway Account and other sources.

STATIONARY SOURCE: A source of air pollution that is not mobile, such as a heating plant or an exhaust stack from a laboratory.

STORM DRAIN INLET: A drainage structure that collects surface runoff and conveys it to an underground storm drain system.

STORM WATER DRAINAGE SYSTEM: Streets, gutters, inlets, conduits, natural or artificial drains, channels and watercourses, or other facilities that are owned, operated, maintained, and used for the purpose of collecting, storing, transporting, or disposing of storm water.

STORM WATER: Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage.

STRIKE-SLIP: a fault in which the primary displacement is horizontal and parallel to the direction of the fault plane.

SUBDIVISION: The division of a lot, tract, or parcel of land in accordance with the Subdivision Map Act (California Government Code Section 66410 et seq.).

SUBSTANTIAL EVIDENCE: Substantial evidence as used in these guidelines means enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached. Whether a fair argument can be made that the project may have a significant effect on the environment is to be determined by examining the whole record before the lead agency. Argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly erroneous or inaccurate, or evidence of social or economic impacts which do not contribute to or are not caused by physical impacts on the environment does not constitute substantial evidence. Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts.

SULFUR DIOXIDE (SO2): A colorless, extremely irritating gas or liquid. Sulfur dioxide enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries.

SUMP: In drainage, any low area that does not permit the escape of water by gravity flow.

SURFACE WATER RUNOFF: Precipitation, snow melt, or irrigation water in excess of what can infiltrate the soil surface and be stored in small surface depressions.

SURFACE WATER: Water in lakes, streams or rivers, as distinct from subsurface groundwater.

THOUSAND SQUARE FEET: Used in quantifying non-residential land uses, and refers to building floor area.

THREATENED SPECIES: A species of animal or plant is endangered when its survival and reproduction in the wild are in immediate jeopardy form one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, disease, or other factors: or when although not presently threatened with extinction, the species is existing in such small numbers that it may become endangered if its environment worsens. A species of animal or plant shall be presumed to be rare or endangered as it is listed in: Sections 670.2 or 670.5, Title 14, California Code of Regulations; or Title 50, Code of Federal Regulations Sections 17.11 or 17.12 pursuant to the Federal Endangered Species Act as rare, threatened, or endangered.

TOPOGRAPHY: The physical shape of the ground surface.

TOPPLE: A topple is a forward rotation of a mass of soil or rock out of a steep slope at a hinge or pivot point below the center of gravity of the displaced mass. Topples usually involve the overturn of interacting columns or blocks at or near a vertical face and may lead to falls or slides of the displaced mass. Movement of material during a topple ranges from extremely slow to extremely rapid

TRANSLATIONAL SLIDE: A mass that moves down and outward along a relatively planar surface and has little rotational movement or backward tilting.

TRANSPORTATION CONTROL MEASURES (TCMs): Steps taken by a locality to adjust traffic patterns (e.g., bus lanes, right turn on red) or reduce vehicle use (ridesharing, high-occupancy vehicle lanes) to reduce vehicular emissions of air pollutants.

TRIP ASSIGNMENT: The allocation of vehicle trips to available routes between locations in a traffic study area.

TRIP GENERATION: The number of vehicle trip ends associated with (i.e., produced by) a particular land use or traffic study site. A trip end is defined as a single vehicle movement. Roundtrips consist of two trip ends.

TRIP: The trip is the basic measurement used to describe transportation volumes. A trip consists of one unit traveling from one point to another. The unit may be vehicles, persons, or passengers.

TRIPEND: A trip generation measure which represents the total trips entering and leaving a location.

TUFFACEOUS: Rock formed as a deposit from springs or streams.

UNIQUE FARMLAND: Lands of lesser quality soils used for the production of the state's leading agricultural cash crops. These lands are usually irrigated but may include non-irrigated orchards or vineyards as found in some climate zones in California (Natural Resource Conservation Service).

URBANIZED AREA: Urbanized area means a central city or a group of contiguous cities with a population of 50,000 or more, together with adjacent densely populated areas having a population density of at least 1,000 persons per square mile. A Lead Agency shall determine whether a particular area meets the criteria in this section either by examining the area or by referring to a map prepared by the U.S. Bureau of the Census which designates the area as urbanized. Use of the term “urbanized area” in Section 15182 is limited to areas mapped and designated as urbanized by the U.S. Bureau of the Census. (Source: CEQA Guidelines §15387).

VEHICLE MILES TRAVELED (VMT): A measure of both the volume and extent of motor vehicle operation; the total number of vehicle miles traveled within a specified geographical area (whether the entire country or a smaller area) over a given period of time.

VEHICLE TRIP ENDS: A single or one-direction vehicle movement with either the origin or destination inside a traffic study site.

VEHICLE TRIP: Vehicle trip describes the number of vehicles traveling from point to point.

VEHICLES PER DAY: Similar to ADT (Average Daily Traffic), but more typically applied to trip generation (i.e., the amount of traffic generated by a given amount of land use).

VEHICLES PER HOUR: Used for roadway volumes (counts or forecasts) and trip generation estimate. Measures the number of vehicles in a one hour period, typically the AM or PM peak hour.

VIEW POINT: A location from which a site is visible.

VIEWSHED: The geographic area from which a site is visible, a collection of viewpoints.

VOLUME TOP CAPACITY RATIO: This is typically used to describe the percentage of capacity utilized by existing or projected traffic on a segment of an arterial or intersection.

WATERSHED: The drainage basin contributing water, organic matter, dissolved nutrients, and sediments to a stream, estuary, or lake.

WETLANDS: An area at least periodically wet or flooded; where the water table stands at or above the land surface (bogs and marshes). Also those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

WILDLIFE CORRIDORS: A natural corridor, such as an undeveloped ravine, that is frequently used by wildlife to travel from one area to another.

ZONING: The division of a municipality into districts for the purpose of regulating land use, types of buildings, required yards and setbacks, parking, and other prerequisites to development. Zones re generally shown on a map and the text of the zoning ordinance specifies requirements for each zoning category.