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Final Program Environmental Impact Report
Otay Ranch

Prepared for
Otay Ranch Joint Planning Project
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December 1992

PREFACE TO FINAL PROGRAM ENVIRONMENTAL IMPACT REPORT

The Otay Ranch Final Program Environmental Impact Report (EIR) comprises the following information (CEQA Guidelines Section 15132):

- Comments and responses to the Draft EIR
- List of public agencies, organizations, and individuals commenting on the Draft EIR
- Revisions to the Draft EIR

The Final Program EIR document must be used in conjunction with the Draft Program EIR. The Final Program EIR is organized in the same manner as the Draft Program EIR, i.e., the section and subsection number remain the same. The revisions to the Draft EIR have been indicated by striking through text deleted from the Draft EIR and underlining text added to the Draft EIR. Where the text in a specific Final EIR subsection is longer or shorter than the corresponding text in the original Draft EIR, the pages following the revision have also been reprinted due to the changes in pagination. Therefore, the reader should remove the corresponding Draft EIR pages and replace them with the Final EIR pages to the end of a subsection. The Final EIR has been prepared on colored paper to facilitate the incorporation of the new text.

Volume 1 of the Final Program EIR comprises the comments and responses to the Draft Program EIR. Table 1 in that volume lists the written comment letters and the transcripts of the public hearings. This list of letters includes the letter number, affiliation (if any) of the author, the author's name, and the date of the letter. Many of the comments and corresponding responses have resulted in the changes contained in this volume of the Final Program EIR.

The Transportation and Cultural Resources Technical Reports and the Final Wildlife Corridor Study have been revised in response to public comments. These revised documents, as well as the Draft Program EIR and the other Otay Ranch Technical Reports, are available for review at the repositories listed below:

- Chula Vista Public Library
- Otay Ranch Project Office
- County of San Diego Department of Planning and Land Use Library
- Bonita-Sunnyside County Library
- Case de Oro County Library
- Spring Valley County Library
- Rural Fire Protection District, Jamul

The Draft Program EIR text revisions, graphics changes, and technical report revisions comprise Volume 2 of the Final Program EIR for Otay Ranch.

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SECTION 1
SUMMARY AND INTRODUCTION

1.1 PROJECT SUMMARY

1.1.1 Proposed Project

This program environmental impact report (EIR) analyzes the environmental impacts associated with Baldwin Vista's proposed development of Otay Ranch. Baldwin proposes development of 50,733 residences and other uses forming a 23,088-acre new town in southwestern San Diego County. The proposed "New Town Plan" represents the framework for land use, circulation, open space, community design, and public facilities and services upon which subsequent development would be based. The land use plan proposes a mix of residential neighborhoods utilizing a village concept, commercial centers, research-oriented industrial uses, a civic center, art centers, resort facilities, recreational parks, a town center, and a university site. Natural open space would be conveyed into a permanent preserve and managed for long-term viability.

The New Town Plan would be developed in phases over a 30- to 50-year period and result in a total population of 149,810 persons. Each subsequent development proposal would require a specific plan (or SPA plan); each plan would be reviewed in accordance with the findings of this report under the California Environmental Quality Act (CEQA) and City of Chula Vista and/or County of San Diego environmental review guidelines.

1.1.2 Project Location

Otay Ranch is located in southwestern San Diego County approximately 3.5 miles east of downtown Chula Vista and 14 miles southeast of downtown San Diego. The rural community of Jamul is located northeast of the project area. The southern boundary of Otay Ranch is approximately 2 miles north of the United States–Mexico international border. The property spans an approximate distance of 12 miles from the Chula Vista city limits on the west to State Route 94 (Campo Road) on the east; the property spans approximately 8.5 miles from north to south.

1.1.3 History and Background

The 23,088-acre Otay Ranch property consists mostly of undeveloped land used for agriculture and cattle grazing. (See Section 3.1 for a description of the existing land use designations and zoning on Otay Ranch). United Enterprises, the previous owner of Otay Ranch, initiated a planning process for the property with the County of San Diego in 1984. Baldwin Vista purchased the Otay Ranch property from United Enterprises in 1988. In October 1989, Baldwin submitted a detailed description of its proposed development of Otay Ranch, the "New Town Plan," to the City of Chula Vista and the County of San Diego. The city and county have entered into a memorandum of understanding and have established a joint project planning team to process the required General Plan Amendments and General Development Plan/Subregional Plan and to prepare the program EIR for development of Otay Ranch.

The GDP/Subregional Plan will be an integrated policy document which combines the requirements of the City of Chula Vista and the County of San Diego. The General Development Plan/Subregional Plan will:

- Identify Otay Ranch land uses, facility, environmental, economic and social goals, objectives and policies;
- Inform citizens, the land owner, decision-makers and local jurisdictions of the policies which will guide development within the Otay Ranch;
- Guide the coordinated development of Otay Ranch consistent with the goals of the City of Chula Vista, County of San Diego and the region; and
- Provide a foundation for the subsequent consideration and approval of Sectional Planning Area/Specific Plans, Subdivision Maps and Development Agreement/Public Benefit Agreement.

1.1.4 Project Alternatives

1.1.4.1 Onsite Alternatives

In addition to the New Town Plan, eight alternatives are analyzed in this EIR. The alternatives were developed to provide a range of land use and planning options and to evaluate the range of environmental impacts associated with each development plan. These alternatives represent a range of development scenarios in terms of the density of development and the area of disturbance. The following alternatives, ranging from the highest number of units to no development (the "No Project" Alternative), were analyzed in this EIR:

Alternative	# of dwelling units	Acres of Development
Phase II-Progress Plan Alternative	30,059[1]	10,498[2]
Phase I-Progress Plan Alternative	29,773	12,104
Fourth Alternative	27,418	9,815
Project Team Alternative	24,064	9,646
Composite General Plans Alternative	20,470	18,777
Low Density Alternative	10,287	9,631
Environmental Alternative	9,251	6,107
No Project Alternative	0	0

[1] Includes 1,151 dwelling units of future EastLake development.
[2] Includes 169 acres of future EastLake development.

In order to quantify the impacts associated with a full range of the alternatives, an in-depth environmental impact assessment was conducted for the New Town Plan, the Phase I-Progress Plan Alternative, and the Environmental Alternative; these three scenarios represent the high, middle, and low end of development with respect to the number of units and area of disturbance. A more qualitative environmental impact assessment was conducted of the remaining alternatives for those issue areas for which the impacts differ from the three principal alternatives.

1.1.4.2 Offsite Alternatives

In compliance with CEQA, four offsite alternatives were selected for analysis in this EIR. These alternatives were identified and analyzed to assess their potential to eliminate or minimize significant impacts in comparison to the proposed project. The criteria for selection of alternatives included the following:

- Location in the San Diego metropolitan area in order to satisfy the objective of providing additional housing in this area
- Primarily rural area of approximately 20,000 acres, excluding large areas of public land
- Developable area (slopes less than 25 percent) of at least 10,000 acres
- Location within or adjacent to an urban limit line and water district boundary

Based on the above criteria, four offsite locations were selected for analysis in the EIR (see Figure 5.1-1):

- Greater Dulzura – This site is located directly east of Otay Ranch in an unincorporated area of San Diego County.
- West Ramona – This elongated site is located in and surrounds the western end of Ramona in San Diego County; the site is partially within the Poway and San Diego city limits.
- East Ramona – This site is located in an unincorporated area of San Diego County east of the town of Ramona and west of the community of Santa Ysabel.
- Rancho Guejito – This site is located approximately 3 miles east of the town of Valley Center, 4 miles east of the City of Escondido, and 3 miles north of the San Diego city limits.

Descriptions and general environmental impacts of the offsite alternatives are presented in Section 5 of the EIR. None of the offsite alternatives were preferred over the Otay Ranch since multiple ownership of the sites represents a significant disadvantage with respect to land acquisition and the timing of development.

1.1.5 Summary of Impacts and Mitigation

Table 1.1-1 summarizes the potential impacts and recommended mitigation for the New Town Plan development on Otay Ranch. The table also presents an analysis of the significance of the impacts remaining after the implementation of mitigation measures. This table identifies potential impacts associated with the proposed New Town Plan or the project alternatives, i.e., if an impact would occur from implementation of at least one of the land use plans analyzed in this EIR, it is identified in the table. Thus the impacts described in Table 1.1-1 represent a comprehensive range of potential environmental effects that could occur as a result of Otay Ranch development and the mitigation that would be able to reduce those effects. Table 4.10-1 in Chapter 4 presents a comparison of the project alternatives and identifies the significant impacts associated with each alternative. As discussed in Section 9.1, the long-term productive use of the land as wildlife habitat, agricultural production and cattle grazing, and for the extraction of mineral

Table 1.1-1 (Revised)

SUMMARY OF IMPACTS AND MITIGATION

Issue	Impact	Mitigation	Significance
Land Use, Planning, and Zoning	Displacement of existing land uses, including residences, agricultural operations, and a gun club.	No mitigation is required.	The impact would not be significant.
	Potential incompatibility with existing adjacent land uses, including Otay Landfill, EastLake, San Diego Air Sports Center, and two quarries.	Inclusion of landscaping, grading, and buffering guidelines in GDP/SRP and SPA plans. Phase development to occur after closure of Otay Landfill and San Diego Sports Air Center. Prepare site-specific noise and air quality studies to demonstrate avoidance of impacts.	Mitigation would reduce the impacts to below a level of significance.
	Potential incompatibility with internal project land uses on the Otay River parcel, including residential, commercial, and industrial uses.	Inclusion of landscaping and buffering guidelines in GDP/SRP and SPA plans.	Mitigation would reduce the impacts to below a level of significance.
	~~Inconsistency with existing County of San Diego and City of Chula Vista land use policies, designations, and zoning.~~	~~Amendments to the County of San Diego and City of Chula Vista General Plans and the County's Subregional Plan and Regional Land Use Element, and rezones.~~	~~Mitigation would reduce the impacts to below a level of significance.~~
	Inconsistency with policies of Jamul-Dulzura Subregional Plan by extending CUDA adjacent to Jamul.	Other than decreasing project densities near Jamul and retaining existing Regional Land Use designations, impact is unmitigable.	As the project is proposed, this is a significant, unmitigable impact.
	Conversion of the site's character from undeveloped open space to developed land.	The impact is unmitigable.	This is a significant, unmitigable impact.

Table 1.1-1 (Continued)

SUMMARY OF IMPACTS AND MITIGATION

Issue	Impact	Mitigation	Significance
Landform Alteration/ Aesthetics	Alteration of significant or sensitive landforms.	GDP/SRP to contain specific grading restrictions for slopes with gradients steeper than 25 percent. Limit grading to below tops of major ridgelines. Integrate natural buffering between development and landforms. Future visual analysis of grading impacts in sensitive viewsheds and development of mitigation, as required, at SPA level.	Impacts would be significant and unmitigated at this level of analysis.
	Change in overall visual character of the project area.	GDP/SRP to contain design guidelines. The impact is unmitigable.	This is a significant, unmitigable impact.
	Development in highly visible areas.	Inclusion of specific guidelines for grading, design, landscaping and buffering, building heights and colors, and setbacks in SPA plans. Review of grading plans and construction in accordance with plans.	This is a significant, unmitigable impact.
Biology	Sensitive uplands, wetlands, and vernal pool habitat would be impacted.	Restoration and project redesign.	Impacts would be significant and unmitigated at this level of analysis.
	Up to seven state-listed endangered plant species would be impacted.	Project redesign, transplanting, restoration/reintroduction, and mitigation plan and 5-year monitoring program required.	Impacts would be significant and unmitigated for three of these species at this level of analysis.

Table 1.1-1 (Continued)

SUMMARY OF IMPACTS AND MITIGATION

Issue	Impact	Mitigation	Significance
Biology (Continued)	Up to 24 second, third, and fourth priority sensitive plant species would be significantly impacted.	Project redesign, transplanting, restoration/reintroduction, and mitigation plan and 5-year monitoring program required.	Mitigation would reduce most impacts to below a level of significance; however, impacts to 12 of these species would be significant and unmitigated at this level of analysis.
	Least Bell's vireo, coastal cactus wren, and California gnatcatcher points of occurrence would be directly impacted.	Preservation of habitat in open space and open space buffers, incorporation of habitat into RMP, enhancement/restoration of disturbed habitat, and selected project redesign.	These are significant and unmitigable impacts.
	Impacts to Riverside fairy shrimp and Quino checkerspot may occur.	Preservation of existing habitat through project redesign and enhancement/restoration or creation of vernal pool habitat.	Impacts would be significant and unmitigated at this level of analysis.
	Wildlife impacts to over 50 other sensitive species could occur.	Preservation of habitat in open space, incorporation of open space into RMP, restoration/enhancement of disturbed habitat, and selected project redesign.	Impacts would be significant and unmitigated at this level of analysis.
	Regional raptor populations would be impacted.	Preservation of key raptor resource areas in open space, restoration/enhancement of nesting and foraging habitat, and selected project redesign.	This is a significant and unmitigable impact.

Table 1.1-1 (Continued)

SUMMARY OF IMPACTS AND MITIGATION

Issue	Impact	Mitigation	Significance
Biology (Continued)	Regional wildlife corridors would be impacted.	Preservation of corridors within open space through project redesign where necessary, enhancement, restoration and habitat re-establishment, use of bridges for road crossings over corridors, and implementation of the RMP.	This is a significant and unmitigable impact.
Cultural Resources	Disturbance of significant prehistoric and historic resources.	Survey of the entire project area and testing of sites prior to the first SPA plan based on a county-approved research design and the requirements of the Resource Management Plan. Implement mitigation to preclude impacts to significant sites based on the survey and testing program.	Impacts would be significant and unmitigated at this level of analysis.
Geology and Soils	Geology impacts include: slope instability, development proposed on metavolcanic bedrock, and seismic hazards. Soils impacts include expansive soils, erosion, and liquefaction.	Site-specific geotechnical studies to identify potential hazards; implementation of required geotechnical design would reduce impacts to below a level of significance.	Mitigation would reduce impacts to below a level of significance.
Paleontology	Potential disturbance of significant paleontological resources.	Paleontological monitoring during excavation of geologic formations with paleontological sensitivity to prevent disturbance to significant resources.	Mitigation would reduce impacts to below a level of significance.
Agricultural Resources	Conversion of prime farmlands and elimination of existing crop production.	Provide space for irrigated agricultural demonstration area in area of prime farmland.	Impacts are significant and unmitigable.

Table 1.1-1 (Continued)

SUMMARY OF IMPACTS AND MITIGATION

Issue	Impact	Mitigation	Significance
Agricultural Resources (Continued)	Inconsistency with existing County of San Diego and City of Chula Vista plans and policies.	Implementation of Agricultural Plan to allow for interim agricultural activity, where possible.	Impacts are significant and unmitigable.
	Land use interface impacts associated with agricultural activities and urban uses.	Landscape and buffering of land uses adjacent to agricultural areas.	Mitigation would reduce impacts to below a level of significance.
	Indirect growth-inducing impacts would result in agricultural conversion pressures.	The impact is unmitigable.	Impacts are significant and unmitigable.
Mineral Resources	Potential loss of mineral resources of economic value due to development or land use conflict, particularly at Rock Mountain.	Recovery of mineral resources prior to development, where possible. Phasing of development to allow extraction.	Mitigation would reduce impacts to below a level of significance.
Water Resources and Water Quality	Increases in surface water runoff due to increase in impervious surfaces could increase potential for downstream flooding, cause potential safety impacts, and increase erosion and siltation.	Site-specific drainage studies and implementation of measures at the SPA level to prevent increase in surface water runoff above existing levels.	Mitigation would reduce impacts to below a level of significance.
	Development may encroach into the 100-year floodplain.	Development in compliance with applicable regulations.	Mitigation would reduce impacts to below a level of significance.

Table 1.1-1 (Continued)

SUMMARY OF IMPACTS AND MITIGATION

Issue	Impact	Mitigation	Significance
Water Resources and Water Quality (Continued)	Potential increase in contaminant concentrations in Lower Otay Lake due to conversion of undeveloped land to urban uses.	Development and implementation of Urban Runoff Master Plan in SPA plan. Program would be subject to approval of the City of San Diego and the California Dept. of Health Services.	Mitigation would reduce impacts to below a level of significance.
	Degradation of existing water quality due to increase in urban surface water pollution.	Compliance with all NPDES permits. Integration of best management practices (BMPs) into SPA Plans.	Mitigation would reduce impacts to below a level of significance.
	Diversion of runoff from drainage basins.	Site-specific Mastershed Impact and Protection Report and implementation of measures at the SPA level.	
Transportation, Circulation, and Access	Significant impacts to road segments and intersections due to increase in traffic associated with Otay Ranch.	Project-specific roadway improvements are possible for some of the impacted roads and intersections. Preparation of SPA Plan traffic impact evaluations, Transportation Demand Management plans, and phasing plan. Detailed in Section 3.10.	Mitigation including a General Plan Amendment of the respective circulation elements and transportation demand management, would reduce some of the impacts to below a level of significance; other impacts would remain significant.

Table 1.1-1 (Continued)

SUMMARY OF IMPACTS AND MITIGATION

Issue	Impact	Mitigation	Significance
Air Quality	Air quality impacts would exceed the current SIP air quality attainment regulations which were based on SANDAG Series 7 growth projections; therefore, the air quality impacts would be significant.	Mitigation measures are outlined below and detailed in Section 3.11. Integrating siting/design policies and transportation measures into GDP/SRP and SPAs.	Mitigation would partially reduce air quality impacts; the impacts would remain significant.
	Project emissions of NOx, reactive organic gases (ROG), CO, and PM-10 from vehicular and stationary sources would add to existing violations of federal and state ozone standards.	Stationary source mitigation includes the promotion of mass transit, the installation of heat transfer modules on gas-fired furnaces, energy efficient building design, and the minimization of drive-in establishments and on-street parking. Mitigation for vehicular emissions includes implementation of village design, public transit, TDM, and bike paths.	Air quality impacts are only partially mitigable and would remain significant.
	Short-term emissions would occur during project construction.	Mitigation for construction emissions includes phasing construction, use of low pollutant-emitting construction equipment, watering and stabilization, and prompt paving of roadways.	Mitigation would reduce impacts to below a level of significance.
Noise	Noise levels in many areas of the project would exceed the 60 dBA CNEL standard.	Site-specific studies for SPA plans and implementation of identified mitigation measures, including setbacks, noise berms, etc.	Impacts would remain significant and unmitigated at this level of analysis.
	Indirect roadway and construction impacts on least Bell's Vireo habitat.	Prepare site-specific study on roadways and development adjacent to habitat	Impacts would remain significant and unmitigated at this level of analysis.

Table 1.1-1 (Continued)

SUMMARY OF IMPACTS AND MITIGATION

Issue	Impact	Mitigation	Significance
Public Services and Utilities	Water Availability and Supply: Project-generated water requirements would result in significant impacts related to the capability of local jurisdictions to provide adequate water due to drought conditions.	Prior to first SPA plan approval, the applicant shall submit a Water Master Plan, subject to approval by the relevant jurisdiction(s). The applicant shall obtain a commitment from the local water agency to the provision of adequate water to serve Otay Ranch. The applicant shall implement water conservation measures, including but not limited to a water reclamation program.	Mitigation would reduce impacts to below a level of significance.
	Wastewater and Sewer Service: Facilities to accommodate additional sewage flow and wastewater treatment would be required.	Prior to first SPA plan approval, the applicant shall submit a Sewer Master Plan, subject to approval by the relevant jurisdiction(s). ~~The applicant shall obtain a commitment from the local sewer agency to provide adequate sewer facilities to serve the Otay Ranch population.~~ The applicant shall provide adequate facilities for wastewater collection, transmission, and treatment facilities, as required by the local sewer agencies.	Mitigation would reduce impacts to below a level of significance.
	Integrated Waste Management: Project-generated solid waste would result in a significant impact due to declining landfill capacity in the region.	Prior to first SPA plan approval, an Integrated Waste Management Plan shall be prepared by the applicant in coordination with the County of San Diego and the City of Chula Vista.	Mitigation would reduce impacts to below a level of significance.

Table 1.1-1 (Continued)

SUMMARY OF IMPACTS AND MITIGATION

Issue	Impact	Mitigation	Significance
Public Services and Utilities (Continued)	Police and Fire Protection, Emergency Medical Services: The Otay Ranch population would result in the need for additional staff and facilities to provide these services.	Prior to first SPA plan approval the applicant shall submit a comprehensive master plan for these services which shall address the provision and funding of facilities and services, and siting criteria.	Mitigation would reduce impacts to below a level of significance.
	Schools: The Otay Ranch student population would generate the need for additional schools.	Prior to first SPA plan approval, the applicant shall submit a master plan for the provision of school facilities, subject to approval by the relevant school districts.	Mitigation would reduce impacts to below a level of significance.
	Library Service: Additional library facilities would be required to serve the Otay Ranch population.	Prior to first SPA plan approval, a Library Master Plan shall be prepared in accordance with the requirements of the applicable jurisdiction(s). The plan shall address siting criteria, funding, and phasing.	Mitigation would reduce impacts to below a level of significance.
	Parks, Recreation, and Open Space: Otay Ranch would generate additional demand for regional and local parkland, open space, and recreational facilities.	Prior to first SPA plan approval, a Parks, Recreation, and Open Space Master Plan shall be prepared in accordance with the required standards.	Mitigation would reduce impacts to below a level of significance.
	Electricity and Gas: Additional substations and associated distribution lines would be required to serve the project.	The applicant shall coordinate with SDG&E during all stages of electrical and gas facilities planning to ensure the provision of adequate facilities.	Mitigation would reduce impacts to below a level of significance.

Table 1.1-1 (Continued)

SUMMARY OF IMPACTS AND MITIGATION

Issue	Impact	Mitigation	Significance
Public Services and Utilities (Continued)	Health and Social Services: Otay Ranch would generate the need for additional health and medical, and senior and social service facilities.	The applicant shall coordinate with the relevant service providers to identify the need for and location of additional facilities.	Mitigation would reduce impacts to below a level of significance.
	Other Public Services: Otay Ranch would generate the need for additional child care and animal control facility space.	Prior to SPA plan approval, the applicant shall prepare a Child Care Master Plan to address siting and acreage requirements. The applicant shall participate in programs to equitable share in the funding of adequate animal shelter space.	Mitigation would reduce impacts to below a level of significance.
Risk of Upset	Increase in urbanization would result in an increase in the use, transport, storage, and disposal of hazardous materials and an associated increase in the risk of an upset condition in the area.	Adherence to federal, state, and local laws and regulations regarding hazardous materials, and emergency evacuation routes.	Mitigation would reduce impacts to below a level of significance.
	Historic use of pesticides would result in soil contamination and health effects.	Conducting soil ground-water testing in appropriate areas.	Mitigation would reduce impacts to below a level of significance.

resources would be precluded by the project. Disturbance of biological resources, cultural resources and paleontological resources would remove their existing value. Thus, the short- and long-term use of the property through coordinated development would result in a loss of some resources and a degradation of other resources while contributing additional jobs and housing to accommodate growth. Significant irreversible effects of the project (refer to Section 9.2) would include conversion of open space and agricultural land, commitment of important biological resources, loss of mineral resources, disturbance of cultural and paleontological resources. The consumption of natural resources would also be necessary during construction and occupation of the project. Unavoidable adverse impacts have been identified in the analysis of Otay Ranch (refer to Section 9.3), including land use/planning/zoning; landform alteration/aesthetics, biological resources; agricultural resources; transportation/circulation/access; air quality; and, noise. No potential effects were excluded from the analysis.

1.1.5.1 Cumulative Impacts

The cumulative impact assessment for Otay Ranch considered the interrelated impacts of other developments in proximity to Otay Ranch. Three alternatives are evaluated in this section: New Town Plan, Phase I-Progress, and Environmental Alternative. This analysis identified potential cumulative impacts from all three alternatives to:

- Land use
- Landform alteration/aesthetics
- Biological resources
- Cultural resources
- Paleontological resources
- Agricultural resources
- Mineral resources
- Water resources and water quality
- Transportation, circulation, and access
- Air quality
- Noise
- Public services and utilities

Project-specific, and in some cases regional, mitigation measures would reduce or partially reduce some of the cumulative impacts to below a level of significance. Depending on the alternative, other cumulative impacts would remain significant following the implementation of mitigation measures, such as loss of open space; landform alteration; aesthetics; loss of biological resources; loss of agricultural resources; restrictions on mineral resource extraction; traffic on Otay Mesa; regional air quality degradation; and elevated noise levels. Section 6 describes the cumulative impacts, mitigation measures, and the analysis of significance for the proposed project and the alternatives.

1.1.5.2 Growth Inducement

The proposed New Town Plan would contribute directly and indirectly to regional growth through the construction of new residential, commercial, and industrial facilities and the associated infrastructure; see Chapter 7 for a description of the growth inducement associated with the proposed project and the alternatives.

1.1.5.3 Mitigation Monitoring Framework

In addition to the mitigation measures identified in this EIR, a detailed mitigation monitoring plan will be prepared in compliance with AB 3180 as a condition of approval

for the Otay Ranch project. This EIR provides the framework for preparation of the detailed mitigation monitoring plan. The specific requirements for the plan cannot be fully determined until the completion of the CEQA process, including public review and comment on the Draft EIR. The mitigation monitoring plan will include the following features, in addition to other requirements identified in the Final EIR:

- Roles and responsibilities of the mitigation monitoring system.
- Definition of monitoring and compliance criteria.
- Specific monitoring tasks.
- Reporting requirements.
- Data management systems
- Schedule of monitoring activities.
- Field assignments, by agency department.
- Field logistics, including a communication system, if required.
- Responsibility for enforcement.
- Penalties for failure to implement mitigation measures.

1.1.6 Topics of Controversy

The following specific environmental issues and concerns were raised during the public scoping process for the Otay Ranch EIR:

- Aesthetics/Landform Alteration
  - Development of steep slopes

- Biology
  - Native vegetation
  - Vernal pools
  - Wetlands
  - Sensitive plant and animal species
  - Sensitive habitat
  - Direct, indirect, and cumulative impacts
  - Wildlife corridors
  - Provision of buffer areas
  - Restoration of riparian vegetation in Otay River Valley
  - Otay River road crossing
  - Retention of hunting and fishing opportunities
  - Definition of a management preserve boundary

- Cultural Resources
  - Impacts to cultural resources

- Geology, Soils, and Mineral Resources
  - Soil erosion
  - Availability of aggregate minerals
  - Geologic and seismic hazards

- Water Resources
  - Water quality of Upper and Lower Otay Lakes and other surface water
  - Streambed condition
  - Flooding, erosion, and sedimentation impacts
  - Construction of flood control facilities
  - Ground-water contamination

- Public Services
  - Impact of increased demand for public services and utilities
  - Location of school sites, environmental impacts, and funding mechanisms
  - Landfill requirements
  - Implementation of recycling program
  - Treatment of hazardous wastes
  - Availability of water supply
  - Use of reclaimed water and other conservation measures
  - Wild land fire protection supply
  - Funding mechanisms
  - Use of the Otay River Valley for active recreation

- Transportation
  - Coordination with Caltrans regarding SR-125
  - Traffic impacts and mitigation
  - Associated air quality and energy impacts
  - Transit alternatives
  - Brown Field-related impacts
  - Access to project

- Air Quality
  - Air quality impacts

- Growth Management
  - Relationship to plans and policies
  - Future quality of life

- Agricultural Resources
  - Conversion of agricultural lands

1.1.7 Issues to be Resolved

The following issues associated with the project are analyzed in this EIR to identify the potential environmental impacts associated with each issue.

- Village character, including densities and residential mix
- Siting of a university
- Planning for the area around Otay Lakes, including the land use south of the lakes and a buffer around Lower Otay Lake
- Otay Valley Regional Park
- Existing environmental resource factors and analysis of significance
- Transportation/transit and the villages
- Proctor Valley land use and density
- Number of Otay River Valley crossings
- Otay River parcel road system

The Otay Ranch Project Team prepared issue and special study papers to address the issues identified above. The Project Team solicited input from the citizen and technical committees (see Section 1.3.3) regarding these environmental and planning issues at various committee meetings and through circulation of technical information for review. The issue papers analyzed the available information and presented a proposed approach to each issue. The Interjurisdictional Task Force and the Executive Committee accepted the issue papers. Resolutions proposed in the issue papers led to the development of the Phase II-Progress Plan Alternative; this alternative lies within the range of alternatives analyzed quantitatively in this EIR.

Other regional issues and studies in progress that are being monitored by the Otay Ranch Project Team during preparation of the EIR include:

- South county landfill siting study
- Regional airport study
- South Bay transit study
- SR-125 toll road study
- Clean Water Program
- Otay Valley Regional Park planning process
- South County Natural Communities Conservation Planning Program

1.2 PURPOSE AND SCOPE OF THE EIR

1.2.1 CEQA Requirements

This EIR has been prepared for the City of Chula Vista and the County of San Diego for the proposed Otay Ranch project. The California Environmental Quality Act (CEQA) of 1970 requires the preparation of EIRs or other environmental analyses for discretionary projects requiring the approval of state or local jurisdictions. For proposed projects which may result in potentially significant environmental effects, as determined by the lead agency under Sections 15060 and 15064 of CEQA, preparation of an EIR is required. In accordance with CEQA (Section 15060[c]), no initial study was conducted for the project since it was apparent upon preliminary review that an EIR should be prepared due to the potential for significant environmental impacts. The decision to prepare this document was determined jointly by the City of Chula Vista and County of San Diego.

The purpose of this EIR is to inform the public, decision makers, and regulatory agencies about the nature of the project being considered and the extent and type of impacts the proposed project or alternatives would have on the environment if the project were to be implemented. The environmental review process has been established to enable public agencies to evaluate a project in terms of its environmental consequences, examine and implement methods of eliminating or reducing any adverse impacts, and consider alternatives to the proposed project. CEQA requires that major consideration be given to avoiding significant environmental impacts. Additionally, the responsible public agencies remain obligated to balance possible adverse effects against other public objectives, including economic and social goals, in determining whether or not, and in what manner, a project should be approved. This document has been prepared in accordance with all of the criteria, standards, and procedures of CEQA (PRC 21000 et seq.), the State CEQA Guidelines (Administrative Code 15000 et seq.), and the environmental review guidelines of the City of Chula Vista and County of San Diego.

1.2.2 Program EIR

The level of detail of this EIR is commensurate with the degree of specificity of the Otay Ranch proposal. Because this document is an analysis of two General Plan Amendments and a General Development Plan/Subregional Plan (i.e., a policy plan), CEQA guidelines indicate that it should focus on the environmental effects that can be expected to result from plan adoption, leaving more detailed analysis to be completed in conjunction with project-specific EIRs (Section 15146[b]). CEQA further distinguishes between the type of EIR required for a policy document and an actual construction proposal by creating a program, versus project, EIR. Program EIRs, such as this document, are intended to examine the environmental impacts of a series of related actions including broad policy programs (Section 15168[a]). The advantages of a program EIR for Otay Ranch are that it provides an opportunity to evaluate a more complete range of project alternatives than would be practical in a project EIR, ensures a thorough analysis of cumulative project effects, avoids duplication of basic policy considerations, and allows the lead agency to consider broad policy alternatives and program-wide mitigation measures early in the process (15168[b]).

This programmatic approach to environmental analysis allows for the "tiering" of future project EIRs on specific development proposals. In other words, the environmental documentation required for subsequent actions under the Otay Ranch General Development Plan/Subregional Plan may rely on this program EIR to determine whether or not projects are consistent with previously approved policy or ordinances; this allows project EIRs to concentrate on the actual environmental effects of specific development proposals. Where a program EIR has been prepared for a plan or policy and the lead agency determines that the proposed project is consistent with the previous document, the project EIR on the subsequent action need not examine those effects which the lead agency determines were either mitigated or avoided pursuant to the findings of the program EIR or examined in sufficient detail therein to enable those effects to be mitigated or avoided through conditions (Section 21094[a]).

This form of environmental documentation, whereby subsequent analyses are an extension of the programmatic document, is termed "tiering" and can take the form of a supplemental or subsequent EIR or (mitigated) Negative Declaration. When tiering is used pursuant to CEQA, the project EIR must either refer to the program EIR or summarize the specific findings that are applicable to the project, and state where a copy of the program EIR may be examined.

As discussed above, the analyses in the Program EIR provides the basis for the review and approval of the General Plan Amendments and the General Development Plan/Subregional Plan for the City of Chula Vista and the County of San Diego, respectively. These planning documents will determine the:

- Areal extent and location of development within Otay Ranch.
- Types of development (e.g., residential, commercial, industrial) within specific areas.
- Density of residential development permitted within specific areas, i.e, the maximum number of dwelling units.
- Conceptual road and public transit network and the maximum trip generation to be allowed.
- Areas designated as open space and the types of uses permitted in open space areas.
- Facilities associated with individual villages and geographic areas.
- Policy guidelines and performance standards for mitigation of significant environmental impacts.

Approval of subsequent plans (e.g., SPA plans or specific plans) will determine the:

- Phasing of individual villages and infrastructure within Otay Ranch.
- Road networks within individual villages.
- Grading plans.
- Specific public service locations and facilities.
- Conveyance of dedicated parcels into the natural preserve onsite.

Section 2.6.2 of this EIR describes the future environmental review under CEQA which would be required for subsequent project EIRs.

Mitigation measures proposed by this analysis identify the guidelines and performance standards that subsequent development proposals (i.e., SPA Plans) shall meet in order to be considered consistent with the findings of this General Development Plan/Subregional Plan EIR. Additional measures may arise once more detailed project information is made available. All mitigation measures will become conditions of project approval and will be monitored in accordance with AB3180 requirements, thus ensuring their implementation.

1.2.3 Lead Agency and Task Force

In an effort to coordinate the evaluation of the Otay Ranch General Plan Amendments and General Development Plan/Subregional Plan, joint planning and concurrent processing of the project is being conducted by the City of Chula Vista and the County of San Diego. Both jurisdictions have entered into a Memorandum of Understanding (MOU) and have established a joint project planning team to process the required plans and documentation. For the purposes of this EIR, the City of Chula Vista has been designated as lead agency responsible for the preparation of the environmental documentation and for coordination with the County of San Diego and with an Interjurisdictional Task Force. The County of San Diego, including the departments of Planning and Land Use, Public Works, and Parks and Recreation, as a responsible agency, has provided direction in the preparation of the EIR. Additional agencies involved in the environmental review process include the City of San Diego, County of San Diego Air Pollution Control District, and the San Diego Local Agency Formation Commission (LAFCO).

The Interjurisdictional Task Force established by the MOU consists of elected and appointed representatives from the City of Chula Vista, City of San Diego, and the County of San Diego. The initial purpose of the task force was to implement the Board of Supervisors Policy I-109 for the United Enterprises land holdings, which mandated the establishment of the planning guidelines and procedures to accomplish the staged planning and development of the Otay Ranch project. Since the completion of that Policy I-109 task, the task force has remained active in the planning of the Otay Ranch project. The Interjurisdictional Task Force's primary role has been to select project alternatives based on discussions of the planning issues and local concerns. In that capacity, the task force's function is to review and make policy recommendations to the lead and responsible agencies. The Chula Vista City Council and County of San Diego Board of Supervisors are the ultimate decision-making authorities with respect to project approvals.

1.3 CEQA Scoping Process

Pursuant to Section 15082 of CEQA, the scoping of this EIR was conducted in two separate stages: issuance of a Notice of Preparation (NOP) and public and agency scoping meetings. Both scoping methods and the respective results are described below. A single set of EIR issues was prepared by both jurisdictions subsequent to this scoping process.

1.3.1 Notice of Preparation

In its capacity as the lead agency for this EIR, the Planning Department of the City of Chula Vista circulated a Notice of Preparation (NOP), dated November 9, 1989, to all responsible agencies, interested groups, and individuals to solicit comments on the preliminary contents of the EIR. In response to a request by LAFCO, the City of Chula Vista circulated a revised NOP dated December 13, 1989, to provide additional information about the proposed project and to ensure that the same NOP materials were distributed to everyone on the mailing list. All comments received during the NOP review have been considered during the preparation of this EIR; a list of the agencies and organizations who responded to the NOP is presented in Table 1.3-1. The written NOP responses are available for review at the Chula Vista Public Library and at the County of San Diego Department of Planning and Land Use.

1.3.2 Public Scoping Meetings

The City of Chula Vista held a scoping meeting on October 26, 1989 at Bonita Vista Junior High School to solicit public input to the issues associated with the proposed Otay Ranch project. The meeting was announced by a notice mailed to local residents and a general public notice in local newspapers.

The following is a list of the issues and concerns raised during the public scoping meeting for the Otay Ranch EIR:

- Water resources
- Geology and geotechnical studies
- Transportation network and access
- Air quality
- Natural resources
- Potential annexation
- Public services and utilities
- Plans for Brown Field
- Open space and recreation
- Proposed land use, and development, and phasing plans
- Housing mix

A public agency meeting was held on November 29, 1989 at the County of San Diego to solicit input to the environmental analyses for Otay Ranch from government agencies.

The public comments received during the scoping process have been considered in the environmental analyses presented in this EIR.

1.3.3 Citizen and Technical Committees

During the environmental review process for the Otay Ranch project, citizen and technical committees have been formed to provide input to issues associated with the proposed development. Citizen committees have included the following:

- Governing
- Human resources
- Infrastructure
- Natural resources

Table 1.3-1

WRITTEN RESPONSES TO NOTICE OF PREPARATION

Federal Government

- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service

State of California

- Department of Conservation
- Department of Fish and Game
- Department of Food and Agriculture
- Department of Forestry
- Department of Transportation
- Department of Water Resources
- Integrated Waste Management Board

Regional Agencies

- San Diego Association of Governments
- San Diego County Water Authority
- San Diego Local Agency Formation Commission

County of San Diego

- Department of Planning and Land Use
- Department of Public Works
- Jamul/Dulzura Planning Group

Local Agencies

- Chula Vista City School District
- City of San Diego Planning Department
- City of San Diego Water and Utilities Department
- Jamul/Dulzura School District
- Otay Water District
- Sweetwater Union High School District

Private Organizations and Individuals

- Etnyre Family
- San Diego County Archaeological Society
- Richard E. Smith Family
- Southwest Diversified, Inc.
- William A. Tait

Technical committees, composed of agency representatives, have included:

- Biology (subcommittee of the parks, recreation, and open space committee)
- Land use
- Parks and recreation
- Public safety
- Regional services
- Schools
- Service/revenue
- Sewer/water
- Transportation/transit
- Libraries, arts, and culture

1.4 EIR CONTENT AND STRUCTURE

This EIR contains all sections required by CEQA, including a project description, environmental setting and project alternatives sections, and a detailed environmental impact analysis of those issue areas identified during the scoping process. The issues addressed in this EIR are the following: land use, planning and zoning; landform alteration/aesthetics; biological resources; cultural resources; geology and soils; paleontology; agricultural resources; mineral resources; water resources and water quality; transportation, circulation, and access; air quality; noise; public services and utilities; and risk of upset. The environmental analysis discussion of the EIR (Section 3) addresses each issue in detail for the proposed project, including a description of existing conditions, a discussion of potential project-specific impacts, recommended or incorporated mitigation measures, and level of significance. Section 4 presents the environmental analysis for the onsite project alternatives. Cumulative impacts of the project are discussed in Section 6, which is followed by an analysis of growth inducing impacts in Section 7. The potential implications of siting the southwest San Diego County landfill facilities proposed on the Otay Ranch property are summarized in Section 8. Other CEQA-required sections including impacts not found to be significant, unavoidable significant impacts, irreversible impacts, and the relationship between short-term uses and long-term productivity are also contained in the document (Section 9).

This EIR focuses on the environmental effects that would result at the time of buildout of three proposed land use alternatives. The three project alternatives discussed in detail (Section 4) were formulated to define the full range of options available to the City of Chula Vista and County of San Diego in terms of the development patterns and densities that could occur on the Otay Ranch property. In addition to the three detailed alternatives, six additional land use alternatives, including the No Project Alternative, are evaluated qualitatively in the project alternatives discussion. An analysis of offsite alternatives is presented in Section 5 of this EIR.

1.5 PROJECT DOCUMENTATION

The following key documents were used in the preparation of the Otay Ranch Program EIR.

- City of Chula Vista General Plan and EIR
- County of San Diego General Plan and Subregional Plans
- Otay Ranch New Town Plan (Baldwin Vista 1989)
- Otay Ranch Implementation Plans (Baldwin Vista 1992)
- Otay Ranch Resource Management Plan (Baldwin Vista 1992)

Additional documents are referenced throughout the environmental analyses in Sections 3 and 4 of this EIR. These documents are available for review at the Chula Vista Public Library, the County of San Diego Department of Planning and Land Use Library and additional county libraries.

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2.5.5 Water Conservation Plan

The Water Conservation Plan addresses Otay Ranch's proposed policies for the use of reclaimed water as well as other measures to conserve and reuse water in the residential, commercial, and industrial components of the project.

2.5.6 Service/Revenue Plan

A two-part Service/Revenue Study will be conducted on the Otay Ranch project to provide a fiscal (cost/benefit) analysis of providing services and infrastructure to the project. The first part of the study (a macro-analysis) has already been completed and addressed the operational and maintenance costs of providing the necessary services for the New Town Plan, the Project Team Alternative or the Environmental Alternative. This study showed that any of the three alternatives addressed will work from a cost/revenue perspective.

The second part of the Service/Revenue Study will be a micro-analysis that uses a sophisticated fiscal computer model to look at City and County revenue sources. The model can be adjusted to address various annexation/incorporation scenarios that may affect the provision of services as well as to analyze different land use development scenarios.

Both parts of the Service/Revenue Study focus on operational and maintenance costs. Cost estimates for capital improvements will be done primarily at the SPA level.

2.6 REQUIRED DISCRETIONARY ACTIONS

2.6.1 Project Approvals

2.6.1.1 County of San Diego

Amendments to the County of San Diego General Plan as follows:

- Regional Land Use Map amendments consisting of the following:
  - Expansion of the Current Urban Development Area (CUDA);
  - Reduction of the Future Urban Development Area (FUDA);
  - Expansion of the Special Study Area (SSA);
  - Reduction of the Country Town (CT) of Jamul;
  - Reduction of the Rural Development Area (RDA);
  - Reduction of the Estate Development Area (EDA);
  - Expansion of the Environmentally Constrained Area (ECA); and
  - Proposed changes to the boundary between the Otay Planning Area, the Jamul/Dulzura Planning Area and City of Chula Vista.
- Regional Land Use Element Text amendments consisting of the addition of a Special Study Area for the area of the Otay Ranch Project that is outside of the County Water Authority boundary.
- Otay Subregional Plan Text amendments consisting primarily of the addition of the Otay Ranch General Development Plan as Volume 2.
- Jamul/Dulzura Subregional Plan Text amendments consisting of a reference to the Otay Ranch Project and revisions to certain policies to insure consistency with the Otay Ranch Project.
- Valle de Oro and Sweetwater Plan Text amendments consisting of revisions to circulation exhibits to incorporate road classification changes consistent with the Otay Ranch Project.
- Circulation Element Map amendment, Sheets 6 and 9, consisting of proposed changes to various road classifications and to the Bicycle Element.

- Recreation Element Text and Map amendments consisting of proposed revisions to existing park sites and the addition of proposed park sites.
- Conservation Element Text and Map amendments consisting of revisions to existing Resource Conservation Areas (RCA) and the addition of one RCA.
- Public Facilities Element amendment consisting of changes exempting Otay Ranch from Policy 1.1.2 on page XII-4-18.

Adoption of the following associated documents for the Otay Ranch Project:

- Resource Management Plan
- Phasing Plan
- Preliminary Sphere Determination
- Service/Revenue Plan
- Facility Implementation Plans

Zone reclassifications consisting of proposals reclassifying the Otay Ranch property according to the proposed plan.

2.6.1.2 City of Chula Vista

Amendments to the General Plan to incorporate the entire 22,919-acre Otay Ranch Project as follows:

- Vision Statement text description of land use relationships in the Eastern Urban Center area.
- Land Use Element text and maps adding land use designations, identifying new landforms, city "gateway" locations, scenic roadways and open space areas, and revising the general location of a proposed university.
- Circulation Element text and maps revising the traffic circulation system, Bicycle Plan and Public Transit Plan.
- Public Facilities Element text and maps modifying water, wastewater and drainage flood control plans.
- Growth Management Element text and maps.
- Recreation Element text and map adding proposed park locations.
- Eastern Territories Area Plan identifying new landforms, open space preserve objectives, potential transit corridors, revising the general location of a proposed university, community park locations, and new development areas north, south and east of the Lower Otay Reservoir and within Proctor Valley.

Adoption of a General Development Plan which includes among others the following documents for the Otay Ranch Project:

- Resource Management Plan
- Service/Revenue Plan
- Village Phasing Plan
- Facility Implementation Plans
- Preliminary Sphere Determination

Prezoning of 22,520-acres of Otay Ranch to PC (Planned Community) zone, to be effective only upon future annexation into the City of Chula Vista. The Planning Commission reserves the right to recommend that the property not be rezoned, or that it be placed in any other more restrictive zone as described in Title 19 of the Chula Vista Municipal Code.

~~The proposed Otay Ranch project requires several joint discretionary actions by the City of Chula Vista and County of San Diego. The major approvals are General Plan Amendments~~

~~(GPA) for both the City of Chula Vista and County of San Diego General Plans and the respective General Development Plan and Subregional Plan (see Figure 2.5-1). These approvals will determine the maximum number of units to be developed on Otay Ranch. Additional approvals include a Zone Reclassification and Development Agreement.~~

~~In the City of Chula Vista, the GPA will amend the Land Use Element and the land use plan for the City General Plan. Additional land use amendments would include the incorporation of new land use categories and villages, reconfiguration of the Chula Vista Greenbelt/Open Space Network, and necessary text changes associated with the new land use plan. Revised alignments for Otay Lakes Road and Orange Avenue and changes to roadway classifications of various segments in the Circulation Element will also be included in the GPA. All maps in the Public Facilities Element would be amended to incorporate various Otay Ranch facilities. The Growth Management Element would also be amended to reflect Otay Ranch's contribution of population and infrastructure to the city. The entire map, plan and text of the Eastern Territories Area Plan would be updated and revised to reflect the Otay Ranch project. The amended City of Chula Vista General Plan will establish the Otay Ranch Planned Community (PC) zoning district.~~

~~The City of Chula Vista has developed thresholds or standards for the following services: drainage, traffic, air quality, water, sewer, police, fire, emergency medical, schools, libraries, and parks and recreation. The city has reviewed the proposed implementation plans for these services to ensure adequate service levels for Otay Ranch.~~

~~The GPA processed through the county will amend the Otay Subregional Plan and the Jamul Dulzura Subregional Plan. The GPA would primarily entail a revision of the land use map of the Regional Land Use Element. The county GPA of the Regional Land Use Element includes a shift of the Urban Limit Line to expand the Current Urban Development Area (CUDA) Regional Category to include all of Otay Ranch. The entire property will also be placed in Specific Plan Area (SPA) 21 of the Otay and Jamul-Dulzura Subregional Plans. Zoning is anticipated to be S-88. The project would require annexation to the County Water Authority for provision of water; if annexation could not occur, a new proposal for project land use would have to be developed. The Otay Ranch project will remain within the boundaries of the existing Otay and Jamul-Dulzura Subregional Plans, until a determination is made on which portions of the property will be annexed to the City of Chula Vista. Under the proposed county GPA, text changes discussing Otay Ranch will be added to the subregional plans. At the time of annexation, a General Plan Amendment will be filed to amend the subregional plan boundaries to remove the annexed areas.~~

~~In conjunction with the land use changes, amendments to the County Circulation Element include revisions to the proposed alignments of Proctor Valley Road, Otay Lakes Road, and various roadway classifications. Amendments to the transportation section of the Public Facility Element would also be necessary to bring the project into consistency with county road standards and to ensure transportation mitigation is implemented to maintain roadway level of service. The Water Provision Systems section of the Public Facility Element would be amended to ensure development approval is tied to the provision of water.~~

Amendments to the City of San Diego's Otay Mesa Community Plan are not necessary. An Annexation Plan is not proposed for approval at this time. The City of Chula Vista will serve as lead agency for any future environmental review conducted for the Annexation Plan. Both the City of San Diego and the County of San Diego must approve, however, the proposed General Development Plan/Subregional Plan and the Public Benefit Agreement/Master Development Agreement for the project. Approval of Phase I of the RMP is also necessary at this time.

2.6.2 Subsequent Approvals and Environmental Review Process

The following federal, state, and local permits or approvals will be required following approval of the program EIR and prior to site development. Those actions requiring further environmental review have been noted(*).

2.6.2.1 Federal Approvals

- Section 404 Permit (U.S. Army Corps of Engineers)
- Section 7 Consultation (U.S. Fish and Wildlife Service)

2.6.2.2 State Approvals

- Streambed Alteration Agreement (California Department of Fish & Game)*
- Freeway Access Agreement (California Department of Transportation)
- Border Zone Determination (California Department of Health Services)

2.6.2.3 Local Approvals

- Air Quality Permits for Industrial Facilities (Air Pollution Control District)*
- National Pollutant Discharge Elimination System Permit (Regional Water Quality Control Board)*
- Specific Plan or SPA Plan*
- Tentative Subdivision Map*
- Major and Conditional Use Permit(s)*
- Road Openings, Closings, and Extensions (Offsite)
- Site Plan Review/Design Review
- Development Regulations
- Design Guidelines
- Condemnation
- Assessment District
- Special District(s)
- LAFCO Special Study Area*
- Roadway and Utility Easements
- Annexations and Detachments*

SECTION 2
PROJECT DESCRIPTION

2.1 PROJECT OBJECTIVES

The primary objective of the Otay Ranch New Town Plan and the Baldwin Company is to provide a basic framework from which a cohesive community and regional support facilities may be developed for southern San Diego County.

Specific objectives of the applicant include development of:

1) A new community through long-range planning, coordination, and development of Otay Ranch;

2) A balanced housing mix to address the local and regional housing demand;

3) Housing in proximity to employment centers;

4) A plan for open space and regional and community parks;

5) A program for the long-term comprehensive management and protection of natural resources;

6) A four-year university; and

7) A range of commercial and business uses to complement existing commercial centers in the area; provide such uses to establish a connection between Otay Mesa and the United States/Mexican border and to the City of Chula Vista and the San Diego metropolitan area.

Because of the magnitude of the Otay Ranch project and the 30- to 50-year development schedule, the plan would serve as the General Plan guiding subsequent phases of development (see Section 2.4). To achieve this objective, the Otay Ranch project proposes to amend the City of Chula Vista and County of San Diego General Plans (see Section 2.6).

Through interjurisdictional cooperation, Otay Ranch would complement, integrate, and implement regional plans during the buildout of the project. The plans would provide for a complete and balanced community of housing, shops, workplaces, schools, parks, civic facilities, and open spaces. To achieve this balanced community, Otay Ranch would create a series of villages with conveniently located homes, jobs, schools, parks, and other daily needs. The villages would feature well-defined edges such as greenbelts, open spaces, or wildlife corridors. Village centers would contain shops, plazas, parks, and housing arranged to encourage community interaction. Public services and facilities would be designed to meet the needs of the Otay Ranch residents.

2.2 PROJECT LOCATION AND SETTING

The 23,088-acre Otay Ranch is situated on unincorporated land and comprises seven separate parcels located in southwestern San Diego County, approximately 3.5 miles east of downtown Chula Vista and 14 miles southeast of downtown San Diego. The parcels are distributed from the eastern edge of the City of Chula Vista to the western edge of the

unincorporated community of Dulzura. The rural community of Jamul lies northeast of the project area, and the southernmost boundary of Otay Ranch is approximately 2 miles north of the United States-Mexico international border. The combined properties span a distance of approximately 12 miles from east to west, and 8.5 miles from north to south. Upon completion, Otay Ranch would house a community approximately the same size as Oceanside, Chula Vista, and Escondido, all of which will ultimately have populations of 130,000 to 165,000.

Figure 2.2-1 illustrates the project's regional location with respect to the surrounding communities. A majority (22,698 acres) of the Otay Ranch is located within the unincorporated area of San Diego County; the remaining 390 acres are situated in the Otay Mesa area of the City of San Diego, south of the Otay River Valley. The 2,900-acre area encompassing the Otay Lakes is owned by the City of San Diego. Regional access to the project area is gained from Interstate 805 via Telegraph Canyon Road, Otay Mesa Road, or Proctor Valley and Otay Lakes Roads via Highway 94 (Campo Road).

For planning purposes, the seven parcels have been grouped geographically to form three distinct regions or parcels of the Otay Ranch: the Otay River area, San Ysidro area, and Proctor Valley area. The three areas are delineated in Figure 2.2-2; a description of each area's location and general setting is provided below. The Interjurisdictional Task Force agreed that the City of Chula Vista General Plan would be used as the basis for evaluation of the Otay River parcel of Otay Ranch, and the County of San Diego General Plan would form the basis for evaluation of the Proctor Valley and San Ysidro parcels.

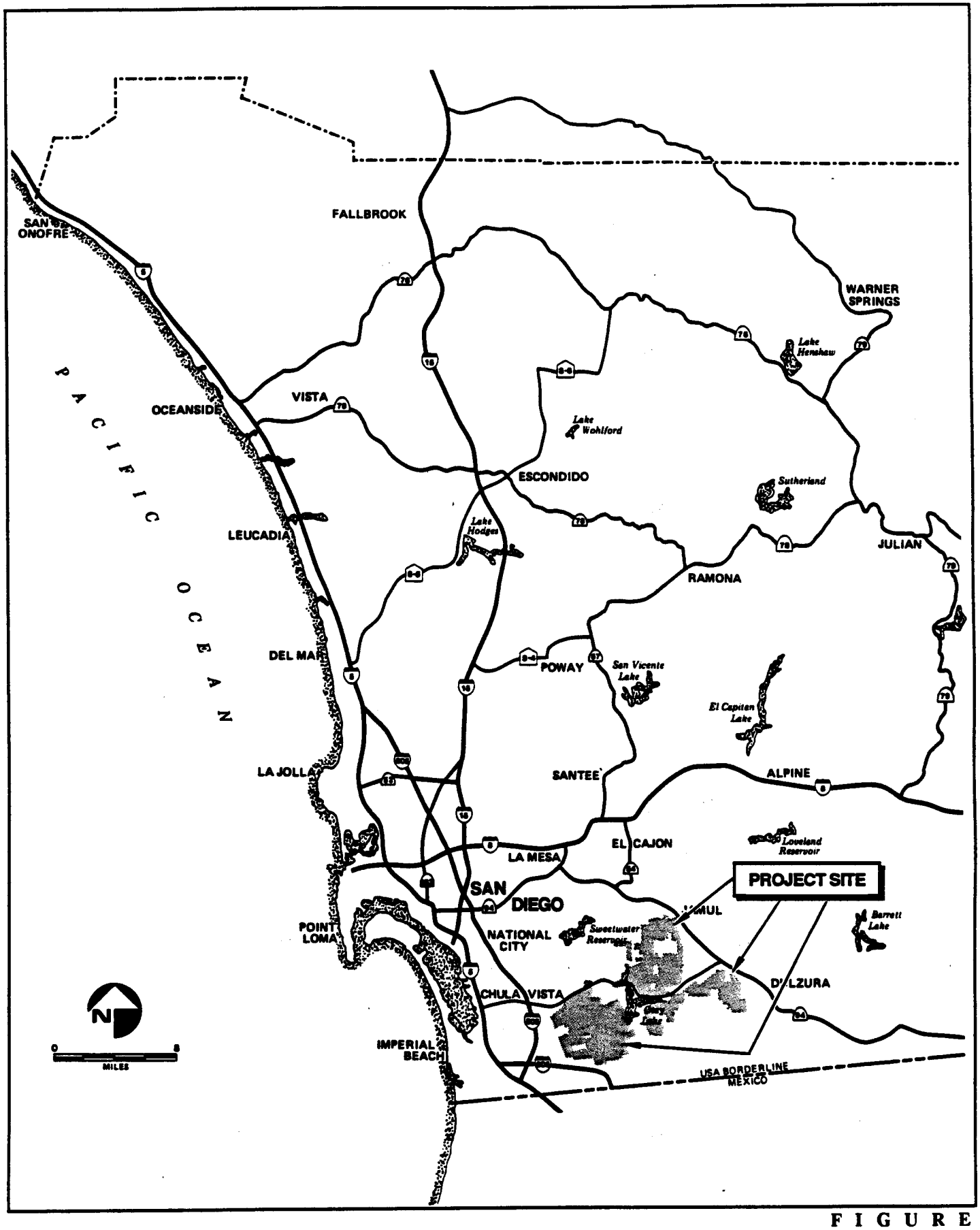
The land uses and jurisdictions of Otay Ranch and the surrounding areas are discussed in Section 3.1, Land Use, Planning, and Zoning.

2.2.1 Otay River Parcel

The Otay River parcel comprises the largest of the three parcels and is located in the western and southernmost portion of the Otay Ranch. The area contains 9,618 acres of land bounded by Telegraph Canyon Road/Otay Lakes Road and EastLake on the north, Heritage Road and Otay Landfill on the west, Brown Field on the south, and Lower Otay Lake on the east. The focus of this area is the Otay River Valley, which bisects the southern portion of this area east to west. North of the river valley the property consists of rolling hillsides, which have been altered by years of dry farming. Five natural landforms are situated within this area: Otay River Valley, Wolf Canyon, Salt Creek, Poggi Canyon, and Rock Mountain. The southern portion of the Otay River parcel is characterized by a flat mesa that is deeply dissected by a series of tributary canyons which drain to the river valley, including Johnson and O'Neal Canyons. Onsite elevations range from a low of 160 feet mean sea level (MSL) along the bottom of the Otay River Valley to a high of 670 feet in the central ridge of the parcel. The "outparcels" (areas not owned by Baldwin) within the boundaries of the Otay River parcel range in sizes from approximately 9 acres to 137 acres and correspond to lands dedicated to reservoirs in the Otay Water District (49 acres) and City of San Diego water system (20 acres), a rock mining quarry (137 acres), and privately-owned parcels (9 acres).

2.2.2 Proctor Valley Parcel

This parcel is composed of four unconnected parcels of land which, when combined, encompass 7,915 acres. The Proctor Valley area is the northernmost portion of the Otay Ranch and is generally bounded by Otay Lakes Road to the south, the Upper Otay Lake and San Miguel Mountains to the west, vacant land south and west of the community of Jamul, and vacant agricultural land to the east. The four outparcels encompassed by the



FIGURE

2.2-1

OGDEN

Regional Location of Project Site

Proctor Valley parcel correspond to two sections of land owned by the Bureau of Land Management (BLM) (80 and 751 acres), and two private holdings (10 and 20 acres).

South, north, and northwest of the Jamul Mountains the topography of the Proctor Valley parcel generally consists of broad gentle mesas (valley floor elevations gradually rise north toward the Jamul area), while the terrain in the central and eastern portions of the parcel becomes steeply rugged as the Jamul Mountains climb in elevation. Only the northern and western portions of the Proctor Valley landform are contained within the Proctor Valley parcel. Ridges from the Jamul Mountains gradually extend into the northern portion of the valley and form elongated, low-lying hillsides. A low east-west ridgeline effectively divides the valley near the northwestern corner of the parcel. The broader central and southern portions of the valley encompass Upper Otay Lake and surrounding drainages. At the southwestern edge of the Proctor Valley parcel, several small, narrow drainages are present in foothills surrounding the Jamul Mountains, particularly in the vicinity of Upper Otay Lake and the west-central portion of the parcel. A 500-kV overhead electrical line and towers traverse east-west through the central parcel. The Ranch House complex is located on a knoll (approximately 60 feet) above the Upper Otay Lake surface. Directly north of Lower Otay Lake and south of Jamul Mountain peak (1,735 feet MSL), the terrain of the Proctor Valley parcel forms a slightly elevated but gentle, mesa approximately 100 to 150 feet above the lake surface. This broad slope area is widest near the center and narrows toward the northern and eastern arms of the lake. This parcel is the most topographically diverse of all three portions of the ranch, because the elevations range from approximately 500 feet MSL near Upper Otay Lake to a high of 2,053 feet MSL in the eastern mountains.

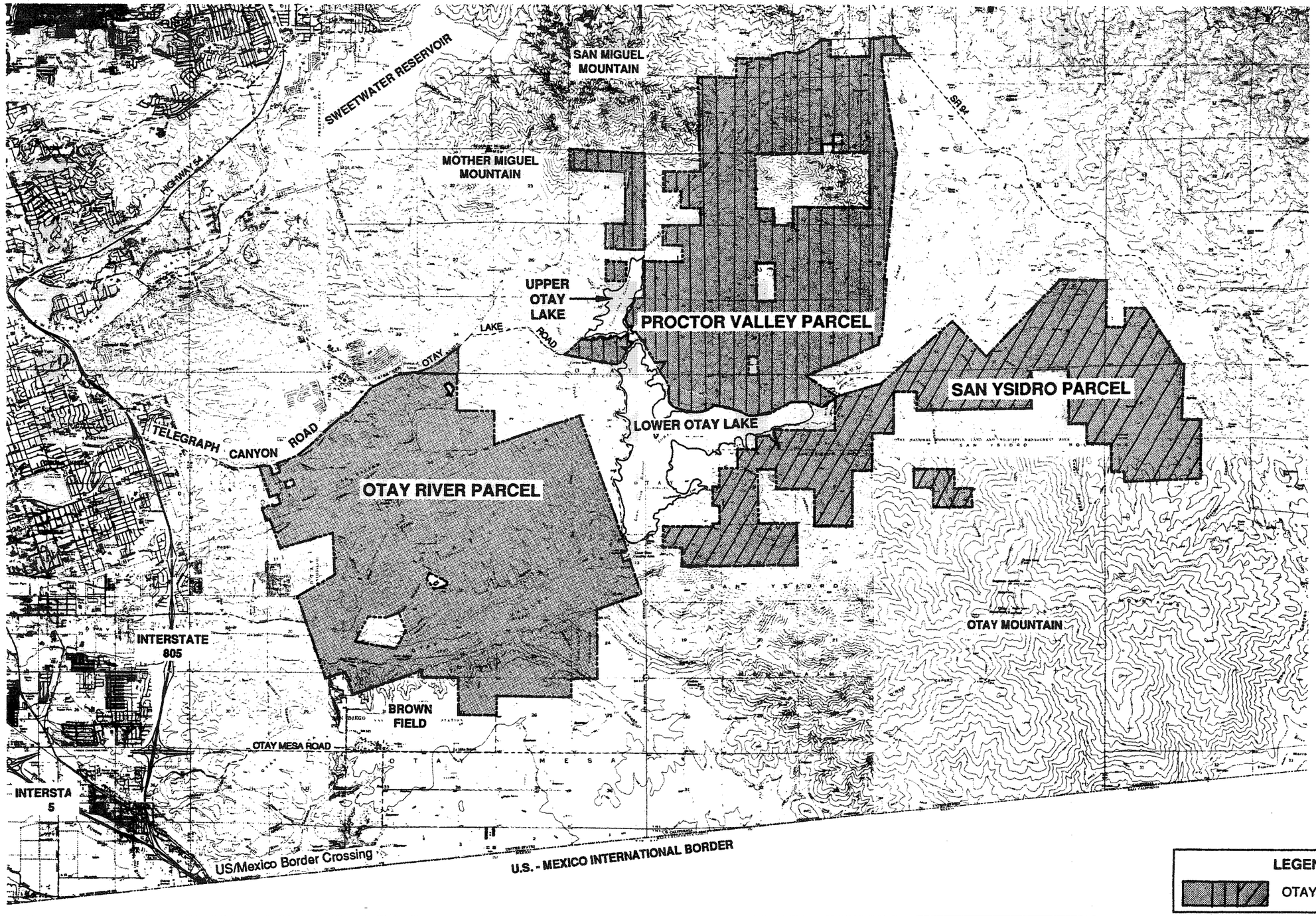
2.2.3 San Ysidro Parcel

This 5,555-acre parcel of the Otay Ranch is composed of two discontinuous ownership parcels. The San Ysidro parcel is located in the southeastern portion of the project area, along the northern foothills of the San Ysidro Mountains and Otay Mountain. The parcel is generally bounded by the eastern arm of Lower Otay Lake and vacant land along Otay Lakes Road to the north, the main body of Lower Otay Lake to the west, land owned by the BLM to the south, and vacant land just west of the community of Dulzura to the east. The smaller, 160-acre parcel is surrounded on four sides by BLM property. The terrain of the San Ysidro portion of the Otay Ranch is highly varied and steeply slopes to the south toward the mountains, while to the north portions of the area level toward the narrow floodplain of Jamul-Dulzura Creek, Big Cedar Canyon, and Lower Otay Lake. Major landforms contained within this region include Little and Big Cedar Canyons, Hubbard Springs, and Sycamore Canyon. Elevations range from a low of 550 feet MSL near Lower Otay Lake to a high of 1,550 feet MSL in the southeast corner of the parcel.

2.3 PROJECT CHARACTERISTICS

The original Otay Ranch proposal, the "New Town Plan" (Baldwin Vista 1989), was designed to serve as the proposed General Plan for the entire property. The plan represents the basic framework for the land use, circulation, open space, community design, public facilities, and public services of the Otay Ranch upon which subsequent development proposals would be based. The New Town Plan document contains seven separate elements which address these issues. Proposed guidelines for future development are found in these portions of the New Town Plan:

- Land Use Element
- Open Space/Park Element
- Circulation Element



OGDEN

Regional Location of Project (3 Areas)

FIGURE

2.2-2

- Public Facilities Element
- Public Services Element
- Social Services Element
- Design Element

The following text and accompanying graphics provide a detailed description of the land use and infrastructure proposed in the New Town Plan.

2.3.1 Proposed Land Uses

2.3.1.1 General Land Use Characteristics

The land use plan proposes a mix of residential neighborhoods (both single- and multi-family), commercial centers, research-oriented industrial uses, a civic center, art centers, resort facilities, natural open spaces, recreational parks, a town center, and a university site. The plan envisions a series of villages within a cohesive community setting. The distribution of land uses varies across the 23,088-acre ranch, based on topographic and resource constraints, circulation patterns, planned community character, and regional economic and social needs, among other factors.

One of the goals developed for Otay Ranch by the Interjurisdictional Task Force is to "have a diversified economic base within the Otay Ranch Project Area." In order to achieve this goal, Otay Ranch will "create employment opportunities for area residents which will complement rather than substitute for industrial development on the Otay Mesa." The Interjurisdictional Task Force recognizes the regional nature of the jobs/housing issue and the inability of a single project to satisfy the regional need for a jobs/housing balance. The existing industrial areas within Otay Mesa and the planned industrial growth of East Otay Mesa together with the proposed commercial and industrial uses within Otay Ranch will provide increased employment opportunities in the South County and an associated increase in the demand for housing. Otay Ranch is intended to provide a range of housing opportunities, including affordable housing, within reasonable proximity to these industrial areas, contributing to the regional need for an increased housing supply.

The proposed land use plan contained within the New Town Plan is illustrated in Figure 2.3-1. Table 2.3-1 summarizes the various land use types and development densities proposed throughout the Otay Ranch and in the individual parcels. As noted in the table and figure, five residential land use categories, three distinct commercial/industrial use types, and three public/quasi-public/open space categories are proposed. In addition to the standard land use types, five special plan areas have been designated within the New Town Plan: the Eastern Urban Center, Town Center, village center, resort/low residential, and rural estate planned community. The New Town Plan contains specific guidelines for developing a City of Chula Vista Sectional Planning Area (SPA) or County of San Diego specific plan for these special plan areas in the future.

As illustrated by Figure 2.3-1, the general density of development is greatest to the west in the Otay River region and decreases to the east into Proctor Valley and the San Ysidro areas. The Otay River region is characterized by higher land use densities such as medium-high (11-18 du/ac) and high (18-27 du/ac) density residential uses, retail commercial, research industrial, and the Eastern Urban Center. In addition, the university site is proposed in the Otay River area. Approximately half the Proctor Valley area is proposed as open space, with the remaining acreage supporting low (0-3 du/ac), low-medium (3-6 du/ac), and medium (6-11 du/ac) density residential uses and the resort/low special plan area. The densities of the residential uses decrease eastward toward Jamul. The exception to the lower intensity uses of the Proctor Valley area is the Town Center special

Table 2.3-1
LAND USE STATISTICS FOR NEW TOWN PLAN

Land Use Designation	Residential Density[1] (du/ac)	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Otay Ranch Total	
		Acres	Dwelling Units	Acres	Dwelling Units	Acres	Dwelling Units	Acres	Dwelling Units
RESIDENTIAL[2]									
Low	0 to 3	237	455	1,679	3,390	677	1,334	2,593	5,179
Low Medium	3 to 6	2,723	11,447	1,630	7,380	493	2,493	4,846	21,320
Medium	6 to 11	1,428	11,808	270	2,261	33	204	1,731	14,273
Medium High	11 to 18	419	3,470	--		--		419	3,470
High	18 to 27	167	3,014	--		--		167	3,014
Total Residential		4,974	30,194	3,579	13,031	1,203	4,031	9,756	47,256
COMMERCIAL									
Retail Commercial		366		--		--		366	
Visitor Commercial		--		82		--		82	
INDUSTRIAL									
Research Industrial		802		--		--		802	
PUBLIC, QUASI-PUBLIC AND PARKS									
Public & Quasi Public		406		--		--		406	
Parks and Recreation		1,071		78		956		2,105	
EASTERN URBAN CENTER									
Residential		100	1,500	--		--		100	1,500
Office		113		--		--		113	
Regional Shopping		150		--		--		150	
TOWN CENTER[3]		--		163	795	--		163	795
RURAL ESTATE PLANNED COMMUNITY[4]		--		--		2,035	1,182	2,035	1,182
OPEN SPACE									
Natural		1,235		4,013		1,361		6,609	
Manufactured		357						357	
FREEWAY		44		--		--		44	
TOTALS		9,618	31,694	7,915	13,826	5,555	5,213	23,088	50,733

[1] Based on Chula Vista General Plan density ranges.
[2] Residential acreage includes adjacent slope and parkway/greenbelt areas.
[3] Half of Town Center acreage allocated to residential uses at 6 to 11 du/ac.
[4] Rural Estate Planned Community total acreage of 2,035 includes an estimated 825 acres of additional open space.

Source: Baldwin Vista, New Town Plan, 1989; as revised by Ogden, 1992.

plan area. Land uses within the San Ysidro parcel are predominantly large-lot, low and low-medium residential, accompanied by the Rural Estate special plan area and open space. Only one village center is proposed in the San Ysidro area.

2.3.1.2 Residential Component

Under the New Town Plan, 50,733 new residential dwelling units would be developed on 12,054 acres of the Otay Ranch, allowing for a population increase of approximately 149,810 new residents resulting in an average population density of 12.5 persons per acre (see Table 2.3-2). Residential densities would range from a low of 0.5 dwelling units per acre (du/ac) to a maximum of 27.0 du/ac. The Otay River parcel proposes approximately 90,000 residents, on 9,700 acres, for a density of 9.3 persons per acre. This compares roughly with the existing City of El Cajon, which has a current density of 9.8 persons per acre due to a population of 90,000, and a land area of 9,100 acres. The Proctor Valley parcel proposes approximately 43,000 residents, on 7,900 acres, for a density of 5.4 persons per acre. This compares roughly with the City of Santee, which has a current density of 5.1 persons per acre due to a population of 53,000 on 10,000 acres. The San Ysidro parcel proposes approximately 17,000 residents on 5,600 acres, for a density of 3.0 persons per acre. This most closely compares with the City of Solana Beach, which has a current population of 13,000, and a current land area of 2,200 acres. It should, however, be noted that the density of Solana Beach is twice that of the proposed San Ysidro parcel. Approximately 63.7 percent of the homes (or 31,448 units) would be detached, single-family units and the remaining 36.3 percent (or 19,285 units) would be attached, multi-family residences. Table 2.3-2 summarizes the population and housing mix proposed by the New Town Plan. Accompanying the residential development would be the installation of new roadways and public services infrastructure (as described in Section 2.3.2).

The Otay Ranch population would be distributed among 15 residential villages or clusters of development. Each village (or neighborhood) would offer a variety of housing types within close proximity (i.e. walking distance) of one of the village centers (Figure 2.3-2). The village center is intended as the focus of the village community and may include a mix of uses including commercial centers, schools, parks, churches, day care facilities, recycling centers, and other public services along with high-density residential. The individual villages would be designed to develop a sense of identity within each neighborhood and to emphasize non-vehicular travel within each center. Landscaped greenbelts and pathways are planned to link the various village centers and recreation areas throughout Otay Ranch. In the future, SPA Plans would be submitted for the various villages and development would be phased by village or multiple villages.

2.3.1.3 Industrial/Commercial Component

The remaining acreage of the Otay Ranch would be divided between open space and industrial, commercial, public facilities, university, and other supporting uses. The 802 acres of the research and limited industrial land use category (R-I) would provide for research and development uses, including light industrial, small-scale warehousing, flexible use buildings, and support office and commercial services. Industrial lands are generally situated on either side of the proposed State Route 125 (SR-125) alignment, south of Otay River Valley, and in the vicinity of Brown Field. This location is adjacent to existing and proposed industrial uses on Otay Mesa, thus minimizing potential land use incompatibilities with proposed residential areas. Major commercial development would be located along the freeway and major roadways, and neighborhood commercial would be clustered within the village centers. The majority of the commercial would be located in the western portion of the Otay Ranch (Table 2.3-1).

Table 2.3-2

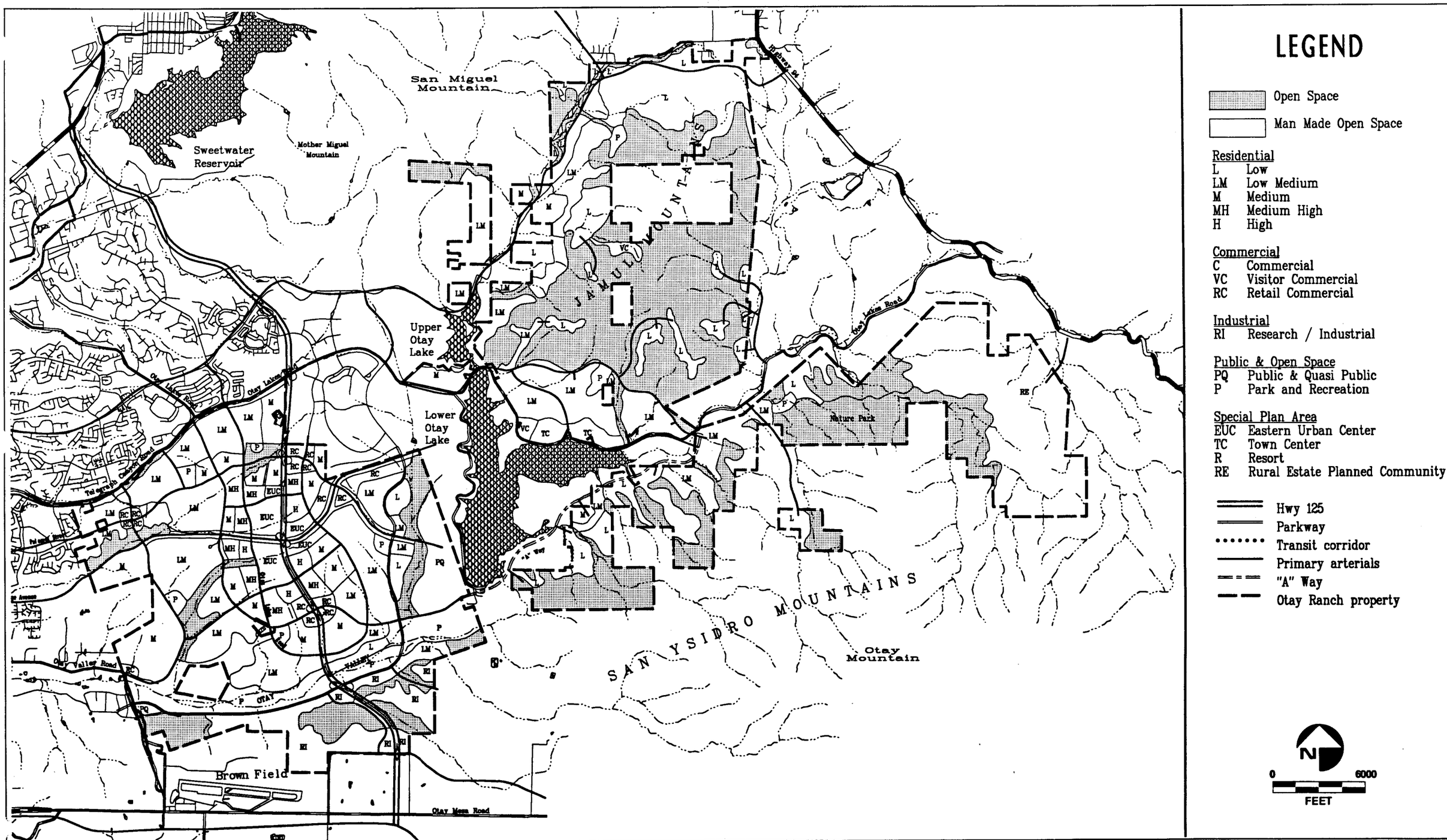
POPULATION AND HOUSING MIX FOR NEW TOWN PLAN

Residential Land Use Designation	Proposed Acreage	Density Range (du/ac)	Dwelling Units	Estimated Population*	Average Population Density (persons/ac)
Low**	4,628	0–3	6,361	20,355	4.5
Low Medium	5,009	3–6	21,320	68,224	13.6
Medium	1,731	6–11	15,068	40,872	23.6
Medium High	519	11–18	4,970	12,674	24.4
High	167	18–27	3,014	7,686	46.0
Totals:	12,054		50,733	149,810	12.5

* Based on 3.2 persons per dwelling unit for single-family detached units (Low and Low-Medium density) and 2.55 persons per dwelling unit for multifamily attached units (Medium, Medium-High and High density).

** Includes 2,035 acres (or 1,182 du) of REPC in low category for San Ysidro parcel.

Source: Baldwin Vista, New Town Plan, 1989; revised 1992.

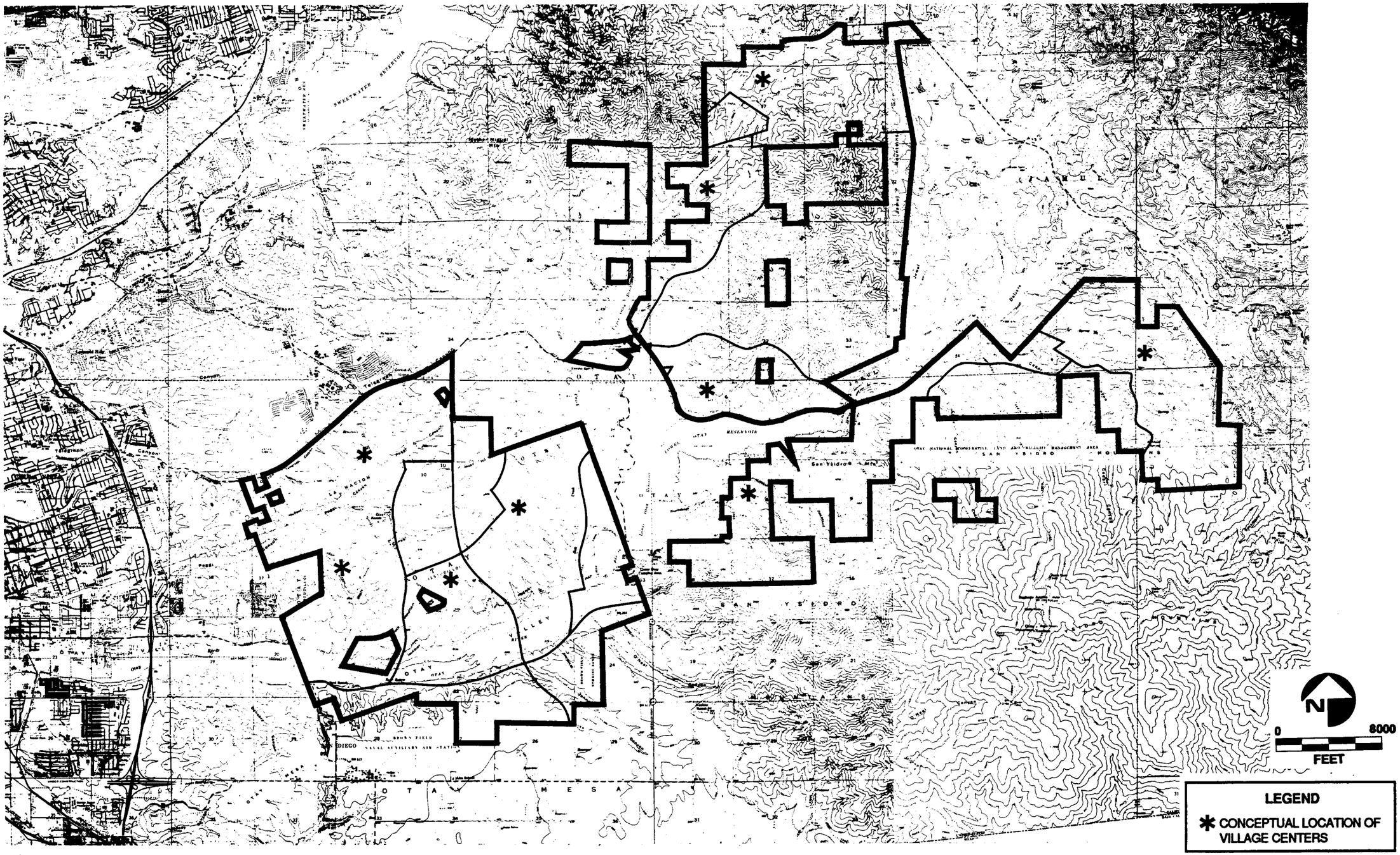


OGDEN

New Town Plan

FIGURE

2.3-1



SOURCE: Baldwin Vista 1989

OGDEN

Planned Villages

FIGURE 2.3-2

Three types of commercial land use categories are offered by the New Town Plan: village center, visitor commercial, and general commercial. The village center land use category would allow for a mixture of neighborhood commercial, small office, entertainment establishment, and public/education/civic uses. Village centers are planned to be larger than standard 10- to 20-acre neighborhood shopping centers. Visitor commercial (VC) land use would allow for resort-oriented commercial uses such as restaurants, while the general commercial (GC) areas would provide for larger-scale neighborhood commercial, service commercial, retail, and automobile oriented uses.

Two special plan areas on the New Town Plan land use map feature large commercial elements: the Town Center and Eastern Urban Center. The geographic center and focus of the community is the 163-acre Town Center planned along the northern edge of Otay Lakes Road, overlooking the Otay Lakes. Land uses reserved for this location include restaurants, bars, and shopping mixed with professional office space. Space for civic and government offices would be provided as a separate but associated complex. Residential lofts and townhomes are proposed to be integrated throughout the Town Center development, and a major resort hotel would also be situated overlooking Lower Otay Lake. The Eastern Urban Center is proposed along the future alignment of SR-125. In contrast to the Town Center, the Eastern Urban Center would allow for the development of high density uses including a regional mall, corporate offices, a discount mall, an auto-park, and high density residential uses.

2.3.1.4 Open Space/Parkland Component

The open space designated in the New Town Plan would be divided between natural parks for passive recreation and resource protection and active recreation areas. The open space system is anchored by three major open space areas: the 846-acre Otay Valley Regional Park which is currently the subject of a Joint Exercise of Powers Agreement (JEPA) between the Cities of Chula Vista, San Diego, and County of San Diego (refer to Section 3.13 for further discussion), the 900-acre San Ysidro Mountains Regional Nature Park, and 4,162 acres of natural open space encompassing the Jamul Mountains. In addition, a 2,716-acre greenbelt system would integrate the many natural canyons and landforms on the Otay Ranch property, including Wolf Canyon, Poggi Canyon, Salt Creek, Proctor Valley, Cedar Creek, Little Cedar Creek, Hubbard Springs, and the San Miguel Mountains. Figure 2.3-3 illustrates the New Town Plan's open space system for Otay Ranch. Trails would connect many of the open space areas and provide hiking opportunities within the natural areas.

To supplement the natural open space system, the proposed land use plan also identifies seven community parks, totaling 211 acres of active recreation area to include play fields and ball fields. Four community parks (encompassing 107 acres) are proposed in the Otay River area, two parks (totaling 76 acres) would be situated in the Proctor Valley area, and one 28-acre park would be located in the San Ysidro Mountains area. Additional parkland could be provided in the future upon construction of schoolyards and golf courses during implementation of the New Town Plan. The actual acreage of those parklands would be determined at the SPA stage, based on final determination of buildout population. Refer to Section 3.13 which evaluates parkland acreage of population.

2.3.1.5 University Component

A parcel of land of approximately 400 acres, designated public/quasi-public, has been reserved in the New Town Plan as the site for a future university. Located to the west of Lower Otay Lake and to the east of Salt Creek, the university parcel would be segregated

from much of the surrounding residential, industrial, commercial, and resort development planned for the area. The university site is immediately south of the new Olympic Training Center on the lake. This site was selected based on minimum acreage requirements of 4-year institutions, proximity to the lake and Olympic Training Center, proximity to existing and proposed population centers and commercial establishments, and the topographic characteristics of the land, which minimize land use conflicts and maximize views of the surrounding open space.

2.3.2 Proposed Infrastructure

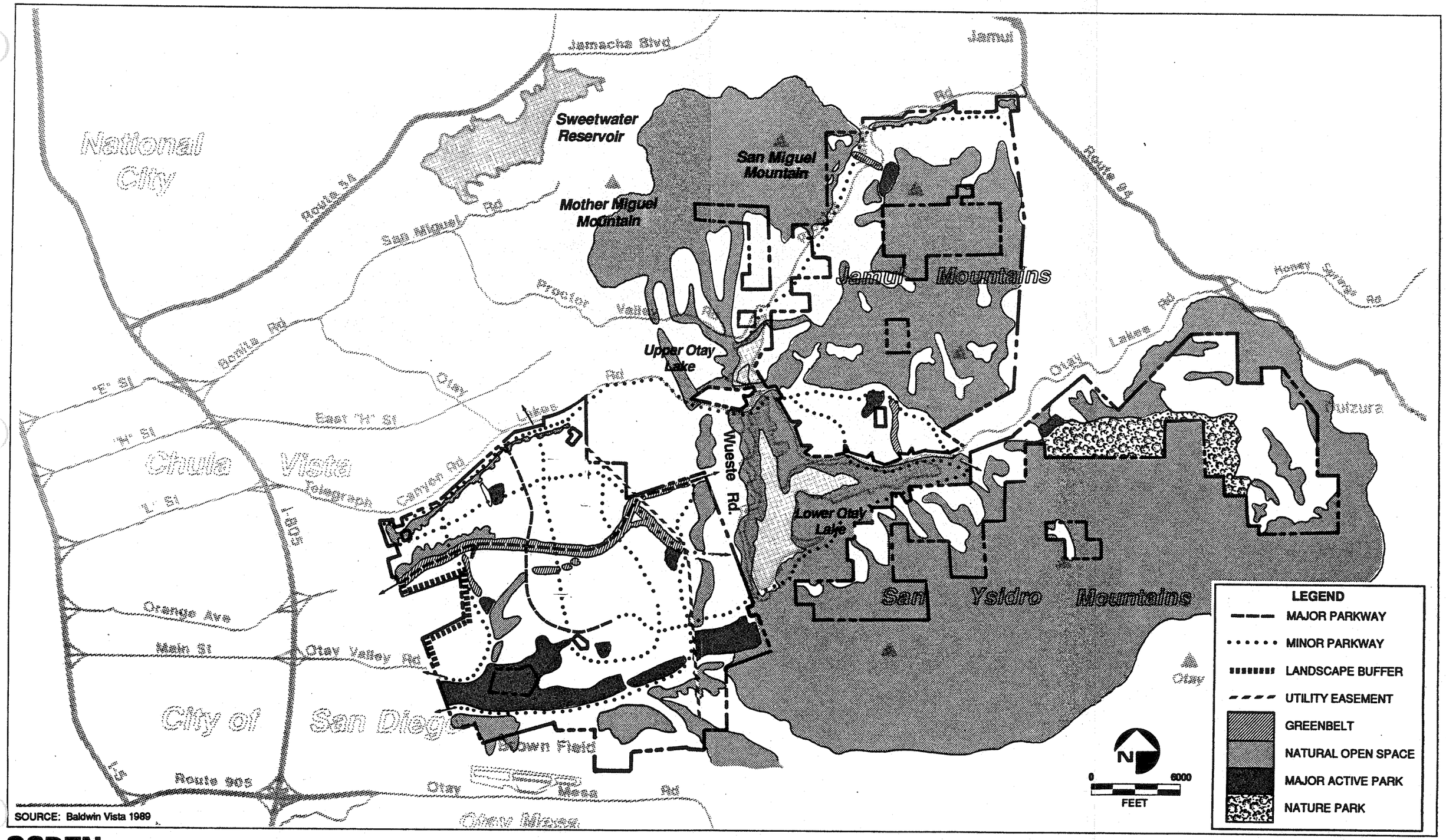
To support the development of the land use plan, the New Town Plan proposes a comprehensive circulation network for Otay Ranch and a series of public facilities improvements, such as a water distribution system, sewage conveyance system, and reclaimed water distribution network. Each component of the infrastructure system is described below. A more detailed discussion of these improvements is provided in Section 3.13. The actual sizing of infrastructure would be determined at the SPA level.

2.3.2.1 Circulation Element

The street network presented in the circulation element of the New Town Plan was developed based on a transportation analysis conducted for Otay Ranch. Figure 2.3-4 illustrates the proposed circulation system for the project. The primary feature of the circulation system is SR-125, an 8- to 11-lane freeway proposed to be extended by Caltrans through the western portion of the Otay River parcel. The remainder of the roadway network will be composed of a series of 6-lane prime arterials, 4-lane major roads, and 2- to 4-lane collector streets. Five interchanges with SR-125 are proposed within the Otay Ranch project. The primary changes to the existing circulation network are the realignment of Otay Lakes Road north of its current location near the lakes and south along the San Ysidro area, the realignment of Proctor Valley Road near Highway 94, and the extension of Orange Avenue from I-805. Three roadway crossings of the Otay River Valley, including SR-125, are proposed in the circulation map of the New Town Plan. Many of the proposed roadways are features of the existing Circulation Elements of the County of the San Diego and the City of Chula Vista.

To supplement the roadway improvements and provide alternative modes of transportation in the region, comprehensive transit and bikeway systems are proposed throughout the Otay Ranch project area. Express light rail transit is anticipated along SR-125 and Orange Avenue, and bus service routes are identified along the major surface streets. Four potential transit stations have also been located throughout the project area, including one at the Town Center site and three along SR-125, in the western portion of the project. The proposed bikeway system would include bike lanes within roadways, bike lanes within expanded parkways, and off-road bike trails. Signalization and signage would provide safety features to the bikeway system.

A comprehensive pedestrian and trail system is also proposed as part of the circulation element of the New Town Plan to encourage non-vehicular travel through the project. Pedestrian pathways (or sidewalks) would be provided along all major streets and parkways and within all greenbelts. The pathways are intended to encourage pedestrian access to high activity areas and to link the villages, Eastern Urban Center, university, and Town Center. An Otay Lakes waterfront walkway is also proposed along the southern edge of the Town Center. The walkway would be the alternative use of the former Otay Lakes Road alignment through the project area. The trail system would be incorporated into the three major open space areas in the Otay Valley Regional Park, San Ysidro Mountains Regional Nature Park, and Jamul Mountains. Wilderness trail systems through

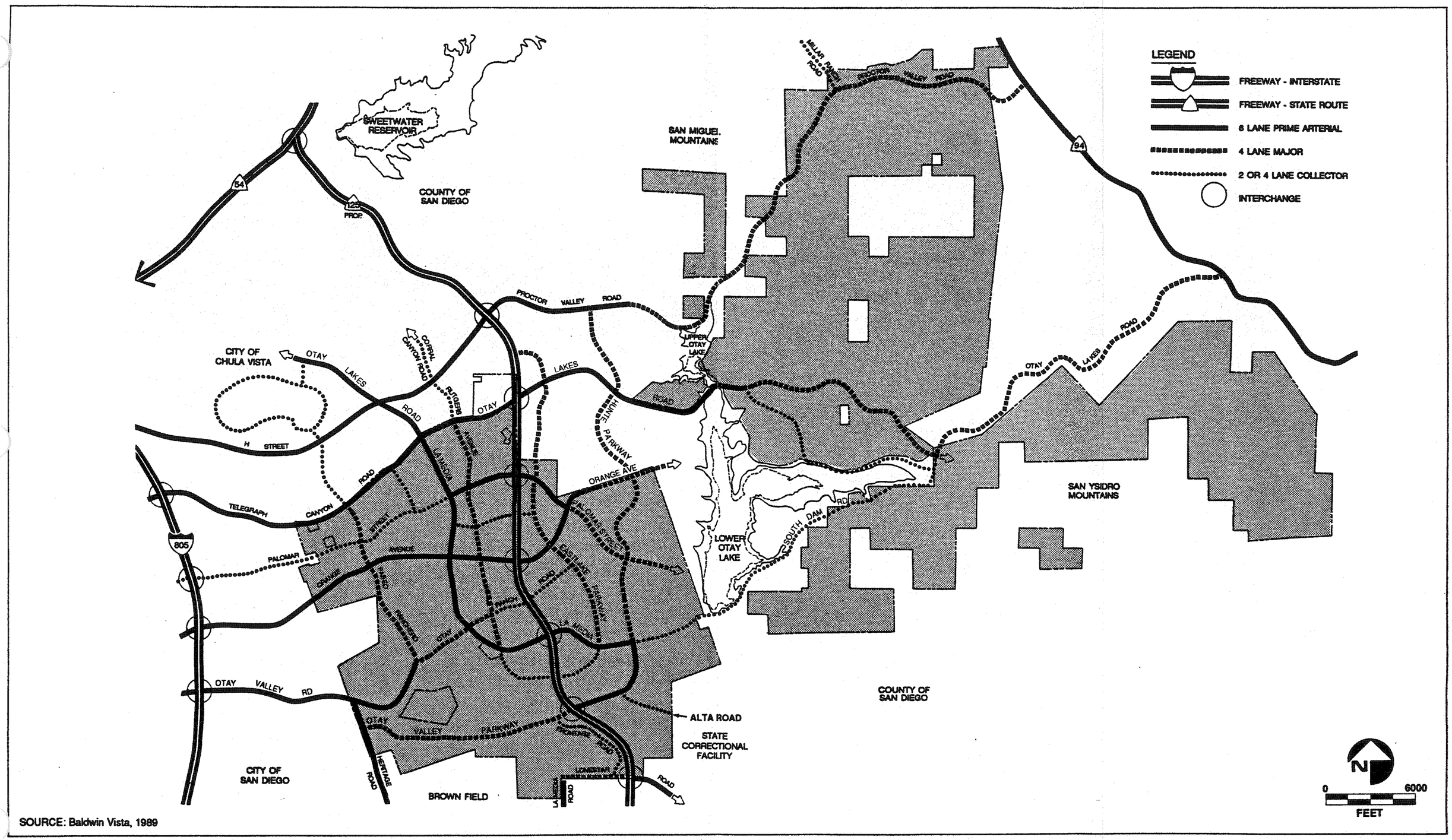


SOURCE: Baldwin Vista 1989

OGDEN

Open Space System

FIGURE 2.3-3



SOURCE: Baldwin Vista, 1989

OGDEN

Proposed Circulation System

FIGURE 2.3-4

these natural open space areas would link the project with offsite open space areas, such as Mt. Miguel near Proctor Valley and the BLM lands adjacent to the San Ysidro area.

2.3.2.2 Public Facilities Element

To convey water to and throughout the Otay Ranch project, the New Town Plan contains a water distribution system for each water pressure zone onsite. Within each of the five pressure zones, the system includes water distribution mains, booster stations, and treated water reservoirs. To supplement the domestic water system, reclaimed water use areas and a distribution system have been identified. The predominant use for reclaimed water would be irrigation of parkland and open space within the Otay River Valley Regional Park. No reclaimed water use is proposed in the Proctor Valley or San Ysidro areas of Otay Ranch because those areas drain to Otay Lakes.

A sewer service plan is also presented within the New Town Plan. A system of force mains, gravity lines, and lift stations comprise the proposed sewer conveyance system for Otay Ranch. In addition, a potential wastewater treatment facility has been identified within the plan which would connect offsite to the existing Metro system and/or ocean outfall.

An important component of the New Town Plan's infrastructure system is the urban runoff protection system designed to protect water quality in the Upper and Lower Otay Lakes which provide potable water to the City of San Diego. A reservoir protection system is proposed around Otay Lakes to control water quality, to increase the available storage in Upper Otay Lake, and to enhance the recreational opportunities available on both lakes. The principal features of the system are the dry weather diversion system and an emergency spill management system to prevent sewage spills from reaching the water. Implementation of the system may entail the installation of a series of pump stations and force mains ringing Lower Otay Lake. A coordinated effort between the Otay Ranch project and the nearby Otay filtration plant is proposed.

A draft drainage and flood control plan has also been prepared for Otay Ranch to address required drainage control facilities onsite. The infrastructure needs for drainage, however, have not been identified for the New Town Plan, and will be further refined in subsequent SPA phases.

Preliminary infrastructure needs for the New Town Plan are identified in the Implementation Plans prepared by Baldwin (see Section 3.13). The future preparation of SPA Plans for implementation of the New Town Plan will also provide master plans for schools, law enforcement services, fire protection/emergency medical services, civic/governmental services, and solid waste disposal. All of the master plans would be developed to be consistent with the Otay Ranch Implementation Plans. The master plans will reflect the requirements of the Implementation Plans and will be site-specific where necessary.

2.3.3 Proposed Design Features

The largest and most comprehensive section of the New Town Plan is the Design Element. The Design Element establishes a design framework for the New Town Plan in the form of residential building and streetscape standards, village center concepts, and design considerations for other land uses on Otay Ranch. Detailed goals and conceptual plans for the various proposed linkages among open space areas are presented. Conceptual park plans for Otay Valley Regional Park and typical community parks are illustrated. The element also features landscape treatments for utility easements, entry ways, parkways, and streetscapes. Illustrations of the typical grading concepts show the proposed blending with

the natural contours of the topography. Design considerations to be followed when developing specific plans for the special plan areas, such as the Rural Estate Planned Community in the San Ysidro area, are also discussed in the Design Element. A summary of the major design features of the New Town Plan is contained in Section 3.2.

2.4 DEVELOPMENT PHASING

During the 30- to 50-year development of the New Town Plan, the phasing of development would be based on completion of the 15 individual villages proposed onsite. Because the villages would not be independent entities, nor would they be repetitive in terms of community services, housing types, and facilities, the phasing would not be a simple progression of villages. Initially, the New Town Plan proposes the sequential development of the eight residential villages west of Otay Lakes, although the development scenario may entail the simultaneous construction of several villages, rather than a one-at-a-time approach. Implementation of the southern and eastern estate areas would likely proceed outward from the center of the community. Likewise, development of the Eastern Urban Center would likely occur in the latter phases of the project to lessen the economic effect on downtown Chula Vista. Despite the preliminary phasing plan envisioned at the time of the New Town Plan, the actual order of village development may vary as the needs of the community and region evolve.

Each subsequent development proposal would require a specific plan (or SPA plan) to be prepared for each village, the Town Center, the Eastern Urban Center, the university, and the Rural Estate Planned Community. In accordance with the programmatic nature of this document, each specific plan or SPA would be reviewed in accordance with CEQA and city or county environmental review guidelines. Submittal of tentative subdivision maps and final subdivision and parcel maps would be completed prior to the development of each village or project.

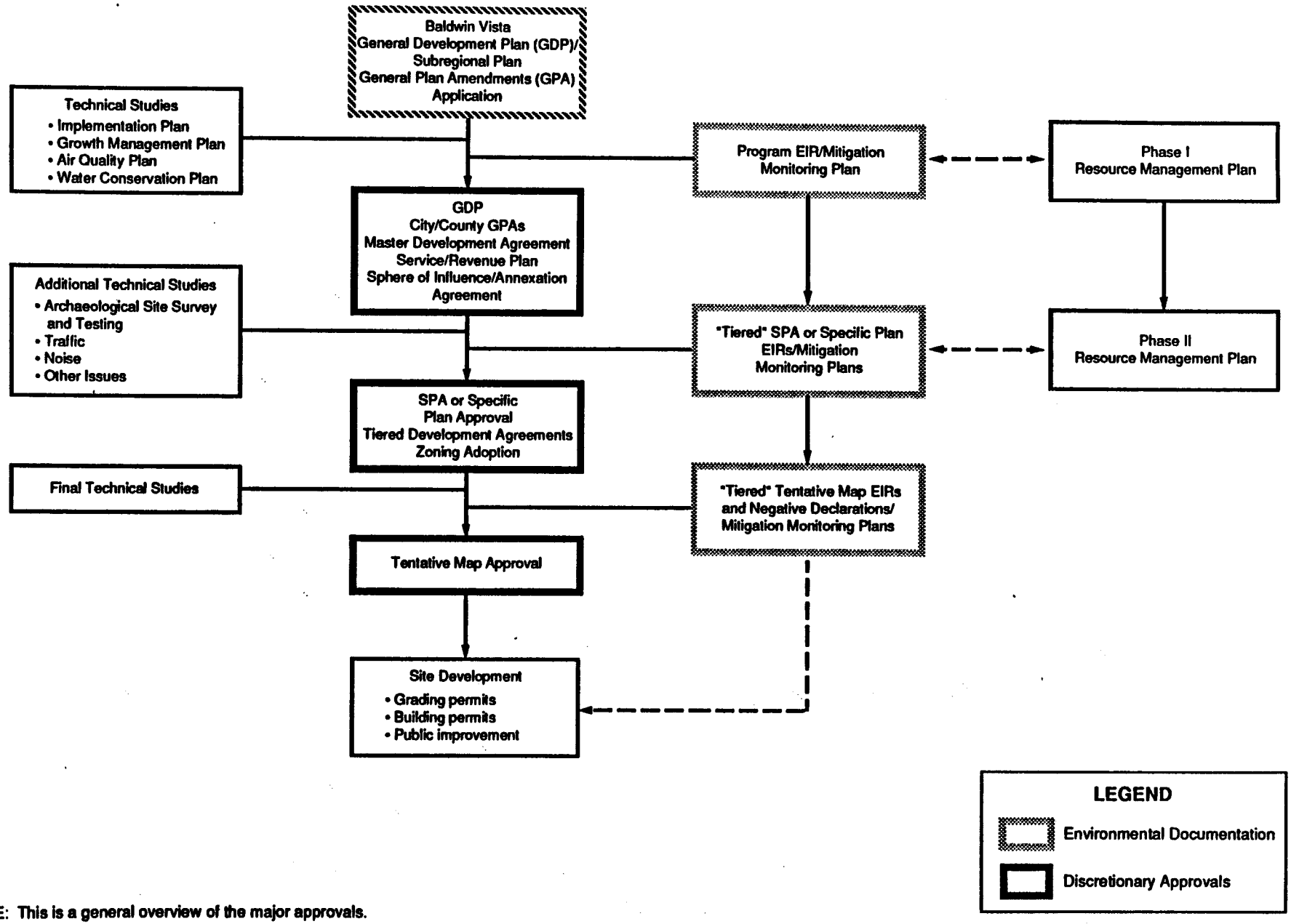
2.5 ASSOCIATED PLANNING DOCUMENTS

Several ancillary documents related to the EIR are being developed to guide the implementation of the New Town Plan (see Figure 2.5-1). The purpose of these documents is to provide policies for specific components of the Otay Ranch project that require particular attention from decision-makers. The following is a summary of those documents and their role in the implementation of the New Town Plan.

2.5.1 Resource Management Plan

The Resource Management Plan (RMP) for Otay Ranch presents a program that is designed to provide for the long-term protection and management of the diverse and sensitive natural, cultural, and scenic resources located on the entire Otay Ranch property. The RMP is being submitted to respond to City of Chula Vista and County of San Diego open space, resource protection, and regional recreation goals. The RMP will be prepared and implemented in two phases (see Figure 2.5-1). At the time of this EIR, Phase I of the RMP has been drafted and is now being reviewed and processed by the city and county. The goals and policies of the Phase I RMP focus on the creation of a management preserve that will provide for the protection, enhancement, and management of natural resources within a permanent open space system. In addition to the establishment of the preserve, the RMP policies will create research opportunities and provide educational benefits to the local Otay Ranch community and the south county region.

For development in natural areas located outside the designated management preserve, each biological habitat will be reviewed with respect to the provisions of the RMP.



NOTE: This is a general overview of the major approvals.

OGDEN

Development Approvals Process for Otay Ranch

FIGURE

2.5-1

Preservation, enhancement, and restoration of existing habitats and the re-establishment of wetlands and riparian habitat in the Otay River Valley will provide the principal mitigation for the loss of natural areas on Otay Ranch. In addition to the resource protection it will provide, the RMP will serve as the functional equivalent of the county's Resource Protection Ordinance (RPO) for Otay Ranch. In that capacity, the RMP will augment the RPO by including a long-term resource protection and management program and the necessary implementation tools. Beyond the county RPO, the resource protection program addresses state and federal regulatory requirements in light of the resources present onsite.

Phase II of the RMP will involve continued resource studies, selection of a preserve owner/manager, and formulation of programs for the phasing, funding, and monitoring of the effectiveness of the RMP. Phase II will be completed prior to approval of the first SPA Plan for Otay Ranch. Phase II will also involve the continued implementation of the resource protection and management measures, integration of the ongoing studies and research findings into the SPA Plans, and monitoring the success of previous RMP implementation. The preserve will be conveyed in phases during the buildout of Otay Ranch.

The RMP is designed to provide an overall framework for the protection of sensitive resources within Otay Ranch. Resources addressed in the RMP that are analyzed in the Program EIR include: biological resources, cultural resources, paleontological resources, floodplains, agriculture, and steep slopes. In many cases, the objectives, policies and standards presented in the RMP form the basis for mitigation measures presented in the Program EIR. While the RMP presents policies and programs for the protection and enhancement of sensitive resources, the Program EIR with its associated statutory requirements, provides the vehicle for ensuring that the policies and programs included in the RMP are implemented.

2.5.2 Implementation Plans

The Implementation Plans set forth the master plans of public facilities, their goals, objectives, policies, implementation measures, and financing and implementation (see Figure 2.5-1). They include a description of the distribution, location, extent, management, and maintenance of public facilities. The plans include phasing by villages and a program for adjusting or updating facility information to account for actual use and needs on an annual basis.

2.5.3 Growth Management Plan

The Growth Management Plan (GMP) coordinates the provision of public facilities with the phasing of development and the transportation system (see Figure 2.5-1). It contains the substantive and procedural requirements which govern the circumstances under which development may proceed consistent with the land use plan. Specifically, the Growth Management Plan establishes goals, performance thresholds, phasing policies, processing requirements, and a monitoring and evaluation program to ensure compliance.

2.5.4 Air Quality Plan

The Air Quality Plan analyzes the air quality impacts of Otay Ranch and identifies programs and strategies to reduce vehicle trips and miles and to maintain and improve traffic flow.

2.5.5 Water Conservation Plan

The Water Conservation Plan addresses Otay Ranch's proposed policies for the use of reclaimed water as well as other measures to conserve and reuse water in the residential, commercial, and industrial components of the project.

2.6 REQUIRED DISCRETIONARY ACTIONS

2.6.1 Project Approvals

The proposed Otay Ranch project requires several joint discretionary actions by the City of Chula Vista and County of San Diego. The major approvals are General Plan Amendments (GPA) for both the City of Chula Vista and County of San Diego General Plans and the respective General Development Plan and Subregional Plan (see Figure 2.5-1). These approvals will determine the maximum number of units to be developed on Otay Ranch. Additional approvals include a Zone Reclassification and Development Agreement.

In the City of Chula Vista, the GPA will amend the Land Use Element and the land use plan for the City General Plan. Additional land use amendments would include the incorporation of new land use categories and villages, reconfiguration of the Chula Vista Greenbelt/Open Space Network, and necessary text changes associated with the new land use plan. Revised alignments for Otay Lakes Road and Orange Avenue and changes to roadway classifications of various segments in the Circulation Element will also be included in the GPA. All maps in the Public Facilities Element would be amended to incorporate various Otay Ranch facilities. The Growth Management Element would also be amended to reflect Otay Ranch's contribution of population and infrastructure to the city. The entire map, plan and text of the Eastern Territories Area Plan would be updated and revised to reflect the Otay Ranch project. The amended City of Chula Vista General Plan will establish the Otay Ranch Planned Community (PC) zoning district.

The City of Chula Vista has developed thresholds or standards for the following services: drainage, traffic, air quality, water, sewer, police, fire, emergency medical, schools, libraries, and parks and recreation. The city has reviewed the proposed implementation plans for these services to ensure adequate service levels for Otay Ranch.

The GPA processed through the county will amend the Otay Subregional Plan and the Jamul-Dulzura Subregional Plan. The GPA would primarily entail a revision of the land use map of the Regional Land Use Element. The county GPA of the Regional Land Use Element includes a shift of the Urban Limit Line to expand the Current Urban Development Area (CUDA) Regional Category to include all of Otay Ranch. The entire property will also be placed in Specific Plan Area (SPA) 21 of the Otay and Jamul-Dulzura Subregional Plans. Zoning is anticipated to be S-88. The project would require annexation to the County Water Authority for provision of water; if annexation could not occur, a new proposal for project land use would have to be developed. The Otay Ranch project will remain within the boundaries of the existing Otay and Jamul-Dulzura Subregional Plans, until a determination is made on which portions of the property will be annexed to the City of Chula Vista. Under the proposed county GPA, text changes discussing Otay Ranch will be added to the subregional plans. At the time of annexation, a General Plan Amendment will be filed to amend the subregional plan boundaries to remove the annexed areas.

In conjunction with the land use changes, amendments to the County Circulation Element include revisions to the proposed alignments of Proctor Valley Road, Otay Lakes Road, and various roadway classifications. Amendments to the transportation section of the Public Facility Element would also be necessary to bring the project into consistency with

county road standards and to ensure transportation mitigation is implemented to maintain roadway level of service. The Water Provision Systems section of the Public Facility Element would be amended to ensure development approval is tied to the provision of water.

Amendments to the City of San Diego's Otay Mesa Community Plan are not necessary. An Annexation Plan is not proposed for approval at this time. Both the City of San Diego and the County of San Diego must approve, however, the proposed General Development Plan/Subregional Plan and the Public Benefit Agreement/Master Development Agreement for the project. Approval of Phase I of the RMP is also necessary at this time.

2.6.2 Subsequent Approvals and Environmental Review Process

The following federal, state, and local permits or approvals will be required following approval of the program EIR and prior to site development.

2.6.2.1 Federal Approvals

- Section 404 Permit (U.S. Army Corps of Engineers)
- Section 7 Consultation (U.S. Fish and Wildlife Service)

2.6.2.2 State Approvals

- Streambed Alteration Agreement (California Department of Fish & Game)
- Freeway Access Agreement (California Department of Transportation)
- Border Zone Determination (California Department of Health Services)

2.6.2.3 Local Approvals

- Air Quality Permits for Industrial Facilities (Air Pollution Control District)
- National Pollutant Discharge Elimination System Permit (Regional Water Quality Control Board)
- Tentative Subdivision Map
- Major Use Permit(s)
- Specific Plan or SPA Plan
- Road Openings, Closings, and Extensions (Offsite)
- Site Plan Review/Design Review
- Development Regulations
- Design Guidelines
- Condemnation
- Assessment District
- Special District(s)
- LAFCO Special Study Area
- Roadway and Utility Easements
- Annexations and Detachments

SECTION 3
ENVIRONMENTAL ANALYSIS OF NEW TOWN PLAN

Section 3 presents a discussion of the existing environment and the environmental impacts that would result from development of the proposed New Town Plan on Otay Ranch. The discussion is presented by issue area, including mitigation measures proposed by Baldwin and incorporated into the New Town Plan and additional measures recommended by the project team, and the significant impacts which would remain after mitigation.

The information summarized in this section of the EIR was obtained from field surveys of the project area, published and unpublished sources, and discussions with representatives of government agencies. The affected environment varied with different issue areas. For some issue areas, such as vegetation and soils, the affected area was considered to be the Otay Ranch property. For other issue areas, such as air quality and transportation, the affected area was more regional in nature. For each issue area, the affected environment was determined by the extent of the potential environmental impacts of the New Town Plan.

The environmental impacts associated with the onsite alternatives to the New Town Plan are discussed in Section 4 of the EIR; offsite alternatives are discussed in Section 5; and cumulative impacts are discussed in Section 6.

3.1 LAND USE, PLANNING, AND ZONING

3.1.1 Existing Conditions

3.1.1.1 Present Land Uses Onsite

The proposed project site is generally undeveloped, and much of the land is used for agriculture and occasional cattle grazing. Most of the agricultural use is for dry farming. More details on the property's agricultural setting are included in Section 3.7, Agricultural Resources.

The property also includes a complex of buildings, including six houses and a stable, that is associated with the former Birch residence (the Otay Ranch House) on 130 acres located southwest of Upper Otay Lake (Figure 3.1-1). Other scattered land uses are found on the Otay River parcel and include the following (Figure 3.1-1): the old headquarters for the Otay Ranch operations (the Old Ranch Complex), which include approximately nine houses and a number of old agricultural-related structures, such as sheds and barns, located in the western portion of the property off Telegraph Canyon/Otay Lakes Road; a small private shooting range located north of Otay River; a recycling operation located at the western property boundary north of Otay River; the Target Tossers Gun Club, a public shooting range located at the western property boundary south of Otay River; two houses and several sheds known as the Bird Ranch located south of Otay River; and one house located in the extreme southwest corner of the property.

Other uses of the 23,088-acre property include various utility easements and roads. Figure 3.1-2 shows existing easements on the project site. These include the San Diego County Water Authority (CWA) Aqueduct, several smaller water line easements of the Otay Water District (OWD), a City of San Diego water pipeline easement, San Diego Gas and Electric (SDG&E) transmission lines, and a sewer easement for the state prison. All but one of these easements occur on the Otay River parcel of the project site, west of Lower

Otay Lake. The exception is the 200-foot SDG&E transmission corridor that crosses the Proctor Valley and San Ysidro parcels from southeast to northwest and west.

The only public road that crosses the project site is Proctor Valley Road, a dirt road running through the Proctor Valley parcel. The property is, however, transected by numerous dirt agricultural roads. The site is bounded partly by Otay Valley Road (southwest boundary for the Otay River parcel), Telegraph Canyon Road/Otay Lakes Road (northern boundary for the Otay River parcel), Otay Lakes Road (southern boundary for the Proctor Valley parcel/northern boundary for the San Ysidro parcel), and Melody Lane/Proctor Valley Road (northern boundary for the Proctor Valley parcel).

Land-locked parcels within the Otay Ranch boundaries that are not within the applicant's ownership include a Federal Aviation Administration (FAA) VORTAC tower, a City of San Diego water reservoir, an Otay Water District (OWD) water reservoir, two other private landholdings including one that is part of EastLake, and the Nelson and Sloan quarry (all of the preceding being in the Otay River parcel), and one private landholding and two Bureau of Land Management (BLM)-administered parcels in the Proctor Valley parcel (Figure 3.1-1).

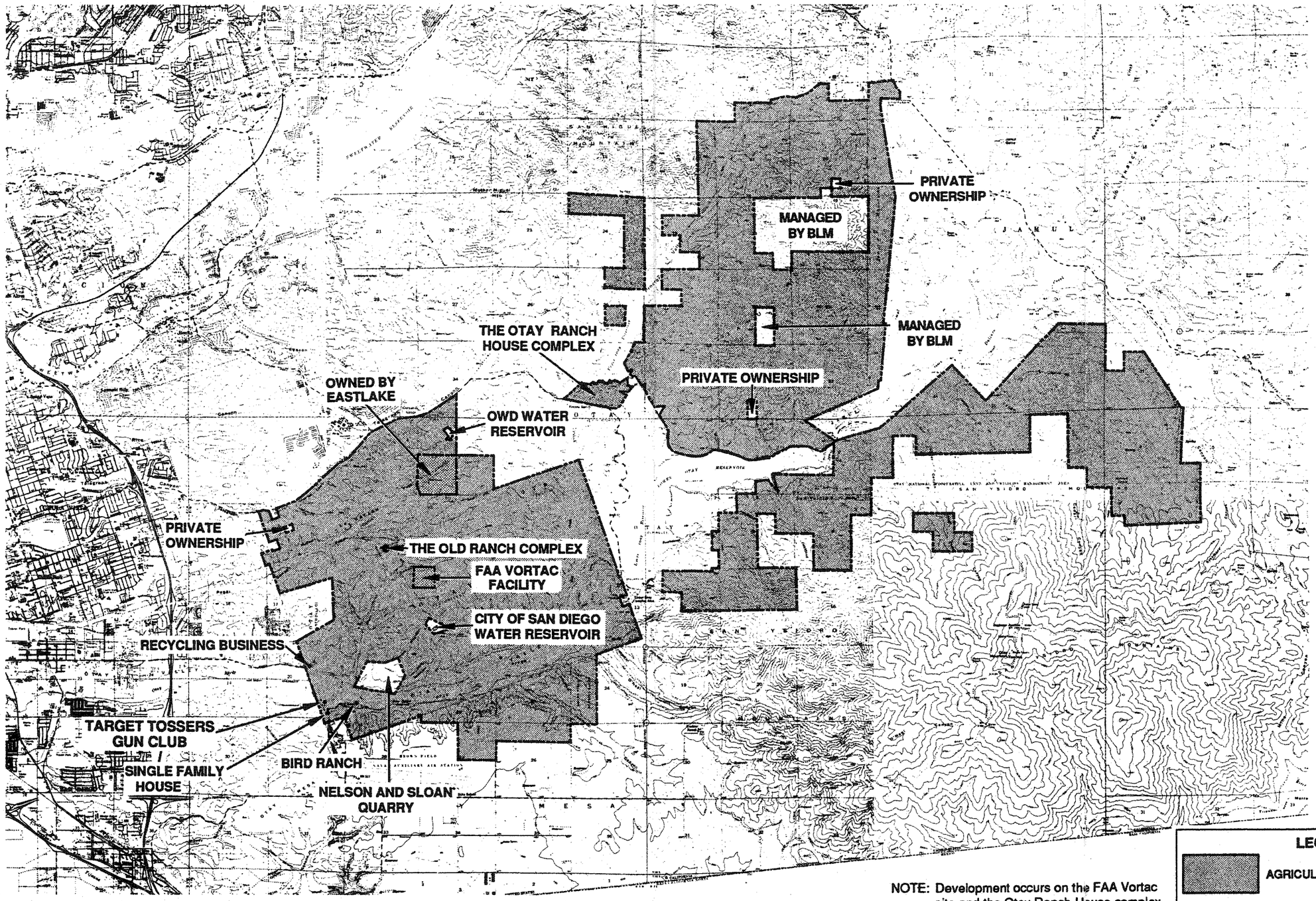
The Nelson and Sloan Mining Operation is an active rock quarrying and crushing operation occupying approximately 150 acres of the Otay River parcel at the southwest base of Rock Mountain. The quarry is composed of an 82-acre borrow pit which is used to extract gravel and soils. A county-approved reclamation plan (RP-79-09) identifies five phases and a future reserve area for the site over the next 15 years. A Major Use Permit application (MUP 89-011) for sand and asphalt extractive operations on 25 acres within the center of the borrow pit and a new reclamation plan have also been filed with the county and are being processed at this time. The quarry site, as well as the right to mine approximately 2,200 acres elsewhere in the Otay River Valley (on the project site), has been granted under a 50-year lease to Nelson and Sloan from the previous Otay Ranch property owners. Additional mining in the Otay River Valley is allowable under existing county zoning, land use designations, and permits, but the area has already been mined in the past and there are no known plans for its re-mining (F. Arbuckle, personal communication, 1991).

3.1.1.2 Surrounding Land Uses

The area surrounding the project site includes Otay Mesa, eastern Chula Vista, the San Ysidro Mountains, the Jamul Mountains, and the Otay Lakes. The City of Chula Vista abuts the Otay River parcel's westernmost and northernmost property line, while City of San Diego lands in Otay Mesa abut its southernmost boundary. The United States/Mexico international border lies only 2 miles to the south of the Otay River parcel's southernmost property line. Areas to the south, west, and north of the project site (i.e., Otay Mesa and eastern Chula Vista) are areas that are rapidly developing as parts of the City of Chula Vista or San Diego. Several large public projects have also been located in these areas in the past 5 to 10 years. Figure 3.1-3 shows major existing or approved development in the vicinity of Otay Ranch. These projects are described in the following text according to general location.

Otay Mesa

Major land uses near the project site in Otay Mesa include the Brown Field Municipal Airport, the East Mesa Detention Facility, the Richard J. Donovan Correctional Facility, a variety of industrial developments, and agricultural land.



NOTE: Development occurs on the FAA Vortac site and the Otay Ranch House complex.

SOURCE: ERCE 1991

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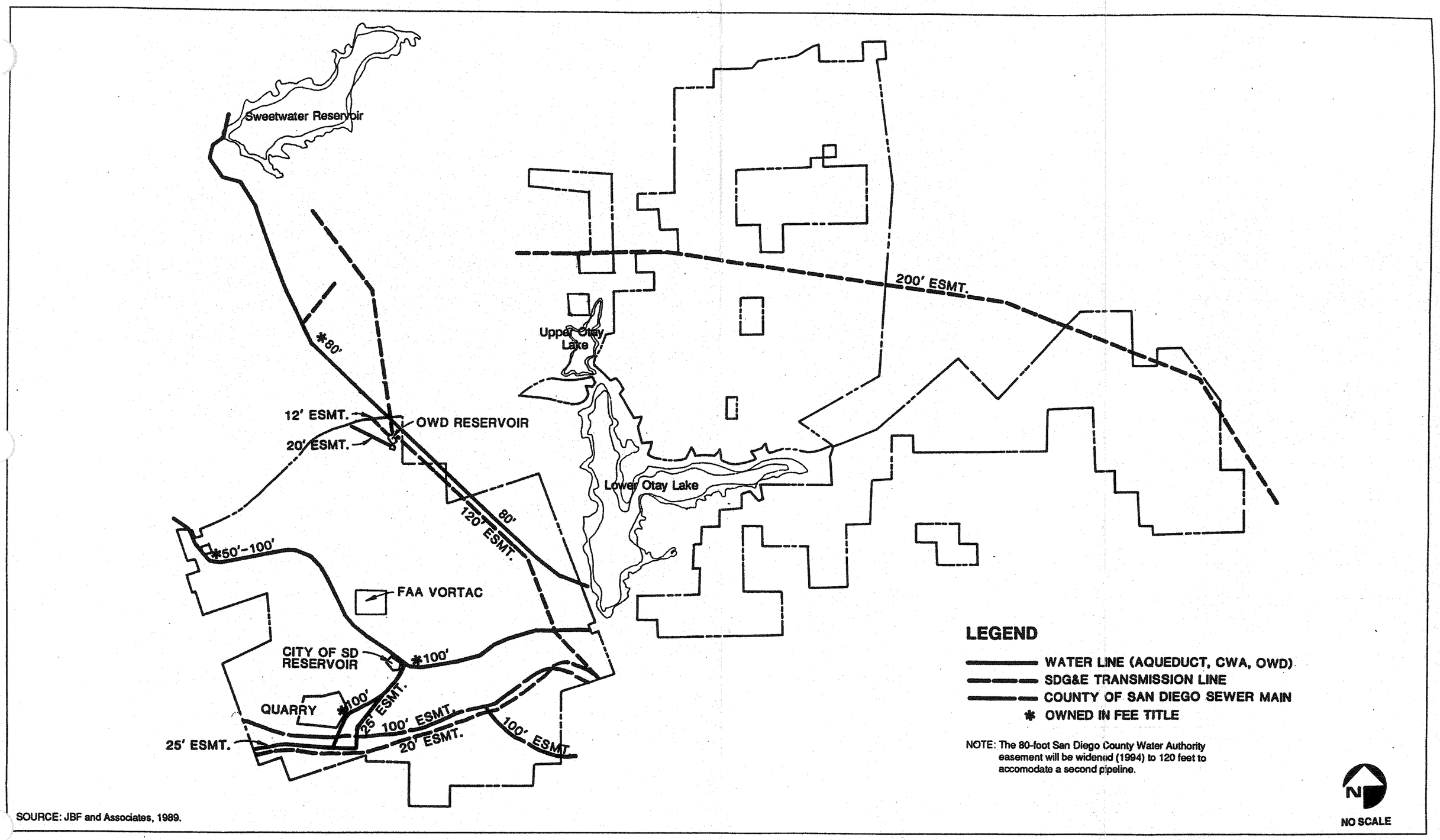
Existing Land Use

FIGURE 3.1-1



SOURCE: JBF and Associates, 1989.

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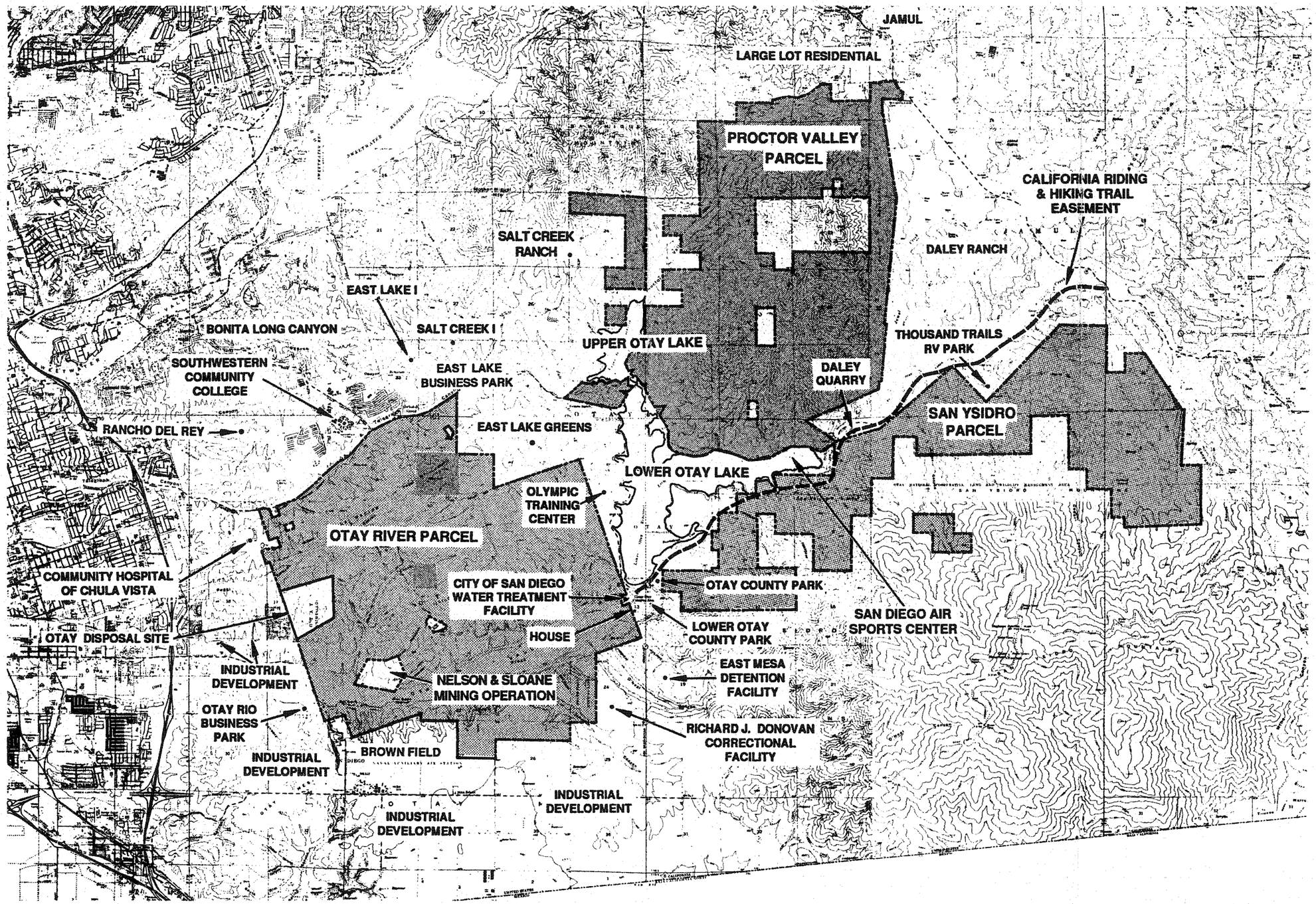
Existing Utility Easements

FIGURE 3.1-2



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Major Existing and Approved Development in the Vicinity of the Project Site

FIGURE 3.1-3

- Brown Field Municipal Airport, a general aviation airport that accommodates both propeller and jet-powered aircraft, is located immediately south of the Otay River portion of the project site (Figure 3.1-4). In 1978, the annual operations of the airport were 247,105, with annual projections for the year 2000 at 442,015 (SANDAG 1981). Its current rated capacity is 36,875 operations per month (JBF & Associates 1989b). The predominant flow of air traffic associated with Brown Field is north-south along the coast, while the predominant runway alignments are east-west (SANDAG 1981). The airport is owned and operated by the City of San Diego, but is under the planning jurisdiction of SANDAG, appointed by the county to be the Airport Land Use Commission for Brown Field.

- The county's East Mesa Detention Facility and the state's Richard J. Donovan Correctional Facility are located immediately southeast of the Otay River portion of the project site. Located on opposite sides of a mesa bisected by O'Neal Canyon, the county detention center (currently under construction) will ultimately house a maximum of 6,000 maximum- and medium-security inmates, while the state facility (already occupied) is designed to house 4,000 medium- to maximum-security inmates. Both facilities include guard towers, lights, and double chain-link fences topped by razor wire. Access to both facilities is from the south via SR-905.

- Otay Mesa also contains several areas of industrial development, some of which abut the Otay Ranch property and others which are located farther south. Directly west of the southwest corner of the property are graded pads for the Otay Rio Business Park. South of the site along Otay Valley and Heritage Roads is an area developed with numerous auto wrecking yards and other types of industrial land uses. East of Brown Field the land is primarily under cultivation. However, several existing industrial parks and others currently under construction are found along Otay Mesa Road (Figure 3.1-3).

Eastern Chula Vista

The area directly west and north of the Otay River portion of the project site lies primarily within the city limits of Chula Vista, or is within the city's Sphere of Influence and has been proposed for eventual annexation by the city. West of the site is residential and industrial development including the county's Otay Disposal Site and several industrial parks. Eastern Chula Vista to the north of the site is characterized by residential development with supporting commercial/industrial and public land uses. Much of the area is currently or has recently been master planned to phase the residential development appropriately with the other types of supporting land uses. Developments approved or already under construction in the vicinity of the project site that exemplify this approach include Sunbow, Rancho del Rey, Bonita Long Canyon, Salt Creek I, and EastLake (Figure 3.1-3). Other major land uses in the vicinity of the project site include Southwestern Community College, the Community Hospital of Chula Vista, and a mobile home park.

- The Otay Disposal Site, which includes the Otay Landfill, is located adjacent to the western boundary of the Otay River parcel north of Otay Valley Road at the north end of Maxwell Road. The landfill itself is operated by the County of San Diego and is a Class II-2 landfill (which means that it accepts municipal, non-hazardous waste only). The remainder of the disposal site was formerly a Class I landfill and collection area (which means that it accepted hazardous materials). This part of the disposal site is actually owned by the City of San Diego, but is

leased by the County with an option to buy (Willens, personal communication, 1991). and is located approximately 1,200 feet away from the closest portion of the Otay Ranch property (JBF & Associates 1989b). No hazardous wastes have been accepted at the Otay Disposal Site for landfilling since 1980 (JBF & Associates 1989b). Appropriate Technologies II currently operates a hazardous waste reprocessing operation and transfer station at the landfill (D.Reid, personal communication, 1991). The site also includes a pipeline collection system and methane power plant. A study is underway to consider expansion alternatives for the landfill. The landfill is currently scheduled to close by 1999 (Willens, personal communication, 1991). Alternative sites are also being considered, two of which are located on the Otay River parcel of Otay Ranch.

- Sunbow is a 700-acre project located immediately west of the Otay River portion of the project site on the south side of Telegraph Canyon Road. The first phase of the project is already constructed and is comprised of approximately 485 single-family units on 100 acres. At buildout of subsequent phases of the project, the total number of dwelling units is proposed to be 2,400, with an average density of 3.4 dwelling units/acre (du/ac) (JBF & Associates 1989b).

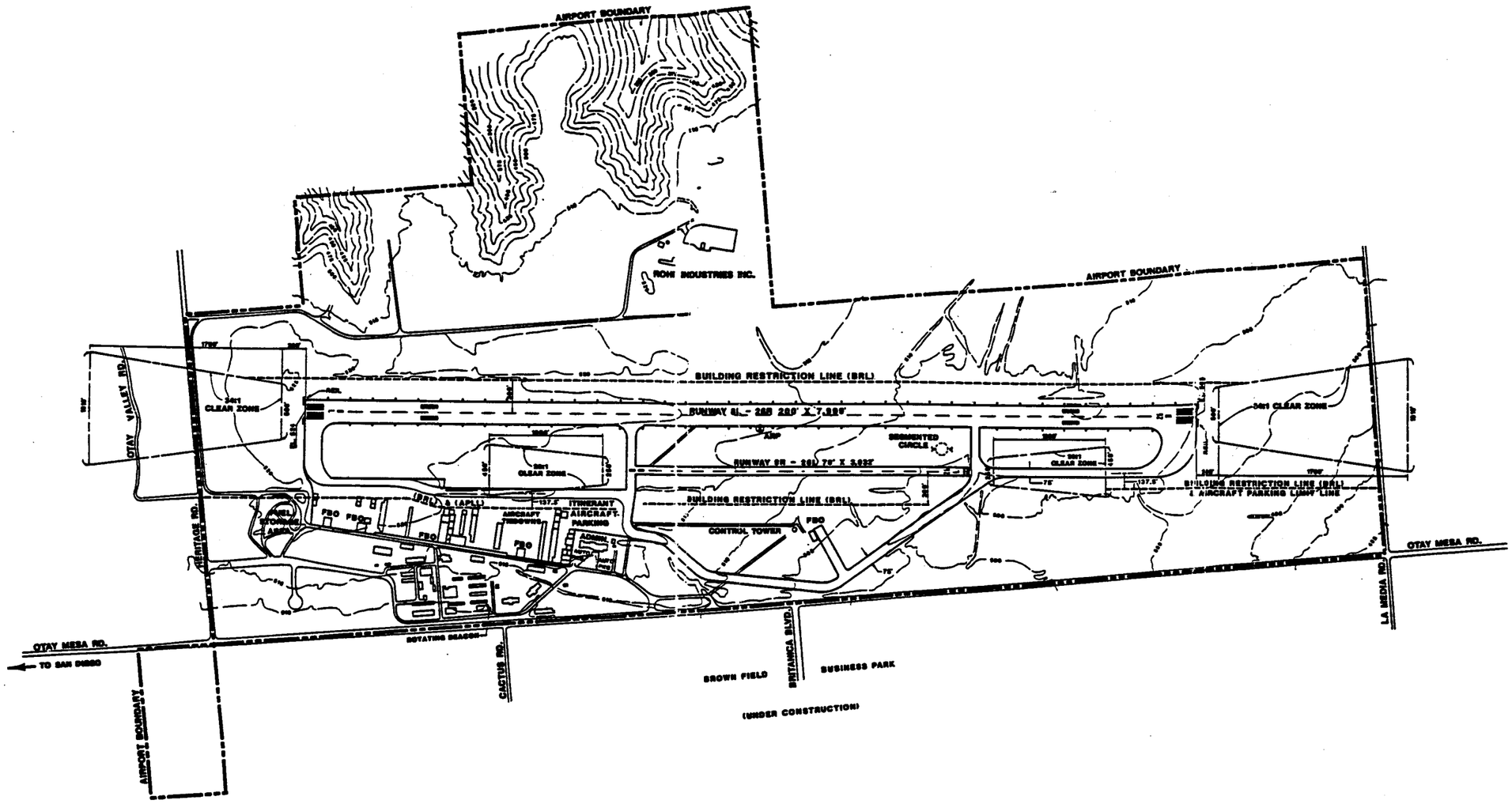
- Rancho del Rey is located to the north of Sunbow. Its southernmost boundary is across Telegraph Canyon Road from the Otay River parcel's northern property line. The development is a 1,600-acre master planned development on both sides of East "H" Street in the City of Chula Vista and will include an employment park, schools, a library, parks, open space, and over 4,000 dwelling units at an average density of 2.5 du/ac. The first phase of the development is currently under construction (JBF & Associates 1989b).

- Bonita Long Canyon is an 650-acre master planned development located north of the Otay River parcel at the northeast corner of Otay Lakes Road and East "H" Street. This development is under construction and includes 860 single-family homes on 0.25- to 0.5-acre lots (JBF & Associates 1989b).

- Salt Creek Ranch is a 1,200-acre master-planned community located near the intersection of future SR-125 and East H Street. This project has GDP approval for 2,817 units. SPA plans were recently approved for 2,662 units (Baldwin Vista 1992.)

- Salt Creek I was recently approved by the City of Chula Vista and is located immediately north of the Otay River parcel across Otay Lakes/Telegraph Canyon Road. The project will be located on 130 acres and will involve the construction of 550 dwelling units (JBF & Associates 1989b).

- EastLake is a 3,073-acre master planned community that is contiguous to the eastern and northern boundaries of the Otay River parcel. To be constructed in multiple phases, the development will, at buildout, include 8,900 residential units of various types at an overall average density of 2.9 du/ac. Also included in the plans are 280 acres of industrial land, 100 acres of commercial/office uses, and supporting parks, schools, churches, etc. (JBF & Associates 1989b). EastLake I has been completed, and development of EastLake II (EastLake Greens) and EastLake III (the Olympic Training Center) has begun.



SOURCE: Master Plan Update: Brown Field Municipal Airport, P & D Technologies, 1990.

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Existing Brown Field Municipal Airport

FIGURE

3.1-4

- The Olympic Training Center (OTC) is located immediately west of Lower Otay Lake and is part of the EastLake III project. The OTC occupies a 150-acre site and will eventually include 200 high density residential units, 167,750 square feet of administrative offices, a conference center, a visitor center and gift store, dining facilities, sports medicine and sports science space, a 50,000-square-foot multi-sport field house. Outdoor facilities will include a 50-lane archery range, a 400-meter track, a field for throwing, two field hockey fields, six soccer fields, twelve tennis courts, a 50-meter outdoor aquatics center, a multiple-bay boathouse, a closed loop criterium course, and a push-start facility for bobsled and luge (City of Chula Vista 1989).

Jamul

To the north of the Proctor Valley parcel lie the communities of Jamul and Rancho San Diego. Most of the land in the vicinity of the project site to the west and east is vacant; south, north and northwest of the Jamul Mountains, the land consists of broad gentle mesas used for agriculture and grazing (Proctor Valley on and adjacent to the site), while terrain in the central and eastern part of the Proctor Valley parcel consists of more rugged, steep open space (San Miguel Mountain on the west and Jamul and Callahan Mountains to the north and east). Development is concentrated primarily around the SPA of Rancho San Diego to the north and the rural community of Jamul to the northeast. Jamul is one of the largest of the existing communities in this area and comprises primarily large-lot estates, horse farms, and agriculture. Large-lot residential development (i.e., 1 and 2-acre lots) associated with southern Jamul (Echo Valley) is located adjacent to the north of the Proctor Valley parcel along Melody Lane/Proctor Valley Road. Other specific land uses in the general vicinity include the Las Montanas Golf Course and Daley Ranch.

- Rancho San Diego is a 2,900-acre SPA that is currently under construction to the west of Jamul, immediately northeast of the Sweetwater Reservoir. It will have 6,160 residential units at an average overall density of approximately 2.2 du/ac, and 130 acres of commercial and industrial uses (JBF & Associates 1989b).

- The Los Montanas Golf Course is located north of the Proctor Valley parcel to the east of Jamul. Part of a 700-acre SPA, the golf course has already been approved. Other details of the specific plan currently under review include a 300-room hotel and conference center and 170 residential units.

- Daley Ranch is located immediately adjacent to the Proctor Valley and San Ysidro parcels to the east and north, respectively. The total ranch holdings are 7,000 to 8,000 acres, most of which consist of open space used for cattle grazing and agriculture.

- Ranch Jamul Estates is an existing residential single-family development located est of the Proctor Valley parcel on the east side of Highway 94.

San Ysidro Mountains

The area surrounding the San Ysidro parcel is primarily open space. A Thousand Trails Recreational Vehicle (RV) Park and the Daley Quarry are located between the Proctor Valley and San Ysidro parcels off Otay Lakes Road. Other recreational land uses are located to the west of the San Ysidro parcel at Lower Otay Lake, the Lower Otay County Park and Otay County Park located on the southern side of Lower Otay Lake, and the San Diego Air Sports Center located on the eastern side of Lower Otay Lake. Approximately

2 miles east of the San Ysidro parcel is the rural community of Dulzura. Similar to Jamul only smaller, Dulzura is rural in nature with residential development occurring on large-lot estates; horse farms and agriculture are the primary industries. Land located directly south of Otay Ranch in the San Ysidro area is primarily open federal land administered by the BLM.

- The Thousand Trails RV Park is located in Big Cedar Canyon off Otay Lakes Road and abuts the San Ysidro parcel of Otay Ranch along the RV park's southern and western boundaries. The park is a membership RV park that includes RV camp sites, a small store, laundry facilities, and recreational facilities such as a swimming pool, shuffleboard, horseshoes, and a playground.

- Daley Quarry is located just east of Lower Otay Lake off the south side of Otay Lakes Road. The 27-acre quarry currently has a valid operating permit and an extension of that permit is being sought through the county to allow for the expansion of mining operations. The San Ysidro parcel of Otay Ranch abuts the quarry property on the quarry's southern boundary.

- Otay Lakes and the surrounding area are owned primarily by the City of San Diego. The lakes are used for water storage and for passive recreational activities such as fishing and boating. (Lower Otay Lake has a small boat dock located off Wueste Road.) Once the Olympic Training Facility is completed to the west, rowing events are also planned. Other land uses located at the southern end of Lower Otay Lake include the Lower Otay County Park, a City of San Diego water treatment facility, and a single-family home. The County park has recently been closed due to budgetary constraints (Mack 1991).

- The San Diego Air Sports Center is located on the eastern side of Lower Otay Lake adjacent to the San Ysidro parcel of the project site. The sports center consists of a dirt airstrip and supporting structures and is used for sky diving and ultralight activities. The sports center leases the property from the City of San Diego and operates under a Conditional Use Permit from the County of San Diego. Its lease with the City of San Diego expires in 1997, but includes a 5-year option. The current county permit expires in 1994. The sports center is open from 7 a.m. to sunset, Wednesday through Sunday, and is subleased by an ultralight club for its use during those days. The center owns two Cessna 206 aircraft, which it uses for skydiving activities from Thursday through Sunday. Actual operations on a daily basis vary.

- A 20-foot-wide easement for the California riding and hiking trails runs from Savage Dam, along the south shore of Lower Otay Lake, and along Otay Lakes Road to Highway 94 (refer to Section 3.13.9, Parks, Recreation, and Open Space, for further discussion).

3.1.1.3 Planning Considerations

The project site, with the exception of approximately 390 acres in the southern portion of the property that are in the City of San Diego, lies within unincorporated areas of the County of San Diego (the Otay and Jamul-Dulzura subregions). However, most of the Otay River portion of Otay Ranch that is within the county also lies within the City of Chula Vista's General Planning Area. (This part of the project site is within a Special Study Area of the Local Agencies Formation Commission (LAFCO) to study the proper jurisdiction for this area.) Thus several planning documents and policies must be

considered when evaluating the proposed and alternative actions for the project. In addition, lands adjacent to various parts of the project site are under the jurisdiction of the San Diego Association of Governments (SANDAG) (Brown Field), the City of San Diego, the City of Chula Vista, the County of San Diego, and the BLM. The project's effects on plans and policies in these adjacent areas must also be considered. Figure 3.1-5 summarizes the jurisdictional interests in the project vicinity.

The following subsections identify pertinent land use designations, zoning, and land use policies of the above-mentioned jurisdictions as they relate to the Otay Ranch project. It should be noted that some or all of these jurisdictions may also have policies and plans relating to other issue areas such as agriculture, noise, visual resources, public services and facilities, the conservation of natural resources, etc. These policies and plans are discussed, as appropriate, in the relevant sections of this EIR. Growth policies are discussed in Section 7, Growth Inducement. It should also be noted that concurrent within the Otay Ranch planning process, plans for the proposed Otay Valley Regional Park are currently underway. The Otay Valley Regional Park planning efforts are discussed in Section 3.13, Public Services and Utilities.

County of San Diego

Otay Ranch is within the jurisdiction of the Otay and Jamul-Dulzura Subregional Plans (Parts XXIII and XXIV of the San Diego County General Plan-1995, respectively). The Regional Land Use Element (Part II of the San Diego County General Plan-1995) is also applicable. Other elements of the county's General Plan are applicable to the project and discussed in various other impact analyses of this EIR, including the Open Space Element (Section 3.1 and 3.2), the Recreation Element (Section 3.13), the Scenic Highways Element (Sections 3.2), the Public Facilities Element (Section 3.13), the Conservation Element (Sections 3.2, 3.5, 3.7, and 3.8) and the Noise Element (Section 3.12).

As can be seen in Figure 3.1-5, most of the project site is located within the Otay Subregion while the northeastern corner of the Proctor Valley parcel and the most easterly piece of the San Ysidro parcel are located within the Jamul-Dulzura Subregion. The land use designations for the project site, as shown on the countywide and subregional land use maps, are shown in Figures 3.1-6 and 3.1-7.

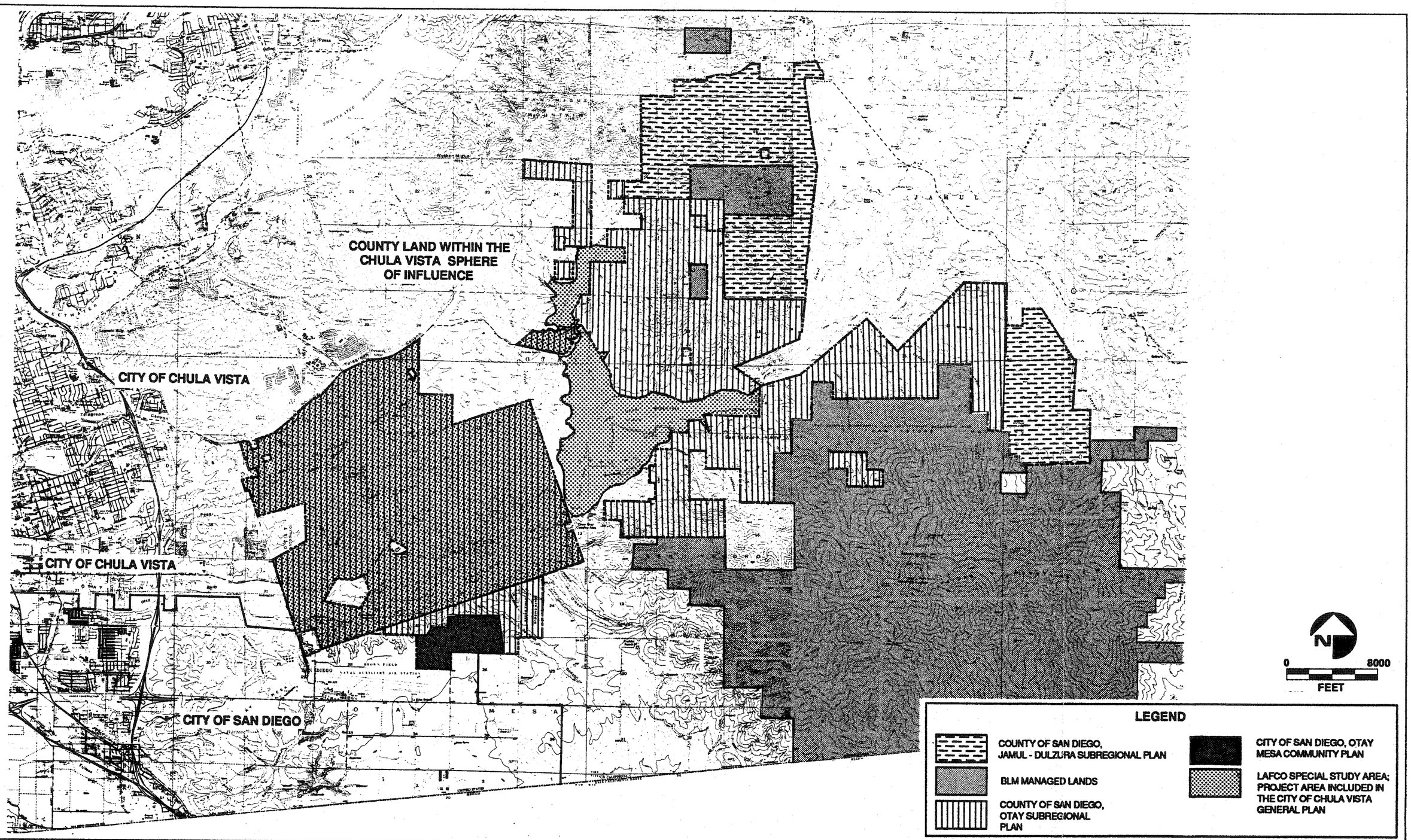
Land Use Designations

County land use designations on Otay Ranch are also summarized in Table 3.1-1. The Otay River portion of the project site is designated on the county's Otay Subregional Land Use Element Map as primarily 19 Intensive Agriculture (1 du/2-4-8 ac), with the exception of 24 Impact Sensitive (1 du/4-8-20 ac) from south of the Otay River to the southern boundary, 16 General Impact Industrial for three small areas, 18 Multiple Rural Use (1 du/4-8-20 ac) for a small portion just north of the river and an area along the eastern boundary, and 6 Residential (7.3 du/ac) immediately south of Telegraph Canyon Road (Figure 3.1-~~6~~5). The Proctor Valley and San Ysidro parcels within the Otay Subregion are designated as 18 Multiple Rural Use (1 du/4-8-20 ac), except for two small discontiguous parcels in Proctor Valley that are designated as 19 Intensive Agriculture (1 du/2-4-8 ac), and one small parcel designated as 22 Public/Semi-Public (Figure 3.1-~~6~~5). The Proctor Valley and San Ysidro parcels within the Jamul-Dulzura Subregion are also designated as 18 Multiple Rural Use (1 du/4-8-20 ac), except for two areas on the northern boundary of the Proctor Valley portion of the project site that are designated as 17 Estate Residential (1 du/2-4 acres) (Figure 3.1-6).

Table 3.1-1

EXISTING COUNTY LAND USE DESIGNATIONS ON OTAY RANCH

Land Use Designation	Allowable Use	Acres on Otay Ranch	Otay Ranch Parcels
(24) Impact Sensitive	1 du/4-8-20 ac	1,988	Otay River
(16) General Impact Industrial	Uses exhibiting moderate to severe nuisance characteristics	35	Otay River
(18) Multiple Rural Use	1 du/4-8-20 ac	1,155 7,513 5,555	Otay River Proctor Valley San Ysidro
(19) Intensive Agriculture	1 du/2-4-8 ac	5,409 153	Otay River Proctor Valley
(6) Residential	7.3 du/ac	663	Otay River
(22) Public/Semi-Public	Not Applicable	24	Proctor Valley
(17) Estate Residential	1 du/2-4 acres	225	Proctor Valley



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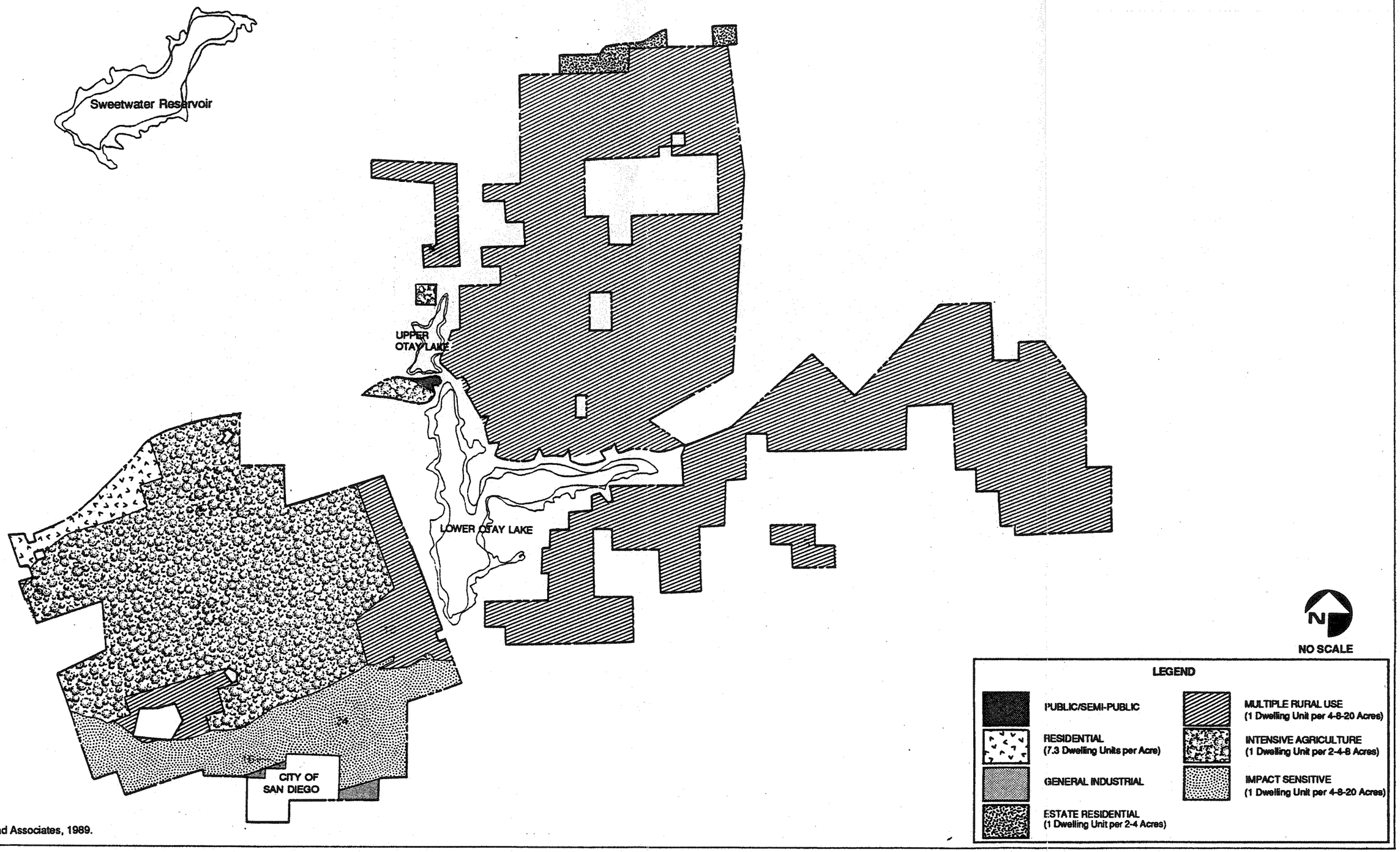
Jurisdictional Interests on or Near the Project Site

FIGURE 3.1-5



SOURCE: JBF and Associates, 1989.

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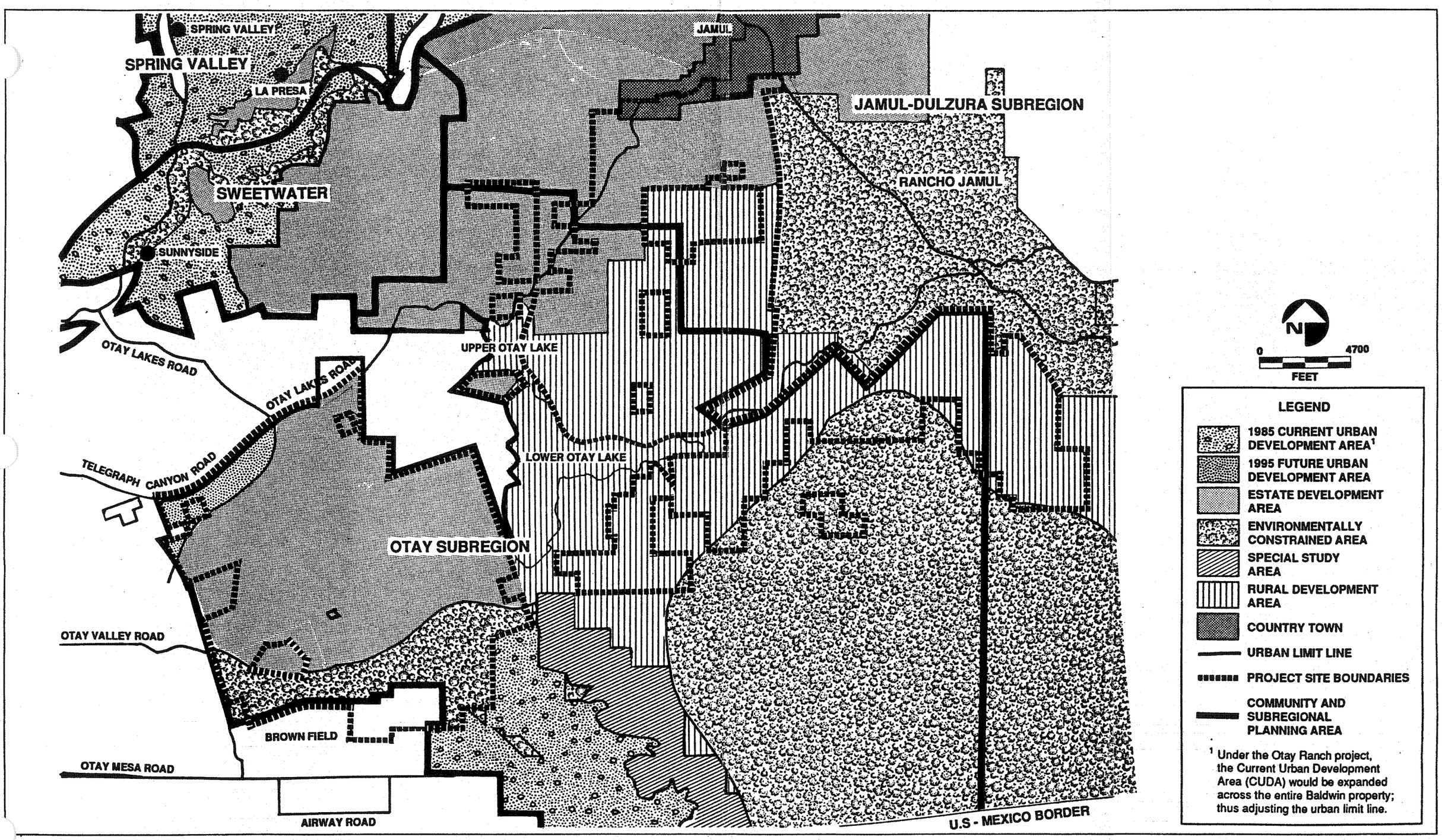
County of San Diego Land Use Designations on the Site

FIGURE 3.1-6



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County of San Diego Regional Categories

FIGURE 3.1-7

The above land use designations are defined, as listed below, in the Regional Land Use Element (RLUE) of the County's General Plan (amended December 14, 1988):

- (19) Intensive Agriculture - This designation promotes a variety of agricultural uses including minor commercial, industrial and public facility uses appropriate to agricultural operations or supportive of the agricultural population. (This designation permits 2, 4 and 8-acre parcels, subject to specific findings set forth in the RLUE.)

- (24) Impact Sensitive - This designation is applied to areas considered unsuitable for urban development for reasons of public safety or environmental sensitivity. Large-lot residential parcels, agricultural pursuits, limited recreational uses, mineral extraction, or greenbelts connecting permanent open space areas may be compatible with this designation. Minimum allowable parcel sizes are 4, 8, and 20 acres (gross) depending on slope criteria established in the RLUE. Clustering is also permitted when located within the Country Residential Development Area, Estate Development Area, or Rural Development Area categories of the RLUE.

- (16) General Impact Industrial - This designation provides for uses exhibiting moderate to severe nuisance characteristics. Typically, large sites are required with direct access to major roads, railroads, and other transportation modes.

- (18) Multiple Rural Use - This designation is applied in areas with one or more of the following characteristics: not highly suited for intensive agriculture; rugged terrain; watershed; desert lands; land susceptible to fires and erosion; lands which rely on ground water for water supply; and other environmentally constrained areas. This designation is typically, but not necessarily exclusively, applied in remote areas to broad expanses of rural land with overall low population density and few if any public services. Minimum allowable parcel sizes are based on slope criteria (as stated in the RLUE) and criteria established in the County Groundwater Policy. The most restrictive criterion determines minimum parcel size. Clustering is permitted when located within the Country Residential Development Area on Rural Development Area categories or the RLUE.

- (6) Residential, Maximum Density, 7.3 Dwelling Units/Gross Acre - The Urban Residential designations promote residential uses as the principal and dominant use. Civic uses may be consistent with these designations if these uses tend to support the local population.

- (22) Public/Semi-Public - This designation indicates lands generally owned by public agencies. This designation includes military bases; Indian reservations; cemeteries; solid waste facilities; institutions; public parks including regional parks; County airports; and other public and semi-public ownership. Any proposal for private development within this designation will be reviewed by the appropriate agency to ensure that there will be minimal adverse effect on that agency's property or plans for that property. For areas in private ownership, lot size shall be determined by the predominant adjacent land use designation.

- (17) Estate Residential - This designation provides for minor agricultural and low density residential uses. Parcel sizes of 2 or 4 acres (gross) or larger are required depending on slope criteria established in the RLUE. Clustering is

permitted when located within the Country Residential Development Area or Estate Development Area categories of the RLUE.

On the County's Regional Land Use Element Map, the project site is designated as a combination of 1985 Current Urban Development Area, 1995 Future Urban Development Area, Estate Development Area, Rural Development Area, Country Town (Jamul), and Environmentally Constrained Area (Figure 3.1-6). Definitions and specific criteria for the application of these regional categories are contained in the Regional Land Use Element (County of San Diego 1990a). The definitions are as follows:

- Current Urban Development Areas (CUDA) – Those county lands to which near-term urban development should be directed.

- Future Urban Development Areas (FUDA) – Those lands that will ultimately be developed at urban densities, but which should be held in reserve for at least 5 years after the effective application of this category. FUDAs will be permitted to develop at densities (10-acre parcel size or larger) until infilling has occurred in adjacent areas and services can be provided at levels necessary for urban densities or until annexation has occurred.

- Estate Development Areas (EDA) – The EDA combines agricultural and low density residential uses (parcels sizes of 2 to 20 acres will apply). Included in the category are those areas outside the urban limit line but within the boundaries of the CWA.

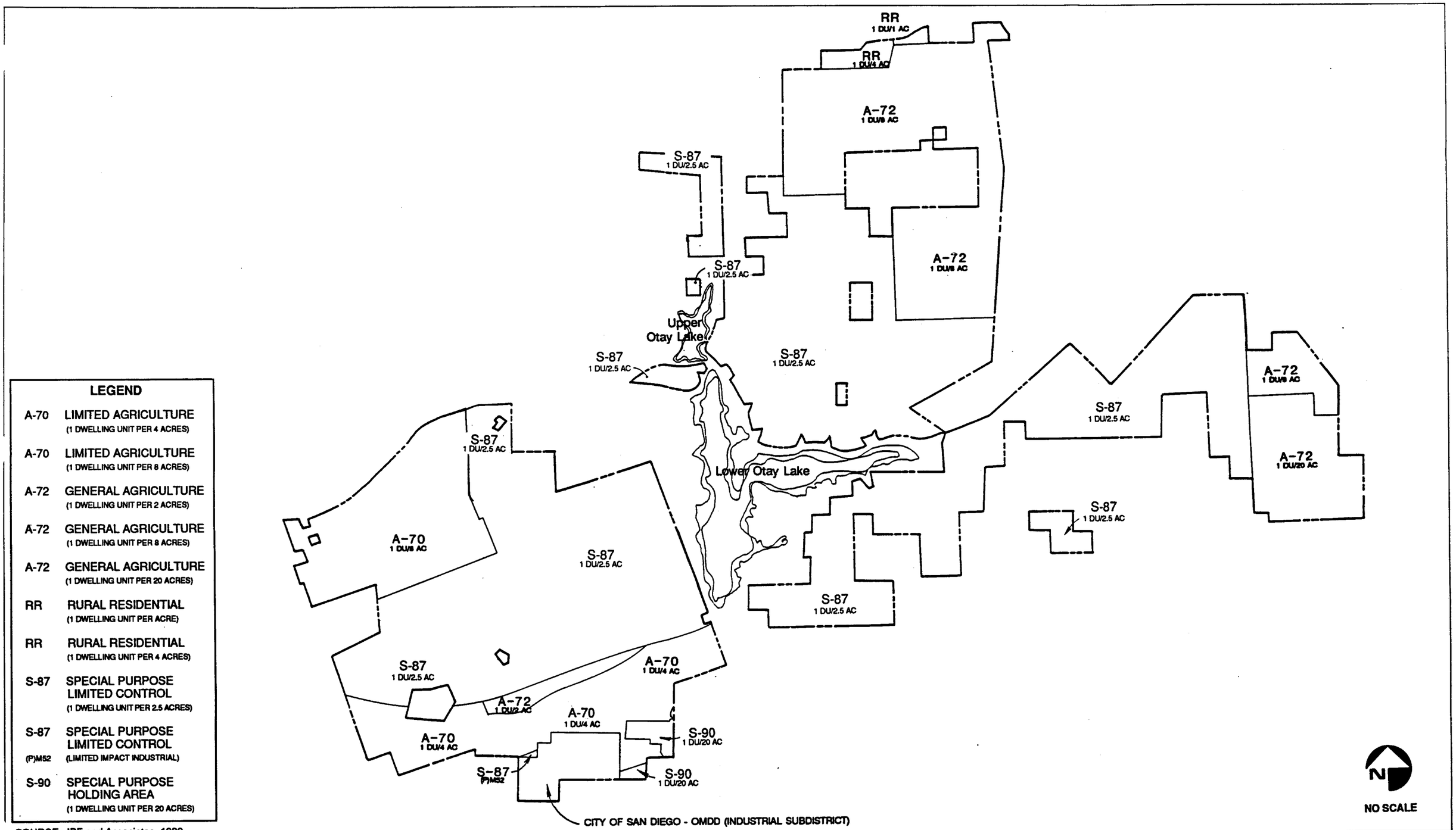
- Rural Development Areas (RDA) – The RDA includes all privately owned properties outside the service boundaries of the CWA. This area is primarily made up of agricultural or unimproved lands and remote pockets of residential development. Parcel sizes will generally be dictated by the availability of ground water and other environmental and resource constraints.

- Country Towns - This category applies to small historically-established retail residential areas serving surrounding low density rural areas or functioning as resorts. They are generally designated for 1-acre lots or more intensive uses, and are geographically removed from existing or projected urban areas.

- Environmentally Constrained Areas (ECA) – ECAs include floodplains, lagoons, areas with construction quality sand deposits, rock quarries, agricultural preserves, and areas containing rare and endangered plant and animal species. Development in these areas, while guided by the county General Plan, should be preceded by thorough environmental review and implementation of appropriate measures to mitigate adverse impacts.

Zoning

Zoning on the Otay Ranch is also primarily a function of County of San Diego regulations. Figure 3.1-8 and Table 3.1-2 summarize the existing zoning on the project site. The zoning on the Otay River parcel is A-70 Limited Agriculture (1 du/4-8 ac), A-72 General Agriculture (1 du/2-8-20 ac), S-87 Special Purpose Limited Control (1 du/2.5 ac), S-87 (P)M52 Special Purpose Limited Control (Limited Impact Industrial), and S-90 Special Purpose Holding Area (1 du/20 ac). Zoning on the Proctor Valley parcel is A-72, S-87, and RR Rural Residential (1 du/1-4 ac). Zoning on the San Ysidro parcel is A-72 and S-87.



LEGEND

A-70	LIMITED AGRICULTURE (1 DWELLING UNIT PER 4 ACRES)
A-70	LIMITED AGRICULTURE (1 DWELLING UNIT PER 8 ACRES)
A-72	GENERAL AGRICULTURE (1 DWELLING UNIT PER 2 ACRES)
A-72	GENERAL AGRICULTURE (1 DWELLING UNIT PER 8 ACRES)
A-72	GENERAL AGRICULTURE (1 DWELLING UNIT PER 20 ACRES)
RR	RURAL RESIDENTIAL (1 DWELLING UNIT PER ACRE)
RR	RURAL RESIDENTIAL (1 DWELLING UNIT PER 4 ACRES)
S-87	SPECIAL PURPOSE LIMITED CONTROL (1 DWELLING UNIT PER 2.5 ACRES)
S-87 (P)M52	SPECIAL PURPOSE LIMITED CONTROL (LIMITED IMPACT INDUSTRIAL)
S-90	SPECIAL PURPOSE HOLDING AREA (1 DWELLING UNIT PER 20 ACRES)

SOURCE: JBF and Associates, 1989.

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Zoning on the Site

FIGURE 3.1-8

Table 3.1-2

EXISTING COUNTY ZONING ON OTAY RANCH

Zone		Allowable Use	Acres on Otay Ranch	Otay Ranch Parcels
A-70	Limited Agriculture	1 du/4-8 ac	4,112	Otay River
A-72	General Agriculture	1 du/2-8-20 ac	78 3,279 1,440	Otay River Proctor Valley San Ysidro
S-87	Special Purpose Limited Control	1 du/2.5 ac or Limited Impact Industrial	4,903 4,456 4,115	Otay River Proctor Valley San Ysidro
S-90	Special Purpose Holding Area	1 du/20 ac	157	Otay River
RR	Rural Residential	1 du/1-20 ac	180	Proctor Valley

Uses permitted in these zones are defined in the county Zoning Ordinance (1985). The A-70 zone is designed to preserve areas intended primarily for agricultural crop production and to protect moderate to high quality agricultural lands. The A-72 zone is intended to create and preserve areas for raising crops and animals, typically in areas distant from large urban centers to avoid agricultural/non-agricultural incompatibilities.

The S-87 zone is intended to provide limited controls on the use of the property pending specific studies to enable rezoning of the area in conformance with the adopted General Plan. The S-90 zone is intended to prevent premature land uses from occurring until adequate public services or facilities are provided or the appropriate zoning is adopted.

Lastly, the RR zone is intended to create and enhance residential areas where agricultural use is compatible with a dominant, permanent residential area. This category is typically applied to rural or semi-rural areas without urban levels of service.

Otay Ranch is also subject to the provisions of the county's Resource Protection Ordinance (RPO) until a comprehensive Resource Management Plan is adopted by the board for the project site in place of the RPO. The RPO contains regulations designed to provide protection to the area's wetlands, floodplains, steep slopes, sensitive habitat areas, and historic and/or prehistoric sites.

Applicable Land Use Goals and Policies

Land use goals and policies applicable to the portions of the project site within the Otay Subregion are as follows (County of San Diego 1984):

- Land Use Goal – Provide a land use pattern sensitive to the opportunities and the constraints of the subregion. It is the goal of the County of San Diego to work with the private sector in capitalizing on the unique development opportunities existing near the Mexican border while concurrently encouraging interim agricultural production to the extent economically feasible.

- Land Use Policy 8 – The county will support well coordinated development, in accordance with an adopted facilities financing plan.

- Land Use Policy 10 – The county will consider more intensive development than normally allowed in the 24 Impact Sensitive designation areas where justification for such development is presented. A Major Use Permit will be required in these instances.

Land use goals and policies applicable to the portions of the project site within the Jamul-Dulzura Subregion are indicated below (County of San Diego 1983):

- Goal 1 – Encourage development of the land in such a manner as to retain the existing rural atmosphere of the community.

- Goal 3 - Direct urban density residential and commercial land uses to the region's more level land in the imported water service area. Outside the imported water service area, low density residential and agricultural land uses should be developed. URBAN: for the purposes of this document, land within the Country Town boundary (Jamul area) and the Urban Limit Line (Steel Canyon area) will be considered urban.

- Land Use (Residential) Policy 1 - Urban Residential lots should meet the following criteria:

  a. No lot should be less than one net acre. Land designated "Estate" or "Residential-1" with slopes over 15 percent should have no more than one dwelling unit per two acres. Land with 25 percent slope should have a maximum of one dwelling unit per four acres.

  b. All lots should have imported water and be able to provide onsite sewage disposal.

  c. All future subdivisions of 20 or more lots should provide a minimum of 5 percent of the land in open space in addition to deeded lots.

  d. Road and street improvements should conform to the goals and policies as set forth under the Transportation Element.

  e. New development should provide for equestrian trails as designated on the Riding and Hiking Map.

  f. All future developments should meet County standards for lot design and street pattern.

  g. All utilities should be underground unless unfeasible.

  h. Clustering is permitted pursuant to Policy 5.

- Land Use (Residential) Policy 4 – When imported water is available, there should be no more than one dwelling per 2 acres. Land having over 25 percent slope or located in the Multiple Rural Use designation should have no more than one dwelling unit per 4 acres. Land in the Multiple Rural Use category with more than 25 percent slope should be limited to one dwelling unit per 8 acres.

- Land Use (Residential) Policy 5 – When imported water is available, the clustering of dwelling units is compatible and encouraged in the rural areas under the following circumstances:

  (a) The minimum parcel size is at least 1 net acre.

  (b) Land not included within the clustered lots is reserved for permanent open space, and an open space easement is granted to the county over such land.

  (c) Onsite sewage disposal systems can be approved by the Health Department for immediate and long-term usage.

  (d) The proposed development will have a no more serious effect on the natural environment than would an equivalent non-clustered development which would otherwise be permitted in the subject land use category.

  (e) The proposed clustered development, including the open space areas, does not exceed the overall density permitted without clustering in the existing land use designations.

- Land Use (Residential) Policy 6 - Residential development outside the imported water service area should be limited to densities consistent with the County Groundwater Policy. The clustering of dwelling units is acceptable in areas that use ground water, as long as they meet the provisions of the County's Groundwater Policy.

- Land Use (Agricultural) Policy 10 – Keeping animals and other agricultural land uses on residential parcels of 1 acre or larger is desirable. As land holdings increase in size, the number of animals permitted should also be increased. Land Use Regulations permissive enough to allow such agricultural uses are appropriate throughout the community.

Land use goals contained in the Regional Land Use Element that are applicable to the Otay Ranch project are as follows (County of San Diego 1990a) (other goals are discussed in Section 3.7, Agriculture, i.e., Goal 2.5, and Section 3.1.3.9, Parks, Recreation and Open Space, i.e., Goal 2.6):

- Overall Goal 1.1 – That urban growth be directed to areas within or adjacent to existing urban areas, and that the rural setting and lifestyle of the remaining areas of the county be retained.

- Overall Goal 1.4 – That urban portions of the unincorporated area be encouraged to either annex to an adjacent city or incorporate, and that urban levels of service be provided in an efficient manner and be financed using equitable financing mechanisms.

- Land Use Goal 2.1 – Promote wise uses of the county's land resources, preserving options for future use.

- Land Use Goal 2.2 – Encourage future urban growth contiguous to existing urban areas and maximize the use of underutilized lands within existing urban areas.

- Land Use Goal 2.3 – Retain the rural character of non-urban lands.

- Land Use Goal 2.4 – Limit urban densities in non-urban areas to lands within existing country towns.

- Land Use Goal 2.5 – Encourage continuance and expansion of agriculture uses in appropriate portions of the unincorporated area. (Refer to the agricultural resources evaluation, Section 3.7, for a discussion of project consistency.)

- Land Use Goal 2.6 – Ensure preservation of contiguous regionally significant open space corridors. (Refer to the biological resources analysis, Section 3.3, for a discussion of project consistency.)

- Policy 3 Community and Subregional Plans – Regional categories delineated on the Regional Land Use Map shall be implemented through land use designations delineated on community and subregional plan maps.

- Policy 3.1 Urban Designations – Except as otherwise specified in Policies 3.2 and 3.4, urban designations shall be applied to contiguous planned commercial and residential areas associated with a community or city center. Land use designations permitting densities of one dwelling unit per gross acre or a higher

density shall not be applied outside of urban development areas, country towns, or existing locations.

- Policy 3.2 Community Plan Designations – Community and subregional plan designations, goals, objectives, and policies shall be consistent with the regional categories, goals, and policies of the RLUE. As the RLUE is amended, community and subregional plan provisions referencing or repeating the regional text shall be deemed to incorporate amendments thereto.

The site also lies within several Resource Conservation Areas (RCAs) as described in the county's Conservation Element (County of San Diego 1990b). Section 2.7 of the Regional Land Use Element states the following with regard to RCAs:

> This overlay identifies lands requiring special attention in order to conserve resources in a manner best satisfying public and private objectives. The appropriate implementation actions will vary depending upon the conservation objectives of each resource but may include: public acquisition, establishment of open space easements, application of special land use controls such as cluster zoning, large lot zoning, scenic or natural resource preservation overlay zones, or incorporating special design considerations into subdivision maps or special use permits. RCAs shall include but are not limited to ground-water problem areas, coastal wetlands, native wildlife habitats, construction quality sand areas, littoral sand areas, astronomical dark sky areas, unique geologic formations, and significant archaeological and historical sites.
>
> Within RCAs, county departments and other public agencies shall give careful consideration and special environmental analysis to all projects which they intend to carry out, propose, or approve, and shall select those conservation actions most appropriate to the project and consistent with the intent of this overlay designation.

Figure 3.1-9 shows the RCAs located wholly or partially on the project site. These RCAs are designed to protect a variety of different resources and include:

- RCAs #112 and 122 (Mother Miguel Mountain and San Miguel-Jamul Mountains). Resources include golden eagle habitat, rare plants, and scenic mountains.

- RCA #123 (Otay River). Resources include rare plants.

- RCA #124 (Brown Field Area). Resources include vernal pools and rare plants.

- RCA #125 (Brown Field Old Bombing Range). Resources include vernal pools and rare plants.

- RCA #127 (Otay Mountain-Lower Otay Lake). Resources include scenic landmarks and rare plants. Otay Mountain is under consideration as wilderness. Lower Otay Lake is considered a significant resource. Otay Mountain, located to the south of Otay Ranch, is a famous landmark known for the world's largest stand of the rare Tecate Cypress. It contains all of the rare plants that occur on the Tecate Mountains as well as the threatened Otay manzanita, Dunn's Mariposa lily and San Miguel savory, the endangered

Mexican fremontia, and the very rare Gander's pitcher sage which is found nowhere but on San Miguel mountain. The California Natural Area Coordinating Council designated this as a Significant Natural Area (County of San Diego 1983).

Open space policies pertaining to development on private land are contained in the county Open Space Element (County of San Diego 1977). These polices are as follows:

- Policy 7 – Encourage agricultural use of lands with soils which are highly suitable for production of food. (Refer to Section 3.7 for a discussion of project consistency.)

- Policy 11 – Encourage recreational planning as a part of all major residential development. (Refer to Section 3.13 for a discussion of project consistency.)

- Policy 15 – Encourage the use of open space to separate conflicting land uses whenever possible.

- Policy 16 – Encourage an intermingling of open space as an integral part of all major residential development so as to preserve an atmosphere of openness at the neighborhood scale.

- Policy 17 – Encourage development that is designed so as to include riding, hiking, and bicycle trails. (Refer to Section 3.13 for a discussion of project consistency.)

City of San Diego

Approximately 390 acres of the southernmost portion of Otay Ranch are located within the jurisdictional boundaries of the City of San Diego's Otay Mesa Community Planning Area. This portion of the site is designated as Industrial and Open Space (in proximity to the Otay River) (Figure 3-1.10) and zoned for OMDD (Industrial Subdistrict) by the city. Adjacent properties within the city are designated as Brown Field to the west, Industrial and Specialized Commercial to the south, and Future Growth to the east (Figure 3.1-10).

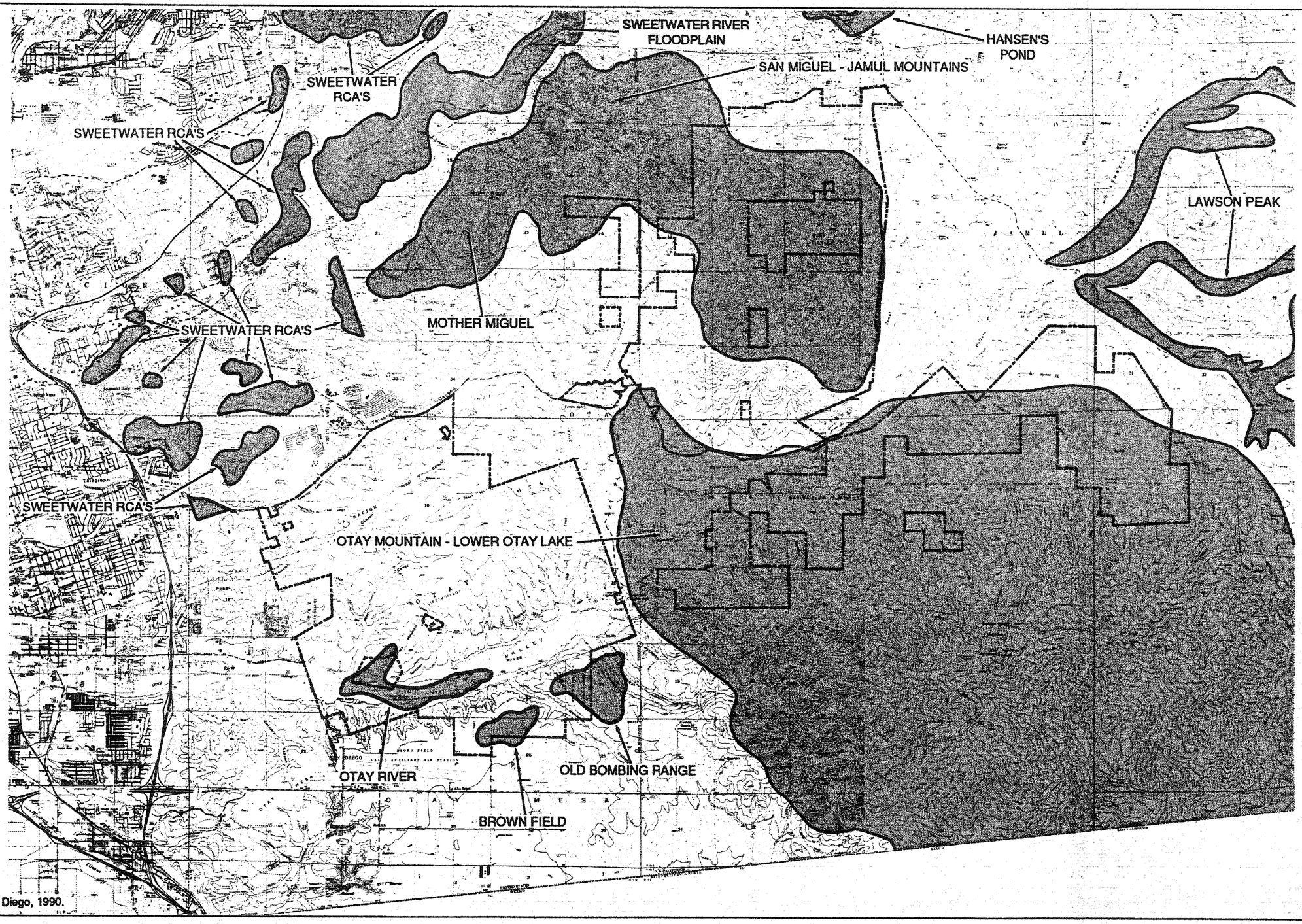
The subject parcel is designated as 4-General Industrial on the City of San Diego's Progress Guide and General Plan map (1989). Land use objectives contained in the Otay Mesa Community Plan that are applicable to the project site are as follows (City of San Diego 1981):

- General Industrial Objective No. 2 – To designate portions of the study area that are suitable for the development of large-scale manufacturing facilities, and to extend railroad service to such areas.

- General Industrial Objective No. 3 – To provide areas for exclusively industrial uses, prohibiting residential, commercial, and other activities.

The city's Progress Guide and General Plan also contains a chapter (or element) on industrial development. Goals contained in that element that are applicable to the project are as follows:

- Ensure that industrial land needs as required for a balanced economy and balanced land use are met in accordance with environmental considerations.



SOURCE: County of San Diego, 1990.

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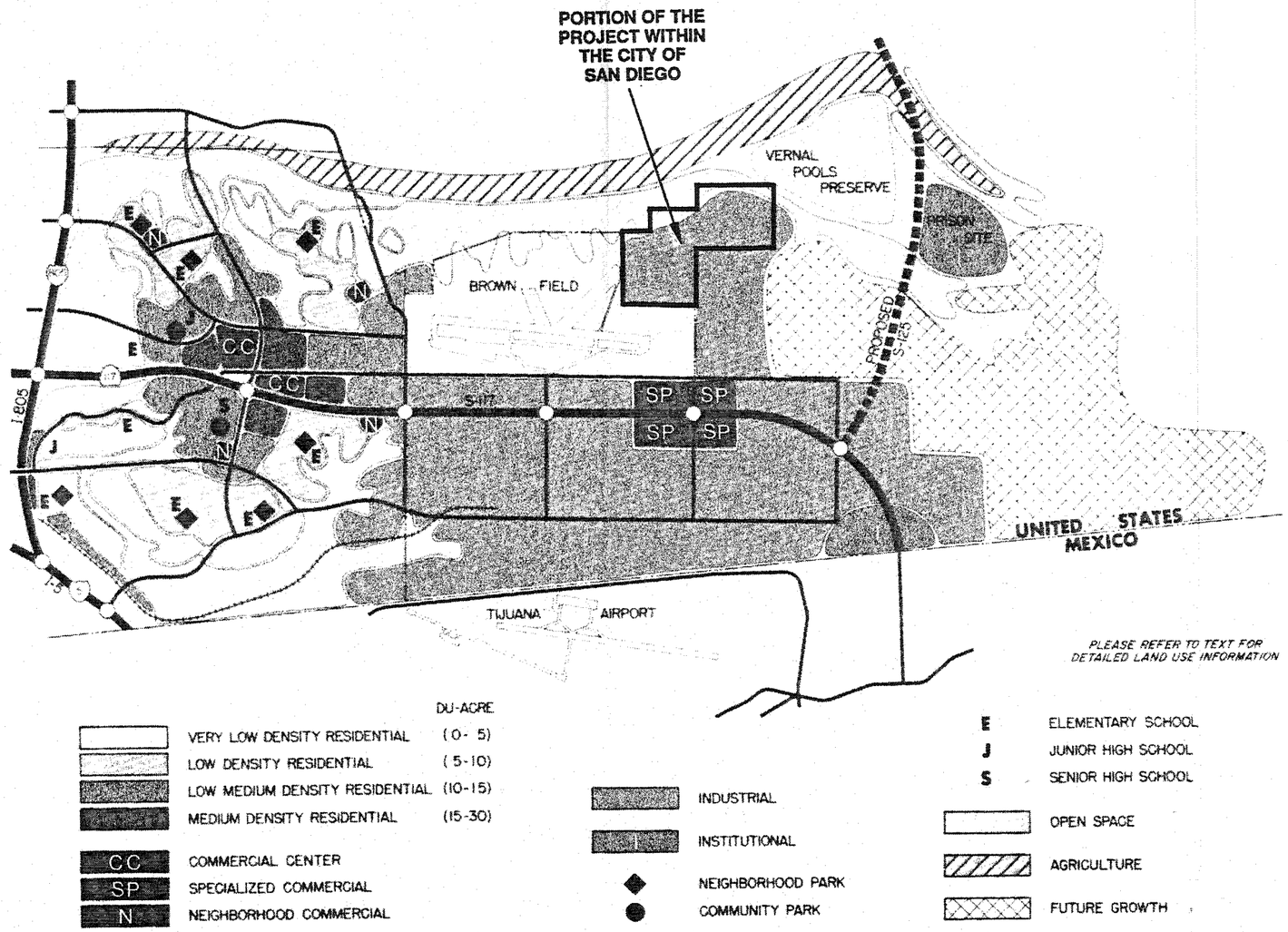
County of San Diego Resource Conservation Areas in the Vicinity of the Project Site

FIGURE 3.1-9



SOURCE: Otay Mesa Community Plan, City of San Diego, 1981.

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City of San Diego Otay Mesa Community Plan Land Use Designations on the Site

FIGURE 3.1-10

- Encourage industrial development in the southern half of the city to make it as attractive to industrial users as those areas north of Mission Valley.

South of the part of the project site within the City of San Diego is Brown Field. Although SANDAG has prepared the Comprehensive Land Use Plan for the airport, the City of San Diego is in the process of updating Brown Field's Airport Master Plan. The new draft document (1990) contains the proposed Airport Layout Plan which recommends the following: a new runway to be located north of the existing runway in a northeast/southwest alignment; expansion of the Fixed Base Operators (FBOs) areas, and the use of approximately 80 acres of land not needed for aeronautical development as industrial/commercial areas (located along Brown Field's southern boundary) (City of San Diego 1990). Most of these proposed changes would primarily affect the project site in terms of noise and land use (see Section 3.12, Noise, for further discussion of the Brown Field Airport Master Plan).

The City also owns and manages the lower Otay Lake and has adopted the City Lakes Recreational Development Plan. This plan and recreational use of the lake is discussed in Section 3.13.9, Parks, Recreation, and Open Space.

City of Chula Vista

The recently updated Chula Vista General Plan contains land use designations and policies that are also applicable to the project because most of the Otay River parcel lies within the City of Chula Vista's General Planning Area (although not formally in its Sphere of Influence) as part of the Eastern Territories Community Plan Area. In addition, the City of Chula Vista abuts the Otay River parcel on its northeast and west sides. Figure 3.1-11 shows the city of Chula Vista land use designations on the Otay River parcel as well as on city lands adjacent to the site. As can be seen from this figure, the project site as well as adjacent lands are designated primarily for a variety of residential densities with supporting commercial, office, public/semi-public, and open space land uses. (It should be noted that these designations are very different than the existing county designations [primarily agricultural] on the site.) Sites for a university and an urban center are also included, as is a portion of the Chula Vista Greenbelt.

The Eastern Territories are zoned P-C-Planned Community Zone, by the City of Chula Vista. According to the City's zoning ordinance, Chapter 19.48.010, the purposes of the planned community zone are to:

a. Provide for the orderly preplanning and long-term development of large tracts of land which may contain a variety of land uses, but are under unified ownership or development control so that the entire tract will provide an environment of stable and desirable character;

b. Give the developer reasonable assurance that sectional development plans prepared by him in accordance with an approved general development plan will be acceptable to the city. Sectional development plans may include subdivision plans and/or planned unit development plans as provided for in this title; and

c. Enable the city to adopt measures providing for the development of the surrounding area compatible with the planned community zone.

It should also be noted that the City of Chula Vista General Plan, Chapter 14, Section 5.10 specifically addresses Otay Ranch. In this section the General Plan states, with respect to Otay Ranch, "The city recognizes that it is important that the General Plan be flexible. It

should be capable of modification based on the results of planning studies in the future that are more detailed and focused than those used to prepare the General Plan. The Otay Ranch is encouraged to proceed with a comprehensive planning program to identify plan refinements or amendments necessary to best accomplish the goals and objectives of the General Plan."

General objectives, goals, and policies of the City of Chula Vista that are applicable to the project site are contained in Chapter 1, the Land Use Element, of the Chula Vista General Plan (1989a). These include the following:

- Goal 1, Objective 5 – Provide employment opportunities in large-scale planned communities such as EastLake, Rancho del Rey, Sunbow, and Otay Ranch.

- Goal 2, Objective 7 – Encourage the development of a regional retail center in the Eastern Territories, in a manner which would not negatively impact the vitality of existing shops in Town Centres I and II.

- Goal 2, Objective 8 – Provide for community and neighborhood commercial centers in developing areas convenient to new neighborhoods, and maintain, renovate, and redevelop existing centers.

- Goal 3, Objective 10 – Encourage the development of a diversity of housing types and prices.

- Goal 3, Objective 12 – Provide for the development of multiple-family housing in appropriate areas convenient to public services, facilities, and circulation.

- Goal 3, Objective 13 – Encourage planned developments, with a coordinated mix of urban uses, open spaces, and amenities.

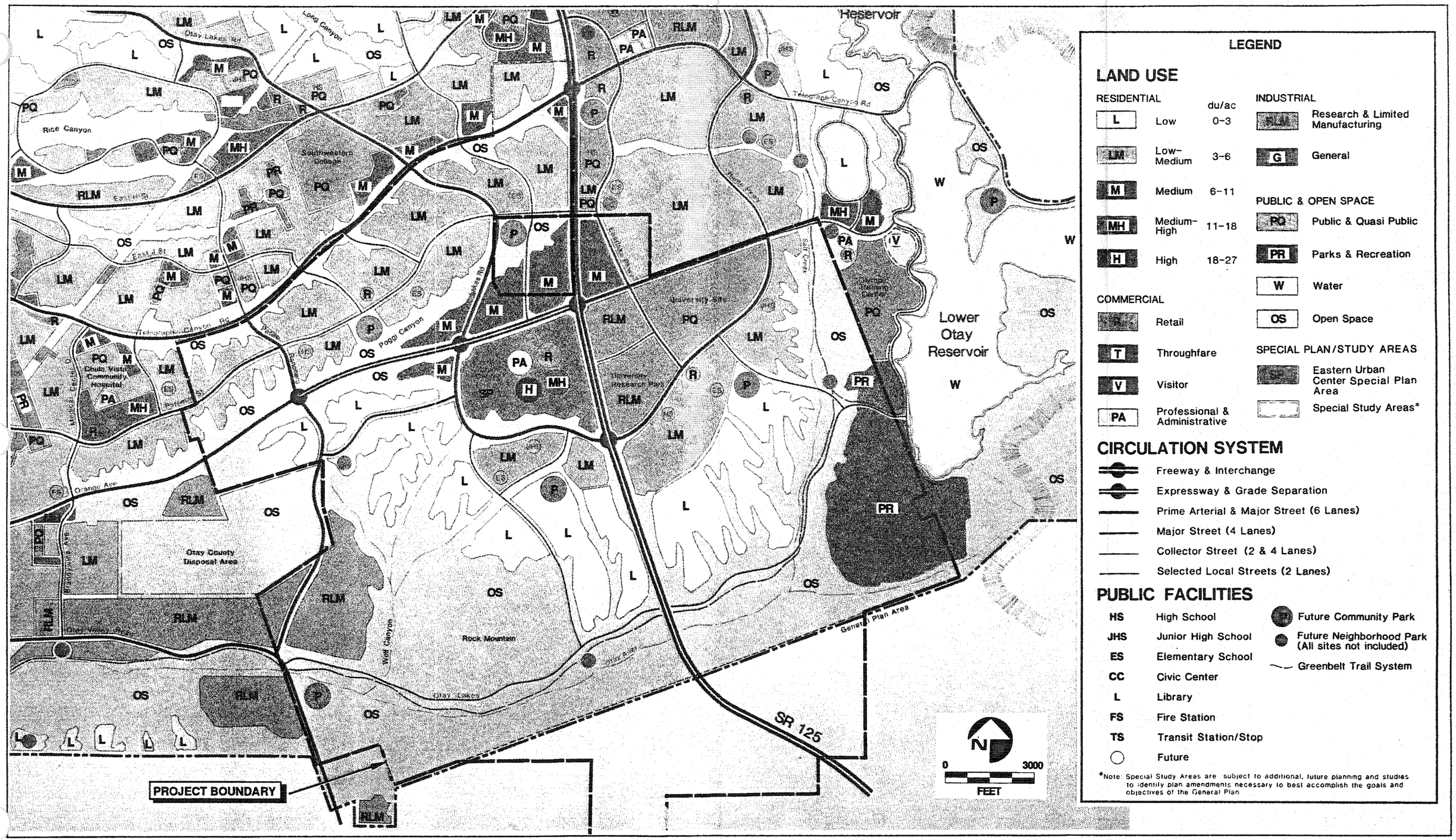
- Goal 3, Objective 14 – For new developments in Eastern Territories, the predominant character should be low/medium density, single-family housing. Where appropriate in terms of physical setting, encourage development of quality, large-lot housing.

- Goal 3, Objective 16 – Provide for mobile home parks or alternatives for relocation of existing trailer park residents.

- Goal 4, Objective 18 – Promote, through the designation of a candidate site and discussions with the State of California, the establishment of a four-year college or university in the Eastern Territories.

- Goal 5, Objective 20 – Plan and implement a continuous greenbelt, open space, and trail system around the city. The system should begin at the Chula Vista Bayfront, extend along Otay Valley to the Lower Otay Valley Reservoir, extend north in two corridors – the Salt Creek Canyon and the Lower and Upper Otay Reservoirs – connect to the Sweetwater Valley via Wild Man's Canyon, and extend along the Sweetwater Valley to the Chula Vista Bayfront. Additional open space within the general plan area should provide connections to community and neighborhood parks and schools.

- Goal 8, Objective 27 – Take all necessary steps through LAFCO and other agencies to include the entire area covered by the General Plan in the city's Sphere of Influence.



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City of Chula Vista General Plan Designations on the Project Site

FIGURE 3.1-11

The Eastern Territories Area Plan is contained in Chapter 14 of the City of Chula Vista General Plan. Land use goals and objectives of this plan that are applicable to Otay Ranch are:

- Goal 1, Objective 1 – Direct new urban development in Eastern Territories to broad mesa tops which are generally located away from environmentally sensitive areas such as flood plains, canyons, and steeply sloped areas.

- Goal 2, Objective 4 – Create, for the planning area as a whole, a balanced community of residential, commercial, and industrial uses. To the extent that employment uses may be more difficult to establish, provide for additional designations of commercial and industrial land and encourage retention of vacant land for commercial and industrial uses.

- Goal 3, Objective 7 – Encourage the development of an eastern urban center which on the whole is complementary to and not competitive with the urban core in central Chula Vista.

San Diego Association of Governments (SANDAG)

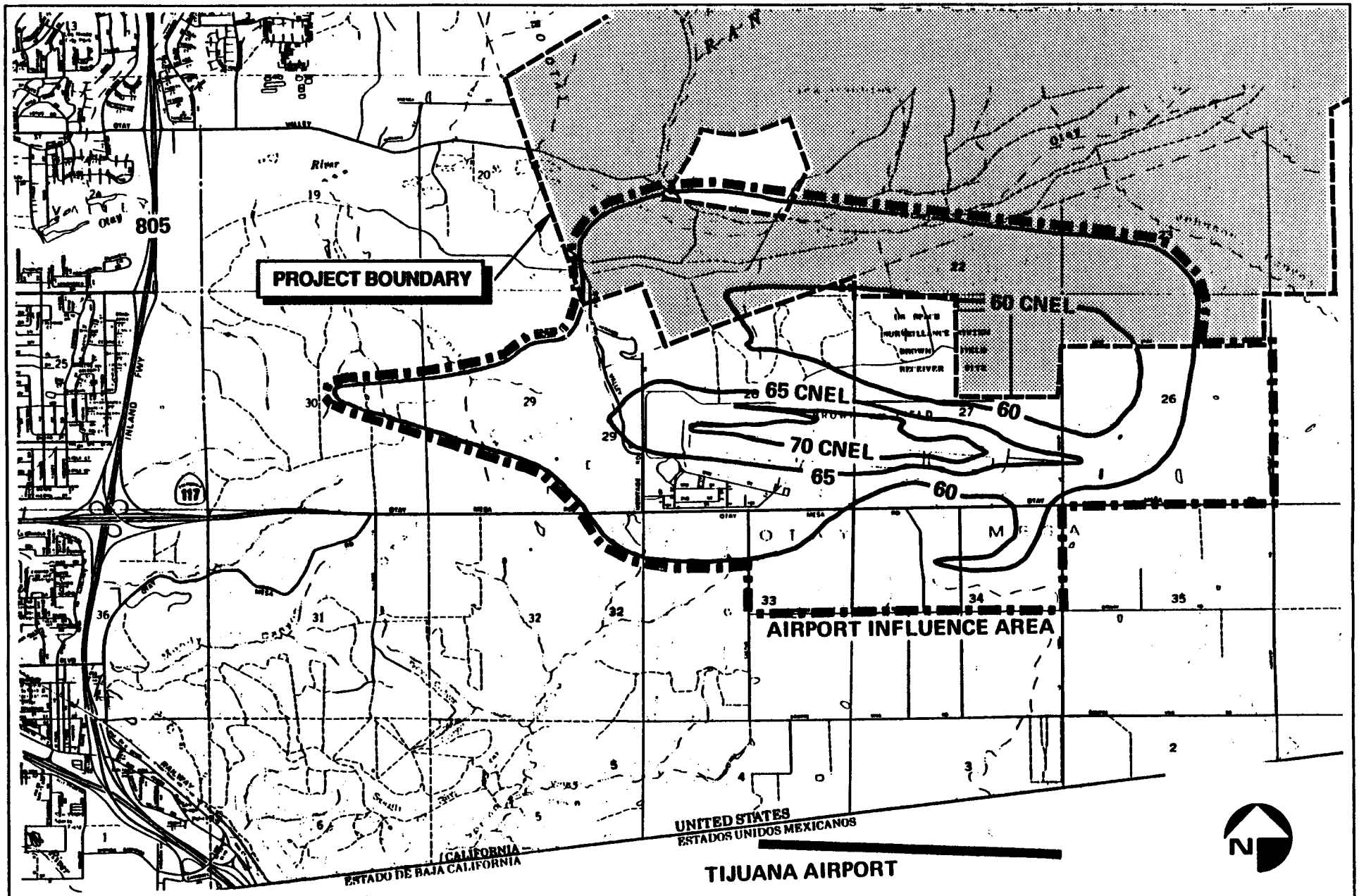
SANDAG is the state-appointed Airport Land Use Commission for the San Diego region. The Brown Field Comprehensive Land Use Plan, adopted in 1981, is a comprehensive land use plan for the orderly growth of this airport and the surrounding area. (The City of San Diego also has an adopted master plan for their use in planning improvements to the airport). The Brown Field Comprehensive Land Use Plan includes maps showing noise contours and flight activity zones around the airport, as well as the larger Airport Influence Area which overlies the southern part of Otay Ranch (Figure 3.1-12). The Airport Influence Area was determined by defining those areas adjacent to the airport which could be impacted by noise levels exceeding the California State Noise Standards or where height restrictions would be needed to prevent obstructions to navigable airspace as outlined in FAA regulations. Incompatible land uses due to aircraft noise within the Airport Influence Area could include schools, libraries, nature preserves, residential areas, and parks.

Local Agencies Formation Commission (LAFCO)

~~LAFCO is responsible for approving annexations to local jurisdictions or special service districts as well as for approving the formation of new special service districts and adopting Spheres of Influences for cities. LAFCO's functions as outlined in the Cortese/Knox Act include the following: to encourage planned, well-ordered development, and to discourage the proliferation of single-purpose government agencies. Development that occurs adjacent to existing development and facilities is preferred to "leap frog" development, which requires the premature extension of facilities through undeveloped territory.~~

~~Part of the Otay River parcel of Otay Ranch is currently considered a Special Study Area of LAFCO to study the future jurisdiction of the area. LAFCO approval will be needed prior to any action to incorporate all or a portion of Otay Ranch or to annex it to either the City of San Diego or the City of Chula Vista. None of the Otay Ranch property is currently within any city's Sphere of Influence.~~

LAFCO is a regulatory agency with county-wide jurisdiction established by state law (Cortese/Knox Act) to discourage urban sprawl and encourage the orderly formation and development of local government agencies. LAFCO is responsible for reviewing proposed changes of organization of local governments including annexations and detachments of territory; incorporation of cities; formation of special districts; and consolidations,



SOURCE: Comprehensive Land Use Plan, Brown Field, San Diego, CA (SANDAG),1981

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Projected Aircraft Produced Community Noise Equivalent Level (CNEL) Contours for Brown Field

FIGURE 3.1-12

mergers, and dissolutions of districts. LAFCO is also charged with developing and updating spheres of influence for each city and special district within the county. Spheres provide guidance for individual proposals involving jurisdictional changes, encourage efficient provision of organized community services, and prevent duplication of service delivery. Territory must be within a sphere in order to be annexed to a city or district.

A portion of the Otay Ranch territory west of the Otay Lakes (9,000 acres) was designated a special study area in 1985 when LAFCO adopted the Chula Vista sphere of influence. The remainder of the ownership was not included within any adopted sphere or special study area. A sphere determination could not be made in 1985 for the 9,000-acre territory because it was not in the land use element of the Chula Vista General Plan, and there was insufficient information about how services would be provided.

A request to resolve the study area will be submitted to LAFCO after the City of Chula Vista and County of San Diego complete their joint review and adoption of a GPA, GDP, government options plan, and sphere study. Resolution of the study area will be considered by LAFCO as part of a comprehensive update of the Chula Vista sphere of influence. LAFCO will also update the sphere boundaries for special districts that are in close proximity to the city or serve territory proposed to be included in the city's sphere concurrent with the city's sphere update.

U.S. Department of the Interior, Bureau of Land Management (BLM)

To the south and southeast of the San Ysidro parcel is undeveloped land that is administered by BLM (Figure 3.1-5). This BLM land is part of two wilderness study areas (WSAs) known as the Western Otay Mountain WSA and the Southern Otay Mountain WSA. The areas were given this designation because they met established criteria, being undeveloped land areas in excess of 5,000 acres that have unique or sensitive habitat (P. Kempenich, personal communication, 1991). The areas are also part of a National Cooperative Land and Wildlife Area that is generated by public land order when special cooperation is necessary between the state in which the area is located and the federal government (P. Kempenich, personal communication, 1991). The BLM also manages two discontiguous parcels of land surrounded by the Proctor Valley parcel (Figure 3.1-5).

The Draft Resource Management Plan (RMP) for the South Coast Planning Area, California Desert District, of the BLM was released in May 1991, and contains four alternatives for managing the San Diego County Management Area. Alternative 1 - No Action calls for the continuation of present management practices. Alternative 2 - Administrative Adjustments would "improve management effectiveness through transfer and disposal of lands, including land exchanges to provide for consolidation of public land ownership" (BLM 1991). Alternative 3 - Sensitive Species, Open Space and Recreation is the preferred alternative and includes, among other things, the designation of 705 acres in Cedar Canyon as an Area of Critical Environmental Concern (ACEC) and Research Natural Area (RNA) for preservation of populations of Mexican flannelbush. Alternative 4 - Use Opportunities would designate 705 acres in Cedar Canyon as an ACEC and RNA as well as administering lands with the Border Mountains area as a special recreation management area (SMRA).

As indicated in Alternative 1 of the BLM's RMP, the small discontiguous parcel of Otay Ranch holdings in the San Ysidro parcel is currently identified by the BLM as a potential acquisition area. However, both Alternative 3 and 4 of the BLM's RMP also identify an additional 280 acres of the Otay Ranch project's San Ysidro parcel as a proposed acquisition area to be included in the proposed Cedar Canyon ACEC.

3.1.2 Impact Analysis

The following considerations were used to evaluate the land use impacts of the proposed project and the alternatives: displacement of existing land uses, compatibility of the project with adjacent land uses, compatibility of proposed land uses internal to the project, and project consistency with applicable land use policies, designations, and zoning. Significant displacements, incompatibilities, or inconsistencies in any of the above categories would constitute significant land use impacts and would require mitigation.

3.1.2.1 Displacement of Existing Land Uses

The following land uses may be displaced by the New Town Plan (dependent in part on the results of historical studies of existing structures): agricultural operations on the site, nine residences and several agricultural-related structures located at the old headquarters for the Otay Ranch operations (the Old Ranch Complex), five houses and associated structures located at the Otay Ranch House (the Ranch House itself may or may not remain), and the Target Tossers Gun Club. Other onsite land uses located in the southern portion of the Otay River parcel (such as a recycling business and one house at the extreme southwestern corner of the property) would not be displaced by the project.

The displacement of agriculture on the site is addressed in Section 3.7 of this report. The loss of 14 houses presently located on the site is not a significant land use impact since the project would replace these units with new residential development. The implication on historic resources of removing the houses is a potentially significant impact and is discussed in Section 3.4 of this report.

3.1.2.2 Compatibility of the Project with Adjacent Land Uses

The New Town Plan proposes a mixture of residential, commercial, and industrial land uses as well as public/quasi-public and open space land uses. In the Otay River parcel, the primary area where potentially significant land use incompatibilities with adjacent land uses might occur would be in the vicinity of the Otay Landfill and in the southwest corner of the parcel where medium density residential is proposed adjacent to offsite lands designated for industrial use by the City of Chula Vista. Impacts associated with planned development in proximity to the landfill would be primarily in terms of landfill dust, noise, and health concerns as discussed in Sections 3.11, Air Quality; 3.12, Noise; and 3.14, Risk of Upset, and would occur until the landfill is closed (currently scheduled for 1999). The New Town Plan proposes medium density residential land uses adjacent to the Otay Ranch's border with the Otay Landfill site. In the case of future adjacent industrial areas, potential land use incompatibilities could occur due to noise and lighting impacts from the future industrial land uses on adjacent residents.

In the areas of the Otay River parcel that are adjacent to offsite residential land uses such as Sunbow and EastLake, the New Town Plan proposes varying densities of residential land use (medium and low-medium density) and, in the case of EastLake, some supporting retail commercial land uses. No significant land use incompatibilities would occur between Sunbow and Otay Ranch since the adjacent Sunbow land uses would be low-medium density residential development and an elementary school. (Adjacent Otay Ranch land uses are also primarily low-medium density residential land uses.) Significant, but mitigable, land use interface impacts (for example, lighting, noise, and loss of privacy) could occur to low-medium density residential developments within EastLake that are adjacent to Otay Ranch retail commercial and medium density residential land uses.

Other land uses proposed by the New Town Plan for the Otay River parcel along its borders with offsite land uses would not result in any significant land use incompatibilities as long as the applicable Otay Ranch Sectional Planning Areas (SPA) or Specific Plans contain adequate landscaping and buffering guidelines. (This is also recommended in the village Character Issue Paper, developed by the Project Team for the Otay Ranch project. See also Mitigation Measure number 4 of this section.)

South of Otay River, in proximity to Brown Field, offsite industrial areas, the state prison, and the county detention facility, the New Town Plan proposes research/industrial land uses supporting public/quasi-public land uses, and open space. No proposed uses within Brown Field's Airport Influence Area would be significantly affected by the airport's noise. The above proposed Otay Ranch land uses are generally compatible with the neighboring offsite land uses. The one exception is planned low-medium density residential development in the southeast corner of the Otay River parcel in proximity to the state prison and county detention facility. However, this land use would be separated topographically from the correctional facilities since the correctional facilities are located on the bluffs on either side of O'Neal Canyon (refer to Figure 3.1-1) while the planned residential land uses would be located at the foot of the bluffs in the Otay River Valley. Therefore, no significant land use incompatibilities from residential land uses in proximity to the correctional facilities would occur.

Adjacent to the Olympic Training Center site located to the east of the Otay River parcel, the New Town Plan proposes an area to be designated as public/quasi-public on the Community Plan map that would most likely accommodate a four-year college or university. No details are known regarding the ultimate size and nature of the college or university. However, such facilities typically include a variety of land uses including administrative buildings, classroom space, residential units (i.e., dormitories) and recreational facilities. This is similar to what is planned for the Olympic Training Center as described in Section 3.1.1.2. Therefore, no significant land use incompatibilities would occur from development of a college or university in proximity to the Olympic Training Center.

In the Proctor Valley parcel, significant land use incompatibilities could occur due to the resort and associated residential development planned for the western portion of the parcel. This portion of the project is in close proximity to the San Diego Air Sports Center, Inc. located on the eastern end of Lower Otay Lake. According to FAA guidelines, ultralight and skydiving activities are not allowed in "congested" areas. "Congested" areas are not defined by the guidelines, so interpretation and enforcement of these guidelines occur on a case-by-case basis per FAA review. However, since the New Town Plan proposes development adjacent to and in the vicinity of the airstrip, it is likely that the FAA would determine that the area is too congested to allow the continuance of existing sports center activities. In this case, a significant land use incompatibility would occur. If the sports center activities are not terminated prior to the year 2002 (when their lease and option with the City of San Diego expire), no significant land use impacts would result since the City of San Diego Property Department has indicated that the city does not intend to re-lease the property as an airstrip once the existing option has expired.

Other planned development in the Proctor Valley parcel under the New Town Plan would occur along Proctor Valley Road from Upper Otay Lake to the southern outskirts of Jamul. Development would be primarily residential, higher densities of development (medium and low-medium) occurring near Upper Otay Lake with development in proximity to Jamul occurring at slightly lower densities (i.e., 0.5–3.0 du/ac). Potentially significant land use incompatibilities with offsite land uses in areas near Jamul could occur since adjacent land uses in Jamul are low density residential development (i.e., 1 du/ac) which typically

requires little grading and has a rural atmosphere. The development proposed by the New Town Plan is likely to require mass grading and have an urban or suburban atmosphere. Impacts associated with the expansion of public services into rural areas are addressed in Section 7, Growth Inducement.

In the San Ysidro parcel, significant land use incompatibilities would occur due to development proposed in proximity to the San Diego Air Sports Center (see preceding discussion) and low-medium density residential development proposed adjacent to the Daley quarry site (see also Section 3.11, Air Quality, and Section 3.12, Noise). No other significant land use incompatibilities would occur with existing offsite land uses since the New Town Plan proposes open space and low density residential development for that parcel, with the exception of low density residential development proposed for the discontiguous parcel that is surrounded by BLM-managed lands. The discontiguous parcel is surrounded by open space. Providing access to ~~this area~~ the discontiguous parcel could have significant impacts to the ~~protected~~ open space and the proposed wilderness area that surrounds it. However, until an actual access route is selected, actual impacts cannot be determined. Mitigation for any impacts would need to be developed at that time as well.

Impacts to rural lands north and east of the Proctor Valley and San Ysidro parcels may also occur indirectly due to potential growth that may be induced by extending infrastructure and the county Urban Limit Line to the Otay Ranch's northern and eastern boundaries. These impacts are addressed further in Section 7, Growth Inducement.

3.1.2.3 Compatibility of Proposed Land Uses Internal to the Project

Internal to the project, the New Town Plan proposes the most intense development in the Otay River parcel with varying densities of residential and commercial development north of Otay River and primarily industrial land uses south of the river. An Eastern Urban Center retail area would be created in all four directions at the proposed East Orange Avenue/SR-125 intersection. A four-year college/university site would be located in the eastern portion of the parcel on the north side of the river.

Throughout the Otay River parcel, residential development would interface with retail commercial and public/quasi-public land uses such as schools, libraries, and other public utility/service facilities (north of the river) and with research/industrial development in one case on the south side of the river. Neighborhoods would be identified as "villages" with an urban core surrounded by concentric circles of less dense development. Thus, the New Town Plan generally buffers the more intense land uses from the least intense ones with intervening development at intermediate densities to minimize the potential for significant unmitigable land use incompatibilities. However, all of the areas where residential development would occur adjacent to non-residential land uses or where low density residential development would occur adjacent to medium or high density residential development have the potential to result in significant land use incompatibilities.

The New Town Plan also proposes medium and low-medium density residential development in proximity to the Nelson and Sloan quarry, which is located on an out-parcel within the boundaries of the Otay River parcel. Significant land use incompatibility impacts in terms of noise and dust (and possibly lighting) from the quarry could occur to nearby residential units (see Sections 3.11 and 3.12, Air Quality and Noise, respectively). The New Town Plan also assumes that the existing FAA VORTAC facility will be relocated. If this facility is not relocated, the land uses proposed for this area (i.e., medium, medium-high, and high density residential development) would be inconsistent with this existing land use.

The land use impacts of the construction of SR-125 through the project will be addressed in an EIR on the highway project itself. However, it should be noted that both commercial and residential land uses would be located adjacent to the highway. The highway's potential noise impacts are discussed in Section 3.12, Noise. Visual impacts would need to be addressed once detailed plans for the highway are available. The highway would divide the Otay River parcel, including the proposed Eastern Urban Center and the residential village proposed just south of the Eastern Urban Center, and could prevent the creation of the cohesive community envisioned in the New Town Plan. Since no existing communities would be disrupted, however, this is not a significant impact under CEQA. The use of common community signage, landscaping, and architecture on both sides of the highway as well as pedestrian overpass or underpass connections would help to improve the cohesiveness of the community.

No significant land use incompatibilities would occur between land uses proposed for the Proctor Valley and San Ysidro parcels as long as the applicable SPA plans contain adequate landscaping and buffering guidelines.

3.1.2.4 Project Consistency with Applicable Existing Land Use Plans, Policies, Designations, and Zoning

The New Town Plan is not consistent with the project site's existing County of San Diego zoning, the land use designations contained on the Jamul-Dulzura and Otay subregional plan maps (County of San Diego), the County of San Diego's Regional Land Use Element Map, or the City of Chula Vista General Plan Map for the Eastern Territories. Therefore, the project would include rezones, General Plan Amendments to the County of San Diego and City of Chula Vista general plans, and an amendment to the county's Regional Land Use Element to expand its CUDA (Current Urban Development Area) boundaries (see Section 2.6). The New Town Plan would result in a significant change from the site's existing open space and agricultural land uses, as well as from the type of development that could currently occur under the site's existing county zoning and land use designations (primarily continued agriculture or open space and very low density residential development). This change in land use character from undeveloped or underdeveloped open space to development is a significant unavoidable impact of the project.

No rezones or General Plan Amendments would be necessary for the portion of the project site located within the City of San Diego since the land uses proposed under the New Town Plan are consistent with that portion of the site's existing OMDD (Industrial Subdistrict) zoning and industrial land use designation.

The New Town Plan is generally consistent with the applicable County of San Diego policies and goals of the Otay Subregional Plan (see Section 3.1.1) since it calls for open space in sensitive areas such as canyon bottoms, steep hillsides, and along the Otay River (Land Use Goal), and would involve an adopted facilities financing plan (Land Use Policy 8).

The New Town Plan is inconsistent with applicable goals and policies of the Jamul-Dulzura Subregional Plan since the development proposed in this planning area includes medium and low-medium density residential development (Proctor Valley parcel) as well as commercial (San Ysidro parcel) land uses. These proposed land use designations may not adequately retain the rural atmosphere of the area (Goal 1), and all of the proposed land use designations would allow for residential densities of more than 1 du/4 ac (Land Use Policy 4). In addition, proposed land use designations (i.e., low density residential) within the urban area of Jamul do not ensure that the specific development criteria of Land Use Policy 1 would be met (refer to Sections 3.13.1 and 3.13.2 for discussion of the specific water

and sewer criteria in this policy). (Land Use Policy 6 would no longer be applicable since the project proposes to provide water through a water agency using imported water. However, if the project is not fully annexed to a water agency, potential impacts as discussed in Section 3.13.1, Water Availability and Demand, could result.)

The proposed project would not be consistent with Regional Land Use goals Numbers 1.1, 2.3, and 2.4 or Policy 3.1 to limit urban densities to urban areas and retain the rural character of rural areas. In addition, since the project would amend the Regional Land Use map to ensure consistency between community and regional land use categories by redesignating the entire site as CUDA and moving the Urban Limit Line to the project site's northern and eastern boundaries, incompatibilities with the Country Town designation in Jamul would occur. According to the Regional Land Use Plan text (p. II-vii), outside of Country Towns, "the surrounding Estate or Rural Development Area standards will apply" (County of San Diego 1990). Designating land as CUDA immediately adjacent to a designated Country Town is a significant adverse policy inconsistency of the project.

The project is consistent with Land Use Goal 2.2 to encourage future urban growth contiguous to existing urban areas (in this case, the City of Chula Vista) and with Policies 3 and 3.2 by moving the Urban Limit Line to include all of the Otay Ranch project site, which would promote consistency between regional and subregional land use designations. Compatibility with other applicable county policies and goals listed in Section 3.1.1 would need to be determined when more detailed planning for the site has occurred.

The New Town Plan also proposes development within several of the RCAs mapped for the area by the county, e.g., RCAs #122-San Miguel Mountain-Jamul Mountains, #123-Otay River, #124-Brown Field Area, #125-Brown Field Old Bombing Range, and #127-Otay Mountain-Lower Otay Lake (see Figure 3.1-8). Since development is proposed in these areas, potentially significant impacts to sensitive resources in these areas could occur.

The New Town Plan is generally consistent with county open space policies 15 and 16, particularly on the Proctor Valley and San Ysidro parcels where development is intermingled with and, in some cases, surrounded by open space. Along the boundaries where residential densities change (i.e., increase or decrease), manufactured open space is proposed to provide a transition between adjacent land uses. The project design presents a minor conflict with Policy 16 since much of the residential internal to the Otay River parcel does not contact natural open space. However, internal manufactured open space is intermingled throughout the project.

The New Town Plan is generally consistent with applicable City of San Diego policies since the plan designates City of San Diego lands as Research/Industrial in keeping with the existing city land use designations and zoning. (See Section 3.12, Noise, for a discussion of the New Town Plan's consistency with planning documents related to Brown Field.)

The New Town Plan is consistent with most applicable City of Chula Vista policies since it would provide for a range of housing and employment opportunities, supported by commercial and public/quasi-public uses (Goal 1-Objective 5, Goal 2-Objectives 7 and 8, Goal 3-Objectives 10, 12, and 13, Land Use Element of the Chula Vista General Plan; and Goal 2-Objective 4, Eastern Territories Area Plan of the Chula Vista General Plan). The plan also provides for a regional retail center (Goal 2-Objective 7, Land Use Element of the Chula Vista General Plan; and Goal 3-Objective 7, Eastern Territories Area Plan of the Chula Vista General Plan), a four-year college or university site (Goal 4-Objective 18, Land Use Element of the Chula Vista General Plan), and open space available for the Chula

Vista greenbelt and trail system.(Goal 5-Objective 20, Land Use Element of the Chula Vista General Plan).

The New Town Plan is inconsistent with Goal 3-Objective 16 (Land Use Element of the Chula Vista General Plan) regarding provisions for mobile home parks since the map does not propose such land uses; however, this inconsistency is less than significant since the Community Plan map is general enough to allow their inclusion as a land use at a later date. The New Town Plan is also not consistent with Goal 3-Objective 14, Land Use Element of the Chula Vista General Plan, regarding the use of low-medium density, single-family housing as the predominant land use in the Eastern Territories since approximately 40 percent of the residential acreage and over 60 percent of the actual units for the Otay River parcel (i.e., the portion of the project within the City of Chula Vista's Eastern Territories) would be medium, medium-high, and high density housing (refer to Table 2.3-1). This is a significant land use policy inconsistency of the project.

LAFCO's functions, as outlined in the Cortese/Knox Act, include the following: to encourage planned, well-ordered, and efficient patterns of development; to preserve open space and agricultural lands; and to discourage the proliferation of single-purpose government agencies. Development that occurs adjacent to existing development and facilities is preferred to "leap-frog" development, which requires the premature extension of facilities through undeveloped territory. As discussed in Section 2.4 of the Program EIR, preliminary phasing plans for Otay Ranch indicate that development will proceed outwardly in a generally west to east pattern. The sequential development of villages on the Otay River parcel would precede development of the Proctor Valley and San Ysidro parcels for all project alternatives, although the needs of the community and region will ultimately drive the phasing of development over the 30- to 50-year buildout period. This extension of development would occur from the edges of such eastern Chula Vista communities as Sunbow, Bonita Long Canyon, and EastLake and would not be considered "leapfrog" in nature because of the proximity to existing development and public services.

Consistency with LAFCO agricultural policies is discussed in Section 3.7.2.3. The project would result in a significant loss of open space. Annexation decisions will be made by LAFCO after an annexation proposal has been submitted and analyzed by LAFCO.

The New Town Plan proposes low density residential development on a small discontiguous parcel in the Otay Mountains. Once this parcel is developed, the BLM's plans to acquire the parcel would be precluded. The 280 acres in Big Cedar Canyon that the BLM has designated for future acquisition and inclusion in an ACEC would be designated as Park and Recreation. If this acreage is developed with passive recreational facilities and improvements, the BLM's plans to acquire this parcel would not be precluded, and the intent of the ACEC to preserve sensitive biological resources would not be compromised. Since the lands are not currently owned by the BLM, the BLM does not have jurisdiction over the property and, therefore, inconsistencies with their RMP are considered to be less than significant. (It should be noted, however, that actual impacts to the resources that the BLM is trying to protect may be significant. See Section 3.3, Biological Resources, for additional information and analysis.)

3.1.3 Proposed Mitigation

The following mitigation measures for the New Town Plan are required at the GDP/Subregional Plan level and will be implemented at the SPA plan level.

1. The SPA plans developed for the areas of the Otay River parcel adjacent to EastLake, industrially designated lands in the City of Chula Vista, and the Otay

Landfill shall contain policy language that provides landscaping, grading, and buffering guidelines (including any recommendations contained in Sections ~~3.11, 3.12, and 3.14~~ 3.13, 3.14, and 3.16 of this report) designed to prevent land use interface impacts such as health hazards, noise, lighting, and loss of privacy between Otay Ranch and these adjacent land uses. The SPA plan shall be reviewed by the city or county planning department that has jurisdiction over these areas to ensure that proposed guidelines are adequate to prevent significant interface impacts from occurring. In the case of the Otay Landfill, which is scheduled to close in 1999, alternate mitigation is to phase the development of adjacent residences so that this part of the parcel is not developed until after the landfill has been closed. (EIR proposed.)

In addition to the SPA plans, the proposed New Town Plan text includes the following list of planning techniques (p. 161 and 162, New Town Plan). Various planning techniques will integrate the overall design of the Otay Ranch New Town Plan. They will:

- Provide open space linkages throughout Otay Ranch to establish the open space network.
- Consider visibility from public areas, other projects, and communities in planning adjacent land uses.
- Provide vehicular and pedestrian linkages between parcels with compatible land uses. Encourage pedestrian oriented circulation.
- Develop grading plans which are sensitive and reflect the natural contour of the surrounding area.
- Create entry features and intersections that complement established village character.
- Create view opportunities and design of visual corridors within individual parcels.
- Consider the interrelationship between buildings, parking, streets and open space.
- Provide appropriate setbacks.
- Accommodate solar orientation when practical.
- Maximize view opportunities of surrounding vistas.
- Buffer planning areas from adverse noise conditions including arterial roadways, recreational activity, commercial, business and employment areas.
- Avoid massive areas of one particular use, with the exception of open space, by utilizing clustering concepts.
- Create usable recreational open space within each village.

- Ensure long-term use and enjoyment of open space through the Resource Management Plan, open space maintenance districts and associations.

- Consider the visibility of projects from nearby developments, adjacent communities and public roads in site planning.

- Screen or buffer unpleasant visual elements such as parking lots.

- Provide transitions in land use from intense urban centers to rural fringe areas. Avoid adjacent siting of potentially conflicting uses.

2. The project plans shall be submitted to the FAA for review as soon as possible to determine whether or not land use incompatibilities exist between the project and the existing San Diego Air Sports Center. If it is determined that such incompatibilities exist, then the extent of the incompatibilities (i.e., the size of the buffers needed) must also be determined. The project applicant shall then revise the project's phasing plan to allow use of the sports center until its option expires (i.e., through the year 2002). (EIR proposed.)

3. Development proposed adjacent to the Daley quarry site in the San Ysidro parcel shall occur in accordance with the mitigation measures listed in Section 3.12.3 of this report. The mitigation measures contained in this section shall be included in the applicable SPA plan for this area of the project. (EIR proposed.) Another mitigation option would be to prevent residential development from occurring within 9300 feet of the quarry, or demonstrate through site specific studies that no significant noise or air quality impacts would occur at residences within this distance until such time as the quarry is closed; other options are also available (see Section 3.12).

4. The SPA plans developed for the various areas of the project site shall contain policy language that explicitly states the landscaping, grading, and buffering guidelines designed to prevent land use interface impacts such as noise, lighting, and loss of privacy from occurring between adjacent internal land uses, especially between single-family and multifamily residential land uses and between residential and non-residential land uses. All SPA plans shall be reviewed by the city or county planning department that has jurisdiction over the area in which the proposed SPA plan is located to ensure that proposed guidelines are adequate to prevent significant interface impacts from occurring. (EIR proposed.)

   Policy A-6, as listed in the Village Character Issue Paper (July 24, 1991), which states, "Buffer and/or transition techniques should be developed which deal with the transition between different "villages" within and outside of the project," shall be included in the land use policies of the project's GDP. (EIR proposed.)

5. Development proposed adjacent to the Nelson and Sloan quarry in the Otay River parcel shall occur in accordance with the mitigation measures listed in Section 3.12.3 of this report; the mitigation measures contained in this section shall be included in the applicable SPA plan for this area of the project. (EIR proposed.) Another mitigation option would be to prevent residential development from occurring within 9300 feet of the quarry, or demonstrate through site specific studies that no significant noise or air quality impacts

would occur at residences within this distance until such time as the quarry is closed; other options are also available (see Section 3.12).

6. If the existing FAA VORTAC facility is not relocated, the Subregional Plan map shall be revised to indicate this existing land use. In addition, the SPA plan developed for this area shall contain policy language stating the landscaping, grading, and buffering guidelines designed to prevent land use interface impacts. The SPA plan shall be reviewed by the city or county planning department that has jurisdiction over this area to ensure that proposed guidelines are adequate to prevent significant interface impacts from occurring. (EIR proposed.)

7. Amendments to the Conservation Element map shall indicate the presence of County of San Diego RCAs #122-San Miguel Mountain-Jamul Mountains, #123-Otay River, #124-Brown Field Area, #125-Brown Field Old Bombing Range, ~~and~~ #127-Otay Mountain-Lower Otay Lake and the new Poggi Canyon RCA; special development criteria shall be developed in coordination with the RCA overlay or map as part of the project's RMP to protect the resources contained within these areas. The development criteria and RMP shall be reviewed and approved by the County of San Diego planning department to ensure that potential impacts to sensitive resources will be avoided or mitigated. (EIR proposed.)

3.1.4 Analysis of Significance

The proposed mitigation measures would mitigate the incompatibilities of internal land uses and the majority of immediately adjacent external land uses to below a level of significance. Land use interface impacts on the Jamul Country Town, Proctor Valley development, and along the northern and southern shores of Lower Otay Lake would remain significant after implementation of the measures. However, the New Town Plan would change the existing character of the site from undeveloped or underdeveloped open space to developed land. This change is significantly adverse for the areas in or adjacent to Jamul, Proctor Valley, Lower Otay Lake, and the San Ysidro Mountains.

Implementation of the proposed New Town Plan would result in significant land use impacts due to inconsistencies with County of San Diego policies and goals to retain the rural atmosphere of existing rural lands, with Jamul's Country Town land use designation, and with City of Chula Vista policies and goals to develop the Eastern Territories primarily with low-medium densities of residential development. No mitigation other than to decrease the density of the project in the Jamul area of the county and leave the Regional Land Use designations as they are now, and to decrease density of the project in the Eastern Territories of the City of Chula Vista is available to mitigate these project inconsistencies.

3.2 LANDFORM ALTERATION/AESTHETICS

3.2.1 Existing Conditions

3.2.1.1 Landforms

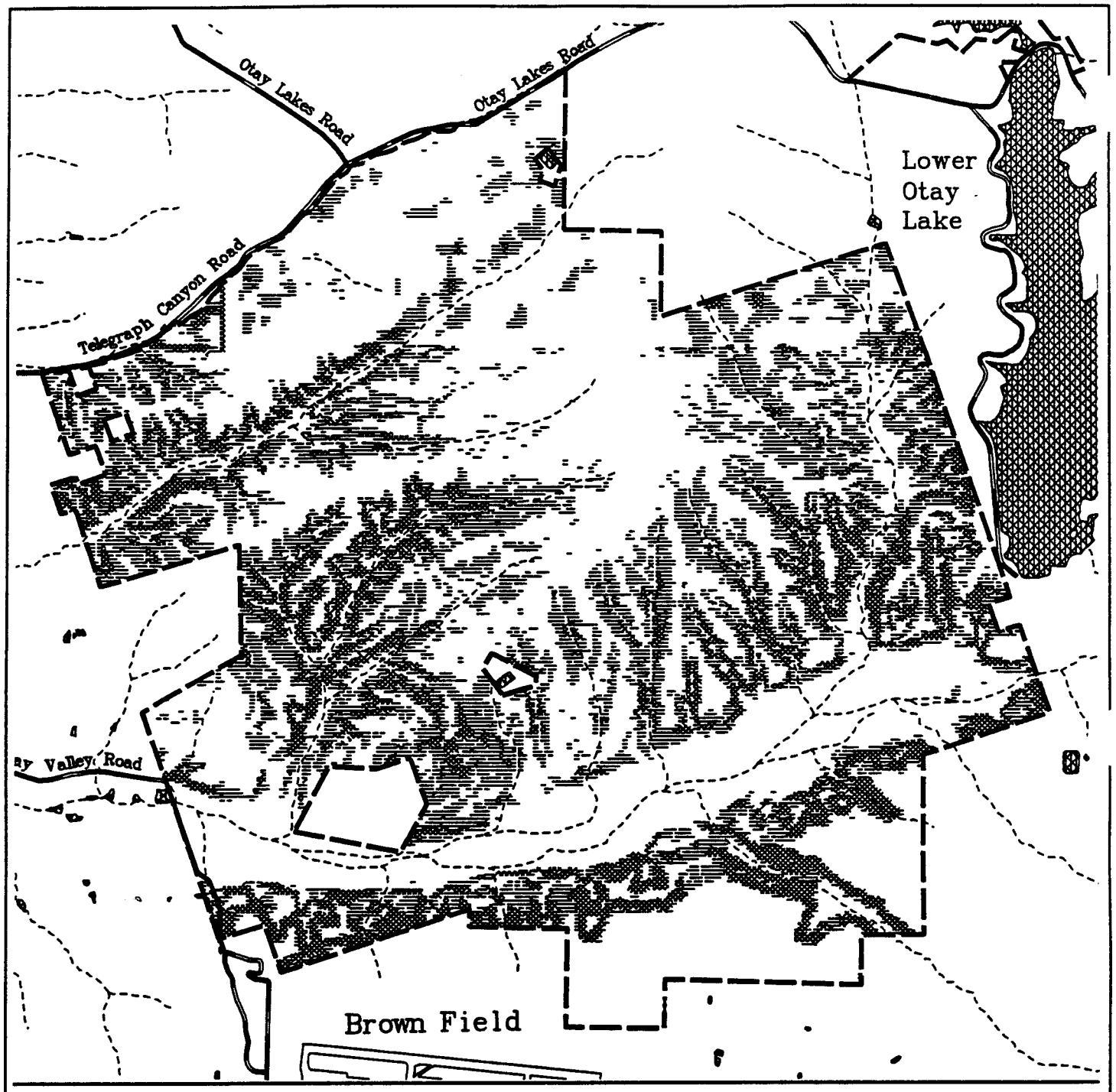
The terrain of the Otay Ranch property is diverse and features a number of distinctive landforms, including gently rolling hillsides, wide valleys, steep mountainous foothills, and narrow isolated drainages. The site is situated within the western foothills of the Peninsular Range, a region of parallel northwest-southeast trending mountain blocks and faults. Several peaks within the range dominate the landscape surrounding Otay Ranch: Callahan Mountain, Mount Miguel and San Miguel Mountain of the Jamul Mountain complex, and Otay Mountain of the San Ysidro Mountain complex. Between these peaks and foothill areas are a series of intermittent drainages, of which Salt Creek, Otay River, Sycamore Canyon, and Big and Little Cedar creeks are dominant features on Otay Ranch. In contrast to the steep topography of the surrounding mountains are the rolling hillsides surrounding Upper and Lower Otay Lakes, the broad level floor of Proctor Valley, the elongated hills forming gently-sloping ridgelines to the west, and the distinctly level mesa area south of the Otay River Valley. Onsite elevations range from a low of 160 feet MSL in the Otay River Valley to a high of approximately 1900 feet MSL in the Jamul Mountains.

A general slope analysis was conducted across the entire Otay Ranch property using elevational point data from the USGS topographic surveys of the study area within a 100-foot grid system to create a topographic representation of the property. This analysis was intended to be used as a general indication of the amount of steep slopes to be impacted by the proposed project and the alternatives; Figures 3.2-1a through 3.2-1c illustrate the general pattern of slopes on the various parcels as depicted by the computer analysis. The analysis is not intended to quantify the specific areal extent or location of impacts. More detailed slope analysis will be required when specific development plans are submitted.

According to the slope analysis described above, onsite slopes range from less than 5 to over 25 percent (Figures 3.2-1a through c). Approximately 9,564 acres of the site have slopes of less than 15 percent, an additional 5,649 acres have slopes between 15 and 25 percent, and the remaining 7,651 acres have slopes over 25 percent. As noted in Figure 3.2-1, minor slope variations are found on the level mesas and northern terraces in the vicinity of the Otay River Valley. A majority of the steep slopes onsite are located within the Jamul Mountains area and the upper elevations of the San Ysidro Mountains. Because of their distinctive topographic features and geographic separation, the three parcels that comprise Otay Ranch feature individually unique landform characteristics that warrant separate descriptions. Table 3.2-1 and Figure 3.2-2 provide a summary list and graphic depiction of significant landforms on and near the site.

Otay River Parcel

Years of dry farming have smoothed the terrain of the Otay River parcel, which is predominantly characterized by gently undulating ridges and eroded terraces. As noted within the topographic survey in Figure 3.2-2, the most distinctive feature on the parcel is the Otay River Valley, which traverses the southern portion of the Otay River parcel and topographically separates the northern terrace from Otay Mesa. Onsite, the floodplain of Otay River ranges in width from 300 to 800 feet, with the narrower segment located near the west end of the parcel, in the vicinity of the Nelson and Sloan quarry. Salt Creek, which drains south to the Otay River Valley, generally forms the eastern boundary of the parcel and features steeper slopes (over 25 percent) toward its southern confluence with the Otay River Valley. Other tributary canyons which feed into the Otay River Valley



0 to 15 percent

15 to 25 percent

Greater than 25 percent

N

0 4000

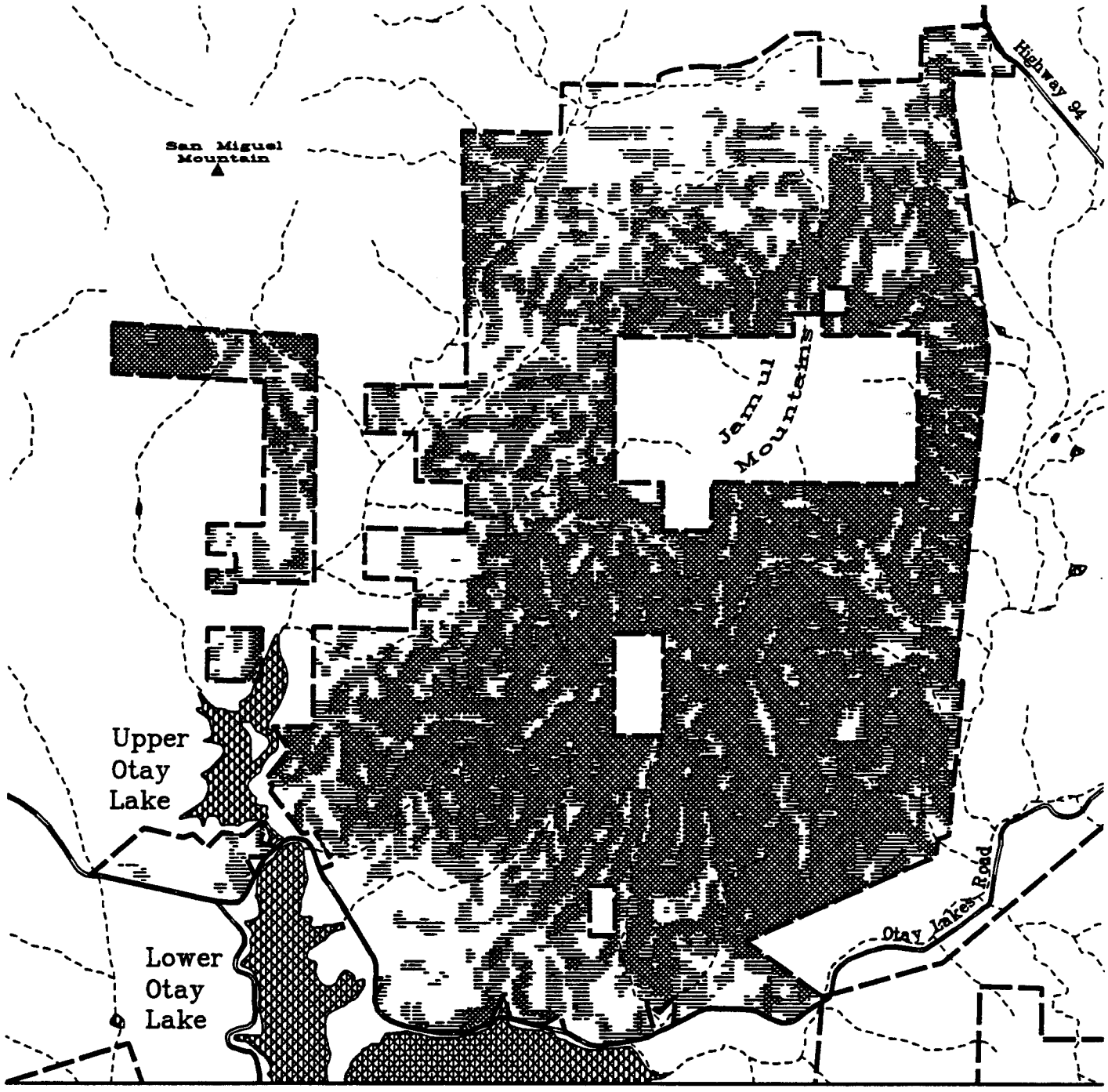
FEET

OGDEN

Slope Categories within Otay River Parcel

FIGURE

3.2-1a



0 to 15 percent

15 to 25 percent

Greater than 25 percent

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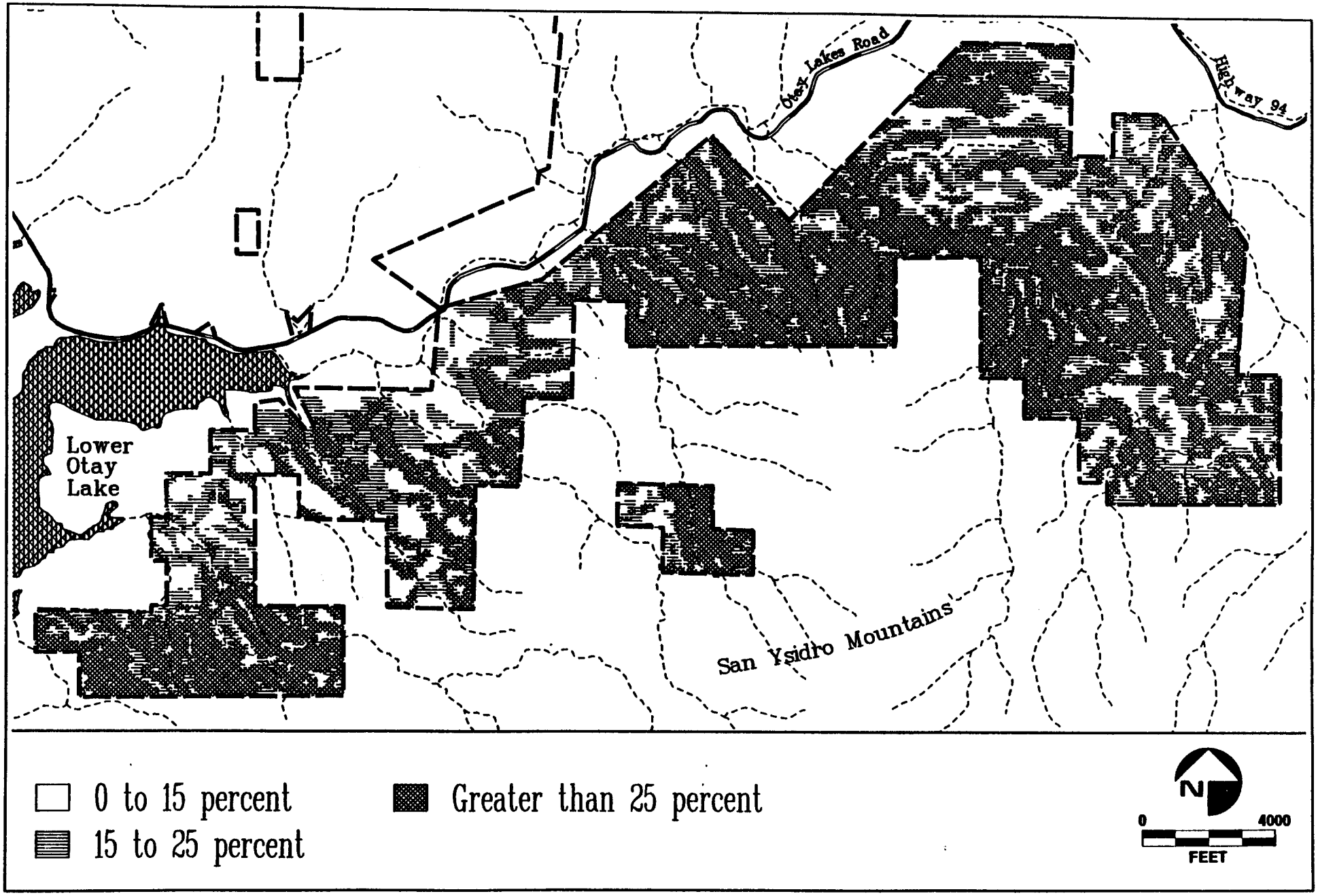
Slope Categories within Procter Valley Parcel

FIGURE 3.2-1b



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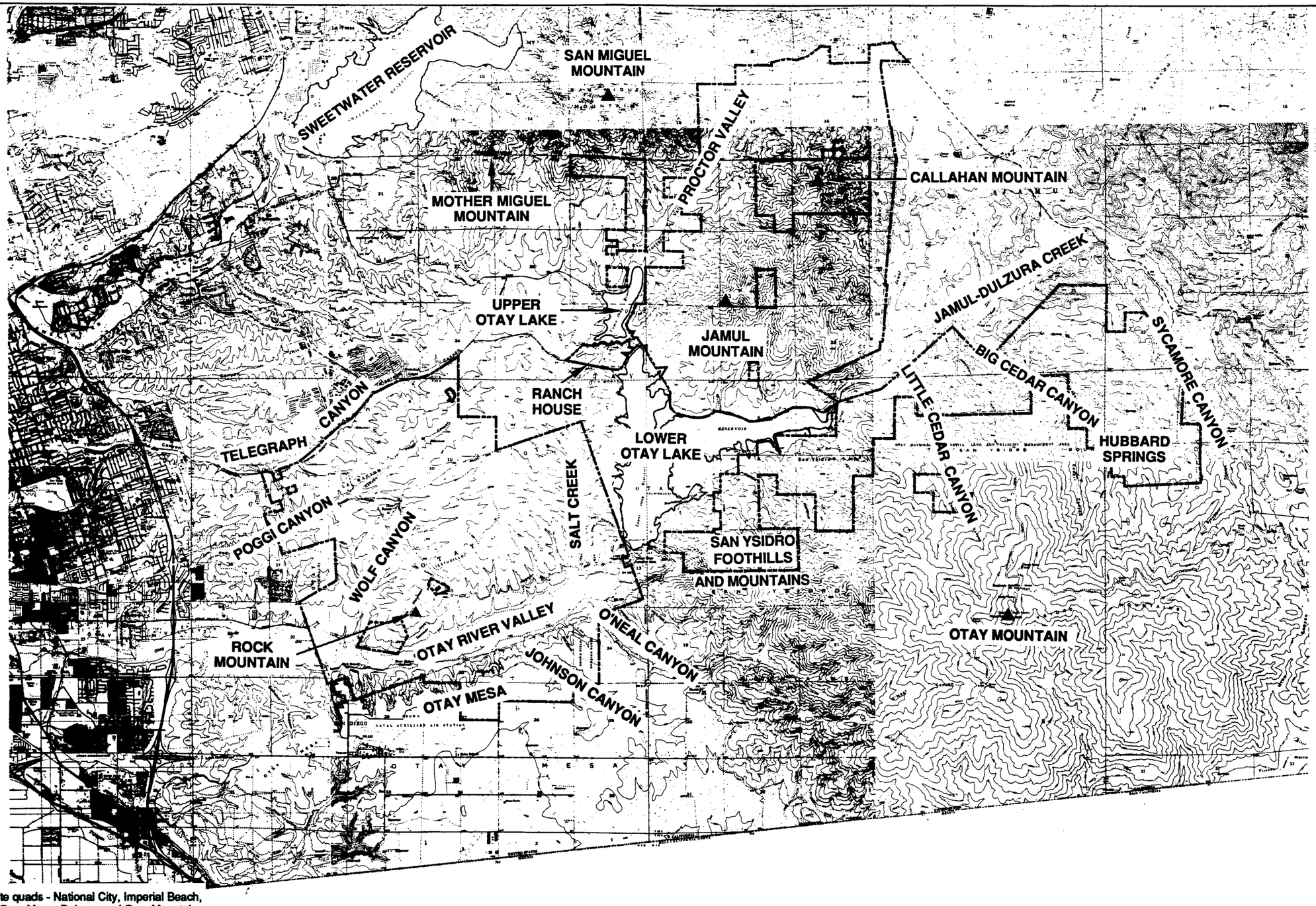
Slope Categories within San Ysidro Parcel

FIGURE
3.2-1c



SOURCE: U.S.G.S. 7.5 minute quads - National City, Imperial Beach, Jamul Mountains, Otay Mesa, Dulzura and Otay Mountain

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Topographic Survey of Otay Ranch with Significant Landforms Noted

FIGURE 3.2-2

Table 3.2-1

SIGNIFICANT LANDFORMS ON OR NEAR OTAY RANCH

Parcel	Onsite Landforms	Offsite Landforms (Direction from Parcel)
Otay River	Otay River Valley Salt Creek Canyon Wolf Canyon Johnson Canyon O'Neal Canyon Poggi Canyon Telegraph Canyon Rock Mountain	Lower Otay Lake (east) San Ysidro foothills and mountains (southeast) Otay Mesa (south)
Proctor Valley	Proctor Valley Jamul Mountain	Upper Otay Lake (southwest) San Miguel Mountain (west) Mother Miguel Mountain (west) Callahan Mountain (outparcel) Jamul-Dulzura Creek (southeast)
San Ysidro	San Ysidro Foothills Big Cedar Canyon Little Cedar Canyon Sycamore Canyon	Lower Otay Lake (west) Jamul-Dulzura Creek (north) Otay Mountain (south)

include Wolf, Johnson, and O'Neal canyons (Figure 3.2-2). All of these canyons contain steep slopes along their periphery, while the narrow bottoms are more gentle in slope. In general, slopes in the southern portion of the Otay River Valley drop more steeply to the valley floor than slopes to the north.

Near the western boundary of the Otay River parcel, Poggi Canyon bisects the northwest quarter of the parcel from east to west. Another distinctive topographic feature of the Otay River parcel is Telegraph Canyon, which forms the northern boundary of the parcel. The parcel also includes Rock Mountain in the southwestern part of the parcel, which peaks at 669 feet MSL. Overall, elevations range from 160 feet MSL in the Otay River Valley to 670 feet MSL near the central ridge on this parcel.

Offsite landforms in the vicinity of the Otay River parcel include Lower Otay Lake to the east; the San Ysidro foothills and mountains to the southeast, and Otay Mesa to the south. Savage Dam is located offsite near the southern tip of Lower Otay Lake. From the river valley floor near the dam (approximately 300 feet MSL), elevations gradually rise up to the dam and lake surface (490 feet MSL). The San Ysidro foothills range from 300 feet MSL in the Otay River Valley and O'Neal Canyon to over 3500 feet MSL at the top of Otay Mountain. Elevations on Otay Mesa are approximately 500 feet MSL.

Proctor Valley Parcel

South, north, and northwest of the Jamul Mountains the topography of the Proctor Valley parcel generally consists of broad gentle mesas (valley floor elevations gradually rise north toward the Jamul area), while the terrain in the central and eastern portions of the parcel becomes steeply rugged as the Jamul Mountains climb in elevation. Only the northern and eastern portions of the Proctor Valley landform are contained within the Proctor Valley parcel. Ridges from the Jamul Mountains gradually extend into the northern portion of the valley and form elongated, low-lying hillsides. A low east-west ridgeline effectively divides the valley near the northwestern corner of the parcel. The broader central and southern portions of the valley encompasses Upper Otay Lake and surrounding drainages. At the southwestern edge of the Proctor Valley parcel, several small, narrow drainages are present in foothills surrounding the Jamul Mountains, particularly in the vicinity of Upper Otay Lake and the west-central portion of the parcel. A 500-kV overhead electrical line and towers traverse east-west through the central parcel. The Ranch House complex is located on a knoll (approximately 60 feet) above the Upper Otay Lake surface (Figure 3.2-2). Directly north of Lower Otay Lake and south of Jamul Mountain peak (1,735 feet MSL), the terrain of the Proctor Valley parcel forms a slightly elevated but gentle mesa approximately 100 to 150 feet above the lake surface. This broad slope area is widest near the center and narrows toward the northern and eastern arms of the lake. This parcel is the most topographically diverse of all three portions of the ranch, because the elevations range from approximately 500 feet MSL near Upper Otay Lake to a high of 2,053 feet MSL in the eastern mountains.

Offsite features in proximity to the Proctor Valley parcel include: Upper Otay Lake; San Miguel and Mother Miguel mountains to the north and west; Callahan Mountain located on a BLM-owned outparcel surrounded by the Proctor Valley parcel; and, Jamul-Dulzura Creek to the southeast. San Miguel Mountain peaks as 2565 feet MSL; Mother Miguel Mountain peaks at 1527 feet MSL; and Callahan Mountain peaks at 2050 feet MSL.

San Ysidro Parcel

Terrain on the San Ysidro parcel is dominated by hillsides and ridgelines extending north from the base of the San Ysidro Mountains. Much more of this parcel is naturally

undulating and divided by canyons and draws than the other parcels, resulting in large areas of land, both developable and undevelopable, that are not readily visible from existing public viewing areas such as roads and parks. In general, the area in the western portion of the parcel near Lower Otay Lake features broader, gentler hillsides, while elevations directly southeast of Lower Otay Lake rise dramatically to a high of 1,400 feet MSL. The central portion of the parcel also contains steeper mountain slopes and narrow drainages of Big and Little Cedar canyons. This series of natural drainages extends from the mountains north, draining the site toward their confluence with Jamul-Dulzura Creek. The eastern portion of the parcel is topographically isolated from the rest of the parcel and characterized by upper elevation valleys, such as Sycamore Canyon, formed by moderately sloped ridgelines. Slopes and hillsides along the eastern property boundary serve to separate the parcel from the nearby community of Dulzura and Highway 94. In the southeastern Hubbard Springs area, broader valleys with fewer steep (i.e., 25 percent or greater) slopes occur as the onsite elevations gradually drop down from the steeper San Ysidro Mountains. Overall, elevations on this parcel range from 550 feet MSL near Lower Otay Lake to 1,600 feet MSL in the southeast corner of the parcel.

Offsite features and landforms near the San Ysidro parcel include: Lower Otay Lake to the west; Jamul-Dulzura Creek to the north; and Otay Mountain, located 2 to 3 miles south of the central portion of this parcel.

3.2.1.2 Site Characteristics

In general, the Otay Ranch property conveys a rural, agricultural, and undeveloped open space character. Although much of the site has been disturbed by agricultural activities, the only existing development on the property is a series of small ranch homes near the central crest of the Otay River parcel, the Ranch House complex on an elevated terrace above the two lakes, and two residences and associated outbuildings, known as the Bird Ranch, and a target shooting facility in the western end of the Otay River Valley (Figure 3.1-1). Clusters of mature eucalyptus trees periodically occur onsite as remnants of former agricultural operations or homesteads.

The northwestern three quarters of the Otay Ranch property was historically disturbed and used for dry farming of barley, while the Otay River Valley has been disturbed by field crops, sand and gravel mining activities, and extraction activities at Rock Mountain. Low-lying riparian scrub and a few isolated sycamores occur within the floodplain of the river valley. The drainages and canyons that cut into the western mesa area, such as Wolf, Poggi, and Salt Creek canyons, feature varying levels of disturbance depending on the types and level of historic agricultural activity. Cattle grazing activities and fires on the Proctor Valley and San Ysidro parcels have transformed some of the natural coastal sage scrub and chaparral landcover on the gentler slopes to non-native grassland and patchy, disturbed scrub. The foothills, including the area surrounding the lakes, and steeper elevations of the Jamul and San Ysidro mountains, however, still feature dense scrub and chaparral vegetation. Drainages in the upper elevations of the San Ysidro Mountains also feature stands of oak woodland and cypress trees. Refer to Section 3.3, Biological Resources, for a complete description of the natural vegetation of the site.

The predominantly agricultural character of the Otay River parcel contrasts sharply with the adjacent urban uses in Chula Vista, including Otay Landfill activities, Otay Mesa industrial uses, the Community Hospital complex, completed phases of Sunbow residential development, ongoing construction activities at EastLake Greens, and the business park and completed phases of residential development at EastLake I. Established residential development also occurs atop the steep northern slopes of Telegraph Canyon overlooking the northfacing slopes of Otay Ranch. Refer to Section 3.1, Land Use, and Figure 3.1-3

for a complete description of surrounding land uses. East of the Salt Creek drainage and near Lower Otay Lake, however, the site returns to more rural character as Otay Lakes Road is located alongside the lakeshore. It should be noted that the rural character of the lake is changing with the construction of the Olympic Training Center and EastLake III on the mesa above the western shoreline of Lower Otay Lake.

Between the San Ysidro and Proctor Valley parcels, the surrounding topography grows steeper on either side of Otay Lakes Road and then abruptly levels out to wide grassland valleys near Jamul and Dulzura. The roadway winds along the base of the San Ysidro foothills near the heavily vegetated floodway of Jamul-Dulzura Creek. The rural and undeveloped open space character of the San Ysidro area along Otay Lakes Road is only interrupted twice: once by a small quarry (Daley Quarry) and once by a moderately-sized recreational vehicle campground along the midpoint of the roadway. Otherwise, no development occurs near the eastern portion of the site.

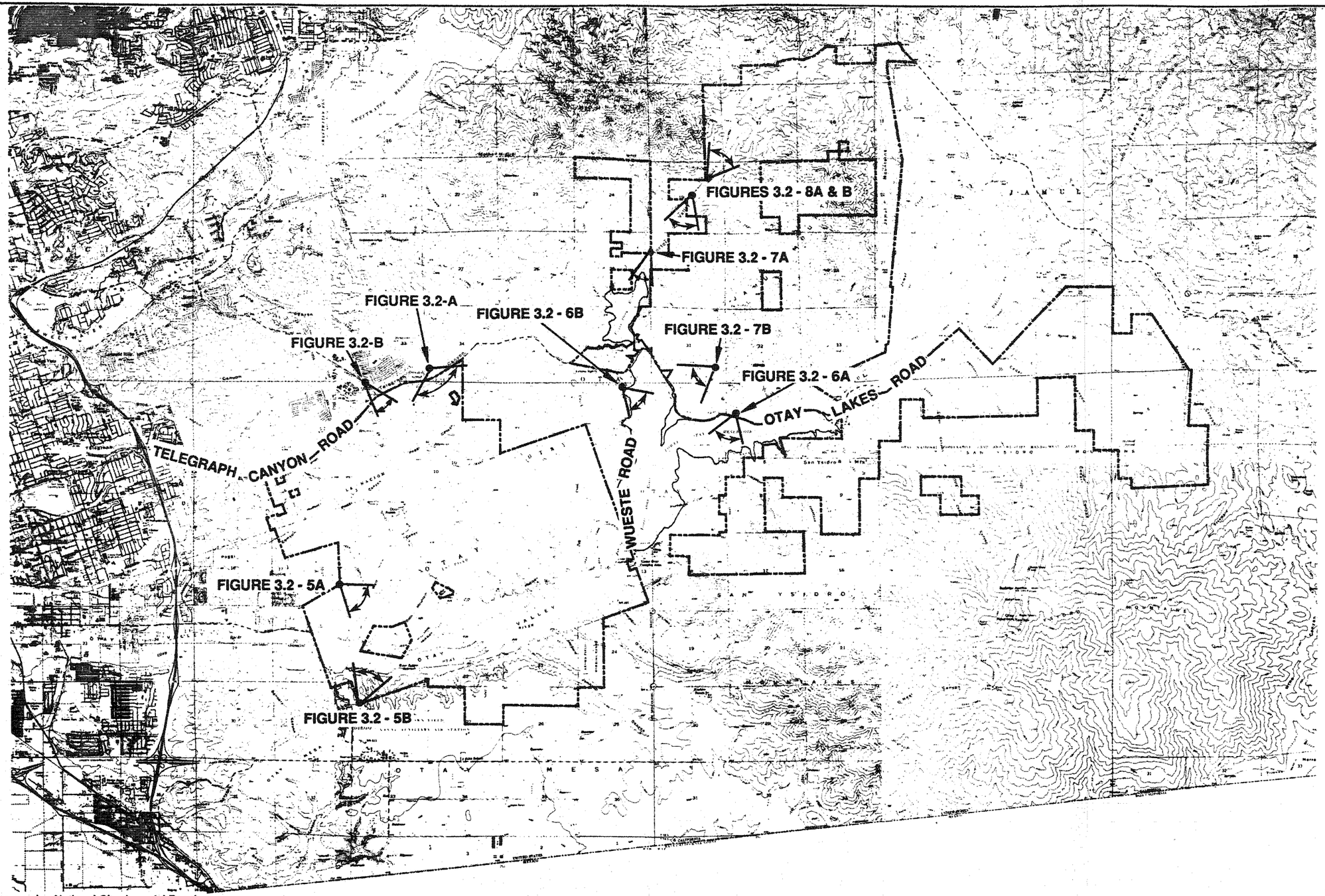
Proctor Valley Road is a two-lane dirt roadway from its intersection with San Miguel Road in Bonita east through the Proctor Valley parcel to the southwestern edge of Jamul. The character of the landscape changes dramatically to the north along this roadway as the urban development of eastern Chula Vista is exchanged for agricultural hillsides and large-lot development in the rural community of Jamul northeast of Otay Ranch. The portion of Proctor Valley Road on the Otay Ranch property is within the agricultural and undeveloped area to the north. Natural drainages in the Proctor Valley area are intermingled with non-native grassland and disturbed scrub, while the western foothills of the Jamul Mountains contrast with the grazed hillsides and convey a sense of undeveloped open space.

3.2.1.3 Views

Because of the topographic complexities of the terrain and size of the property, views of the entire Otay Ranch are nearly impossible to achieve, except from the highest peaks in the surrounding mountains. Therefore, views of the Otay Ranch property are limited to existing public rights-of-way (i.e., Telegraph Canyon Road, Otay Valley Road, Otay Lakes Road, Wueste Road, Proctor Valley Road, and Highway 94) and adjacent development in the project area. Figure 3.2-3 indicates where selected photos were taken of the site and surrounding property. The following description focuses on those views of the site that are afforded to nearby residents and motorists in the project area.

Views of the site along Telegraph Canyon Road are limited to short-range scenes of the slopes along the northern boundary of the Otay River parcel and long-range views of the uppermost peaks of the San Ysidro Mountain complex, including Otay Mountain. Telegraph Canyon Road and Otay Lakes Road currently carry between 17,000 and 24,000 daily trips through the project area. In the vicinity of Telegraph Canyon, residences along the northern slopes are afforded a sweeping view of the northern portion of the Otay River parcel up to its central crest, where elevations drop down to the south toward the river valley (Figure 3.2-4).

From Otay Valley Road and Heritage Road, expansive long-range eastern views up the river valley and across the southern portion of the Otay River parcel are afforded motorists as they traverse north-south across the floodplain area. The extensive mining disturbance at Rock Mountain is clearly visible from these vantage points. These roadways carry 8,000 and 3,000 daily vehicles trips between Chula Vista and Otay Mesa, respectively. Long-range views of the major mountain peaks and hillsides to the east are also offered from both roadways, but particularly Heritage Road on its climb in elevation toward the Otay Mesa terrace. Once atop Otay Mesa, views of the Otay River parcel are restricted to the acreage atop the mesa and south of the river valley due to the limited number of



SOURCE: U.S.G.S. 7.5 minute quads - National City, Imperial Beach, Jamul Mountains, Otay Mesa, Dulzura and Otay Mountain

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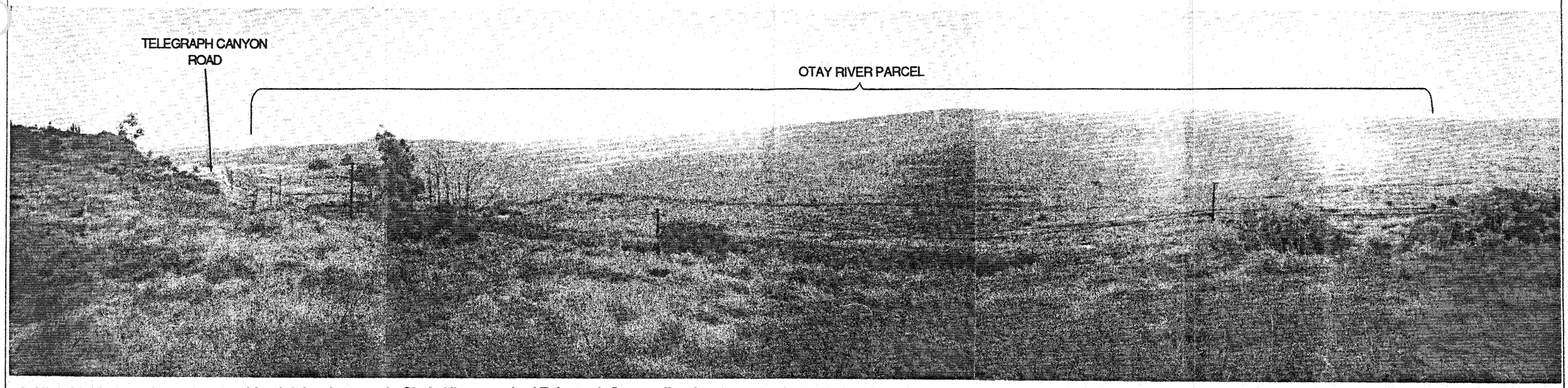
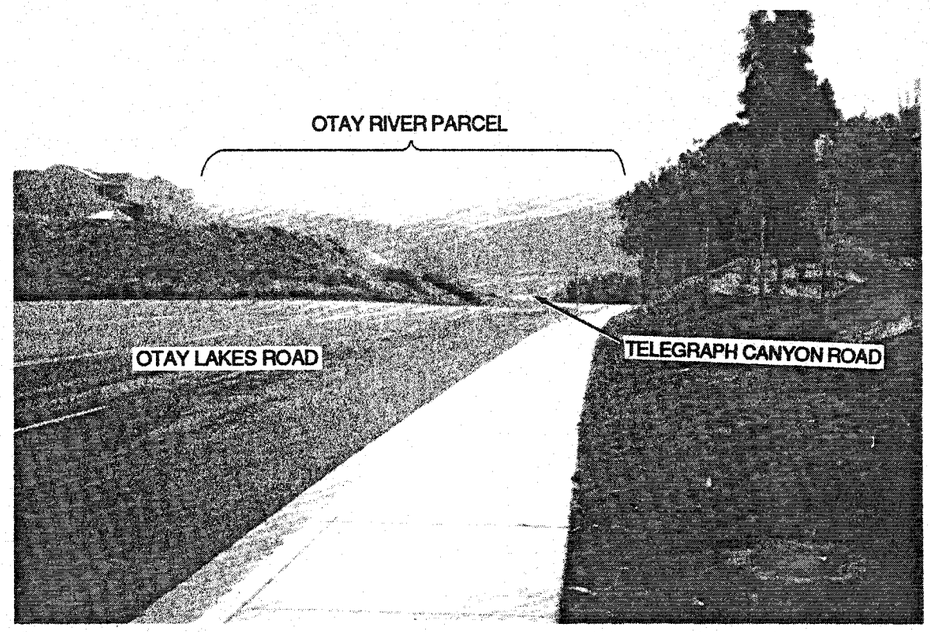
Key Vantage Points Surrounding Otay Ranch

FIGURE 3.2-3



A. View looking southeast from residential development in Chula Vista, north of Telegraph Canyon Road.



B. View looking southwest from Otay Lakes Road near the intersection with Telegraph Canyon Road.

NOTE: Photo locations are illustrated in Figure 3.2-3.

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Views Near Telegraph Canyon Road

FIGURE **3.2-4**

roadways near the edge of the river valley and the intervening industrial development surrounding Brown Field (Figure 3.2-5). Aircraft operators at Brown Field and staff and prisoners at the county jail and state prison are offered the most expansive views of the Otay River parcel and southern portion of the Proctor Valley parcel from this southern vantage point. As noted within the land use section, no residential uses currently occur on Otay Mesa.

From the periphery of the campground at Lower Otay Lake Park, near Savage Dam and the wastewater treatment plant, views are available of the Otay River Valley and central portion of the Otay River parcel and of the northern and eastern slopes surrounding the lake. However, this park has recently been closed due to budgetary constraints (Mack 1991). Extensive eucalyptus plantings at the park obstruct long-range views of Otay Ranch from the interior of the campground. In addition, because the nearby topography rises a minimum of 100 feet MSL around the lake surface. Views from the southern lakeshore are limited to the immediate hillsides.

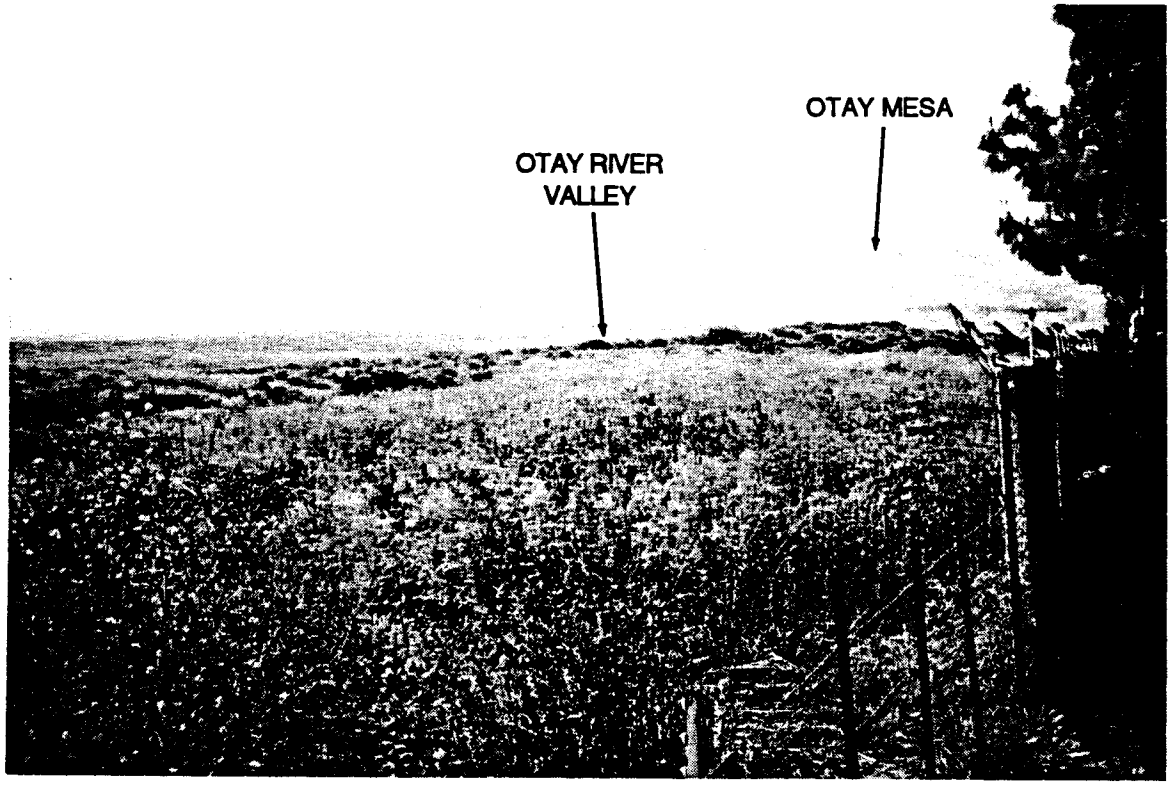
The most comprehensive views of Lower Otay Lake and the surrounding hillsides are offered from Otay Lakes Road and Wueste Road and Lower Otay Reservoir Recreation Station along the western shore of the lake (Figure 3.2-6). The eastern segment of Otay Lakes Road carries 7,000 daily trips through the project area, while Wueste Road carries only a few trips each day south toward the park and campground. Because of the curvilinear configuration of Otay Lakes Road in this area and the moderate travel speeds, short-range views from Otay Lakes Road are more limited than the direct views of Lower Otay Lake from Wueste Road. As motorists travel eastbound on Otay Lakes Road, the surrounding topography obstructs views into the interior of the Proctor Valley and San Ysidro parcels. Boaters from the recreation station are also offered extensive short and long-range views; however, the hours of facility operation are limited to daylight on Wednesdays and weekends, thus minimizing recreational use and views from the lake. The elevated location of the Olympic Training Center will allow for similar views of the eastern slopes upon its completion.

Proctor Valley Road traverses the entire length of Proctor Valley from eastern Chula Vista to Jamul. Short-range views south and east toward Upper Otay Lake and the western slopes of the Proctor Valley parcel and long-range views south toward the Otay River parcel are limited to the southern portion of the roadway due to intervening topography (Figure 3.2-7). Long-range views of the local mountains are available from every location on the roadway. Although the travel speeds are much slower and view durations are, therefore, longer along Proctor Valley Road, the condition of the roadway surface limits the amount of traffic and number of viewers traveling through the Proctor Valley parcel. Residents of Jamul are afforded short-range views of only the northern portion of the Proctor Valley parcel because of the topographic division of the parcel (Figure 3.2-8).

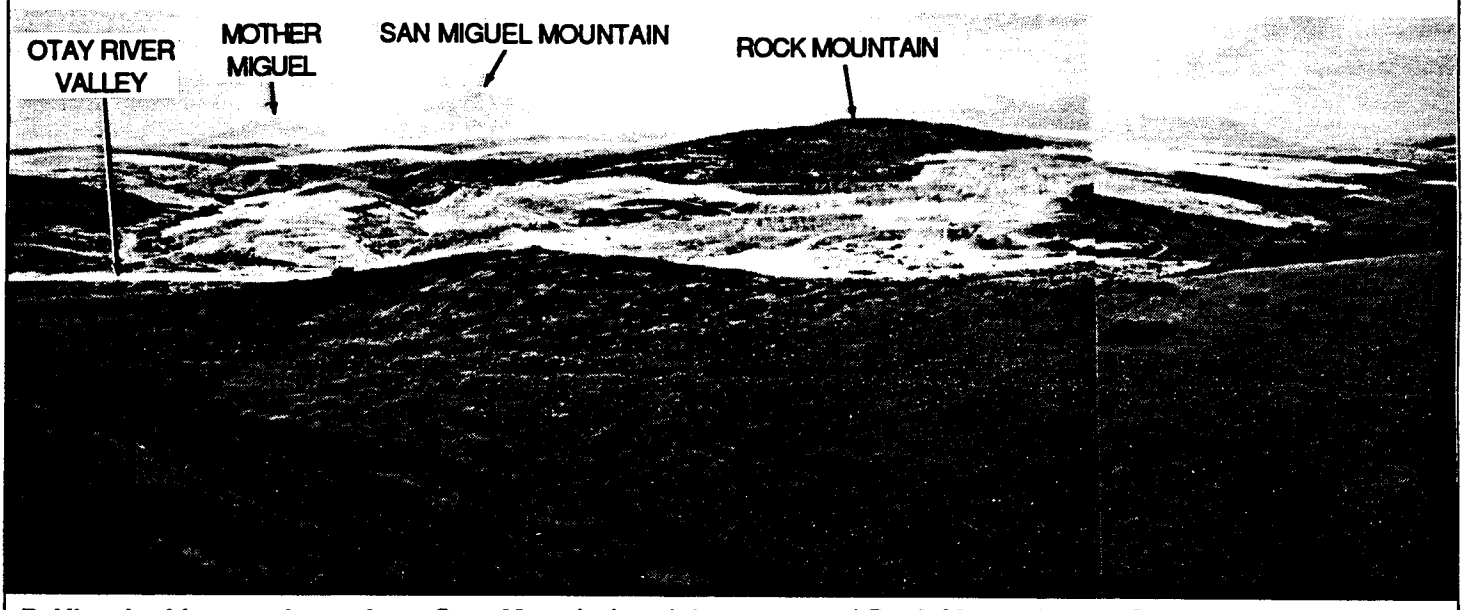
Views of the San Ysidro and Proctor Valley parcels from Highway 94 are often restricted by topography and limited by the travel speed of cars. The most visible portion occurs at the northeast corner of the Proctor Valley parcel where the project boundary approaches the roadway; however, intervening residential development in Jamul obstructs most of the view from the highway. The upper elevation areas of the San Ysidro parcel are also not visible from the highway due to the intervening steep topography along the eastern property boundary and adjacent to the roadway.

3.2.1.4 Lighting/Astronomical Dark Sky

Two major observatories, Mt. Palomar and Mt. Laguna, are located within 50 miles of the Otay Ranch site (Mt. Palomar is located approximately 50 miles to the north, and Mt.



A. View looking sotheast from western property boundary toward Otay River parcel.



B. View looking northeast from Otay Mesa industrial area toward Rock Mountain and Otay River parcel.

NOTE: Photo locations are illustrated in Figure 3.2-3.

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Views of Otay River Parcel

FIGURE

3.2-5

A. View looking south from Otay Lakes Road toward San Ysidro Mountains.

B. View looking southeast from Wueste Road toward Lower Otay Lake.

NOTE: Photo locations are illustrated in Figure 3.2-3.

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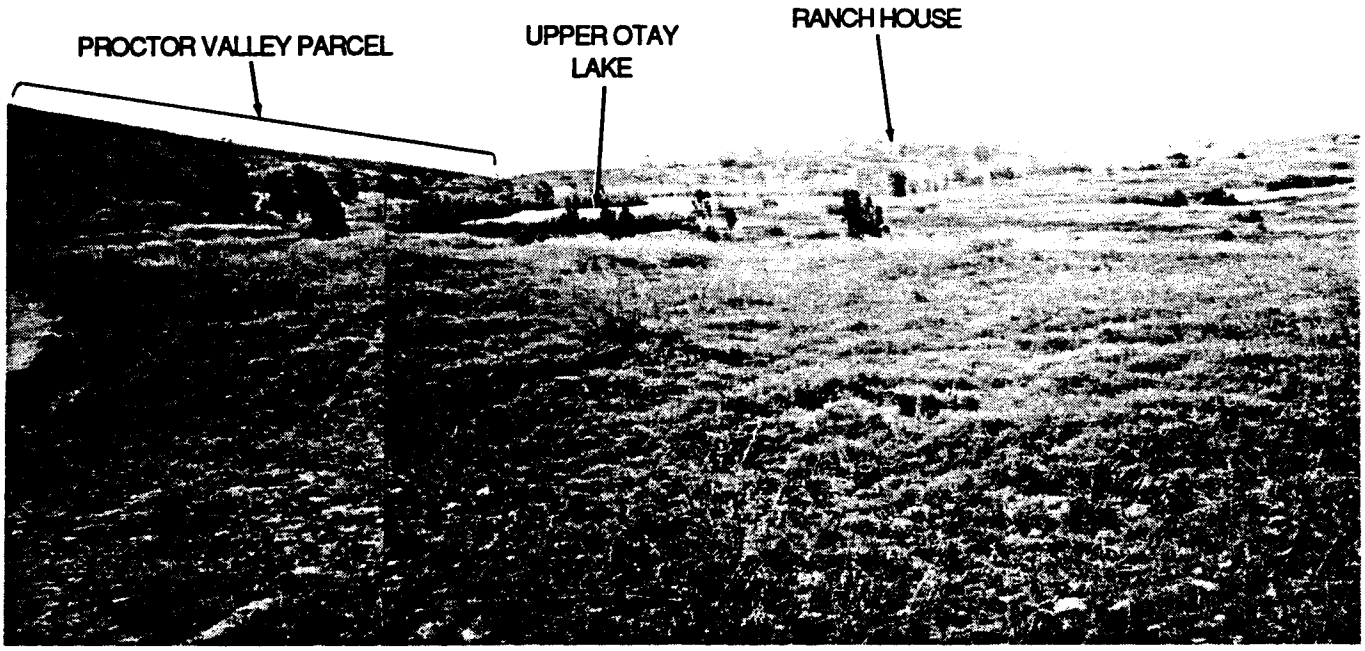
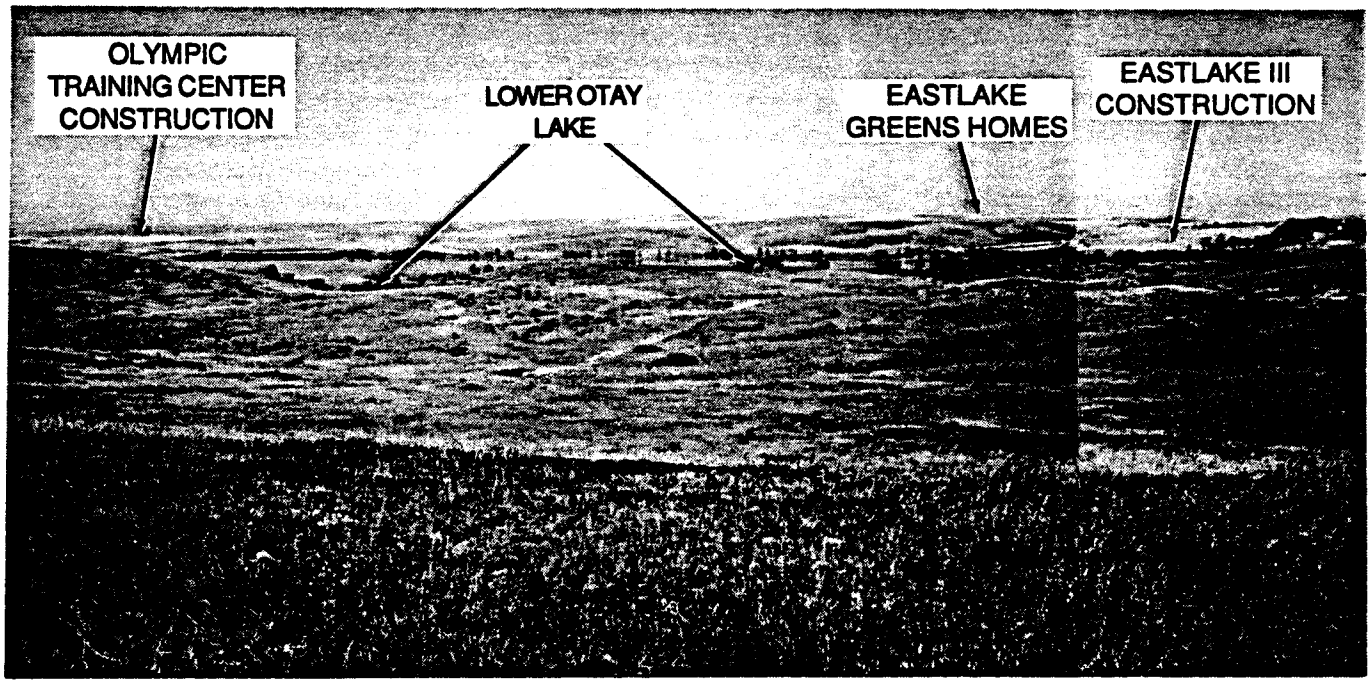
Views of Lower Otay Lake

FIGURE 3.2-6



A. View looking south from Protor Valley Road toward Upper Otay Lake.



B. View looking southwest from Proctor Valley parcel toward Lower Otay Lake.

NOTE: Photo locations are illustrated in Figure 3.2-3.

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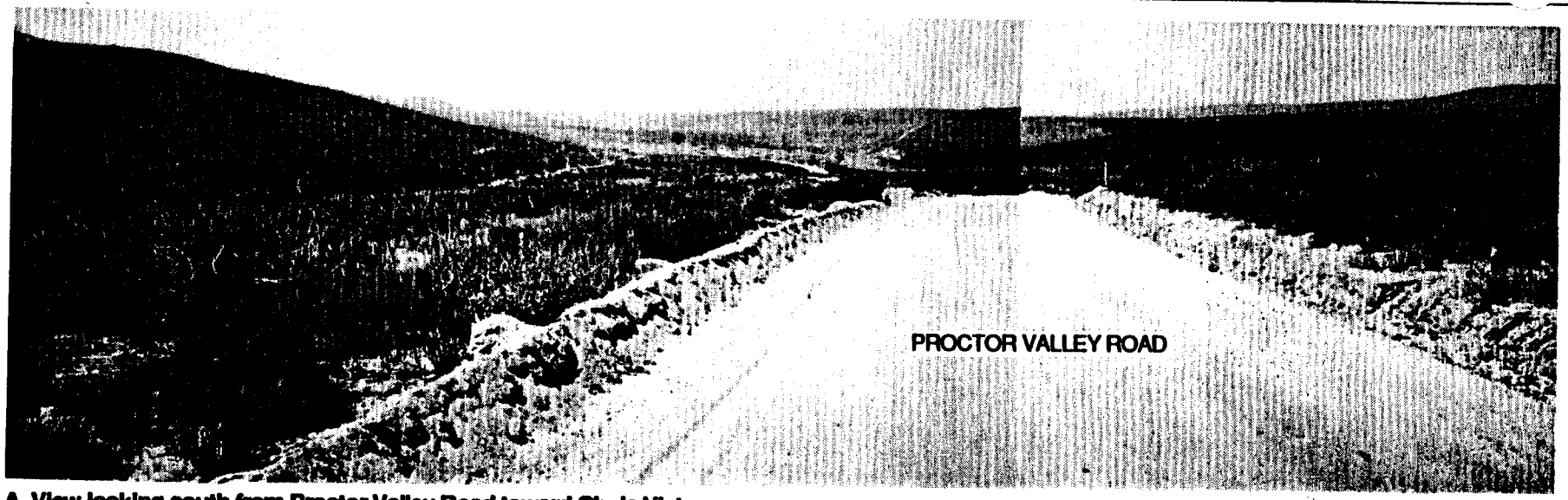
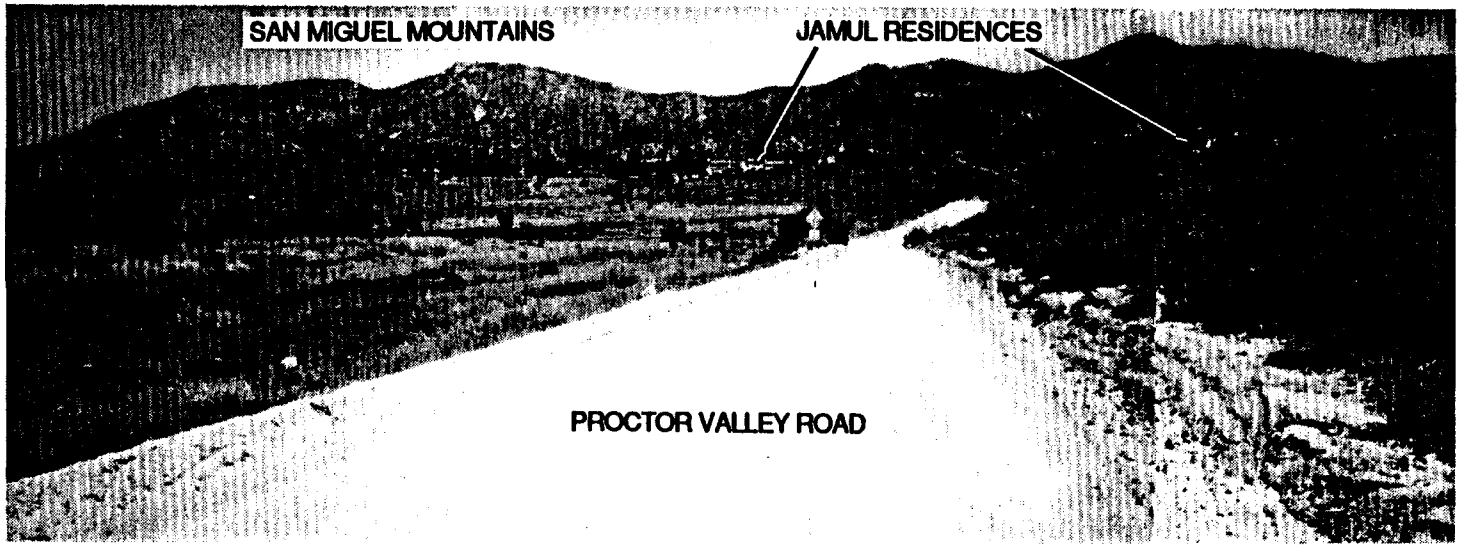
Views from Proctor Valley Parcel

FIGURE

3.2-7



A. View looking south from Proctor Valley Road toward Chula Vista.



B. View looking north from Proctor Valley Road (north of ridgeline) toward Jamul.

NOTE: Photo locations are illustrated in Figure 3.2-3.

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Views of Proctor Valley Parcel

FIGURE 3.2-8

Laguna is located approximately 35 miles to the northeast). Both of these observatories use large telescopes and conduct research in conjunction with major universities such as the California Institute of Technology, San Diego State University, and the University of Illinois. In order for these two observatories to continue as high-quality astronomical research sites, light pollution in the surrounding area (generally 30-40 miles) must be controlled.

The Otay Ranch site is not currently lighted at night, with the exception of a few scattered single-family residences on the Otay River parcel. The Otay River parcel is, however, surrounded by urban development on three sides and will be surrounded on all four sides once EastLake III and the Olympic Training Center projects are completed. The Otay River parcel is, thus, part of an urban lighted area, especially when viewed from a distance of 35-50 miles.

The Proctor Valley and San Ysidro parcels are not located adjacent to urban, lighted areas, although some night lighting is associated with the town of Jamul, located just north of the Proctor Valley parcel.

The County of San Diego has adopted a "Dark Sky" Ordinance to control light pollution in the unincorporated areas of the county (Division 9, Sections 59.101-59.15 of the County Zoning Ordinance). The project site is within Zone B of the Dark Sky Ordinance since it is located outside of the 15-mile radii around each of the observatories that are defined in the Ordinance as Zone A. The Ordinance requires the use of fully shielded low-pressure sodium lamps and includes compliance with other lighting standards as shown in Table 3.2-2.

3.2.1.5 Landform and Visual Policies

The Land Use and Conservation and the Open Space Elements of the City of Chula Vista General Plan (1990) as well as various parts of the County of San Diego General Plan, the City of San Diego's Otay Mesa Community Plan, Resource Protection Ordinance, and Hillside Review Overlay Zone contain a number of policies pertaining to landform alteration, grading, and visual resources that are applicable to the proposed Otay Ranch land use and implementation plans. A summary of those policies follows.

City of Chula Vista Land Use Element

Urban development should focus on the city's mesa and respect, preserve, and maintain the natural topographic features.

Land Development

Landform (or contour) grading should be the dominant grading method used for a development project. Landform grading should mean a contour grading method which creates artificial slopes with curves and varying slope ratios designed to simulate the appearance of surrounding natural terrain. Conventional grading should be restricted to those cases where adherence to landform grading principles would clearly not produce any significant contribution to the site planning goals of the general plan.

Scenic Highways and Roadways

Along scenic highways and roads, the use of large-scale advertising signs, tall pole signs, or billboards should be prohibited. Advertising or identification signs should be of high quality materials and graphics, and large enough to clearly identify or convey information

Table 3.2-2

COUNTY DARK SKY ORDINANCE LIGHTING REQUIREMENTS

LAMP TYPE AND SHIELDING REQUIREMENTS PER FIXTURE

Lamp Type	Zone A (15 mi.)	Zone B
Class I - Color Rendition Important		
Low Pressure Sodium	Fully Shielded	Fully Shielded
Others above 4050[1] Lumens	Prohibited	Fully Shielded
Others 4050[1] Lumens and Below	Allowed [1,2,3]	Allowed[2]
Class II - Parking Lots, Security, Etc.		
Low Pressure Sodium	Fully Shielded	Fully Shielded
Others above 4050[1] Lumens	Prohibited	Prohibited
Others 4050[1] Lumens and Below	Prohibited	Allowed[2]
Class III - Decorative		
Low Pressure Sodium	Prohibited	Fully Shielded
Others above 4050[1] Lumens	Prohibited	Prohibited
Others 4050[1] Lumens and Below	Prohibited	Allowed[2]
Luminous Tube	Prohibited	Allowed[2]

[1] Examples of lamp types of 4050 lumens and below. (The acceptability of a particular light is decided by its lumen output, not wattage. Check manufacturer's specifications):

- 200 Watt Standard Incandescent and less
- *150 Watt Tungsten-Halogen (quartz) and less
- *75 Watt Mercury Vapor and less
- *50 Watt High Pressure Sodium and less
- 40 Watt Fluorescent and less

* Not allowed in Zone A, Class I

[2] Lights shall be shielded where feasible and focused to minimize spill light into the night sky or adjacent properties.

[3] Maximum of 8100 total lumens per acre or per parcel if under 1 acre.

Source: County of San Diego Zoning Code, Sec. 59-106.

but not sized, colored, or lit so as to be obtrusive or out of character with the scale or design of the building, roadway, or general neighborhood.

Designated Scenic Roadways

Several roadways in the Eastern Territories are designated scenic highways and roads, including Telegraph Canyon Road, Orange Avenue, Otay Lakes Road, Hunte Parkway, Otay Valley Park Road (Otay Valley Road), and Wueste Road (along the western shore of Lower Otay Lake). All developments proposed adjacent to scenic routes should be subject to design review to ensure that the design of the development proposal will enhance the scenic quality of the highway. This review should include architectural design of structures, siting of structures, height of structures, landscaping, signs, and utilities.

With the exception of properties in the R-1 zone, all properties adjacent to scenic routes should have the "P" Precise Plan Modifying district or other districts requiring design review attached to the underlying zone. In connection with any tentative map submitted on R-1 properties abutting a scenic route, each applicant should be required to submit a proposal for beautification of the adjacent portion of the scenic route. Each proposal should consider such factors as treatment of the scenic route outside the project boundaries; presentation and enhancement of natural features; creation of a pleasing streetscape through special landscaping and setbacks; creation of open areas adjacent to scenic routes through clustering and planned unit development (PUD) concepts; and coordinated signs/graphics for residential projects and strict sign requirements for commercial and industrial areas. All slopes or common areas adjacent to a scenic route should be placed in an open space maintenance district pursuant to City Ordinance Number 1400.

City of Chula Vista Conservation and Open Space Element

It is the intent of the city to preserve Mother Miguel Mountain in its natural state and direct urban development to areas away from the landform which defines the mass of the mountain.

Modifications that are necessary to the natural topography as part of the development process are to retain as much as possible the natural generalized topographic configuration of the land.

City of Chula Vista Eastern Territories Plan

Development of land uses adjacent to the prominent landforms should maintain the overall character of the existing landform. Prominent features include the south side of Proctor Valley adjacent to EastLake; north and south side of Telegraph Canyon between medical Center Drive and Route 125; north and south side of Poggi Canyon between Brandywine Avenue and Otay Lakes Road; east and west sides of Salt Creek between Telegraph Canyon Road and Otay Valley; north side of Otay Valley between Paseo Ladera and Otay Lakes; and east and west of Wolf Canyon. For development proposed near Otay Lakes, site planning, grading, landscaping, and architectural design should be oriented to produce a high quality view from the lake, open space, and parks east of the lake and Wueste Road.

County of San Diego

Policies Pertaining to Views and Visual Character

Panoramic views of hills, valleys, agricultural areas, and downtown San Diego have resulted in certain roadways in the Otay Ranch area being designated scenic roadways and

highways (County of San Diego 1983), including Proctor Valley (Second priority scenic highway), Otay Lakes Road, Otay Valley Road, and Highway 94 (First priority scenic highway).

The Scenic Highway Element and the Jamul/Dulzura and Otay Subregional Plans of the San Diego County General Plan contain policies pertaining to scenic highway corridors that are applicable to the proposed project. The county's policies are intended to create a network of county scenic highway corridors within which scenic, historical, and recreational resources are protected and enhanced. A summary of the policies follows.

- Because the design and construction of roads have an important visual effect on the surrounding landscape and may cause significant environmental impacts in areas of rugged terrain and/or sensitive soils, the county will require that local roads be designed with emphasis on scenic beauty by following natural contours and avoiding inappropriate grading to the extent possible.

- The County will support an ongoing county scenic highway program toward the creation of a comprehensive scenic highway system; establish and apply design standards to regulate the visual quality of development within designated scenic highway corridors (e.g., the "s" designator); and encourage and support increased state and federal incentives to local government for their cooperation and participation in the scenic highway program.

For the northern and eastern portions of the Proctor Valley and San Ysidro parcels within the Jamul/Dulzura Subregion, the following visual resource policies from various elements of the plan are applicable (County of San Diego 1983).

- Road design within the community should be compatible with topography and landscape and minimize grading. All roads should be designed to maximize environmental and aesthetic considerations (Policy 1 of Circulation Element).

- In order to keep the rural character of the community, it is important to retain the dark skies. Therefore, street lighting should be of a type as to reflect downward only. Such lighting, when required, should be located at street intersections, ends of cul-de-sacs and other locations, as necessary, for safety only (Policy 5 of Circulation Element).

- The preservation of diverse, viable natural habitats and aesthetic resources such as scenic rock outcroppings, ridgetops and mountain peaks should be encouraged (Policy 1 of Conservation Element).

- Standards should be developed for control over light pollution to preserve the dark sky characteristics of Jamul/Dulzura subregion (Policy 7 of Conservation Element).

Policies Pertaining to Steep Slopes

The county's Impact Sensitive Land Use Designation within the Otay River parcel (i.e., Otay River Valley) is intended to protect both environmentally sensitive areas and potentially hazardous areas due to, among other features, steep slopes. Because not all of the land within this category is constrained, the following policy is applicable to the project:

- The county will consider more intensive development in the Impact Sensitive designation areas where justification for such development is presented. A major use permit will be required in these instances (Policy 10).

City of San Diego

The City of San Diego Otay Mesa Community Plan has specific guidelines related to landform and grading, which are applicable to 390 acres of the southern portion of the Otay River parcel. Pertinent guidelines are listed below.

- Development is planned to relate to topography and natural features. Grading operations will strive to retain the character of the landform as much as is feasible.
- Top of slope and toe of slope will be rounded to simulate natural contours.
- Banks will undulate horizontally to avoid straight slope faces.
- Grading will be done in conformance with the Land Development Ordinance to ensure proper drainage, slope stability and ground cover revegetation.
- Development and addition of landscape materials in natural steep hillside areas will be minimized and will be planned outside of areas subject to flooding.
- Cut and fill slopes will reflect the natural hillside forms as much as possible. They will be contour graded and terraced to avoid extreme slope faces. Smooth flowing planes will be the goal.
- Level terrain will be recontoured to create interesting forms.

The City of San Diego has adopted a Hillside Review (HR) Overlay Zone. The HR Overlay Zone is intended to foster urban development of a character which will respect the natural environment, thereby conserving the aesthetic qualities and restorative value of such land (City of San Diego 1983). The guidelines emphasize protecting the natural and topographic character and aesthetic qualities of the lands within the HR Overlay Zone. The HR Overlay Zone may be applied to property having slopes with a natural gradient in excess of 25 percent and a minimum elevation differential of 50 feet. General guidelines include: designing structures to fit into the hillsides; developing the least sensitive portion of the project site; preserving natural landforms, geologic features, and vegetation; contour grading and blending of manufactured slopes with natural topography; varying architectural design; matching the scale and character of buildings with the surrounding terrain and neighborhood; retaining the visual quality of the site; and providing visual overlook areas for pedestrians.

All land which is in the HR Overlay Zone is also subject to the Resource Protection Ordinance (RPO). The RPO is designed to protect the environmentally sensitive areas of the city and established separate regulations for the following areas: hillsides, wetlands, floodways, floodplain fringe, biologically sensitive lands, and significant prehistoric or historic sites. The regulations outlined in the ordinance include limitations on permitted uses, requirements for buffer areas, and limitations on development and grading. The RPO regulations are applicable to any steep slopes, biologically sensitive lands, or wetlands on the City's portions of the project site. Encroachment allowances are also established by the RPO regulations which permit development of up to 20 percent of the area designated as hillside and biologically sensitive land depending on the amount of land contained in both

resource categories. An exemptable amount of encroachment (up to maximum of 15 percent) is also allowed for the development of public streets, utilities, and facilities.

The City Landscape Technical Manual also has policies and requirements related to maintaining visual resources for development proposals. The manual identifies plant species appropriate for specific uses; establishes design techniques for streetscape conditions; includes the Brush Management guidelines; and identifies general maintenance guidelines. Requirements for revegetation of disturbed slopes are also set forth in the manual.

3.2.2 Impact Analysis

Impacts to landforms and visual resources as a result of this project would stem from two types of activities: landform alteration (i.e., grading activities) and actual development of the site (i.e., site buildout). The significance of the second type of activity would depend on the amount of landscaping and other design features that are incorporated into the project. The significance of both types of activity would depend, in part, on viewer sensitivity to areas being affected. The impact analysis focuses on the potential effects of Otay Ranch development on existing accessible views of the property. Effects on future views (i.e., parks, civic/public uses, trails and residential areas) within the project and from future adjacent developments will be evaluated at the SPA level. Significant landform/visual impacts would occur if any of the following result from Otay Ranch project development:

1) The overall visual character of the project area (including night lighting characteristics) substantially changes;

2) Landform alteration occurs in areas of significant or sensitive landforms (e.g., on landforms of regional or local importance or specifically protected by visual resource policies, or on slopes of a 25 percent gradient or steeper) as listed in Section 3.2.1; or

3) Visually-adverse landform alteration or development occurs in areas visible to a large number of people (for example, visible from scenic roadways or other public viewing areas).

3.2.2.1 Otay River Parcel

Change to the Overall Visual Character of the Project Area

The project would change the existing visual character of the property from agricultural to an urbanized area. This change would dramatically alter the site's appearance and is considered significantly adverse, despite the fact that the property is surrounded on all four sides with developed or developing urban land. The effect of increased light and glare as a result of night lighting would be considered adverse, but not significant, due to the proximity of other developed or developing urban land that is or will be illuminated at night. The project would have to comply with the county's Dark Sky Ordinance (or similar city ordinances if annexed to the City of San Diego or the City of Chula Vista).

Alteration of Significant or Sensitive Landforms

Implementation of the proposed New Town Plan may involve significant amounts of landform alteration to allow for development of a project of the density proposed on land that is topographically varied and includes areas of steep hillsides and canyons. No

estimates of actual grading quantities can be provided at this General Plan level of analysis; however, based on a comparison of the proposed development plan with a general slope analysis map of the site, it is apparent that development is proposed in areas of steep topography and thus some grading in sensitive areas would occur. Grading is also proposed in the Otay River Valley to remediate previous mining activities and to allow for the creation of a park.

The primary areas of potential impact to steep slopes (i.e., slopes of 25 percent gradient or steeper) are as follows:

- Residential development in the vicinity of finger canyons leading into the northern slopes of the Otay River Valley
- Residential development in the vicinity of Salt Creek
- University development in the vicinity of Salt Creek
- Residential development in the vicinity of Wolf Canyon
- Residential development in the vicinity of Poggi Canyon
- Residential development along the south side of Telegraph Canyon

Since grading plans are not available at this time, the analysis of actual impact significance to landform alteration must rely on the grading and landscaping policies to be contained in the Otay Ranch General Development Plan/Subregional Plan since these are the policies that would guide and/or limit the grading that would eventually occur as a result of development. The proposed New Town Plan states that

> "Every effort will be made to limit grading throughout the Otay Ranch to that area necessary to create building pads and road beds."

and that

> "The primary emphasis of grading within Otay Ranch will be to retain significant landforms and environmentally sensitive areas. Most proposed grading will simulate natural topography. Once the landscape matures, manufactured slopes should not be discernible from natural areas. In canyons and hillsides grading should be contoured to complement surrounding features. Contour grading and undulations should be broad and sweeping, yet, practical to construct."

The New Town Plan also contains grading objectives intended to guide grading within future Village Plans. These objectives include goals such as the preservation of prominent topographic features whenever possible, avoiding the importing and exporting of earth from one phase to another to the extent possible, and the protection of natural features such as significant rock outcrops and trees during grading operations.

The proposed landform alteration objectives are similar in intent and language to the applicable landform alteration policies of the City of Chula Vista and the County of San Diego and would thus afford similar protection to landforms on the site. However, given the steep slopes in some of the areas proposed for development, the potential for significant landform alteration still exists. Grading proposed for the environmentally-sensitive Otay River Valley would also be considered a significant landform alteration impact of the project.

Visual Impacts in Areas Visible to a Large Number of People

Views of the project are available to a large number of viewers from several designated scenic roads and public uses located in proximity to and within the Otay River parcel. The designated scenic roads include Telegraph Canyon Road, Otay Valley Road, Orange Avenue, Hunte Parkway, Otay Lakes Road, and Wueste Road. Existing public uses that would be exposed to project impacts include recreational users of Lower Otay Lake. The effects on visual resources of project development to the future civic uses in Village centers and recreational users of future parks within the project, including Otay Valley Regional Park and natural open space surrounding Jamul and San Ysidro mountains, would be addressed at the SPA level of environmental analysis.

In the case of the Otay Ranch project, the proposed development would be phased over approximately 30 to 50 years. During this time, short-term visual impacts from grading and construction would occur on various parts of the property through project buildout. The short-term visual effects of grading operations are generally unavoidable since little can be done to improve the aesthetics of the construction area, other than revegetation of exposed slopes, until grading operations are completed. The grading and construction would be visible during the buildout of the project from adjacent roadways, some of which are designated scenic roads or highways, as well as from adjacent developed areas (for example, Otay Mesa and eastern Chula Vista). These short-term impacts to visual resources would be adverse, but less than significant, since the impacts would be temporary, would be phased, and would occur primarily in areas isolated from intensely-used public view, or in areas where grading and construction is occurring in conjunction with the implementation of other planned community developments, such as EastLake, Salt Creek Ranch and Sunbow.

The proposed New Town Plan contains guidelines to prevent significant long-term visual impacts from grading operations. These guidelines include protection of graded slopes through utilization of proper erosion control measures; landscaping and design guidelines for the construction of roads through the project; minimizing grading operations; the retention of significant landforms as much as possible; utilization of grading that simulates the natural topography so that once the landscaping matures, manufactured slopes are not discernible from natural areas; utilization of contour grading for all grading that occurs in canyons and on hillsides; utilization of proper native and naturalizing landscape techniques to blend graded slopes with natural open space areas; the preservation of prominent topographic features whenever possible; the future analysis of visual impacts of proposed major slopes which are visible to the public; utilization of varying slope heights; the modulation of long slopes; and the protection of natural features such as significant rock outcrops and trees. In addition, long-term visual impacts from landform alteration would also be mitigated through the measures listed in Section 3.2.3 to minimize the amount of landform alteration in sensitive areas. These measures would prevent drastic topographic alteration of the steep hillsides and canyons present on the site, but would not enable the project to avoid the significant, unavoidable effects of altering the natural terrain.

The New Town Plan also contains guidelines for landscaping, including signage, street furniture, hardscape, walls, fences, and specific treatment of canyon areas, and calls for the development of a compatible, unified plant palette to be incorporated into a Landscape Master Plan. Streetscape design objectives have also been proposed (that include the creation of parks, open space, linear parks, and buffers throughout the Otay Ranch development), as well as guidelines for public art and design guidelines for the proposed Eastern Urban Center Therefore, although many areas of the proposed development would be visible from designated scenic roads or public viewing areas, development according to the guidelines of the New Town Plan should complement the public views.

A discussion of each of the specific public viewing areas is provided below.

Telegraph Canyon Road. According to an analysis completed for the project by Dames & Moore (1990a), development on the Otay River parcel would be primarily visible from Telegraph Canyon Road. Views of the Otay River parcel from Telegraph Canyon Road range from only a few hundred feet (i.e., development would be basically blocked from view) to approximately 0.7 miles southward into the property. Development proposed for this area is primarily low-medium density residential (3 to 6 du/ac), although small amounts of medium density (6 to 11 du/ac) residential development and commercial development might also be visible. Such development is similar in density to that already visible from Telegraph Canyon Road to the north and to the south in the EastLake Greens project. Potentially significant visual impacts along Telegraph Canyon Road would occur if an adequate buffer distance and landscaping similar to northern developments are absent from the Otay Ranch property.

Additional development would be visible to residents of the bluffs along the north side of Telegraph Canyon Road. However, the EastLake Greens project and other existing development to the west of the Otay River parcel are already part of their existing views. Therefore, since the type of development proposed by the New Town Plan is similar to the adjacent development that is already visible, no significant visual impacts to these residents would occur.

Otay Valley Road. The portions of the site visible from the existing alignment of Otay Valley Road are primarily the Otay River Valley portion of the Otay River parcel and the slopes on either side of the valley. However, the project proposes to extend Otay Valley Road through the project on the south side of the river with a river crossing east of the proposed alignment of SR-125. Development is proposed along the south side of the onsite portion of Otay Valley Road (research/industrial development) and on the north side of the valley, both in the valley and along the valley's northern slopes (low [0 to 3 du/ac] and low-medium density [3 to 6 du/ac] residential development). The remaining portions of the valley would undergo remedial grading to remove remnants of previous mining operations and would be developed as a regional park.

Most of the project site that is currently visible from Otay Valley Road would be left undisturbed, with the exception of medium density residential development proposed just southeast of the existing landfill. Also visible from Otay Valley Road is the Nelson and Sloan quarry at Rock Mountain. Since the existing development in proximity to Otay Valley Road reduces the visual quality of the area and the onsite portions of the project currently visible would be left primarily undisturbed, no significant visual impacts from development proposed within the viewshed of Otay Valley Road would occur. If it occurs, the removal of the effects of mining operations on the Otay River Valley and subsequent revegetation of the area would be a positive visual effect of the project on views from Otay Valley Road. Once Otay Valley Road is extended, research and development land uses proposed by the project would also be visible and would be evaluated in subsequent phases (SPA level) of the project.

Orange Avenue and Hunte Parkway. Portions of the Otay River parcel are visible from the termini of these two roads in the adjacent developments of Sunbow and EastLake Greens. However, existing views of the site are limited due to the undulating topography. In addition, few viewers are present since the roads do not accommodate through traffic at this time. Once the Otay Ranch project is constructed, these roads would be extended through the site and would connect with other roads as part of the area's local circulation system. At this time, development proposed along these road extensions as part of the New Town

Plan (including varying densities of residential development and the Eastern Urban Center) would also become visible from these roads. Since the development proposed would be similar to adjacent development (i.e., Sunbow and EastLake Greens) as well as to the development that is characteristic of eastern Chula Vista (i.e., mixed use urban development), no significant visual impacts from development would occur.

Otay Lakes Road, Wueste Road, and Users of Lower Otay Lake. A four-year college or university is planned for the Otay River parcel above the western slope of Lower Otay Lake. Since no site plans are available at this time, the visual impact of this planned land use is unknown. However given the likelihood that structures constructed for a university would be of significant size and scale, visual impacts on existing public viewing areas on the Otay River Valley parcel are potentially significant for the university site. Further evaluation of the university will be conducted at the SPA level, and the university itself would be subject to separate environmental review.

3.2.2.2 Proctor Valley Parcel

Change to the Overall Visual Character of the Project Area

Although large portions of this parcel would remain undeveloped, the residential and commercial development that is proposed would occur in the more visible areas of the parcel. Thus, the project would change the overall visual character of the parcel from agricultural open space to a developed urban corridor along Proctor Valley Road and to resort development on the hill north of Lower Otay Lake. These changes in the visual character of the parcel would be significant and adverse since the parcel is currently an agricultural area that is physically separated from urban development to the west by the Otay Lakes and that provides a break in urban development between eastern Chula Vista and rural areas in southern San Diego County, such as the community of Jamul.

A secondary, but potentially significant, effect on visual character of developing Proctor Valley would be the introduction of night lighting and glare due to overspill from residences and overhead street fixtures. Although the residential densities on the parcel would not warrant excessive night lighting, the project could potentially conflict with County policies which promote the maintenance of dark sky conditions in the Proctor Valley area. Because lighting standards have not been developed for the project, the impact associated with increased night-time light and glare would be considered significant on this parcel. However, compliance with the county's Dark Sky Ordinance would reduce the impact to a level that is less than significant.

Alteration of Significant or Sensitive Landforms

Grading in the northeastern portion of Proctor Valley and the western and southern foothills of the Jamul Mountains is considered a potentially significant impact of the project since steep slopes (over 25 percent) are present in areas proposed for development (Figure 3.2-16). As noted in the figure, much of the development on this parcel is restricted to more level portions of the property, with the exception of the Visitor Commercial area near the west-central area and the perimeters of the nine low density residential areas placed in narrow draws in the southern foothills of the Jamul Mountains. The majority of the steepest slopes have been designated for open space dedication. Short-term grading impacts would occur in small increments throughout the 30- to 50-year buildout projected for the project; thus, the temporary effect of grading on visual resources would be an adverse impact on visual resources throughout the entire project.

Visual Impacts in Areas Visible to a Large Number of People

Development and grading of the Proctor Valley parcel would be visible from Proctor Valley Road, Otay Lakes Road, and Wueste Road (both designated scenic roadways), to users of Lower Otay Lake and to residents of Jamul. The following is a description of those effects on sensitive views in the area.

Proctor Valley Road and Jamul. Although Proctor Valley Road is not currently paved, it remains a circulation link between eastern Chula Vista and the unincorporated areas within and around Jamul. According to the visibility analysis conducted by Dames & Moore (1990a), all of the proposed development areas within the Proctor Valley parcel, as well as development proposed for the southwestern corner of the San Ysidro parcel, would be visible to travelers along this designated scenic roadway.

Development proposed by the New Town Plan for areas adjacent to Proctor Valley Road would include low, low-medium, and medium density residential development. This type of development would not only result in significant adverse visual impacts due to the contrast it would provide to the existing open space character of the area, but has the potential to interrupt long-range views of the surrounding hills that are currently available from Proctor Valley Road. Therefore, the development proposed through Proctor Valley would result in significant visual impacts.

Residents of Jamul that live along Proctor Valley Road would also experience changes to their existing views due to the proposed low density development in their proximity. Development proposed by the New Town Plan would be more urban in character than the large-lot, rural residential development that already exists in this part of Jamul. Therefore, significant visual impacts would occur to Jamul residents as a result of the project.

Otay Lakes Road, Wueste Road, and Users of Lower Otay Lake. Potentially significant visual impacts would occur in the area around Lower Otay Lake due to the high visibility of the proposed development. The New Town Plan proposes development of a Town Center, a resort, and low-medium density residential development on the mesa located just northeast of Lower Otay Lake (approximately 600 feet MSL). In addition, a university is proposed west of Lower Otay Lake within the Otay River parcel (at approximately 500 feet MSL). All of these proposed land uses have been purposely planned for higher elevations to maximize onsite views of Lower Otay Lake, which has an elevation of 490 feet MSL. However, this also increases their visibility to offsite viewers, including sensitive ones, and thus increases the potential for significant visual impacts. The high development density around the lake due to the resort, town center, and university would dominate lake views and detract from the open space of the surrounding hillsides. The same views would be adversely affected by development on the San Ysidro parcel, as described in Section 3.2.2.3. Therefore, the proposed development would significantly detract from the visual quality of the Lower Otay Lake area by developing the bluffs and hillsides that surround the lake.

According to the New Town Plan, Otay Lakes Road would be relocated from along the lake's northeastern shoreline to a more northern alignment. The realignment of Otay Lakes Road would also have significant visual and policy impacts since the scenic aspects of the road may be reduced due to the new alignment. Not only would travelers along the road be viewing new development as a result of the realignment, but views of Lower Otay Lake lakeshore, Otay Mesa, and the San Ysidro Mountains around the lake would be reduced.

Views from the surrounding open space would be significantly altered by development on the Proctor Valley parcel. Because of their potentially elevated position, public trail users

would have expansive, long-range views of the urban uses and surrounding open space and mountains. Significant effects on open space users could occur along the interface between open space and residential, where manufactured and revegetated slopes would be visible along the development perimeter. This effect will be evaluated in the future at the SPA level.

3.2.2.3 San Ysidro Parcel

Change to the Overall Visual Character of the Project Area

Development in the San Ysidro parcel would occur in the foothills southeast of Lower Otay Lake, along the south side of Otay Lakes Road, and in valleys within the San Ysidro Mountain range. Although development would occur at relatively low elevations and would not interfere with the overall rugged open space character of the San Ysidro Mountains, the change in site character would be visible from existing roadways and would significantly change the appearance of the area around the lake. No significant impacts from night lighting would occur as long as the project complies with the county's Dark Sky Ordinance.

Alteration of Significant or Sensitive Landforms

Grading may occur in Big Cedar, Little Cedar, and Sycamore canyons as well as in the foothills of the San Ysidro Mountains, all of which contain steep slopes. Therefore, potentially significant alteration of sensitive landforms may result due to proposed development of the San Ysidro parcel.

Visual Impacts in Areas Visible to a Large Number of People

The primary viewing areas of the San Ysidro parcel are Otay Lakes Road, Wueste Road, Lower Otay Lake, and Highway 94. The following effects of project development would occur on these sensitive views.

Otay Lakes Road, Wueste Road, and Users of Lower Otay Lake. Visual impacts would be especially significant as a result of development proposed on the hills and the eastern extension of "A" Way along the lakeshore to the southeast of the lake within the San Ysidro parcel. This area is visible from Proctor Valley Road and Otay Valley Road as well as Otay Lakes Road, Wueste Road, and many areas within the Otay River parcel itself. Lower Otay Lake serves as a boundary that separates the open area of the San Ysidro Mountains from the urban development of Otay Mesa and eastern Chula Vista. Much of the San Ysidro Mountains in the project area is managed by the BLM and is likely to remain undeveloped. This area may eventually become a major open space area within southwestern San Diego County; it is proposed as a Wilderness Study Area by the BLM, and is thus of regional importance from a visual standpoint in terms of mid- and long-range views.

The effects of extending "A" Way would also be considered a significant visual effect of project implementation. The fairly level terrain around the lakeshore would not conceal the roadway alignment leaving the street improvements clearly visible to lake users and motorists along Wueste and Otay Lakes roads. In addition, any associated night lighting would increase onsite glare and contrast with the undeveloped open space in the background. The combined effect of the roadway and residential development would significantly degrade the quality of open space views afforded from these sensitive vantage points and would conflict with the policies protecting views from scenic roadways.

Highway 94. Portions of the site visible from Highway 94 would be limited primarily to Residential Estate development (very low density residential development) in the eastern part of the San Ysidro parcel. Views of the development would be medium- to long-range since the development is not located immediately adjacent to the highway, and intervening open space reduces the visual impact of the development. The closest development would be over 0.33 mile away from the highway. Therefore, no significant visual impacts would occur to travelers of Highway 94 as a result of the proposed project.

3.2.3 Proposed Mitigation

The following mitigation measures are based on an impact analysis commensurate with a general plan level of project detail. The measures are intended to focus on foreseeable impacts of GDP/Subregional Plan implementation and to highlight specific measures to be implemented at the subsequent SPA and Tentative Map levels. ~~However,~~ Additional impacts and mitigation measures may be identified at the SPA level as those more detailed plans are formulated and submitted for project review and approval; therefore, additional visual impact studies shall be required at the SPA level.

3.2.3.1 Change to the Overall Character of the Project Area

No measures are available to mitigate the loss of open space and unavoidable alteration in visual character of the site. The proposed GDP/Subregional Plan does provide for a large amount of open space; however, the overall character of the site would become one of developed land. Measures intended to reduce the specific potential visual impacts of the development are contained in the following sections. However, their implementation would not reduce this unmitigable effect of GDP/Subregional Plan implementation to below a level of significance. Compliance with the county's Dark Sky Ordinance or similar city ordinances would prevent significant night lighting impacts from occurring.

3.2.3.2 Alteration of Significant or Sensitive Landforms

The GDP/Subregional Plan developed for the Otay Ranch project shall contain specific landform alteration standards that provide more stringent protection of sensitive landforms than is afforded by the proposed New Town Plan language. The standards shall include, but not be limited to, the following considerations (Applicant/EIR proposed):

- Limit grading and development to below the top of major ridgelines in order to maintain natural terrain lines.
- Minimize disturbance of steep slopes (over 25 percent); avoid disruption of rock outcrops (particularly in San Ysidro parcel) and filling of canyons.
- When feasible, design roadways to follow the natural contours of hillsides and minimize visibility of road cuts and manufactured slopes.
- Avoid encroachment into natural slopes and excessive use of manufactured slopes in the Otay River Valley, Jamul and San Ysidro Mountains, and the area around Otay Lakes.
- Provide natural buffering (e.g., undeveloped open space) between development and significant landforms, including the Jamul and San Ysidro Mountains.
- Utilize variable slope ratios not exceeding 2:1 when developing grading plans.

The GDP/Subregional Plan shall contain language that provides adequate protection to meet the goals of the County Resource Protection Ordinance No. 7631, and the existing City of Chula Vista and City of San Diego Grading Ordinances, all of which regulate or restrict the grading that can occur on slopes with gradients steeper than 25 percent and a minimum rise of 50 feet. (Applicant/EIR proposed)

The GDP/Subregional Plan shall contain guidelines regarding the amount and kind of grading allowable within the Otay River Valley to remediate mining disturbance. (Applicant/EIR proposed)

All grading plans submitted for the Otay Ranch property will be prepared by a certified engineer and evaluated by the appropriate planning and engineering departments. Development will be constructed in accordance with those plans as well as the grading policies of the GDP/Subregional Plan. (Applicant proposed)

3.2.3.3 Visual Impacts in Areas Visible to a Large Number of People

Implementation of mitigation measures presented in Section 3.2.3.2 concerning alteration of significant or sensitive landforms would also minimize impacts to large numbers of existing viewers in the region. Those measures would also be applicable to reduce impacts on future views within the project. (Applicant/EIR proposed).

Future analysis of the conceptual grading plans for all development shall be undertaken at the SPA level to develop specific mitigation measures to reduce grading and visual resource impacts of the resort, university, residential, commercial, industrial, and public/civic land uses and the associated roadways. Future analysis shall include either engineering cross-sections depicting existing and proposed topography or photodocumentation illustrating proposed topographic and design features. Any cut and fill slopes in excess of 15 feet in height shall be identified. Special attention shall be placed on grading and design of the following, highly visible, features of the project. (EIR proposed):

- Size, location, and setbacks of the resort building and university complex above Lower Otay Lake.
- Grading and development of residential areas within the San Ysidro parcel in the higher elevations in the vicinity of Lower Otay Lake.
- Height and length of manufactured slopes along Telegraph Canyon Road, Otay Lakes Road, Proctor Valley Road, and Otay Valley Road.
- Development and grading along major ridgelines, such as within the San Ysidro and Jamul mountain areas, and adjacent to all natural open space areas.
- Setbacks and building heights of industrial development south of the Otay River Valley.
- Location and visibility of new public trails through open space in proximity to existing and future development.
- Placement of clustered development or stepped (split-level) building pads in hillside regions, if possible, to minimize landscape disturbance and retain ridgelines.

The GDP/Subregional Plan will contain design guidelines that will pertain to future streetscapes, buildings, and villages to enhance the visual appeal of development and prevent contrasts in site character. The following issues shall be considered in developing the design guidelines (EIR/Applicant proposed):

- View corridors shall be integrated at the terminus or periodically along the length of streets paralleling or intersecting undeveloped open space.
- Walls, including acoustical barriers, shall be integrated into the architectural theme and scale of the villages.
- Landscape themes shall be used to define village character and blend with adjacent existing development.
- Naturalizing and native plantings shall be integrated into revegetation plans for manufactured slopes adjacent to open space areas.
- Scale and architectural treatments (i.e., rooflines, building materials) of all residential and non-residential village buildings shall be diverse and yet compatible.
- Signage shall be controlled and designed to fit in the pedestrian environment.
- Buffer techniques shall be developed to address transitions between villages and incompatible land uses to minimize visual impacts.
- Architectural colors for development adjacent to open space areas shall incorporate natural tones and shades.
- Overhead and night lighting shall be minimized in the Proctor Valley and San Ysidro parcels. Street fixtures shall utilize low glare bulbs (i.e., amber light) and be placed, only as necessary, near key intersections for security purposes in accordance with the county policy.

The GDP/Subregional Plan will identify a design review process to maximize the success of implementing the Otay Ranch design guidelines. Design review shall be implemented for all building and site plans to ensure compatible architectural styles, building materials, building proportions, landscaping, streetscape, and signage throughout each village (EIR/Applicant proposed).

To mitigate impacts on visual resources associated with the resort, to be located on the mesa north of Lower Otay Lake, and all other development surrounding the eastern and southern sides of the lake, site plan and building schematics shall be reviewed to ensure the following measures are incorporated into the design (EIR proposed):

- Buildings shall be visually compatible in terms of height, scale, and bulk and shall be set back from the edge of the mesa and composed of low-rise structures, no more than three stories in height.
- Contour grading shall be used to transition graded slopes into the natural topography of surrounding hillsides.
- Manufactured slopes shall be revegetated upon completion of grading activities.

- Color schemes shall be limited to natural colors that blend with the existing environment and surrounding hillsides.

- Buildings shall maximize the use of non-reflective/non-glare surfaces.

To minimize potential visual impacts as a result of the university site, the State shall review the site and building plans in accordance with adopted grading and design guidelines. The State review shall ensure the following measures are implemented (EIR proposed):

- Building heights are gradually reduced toward the Lower Otay Lake lakeshore.

- Setbacks are incorporated to prevent the university from dominating the views of the lake.

- Non-reflective/non-glare building materials are integrated into the development wherever possible.

- Design is compatible with the architectural, landscape and building treatments of the Olympic Training Center and other adjacent developments.

- Clustering of buildings is implemented, if possible.

To mitigate visual and policy impacts from the realignment of Otay Lakes Road, a scenic roadway, a visual resources evaluation shall be conducted once the actual roadway alignment and surrounding development have been determined to identify key view corridors that would be available to travelers. Significant views of Lower Otay Lake and the San Ysidro foothills and mountains shall be preserved by a combination of the following measures:

- Heights of buildings adjacent to the southern edge of the roadway shall be limited to enable views of the lake and surrounding hillsides, or site planning adjacent to the southern edge of the roadway shall enable view corridors of the lake and surrounding hillsides (EIR proposed).

- Viewing areas shall be established along the roadway corridor to allow travelers to stop and enjoy the view above the lake (EIR proposed).

- The abandoned alignment shall be rehabilitated and open for pedestrian and bicycle viewing access. Rest areas and vistas shall be incorporated into the rehabilitated walkway or promenade. (Applicant proposed).

3.2.4 Analysis of Significance

After the implementation of mitigation measures, the following impacts would remain significant impacts of the proposed New Town Plan:

- An unavoidable adverse change in the existing visual character of the project site.

- Alteration in areas of sensitive landforms (i.e., steep slopes, Lower Otay Lake area and Otay River Valley).

- Visual impacts of development proposed for the southwestern corner of the San Ysidro parcel and visual impacts of construction of "A" Way on the San Ysidro parcel.
- Grading of steep slopes that may be visible from future development and roadways.
- Realignment of the scenic roadway of Otay Lakes Road. Development of the university site by the state.
- Development of the resort and conference center on the Proctor Valley parcel.

3.3 BIOLOGICAL RESOURCES

3.3.1 Existing Conditions

The biological study area includes the entire 23,088-acre Otay Ranch ownership. Otay Ranch consists of three non-contiguous ownership parcels generally surrounding the Otay Lakes: the Otay River parcel (9,618 acres), the Proctor Valley parcel (7,915 acres), and the San Ysidro parcel (5,555 acres). Each of these parcels is an aggregate of many smaller existing legal parcels within Otay Ranch; all three of these large parcels are directly linked to the City of San Diego's Otay Lakes ownership (about 2,900 acres). The San Ysidro Mountains area also shares a common ownership boundary with the BLM's Otay National Cooperative Land and Wildlife Management Area (about 20,000 acres), which encompasses much of the San Ysidro Mountains.

The study area itself is undeveloped except for a few structures and residences related to ongoing dry farming and grazing activities (see Section 3.7). Other existing study area land uses include public roads, easements for utility and water transmission systems, an air traffic control facility, a gun club, and ongoing gravel mining activities (see Section 3.1).

Physiographically, the study area is diverse and includes drainage areas generally associated with the Otay River system, rolling hills, and more rugged topography associated with the San Miguel, Jamul, and San Ysidro mountains. The western Otay River parcel combines gently rolling terrain north of the Otay River and the steeper slopes and floodplain associated with the river valley. The Proctor Valley parcel, northeast of the Otay Lakes, includes the relatively flat margins of Proctor Valley and the steeper slopes of the Jamul Mountains along with the southeastern slopes of the San Miguel Mountains. Located southeast of the Otay Lakes, the San Ysidro parcel includes a portion of the northern slopes of the San Ysidro Mountains.

The dominant feature linking the three parcels is the Otay River system, which includes a tributary system of canyons and drainage courses and the Otay Lakes. The size and undeveloped character of the study area, its diverse terrain, its strategic location at the northern margin of Baja California habitat associations, and its links to large areas of public ownership contribute to the presence of an important and unusual assemblage of habitats and species. These attributes, combined with proximity to a large metropolitan area, make portions of the study area potential regional recreational and scenic resources.

3.3.1.1 Previous Studies Conducted on Otay Ranch

Baldwin Vista Associates initiated baseline biological resource studies on Otay Ranch in 1989. These studies consisted of a review of available literature, documentation, and fieldwork over the last 2 years and focused supplemental studies to fill in data gaps, as requested by the Otay Ranch Biology Subcommittee. The Subcommittee was made up of representatives of the Project Team from the County of San Diego and City of Chula Vista, Baldwin, preparers of the biological data base, Ogden EIR preparers, City of San Diego, California Fish and Game, and U.S. Fish and Wildlife Service. With the preparation and review of specifically requested data gap studies, the Subcommittee determined that the biological data base was sufficient to prepare the program EIR. These studies are an appendix to this EIR and are available for review at the Otay Ranch Project Office in Chula Vista and at the County of San Diego Department of Planning and Land Use. Results from the baseline studies, along with previous biological studies completed on or adjacent to Otay Ranch, form the basis of this existing conditions section. No baseline data collection efforts were conducted by the EIR consultant. Pertinent biological studies conducted for other projects include the San Diego Gas & Electric (SDG&E) 230kV line (WESTEC

Services 1979), Nelson and Sloan Rock Quarry (PSBS 1978, 1989a), Otay Landfill project, regional vernal pool studies (Beauchamp and Cass 1979, Bauder 1986), Olympic Training Center (PSBS 1988, ERCE 1990), Sunbow (PSBS 1989b, ERCE 1990), Salt Creek Ranch (ERCE 1990), Otay Mesa State Prison (WESTEC Services 1982), and natural resources inventories of United Enterprise's lands (ASI 1987).

The most recent biological studies are annotated below:

- Biological Resources Survey Report
  Otay Ranch - Proctor Valley Area
  Prepared by Michael Brandman Associates (MBA), September 1989
  Report documents vegetation, flora, wildlife and wildlife habitats, and sensitive resources and analyzes biological significance of a parcel approximately 7,900 acres in size. Fieldwork conducted May 8 through June 7, 1989. Report compiles literature review and presents species lists for study area, provides preliminary analysis of impacts, and makes recommendations to mitigate adverse effects and conduct further studies. The study also provides guidance and input for the RMP for Otay Ranch.

- Biological Resources Inventory Report for the Otay Ranch Property
  Prepared by RECON, October 1989, Revised 1991
  Baseline report with the same format as the above report. This document covers the southern two large study parcels on Otay Ranch: San Ysidro parcel (5,300 acres) and the western parcel including the Otay River Valley (9,500 acres). Fieldwork was conducted between May 5 and June 8, 1989.

- Sensitive Plant Species Survey Report, Otay Ranch - Proctor Valley/Jamul Mountains Area
  Prepared by MBA, August 1990
  Study provides spring 1990 sensitive plant data, upgrades the flora list of the project area, and discusses effects of the additional information on the draft RMP. Fieldwork conducted between April 12 and July 12, 1990. Report comments on significance of findings and makes recommendations to reduce any adverse effects.
  Responses to USFWS comments on this study prepared by H. Wier, Dudek and Associates, November 1991.

- Botanical Resources Report for the Otay Ranch Property, Rare Plant Survey Results, Spring 1990
  Prepared by RECON, December 13, 1990
  Study provides results of supplemental spring survey for sensitive plant species. Fieldwork conducted during May and June 1990. Report discusses impacts and makes recommendations to reduce adverse effects.
  Responses to USFWS comments on this study prepared by J. Brown and H. Wier, Dudek and Associates, November 1991.

- Report on the Hydrology and Flora of the Otay Ranch Vernal Pools, 1990
  Prepared by MBA, March 5, 1991
  This report provides the following data for incorporation into the RMP for Otay Ranch: 1) a working definition of Otay Ranch vernal pools; 2) the distribution of vernal pool plant species, including sensitive species; 3) the distribution of ponding and saturated soils within vernal pool areas; 4) the location of areas that may be suitable for vernal pool restoration; and 5) the location of areas which are essential for conservation. This report was not intended to act as a

formal wetland delineation required for federal permitting. Watershed boundaries for vernal pools and vernal pool complexes were not mapped as part of this study. The fieldwork was broken down into two phases: 1) in winter of 1990, MBA field biologists identified and tracked individual basins to monitor hydrologic conditions; and 2) in spring and summer of 1990, MBA and RECON biologists worked together to determine the distributions of vernal pool species and wetland vegetation in individual basins on the entire Otay Ranch.

A revised document was prepared by Dudek and Associates (1992a) on March 12, 1992. This document incorporated the results of intensive vernal pool surveys on the Otay Ranch conducted during 1991.

- Supplemental Survey for California Gnatcatcher, Otay Ranch, Jamul Mountains and Proctor Valley Areas
  Prepared by MBA, undated
  Summary report of field surveys for California gnatcatcher in upper Proctor Valley and in the southeast portion of the Jamul Mountains. Fieldwork conducted in January 1990.

- Potential Impacts to Sensitive Reptile Species
  Prepared by MBA, undated, no fieldwork
  Brief overview of sensitive reptiles on Otay Ranch.

- Supplemental Biological Resources Survey of the Area of the Proposed Conference Center in the Jamul Mountains Block of Otay Ranch, San Diego, California
  Prepared by MBA, undated
  Brief supplemental documentation of biological resources present within the boundaries of a proposed conference center site in the Jamul Mountains. Fieldwork conducted on May 30, 1990.

- Biological Resources along Miller Ranch Road and the Hidden Valley Estates Project Area
  Prepared by MBA, undated
  Report reviews biological resources which could be affected by potential future road location between Otay Ranch and the lower Steele Canyon area. Majority of data excerpted from Ogden (1989) for Hidden Valley Estates project.

- *Euphydryas editha quino* (Behr) (Lepidoptera: Nyumpalidae) Quino Checkerspot, Behr's Checkerspot, Wright's Checkerspot Butterfly
  Prepared by Robert Allen, February 1990, edited by MBA, May 18, 1990
  Report discusses taxonomy, habitat, life history, distribution and suitable remaining habitat for these federal candidate butterfly species known to occur in the project area.

- Sensitive Faunal Elements of the Vernal Pools of Otay Ranch
  Prepared by University of San Diego, Biology Department, May 16, 1990
  Report discusses taxonomy, life cycle, and distribution of fairy shrimp in San Diego area vernal pools.

- Baldwin Otay Ranch Wildlife Corridor Study: Phase I Report
  Prepared by Ogden, January, 1992

The objective of the study was to document existing wildlife movement within Otay Ranch and between Otay Ranch and adjacent offsite areas. The Phase I study focused on the Otay River parcel.

- Otay Ranch Raptor Management Study
  Prepared by Ogden, July 1992
  The objective of this study was to document species composition, distribution and seasonality of raptors on Otay Ranch. Important foraging, roosting, and nesting areas were identified and management recommendations were provided for the final RMP.

- A Report on the Sensitive Butterfly Species Present or Potentially Present on the Otay Ranch Property
  Prepared by Dudek and Associates, November 1991
  Report discusses four federal candidate butterfly species which occur or potentially occur on Otay Ranch. Report presents generalized distributions and life histories of these species, specific data on their occurrence on Otay Ranch, and maps of areas of potential occurrence.

3.3.1.2 Plant Communities – General Overview

The vegetation of this project study area can be classified according to 19 different plant associations or plant communities based on the dominant plants present. A description of each community type occurring on the Otay Ranch property is presented below. A discussion of the extent and location of these communities in each of the three project parcels follows. All nomenclature for plant communities conforms to Holland (1986); however, modifications to this classification system are made to accommodate variations resulting from disturbances to habitats and blending of two habitat types.

Although some alteration of habitats has occurred for fire control or the expansion of agricultural activities on the ranch over the past 2-3 years, based on the direction of the Otay Ranch Biology Subcommittee, the ~~distribution of vegetative cover and sensitive species and the~~ analysis of impacts to sensitive species uses the database initially assembled in 1989 and does not take into consideration any subsequent ~~modifications in habitat~~ loss of sensitive species. The distribution of vegetative cover and analysis of impacts to sensitive habitats, however, reflect the most recent modification in habitat.

Shrub Cover Types

Diegan Coastal Sage Scrub

This community type is dominated by low, soft-woody shrubs and subshrubs that are typically drought-deciduous. Coastal sage scrub usually occupies the drier south- and west-facing slopes, or areas of clay soil types, but it may also occasionally occur on north slopes as a successional phase of chaparral development. Areas disturbed frequently, that have not converted to annual grasslands, are often dominated by a more open coastal sage scrub species.

The dominant plant species of the Diegan coastal sage scrub may vary, depending on local site factors and disturbance levels. Coastal sagebrush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum*), San Diego sunflower (*Viguiera laciniata*), and white sage (*Salvia apiana*) are the most common dominant species. Previously disturbed areas tend to be dominated by flat-top buckwheat. Evergreen species, such as toyon

(*Heteromeles arbutifolia*) and laurel sumac (*Rhus laurina*), occasionally occur throughout the coastal sage scrub, but are more common along drainages.

Disturbed coastal sage scrub, coastal sage scrub/non-native grassland, and coastal sage scrub/mixed chaparral were mapped as variations of Diegan coastal sage scrub and are included in the biological technical reports for Otay Ranch (MBA 1989, RECON 1991).

Maritime Succulent Scrub

The maritime succulent scrub community type reaches its northern distributional limit in San Diego County. It is confined primarily to dry, south-facing slopes along the coastal areas, from Torrey Pines State Park south to El Rosario in northern Baja California. The dominant shrub species in this community are similar to those comprising Diegan coastal sage scrub (coastal sagebrush, flat-top buckwheat, and San Diego sunflower). However, maritime succulent scrub differs from coastal sage scrub by the presence of a mixture of succulent species. The major succulents of this scrub in the study area include large stands of San Diego barrel cactus (*Ferocactus viridescens*) and coast cholla (*Opuntia prolifera*). Thickets of coast cholla are common. Isolated pockets of snake cholla (*Opuntia parryi* var. *serpentina*) occur occasionally. Stands of the shrub species jojoba (*Simmondsia chinensis*) are also scattered on the slopes of this community and dominate some sites.

Chamise Chaparral

Chamise (*Adenostoma fasciculatum*) dominates this community type and forms nearly pure stands in some cases. It is found on the drier slopes at various elevations that have shallow soils. The brush is often so dense that a substantial understory never develops. Some areas have ashy spike-moss (*Selaginella cinerascens*) in gaps in the chamise. Other species occurring occasionally in openings in this community are our Lord's candle (*Yucca whipplei*), Mohave yucca (*Yucca schidigera*), bush poppy (*Dendromecon rigida*), and mission manzanita (*Xylococcus bicolor*).

Southern Mixed Chaparral

Evergreen sclerophylous shrubs dominate this vegetation community that typically occupies moist north-facing slopes and drainages on steep slopes in southern California. This community is composed of a mixture of shrub species that occur at more or less equal densities, depending on local site factors. Shaded north slopes in canyons, north slopes at higher elevations, and moist drainage courses have the highest density stands of mixed chaparral.

Dominant woody species most commonly associated with southern mixed chaparral include chamise, scrub oak (*Quercus dumosa*), toyon (*Heteromeles arbutifolia*), laurel sumac (*Malosma laurina*), Ramona lilac (*Ceanothus tomentosus* ssp. *olivaceus*), manzanita (*Arctostaphylos* spp.), mission manzanita, and San Diego mountain mahogany (*Cercocarpus minutiflorus*), and others.

Several variations of southern mixed chaparral were mapped and included in the biological technical reports for Otay Ranch (MBA 1989, RECON 1991); these are mixed chaparral/coastal sage scrub, mixed chaparral/chamise chaparral, and mixed chaparral/Tecate cypress.

Baccharis Scrub

This vegetation type is often confined to drainages and floodplains. The dominant shrub species is broom baccharis (*Baccharis sarothroides*), with co-dominant species such as San Diego marsh elder (*Iva hayesiana*), mule fat (*Baccharis glutinosa*), and tamarisk.

Baccharis Floodplain Scrub (Mule Fat Scrub)

This plant association is similar to mule fat scrub as described in Holland (1986). It occupies dry arroyos or washes with deep sandy alluvia which are too dry for perennial woodlands, but seasonally scoured and too wet for upland shrubs. This community is often a successional phase that is maintained by frequent flooding. Typical plants of this community are: broom baccharis, mule fat, and telegraph weed (*Heterotheca grandiflora*).

Tamarisk Scrub

Black willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), and elderberry (*Sambucus mexicana*), are scattered among tamarisk (*Tamarix* sp.). Rabbitfoot grass (*Polypogon monspeliensis*), cocklebur (*Xanthium strumarium*), western ragweed (*Ambrosia psilostachya*), single-whorl burrow-bush (*Hymenoclea monogyra*), and verbena (*Verbena* sp.) occur in the openings and the understory. This non-native plant community integrates with mule fat scrub and is an indicator of surface disturbance.

Tamarisk scrub/mule fat scrub also was delineated on Otay Ranch and is included as a variation of tamarisk scrub (RECON 1991).

Grasslands/Meadows

Valley Needlegrass Grassland

This plant association typically alternates with Diegan coastal sage scrub on deeper clay soils of more mesic exposures, mesas with mima mound topography, and at the bases of slopes. Where it has not been heavily grazed, purple needlegrass (*Stipa pulchra*) forms dense, regular tussock formations with several other herbs and wildflowers including shooting star (*Dodecatheon clevelandii*), blue-eyed grass (*Sisyrinchium bellum*), gumplant (*Grindelia robusta*), and coast goldenbush (*Isocoma veneta*).

Disturbed valley needlegrass grassland also was delineated onsite as part of the original biological surveys (MBA 1989).

Clay Lenses

Coastal sage scrub communities often have large openings in the brush that are characteristically dominated by native grasses and herbs. Perennial bunch-grasses observed in these openings are foothill needlegrass (*Stipa lepida*), purple needlegrass, and beard grass (*Bothriochloa barbinodis*). Exotic, smaller, annual grasses, such as red brome (*Bromus rubens*) and slender wild oat (*Avena barbata*), have invaded most of the open areas. Subshrub and herbaceous species commonly observed in this community type are deerweed (*Lotus scoparius*), Alderson's rockrose (*Helianthemum scoparium*), broom matchweed (*Gutierrezia californica*), Indian paint brush (*Castilleja affinis*), blue-eyed grass, ashy spike-moss, and mariposa lily (*Calochortus splendens* and *C. weedii*).

Because of the structure and water holding capacity of clay soils, these areas support a unique floral assemblage. Clay lenses are particularly rich in sensitive plant species.

including several that occur on Otay Ranch (Section 3.3.1.5). Clay lenses are not considered a plant community type, but rather are mapped as a sensitive soil type (Appendix A9); thus, they do not appear in subsequent habitat sections. Small clay lenses may occur within other soil series not mapped as sensitive soils. Locations of many of these clay lenses can be identified by the occurrence of sensitive plant species specifically associated with clay soils (Section 3.3.1.5).

Non-native Grassland

This community designation refers primarily to areas that have been disturbed, either by grazing, brush clearing, or frequent fires, resulting in the establishment of an annual grassland. Although grasses and herbs dominate this community, several shrubs and subshrubs occur in areas that are either recovering from past disturbances or are not intensely utilized. The predominant grass species are red brome, slender wild oat, smooth brome (*Bromus mollis*), and ripgut grass (*Bromus diandrus*). Weedy herbaceous species observed include black mustard (*Brassica nigra*), sweet fennel (*Foeniculum vulgare*), filaree (*Erodium* spp.), scarlet pimpernel (*Anagallis arvensis*), tocolote (*Centaurea melitensis*), dove weed (*Eremocarpus setigerus*), and cat's ears (*Hypochoeris glabra*). Occasional shrubs, such as broom baccharis, white sage, flat-top buckwheat, and coast goldenbush, occur in less disturbed areas.

Variations of non-native grassland mapped and included in the biological technical reports for Otay Ranch (MBA 1989, RECON 1991) include non-native grassland/coastal sage scrub, and disturbed non-native grassland.

Woodlands

Coast Live Oak Woodland

This community type occurs on north-facing slopes, usually in moist drainages or among large rock outcrops within chaparral. Although limited in size on drier north slopes, this vegetation type can cover whole slopes in shaded canyons. Coast live oak (*Quercus agrifolia*) is the dominant tree species exceeding the canopy of the surrounding shrub species. This habitat often co-occurs with chaparral, and thus understory species often include chamise and scrub oak or other chaparral shrubs.

Where oak trees are dense, the understory is composed primarily of annual grasses and forbs. Ripgut grass is the most common grass species, with slender wild oat, red brome, and smooth brome occurring occasionally. Herbaceous and suffrutescent species observed include western ragweed, hedge-nettle, and San Diego marsh elder. In areas where the oak canopy is more open, shrub species are able to grow. These species include poison oak (*Toxicodendron diversilobum*), wild honeysuckle (*Lonicera subspicata*), scrub oak (*Quercus dumosa*), white-flowered currant (*Ribes indecorum*), toyon, laurel sumac, and climbing penstemon (*Keckiella cordifolia*).

Southern Coast Live Oak Riparian Forest

Oak riparian forests grow along major drainages in canyons and valleys of coastal southern California. Scattered Engelmann oak trees (*Quercus engelmannii*) also occur within the live oak forest. Other tree species, occurring less commonly, include California sycamore (*Platanus racemosa*), elderberry, and an occasional Tecate cypress (*Cupressus forbesii*).

Sycamore Alluvial Woodland

This woodland type is characteristically found on wide, alluvial floodplains of intermittent streams and drainages. The alluvial substrates are often very cobbly to bouldery. Shrubs and subshrubs occurring in this habitat include mule fat, arroyo willow, and coast goldenbush.

Southern Interior Cypress Forest

Dominated by Tecate cypress, this closed-cone conifer forest occurs in isolated groves within chaparral on steep slopes and in canyons. The stands can range from very open to very dense, depending on local site factors and fire history. Tecate cypress only occurs in isolated populations in southern California on the Santa Ana Mountains, Guatay Mountain, and Otay Mountain, and in scattered locations in northern Baja California, Mexico. As a distinct community, southern interior cypress forest occurs in isolated areas in the southern Sierra Nevadas and in portions of the Peninsular Ranges south into Baja California.

The Tecate cypress is dominant in chaparral, due to its ability to grow above the canopy of the surrounding vegetation and reproduce after fire. Where stands form thickets, understory vegetation is sometimes completely suppressed. In more open stands, shrubs typical of chamise or mixed chaparral co-occur with cypress trees.

Southern Willow Scrub (Riparian Woodland)

This habitat is equivalent to what is often referred to by many authors as riparian woodland. The plants of these wetlands include arroyo willow, black willow, mule fat, and curly dock (*Rumex crispus*).

Eucalyptus Woodland

Several small stands of introduced eucalyptus trees (*Eucalyptus* sp.) occur in isolated areas. These trees have been planted around old cattle areas and abandoned structures.

Wetlands

Otay Mesa Vernal Pool

Vernal pools and their associated mima mound topography consist of low mounds with depressions among them that fill with water during the rainy season. Water remains in these depressions due to the presence of an impervious subsurface claypan. The water in the pools evaporates, and the depressions remain dry until the next series of heavy rains. Vernal pool habitat supports unique flora and fauna that have adapted to the seasonal availability of water.

Regionally, characteristic vernal pool species include woolly marbles (*Psilocarphus brevissimus*), water pygmy-weed (*Crassula aquatica*), long-stalk water-starwort (*Callitriche longipedunculata*), graceful hairgrass (*Deschampsia danthonioides*), Otay Mesa mint (*Pogogyne nudiuscula*), San Diego navarretia (*Navarretia fossalis*), and San Diego button-celery (*Eryngium aristulatum* var. *parishii*). Other species are frequently associated within the margins of vernal pools, on mima mounds, and other seasonally wet clay soils on low hills. They include San Diego goldenstars (*Muilla clevelandii*), San Diego hasseanthus (*Dudleya variegata*), Otay tarweed (*Hemizonia conjugens*), goldfields (*Lasthenia californica*), Cleveland's shooting star, chocolate-lily (*Fritillaria biflora*), gum

plant (*Grindelia robusta*), and California adder's-tongue fern (*Ophioglossum lusitanicum* ssp. *californicum*).

Coastal and Valley Freshwater Marsh

Freshwater marsh is dominated by perennial, emergent monocots 1.3 to 2 meters in height. Uniform stands of bulrush (*Scirpus* spp.) or cat-tail (*Typha* spp.) often characterize this habitat. Freshwater marsh occurs in wetlands that are permanently flooded by standing freshwater. The outer margin of this vegetation type can have trees, such as black willow, tamarisk, and elderberry, growing alongside more shrubby willows.

Alkali Meadow

Alkali meadow habitat occurs along many of the intermittent streams within the project area and is best developed in Proctor Valley. This habitat differs from baccharis floodplain scrub chiefly in that it is more narrowly defined within a stream channel and lacking in shrubs. The plant association that occupies this wetland habitat is unique in San Diego County, although several species are common to other salt marsh and montane wetlands. Surface flow or moist conditions exist through the rainy season; dry conditions predominate most of the year. Included in this plant community are: southwestern spiny rush (*Juncus acutus* var. *sphaerocarpus*), deergrass (*Muhlenbergia rigens*), San Diego marsh-elder (*Iva hayesiana*), alkali sacaton (*Sporobolus airoides*), wild rye (*Elymus triticoides*), Italian ryegrass (*Lolium perenne*), salt heliotrope (*Heliotropium curvassavium* var. *oculatum*), saltgrass (*Distichilis spicata*), Orcutt's brodiaea (*Brodiaea orcuttii*), and San Diego sedge (*Carex spissa*).

Disturbed alkali meadow also was delineated on Otay Ranch as part of the original biological surveys (MBA 1989).

Agriculture

Since remnants of all native plant communities have been removed from these areas, locations under this designation exhibit low biological diversity, except in areas where annual grasslands have formed.

3.3.1.3 Vegetation Cover by Parcel

Otay River Parcel

The acreages for each habitat type on the Otay Ranch property have been summarized by project parcel in Table 3.3-1 and are shown in Figure 3.3-1a-c.

Diegan Coastal Sage Scrub

Undisturbed coastal sage scrub occurs in the extreme southwestern portion of the Otay River parcel, and at higher elevations along its southern border. Localized areas dominated by Munz's sage (*Salvia munzii*), a sensitive species, occur occasionally in the western portion. Approximately 1,826 acres of this type of habitat occur on the Otay River parcel.

Maritime Succulent Scrub

Maritime succulent scrub habitat is concentrated in three general locations on the Otay River parcel: in the western and eastern corners and in the central southern area (285 acres in all).

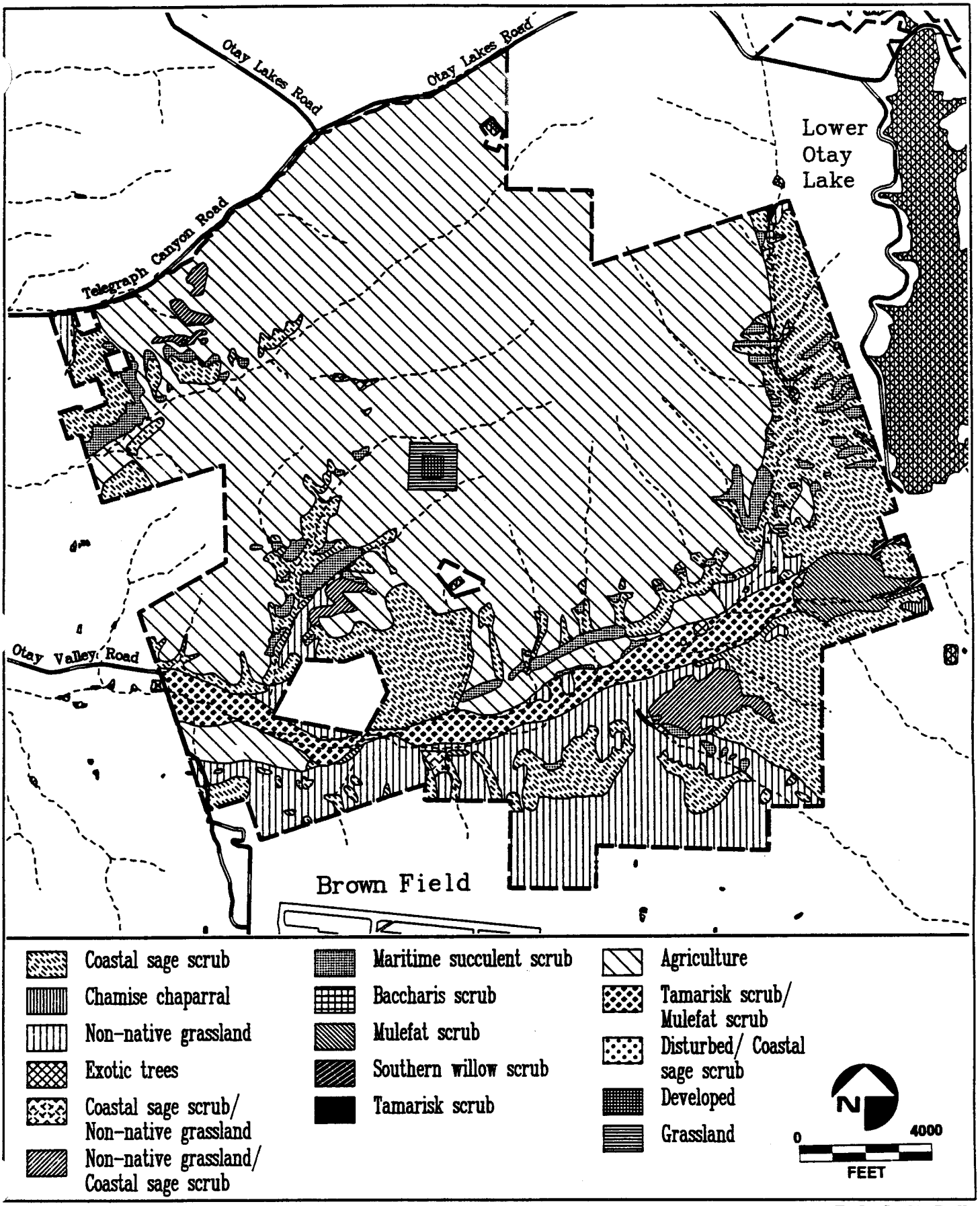
Table 3.3-1

SUMMARY OF ACRES OF VEGETATIVE COVER TYPES ON OTAY RANCH

Cover Type	Otay River Valley	Proctor Valley Parcel	San Ysidro Parcel	Totals for Otay Ranch
Upland Shrub Communities				
Diegan Coastal Sage Scrub*	1,826	4,843	3,696	10,365
Disturbed Diegan Coastal Sage Scrub*	1	780	--	781
Maritime Succulent Scrub*	285	--	--	285
Chamise Chaparral	7	964	469	1,441
Southern Mixed Chaparral	--	569	657	1,226
Floodplain Scrub				
Baccharis Scrub	19	--	--	19
Baccharis Floodplain Scrub*	113	--	--	113
Tamarisk Scrub*	396	--	--	396
Grassland/Meadow				
Valley Needlegrass*	--	49	--	49
Disturbed Valley Needlegrass	--	215	--	215
Non-native Grassland	1,310	62	474	1,846
Alkali Meadow*	--	138	--	138
Disturbed Alkali Meadow*	--	12	--	12
Woodlands				
Coast Live Oak Woodland*	--	176	5	181
Southern Coast Live Oak Riparian Forest*	--	--	75	75
Sycamore Alluvial Woodland*	--	--	7	7
Southern Interior Cypress Forest*	--	--	165	165
Southern Willow Scrub*	12	2	--	14
Eucalyptus	25	5	3	33
Aquatic/Marsh				
Otay Mesa Vernal Pool**	162	15	1	179
Coastal and Valley Freshwater Marsh*	--	--	3	3
Aquatic (ponds)*	--	3	--	3
Agriculture	5,614	0	--	5,614
Developed	10	98	--	108
TOTALS	9,618	7,915	5,555	23,088

* Sensitive Habitats

** Not included in acreage totals because these acres are covered by other habitats. Represents vernal pool habitat including intervening mima mounds. This acreage circumscribes the concentrations of vernal pools and is substantially greater than the vernal pool surface area. The pool habitat does not necessarily include or coincide with vernal pool watershed or buffer area.

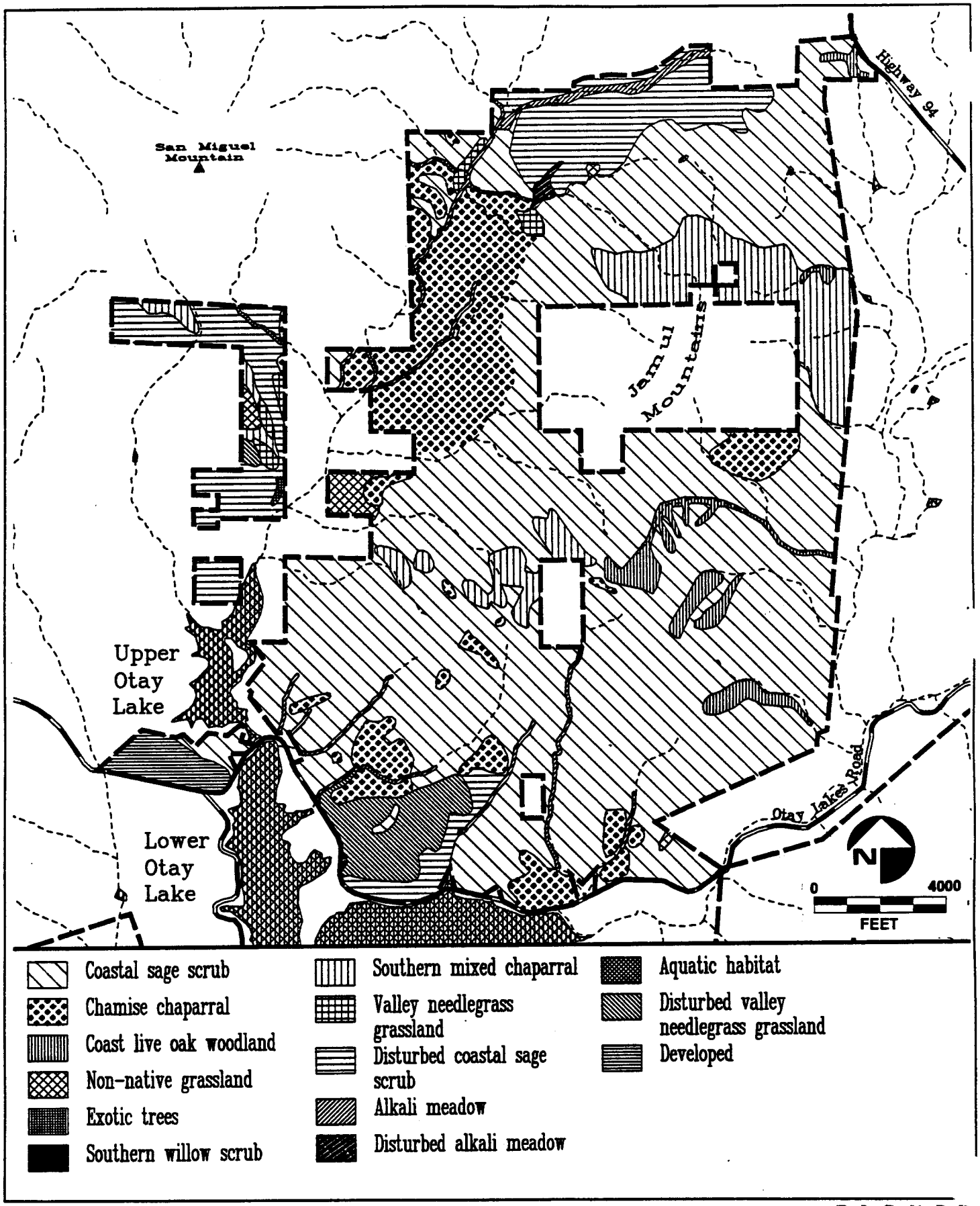


OGDEN

Vegetation Communities within Otay River Parcel

FIGURE

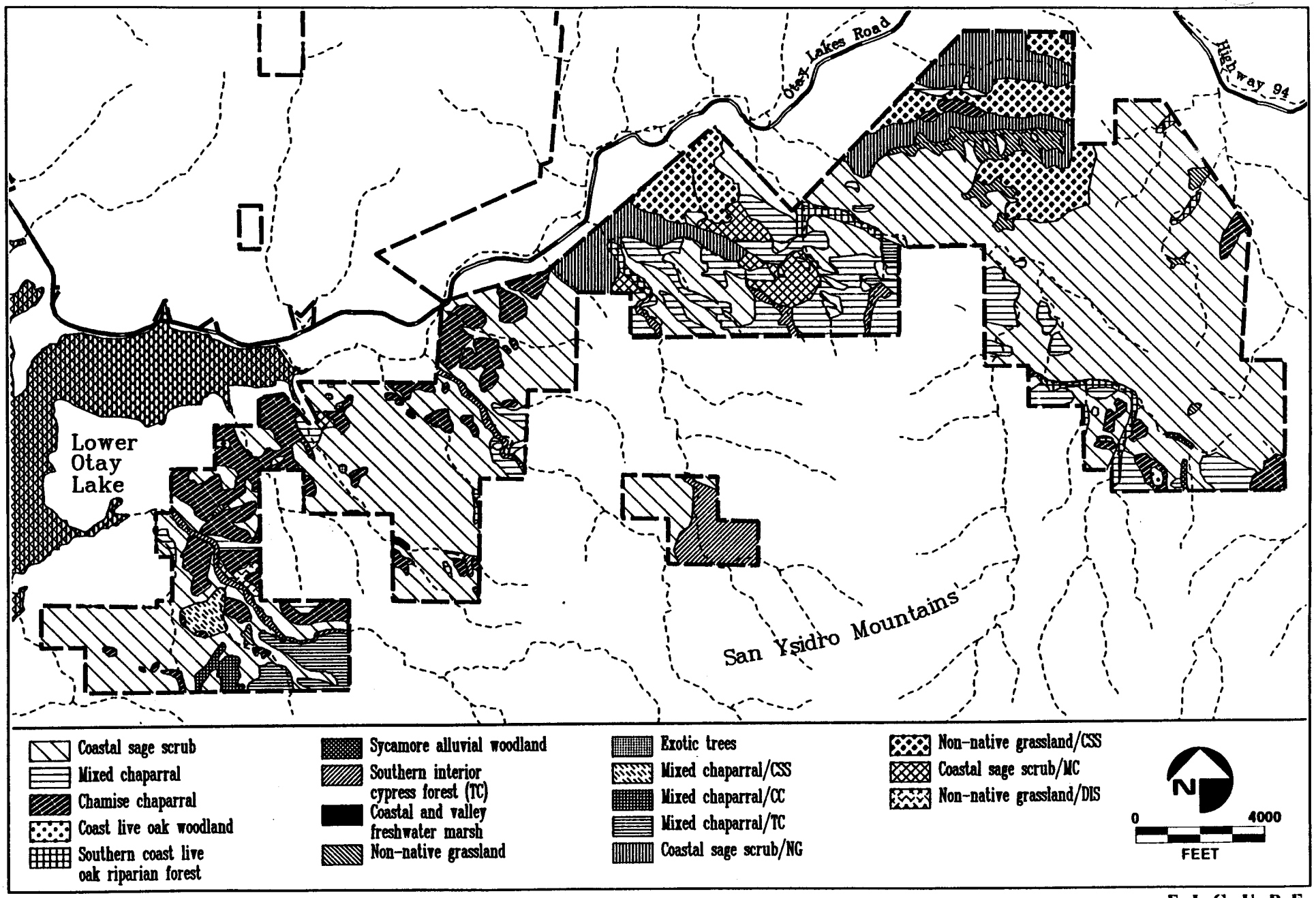
3.3-1a



OGDEN

Vegetation Communities within Proctor Valley Parcel

FIGURE **3.3-1b**



OGDEN

Vegetation Communities within San Ysidro Parcel

FIGURE 3.3-1c

Chamise Chaparral

This community is located in the southeast corner of the Otay River parcel and covers 7 acres. It occurs on gentle slopes with thin soils, and is dominated by uniform stands of chamise.

Non-native Grassland

The southern border of the Otay River parcel is dominated by a large area of non-native grassland, with patches of scattered coastal sage scrub.

Southern Willow Scrub (Riparian Woodland)

A small area (12 acres) of this vegetation type occurs just to the south of Lower Otay Reservoir. Arroyo willow is the dominant shrub, along with isolated individuals of black willow, mule fat, and elderberry.

Otay Mesa Vernal Pool

The most extensive areas of vernal pool habitat and associated mima mound topography occur in the Otay River parcel (MBA 1991; ASI 1988; Bauder 1986). Several large areas of hummocked topography divided by Johnson and O'Neal canyons belong to Otay Mesa and are mapped as the J23, J24, J25, J29, J30, and J31+ vernal pool complexes. Some of the pools in these areas support rare vernal pool taxa, including Otay mesa-mint, San Diego button-celery, and San Diego navarretia. The J30 complex historically supported two additional rare plants, California orcutt grass (*Orcuttia californica*) and little mousetail (*Myosorus minimus* ssp. *apus*). Several smaller terraces on the north side of the Otay River Valley (K1, K2, K15+, K16+, K17+, J32+) and above Poggi Canyon (M2, M5+) support vernal pools. No rare vernal pool taxa were identified in these pool complexes. The area of vernal pool habitat in the Otay River parcel is approximately 162 acres. This acreage circumscribes the concentrations of vernal pools and includes the intervening mima mounds. This acreage is substantially greater than the vernal pool surface area but does not necessarily include a buffer area around the pool complexes.

Baccharis Scrub

This habitat occurs along the drainage channels and floodplains in Salt Creek Canyon, and in the high floodplain of lower Otay River Valley. A total of 19 acres of this habitat occur on the Otay River parcel. The dominant shrub species, broom baccharis, makes up 90 percent of the vegetation cover. Co-dominant species observed include San Diego marsh-elder, mule fat, and tamarisk. The herbaceous flora consists of species such as red brome, tocolote, slender wild oat, and black mustard.

Baccharis Floodplain Scrub (Mule Fat Scrub)

Dominated by mule fat, this kind of scrub is best represented on the eastern portion of the Otay River Valley and covers 113 acres. Mule fat scrub in this section of the property interfaces with tamarisk scrub vegetation.

Tamarisk Scrub

Stands of tamarisk with broom baccharis, mule fat, and San Diego marsh elder occur as co-dominants in most of the Otay River Valley. Tamarisk is especially common around

disturbed sites, such as former mining locations, and covers 396 acres on the Otay River parcel.

Agriculture

The majority of the Otay River parcel is currently being cultivated. The natural vegetation has been cleared, and the soil is being tilled for crop production.

San Ysidro Parcel

Diegan Coastal Sage Scrub

Diegan coastal sage scrub communities on the San Ysidro parcel occur in various states of disturbance. Low-lying areas of this community type on the north side of this parcel are more disturbed than areas at higher elevations or more secluded locations. Areas within coastal sage scrub on the extreme northeastern portion of this parcel have been heavily grazed and only remnant sage scrub species remain on the nearly barren hillsides. Coastal sage scrub occurs on 3,696 acres of the San Ysidro parcel.

Chamise Chaparral

Approximately 469 acres of uniform stands of chamise occur on mesas and some gentle slopes with thin soils in the Otay Lakes portion of the San Ysidro parcel.

Southern Mixed Chaparral

The most common species comprising mixed chaparral habitat in the San Ysidro parcel (6587acres) are laurel sumac, toyon, redberry (*Rhamnus crocea*), scrub oak, blue lilac (*Ceanothus tomentosus*), chamise, mission manzanita, and Eastwood manzanita (*Arctostaphylos glandulosa*). Subshrubs occurring in gaps in the brush commonly include golden yarrow (*Eriophyllum confertiflorum*), deerweed, and sawtooth goldenbush (*Haplopappus squarrosus*).

Non-native Grassland

Approximately 97 acres of non-native grassland occur on the northeast portion of the San Ysidro parcel. Non-native grassland with a small extent of coastal sage scrub elements and more heavily disturbed non-native grassland accounts for an additional 377 acres.

Coast Live Oak Woodland

The San Ysidro parcel supports 5 acres of coast live oak woodland along the southeast corner of the parcel. This habitat often occurs adjacent to chamise chaparral; understory species include chamise and scrub oak.

Southern Coast Live Oak Riparian Forest

Oak riparian forests grow along the channel floodplain in the fine-grained alluvial soils of the San Ysidro parcel (75 acres).

Sycamore Alluvial Woodland

This community type (7 acres) occurs in the extreme southeastern portion of the San Ysidro parcel in small isolated areas of alluvial floodplain. California sycamores form an open

stand of trees, with an understory of grasses or herbs and scattered shrubs and subshrubs. Grasses and herbs onsite include ripgut grass, smooth brome, rabbitfoot grass, horehound (*Marrubium vulgare*), and western ragweed.

Southern Interior Cypress Forest

At higher elevations in the San Ysidro parcel, Tecate cypress occurs with more unique species, in addition to the more common chaparral species. These unique species include southern mountain misery (*Chamaebatia australis*), Otay manzanita (*Arctostaphylos otayensis*), and Gander's pitcher sage (*Lepechinia ganderi*). Within the canyons at these elevations, two other unique species occur in the cypress forest: summer-holly (*Comarostaphylos diversifolia* ssp. *diversifolia*) and willowy monardella (*Monardella linoides* ssp. *viminea*). Southern interior cypress forest occurs mainly in the southern portion of the San Ysidro parcel (165 acres).

Coastal and Valley Freshwater Marsh

Two man-made stock ponds used primarily for watering cattle occur on this parcel. These ponds cover approximately 3 acres of freshwater marsh habitat and consist of dense stands of broadleaf cat-tail (*Typha latifolia*) and bulrush (*Scirpus acutus*, *S. olneyi*).

Otay Mesa Vernal Pool

A small number of vernal pools occur within the property on the level terraces south of the eastern arm of Lower Otay Lake. These pools and mima mounds were first mapped in 1990 and labeled K12+ and K14+ (MBA 1991). No rare vernal pool taxa occur here; however, the geology, species composition, and undisturbed nature of these drier vernal pools are unique. The area of vernal pool habitat in this parcel is approximately 1 acre. This acreage circumscribes the concentrations of vernal pools and includes the intervening mima mounds. This acreage is substantially greater than the vernal pool surface area but does not include a buffer area around the pool complexes.

Proctor Valley Parcel

Diegan Coastal Sage Scrub

Most of the Jamul Mountains area is dominated by Diegan coastal sage scrub (4,843 acres). This vegetation type is common at lower elevations on relatively level slopes. It also integrates into many phases of chaparral, oak woodland, and other vegetation types. Habitat onsite is relatively undisturbed and is thus dense and weed-free in some areas; in areas that have been ranched, farmed, or repeatedly burned, the habitat is open, contains numerous weeds, and lacks species diversity.

Chamise Chaparral

At higher elevations in the Proctor Valley parcel, chamise chaparral dominates almost to the exclusion of other plant associates (964 acres). Two sensitive plants are unusual exceptions. Ashy clubmoss forms a dense, uniform carpet under a pure stand of chamise along Otay Lakes Road. South of Proctor Valley Road, on an elevated plateau, chamise and Munz's sage constitute a unique species assemblage.

Southern Mixed Chaparral

The Proctor Valley parcel contains 569 acres of southern mixed chaparral. The mixed chaparral, at higher elevations on the site, supports individuals of smooth mountain mahogany (*Cercocarpus minutiflorus*), southern mountain misery, Otay manzanita, summer-holly, chaparral pea (*Pickeringia montana*), and Gander's pitcher sage in addition to the more common species.

Moist canyons and drainages, which occur in the mixed chaparral areas, contain dense stands of scrub oak, toyon, laurel sumac, and holly-leaved cherry (*Prunus ilicifolia*), as well as coast live oak, elderberry, and an occasional California sycamore. Herbaceous species commonly found in these moist areas include hedge-nettle (*Stachys rigida*), curly dock, miner's lettuce (*Claytonia perfoliata*), poison hemlock (*Conium maculatum*), San Diego marsh-elder, and poison oak.

Valley Needlegrass Grassland

Wet season burning and vehicle trespassing have degraded native grasslands, especially just north of Upper Otay Lake, on the Proctor Valley parcel. Approximately 49 acres of this habitat remain undisturbed onsite.

Alkali Meadow

Alkali meadow habitat occurs along many of the intermittent streams within the project area and is best developed in the lowlands of Proctor Valley (138 acres). Where grazing or vehicle trespassing has occurred around these wetlands, weeds such as curly dock and cocklebur dominate, and native wetland plants are pedestaled or occur in small patches.

Non-native Grassland

The Proctor Valley parcel contains much less non-native grassland than the Otay River parcel, with the largest area (51 of 62 acres) occurring on the western boundary.

Coast Live Oak Woodland

This vegetation community covers 176 acres in the Proctor Valley parcel. In one drainage at the junction of Highway 94 and Proctor Valley Road and at higher elevations of the Jamul Mountains, north-facing canyons support oak woodland dominated by coast live oak, including a few individuals of Englemann oak. These are large mature trees in a scattered arrangement interspersed with a variety of shrub and grassland species such as toyon, poison-oak, laurel sumac, red bush monkey flower (*Diplacus puniceus*), yerba santa (*Eriodictyon trichocalyx*), holly-leaf redberry (*Rhamnus ilicifolia*), white sage, white-flowered current (*Ribes indecorum*), needlegrass (*Stipa* spp.), meadow-rue (*Thalictrum polycarpum*), Indian-pink (*Silene laciniata*), and shooting star.

Southern Willow Scrub (Riparian Woodland)

A mixture of willows and herbaceous wetland plants occurs in some of the arroyos and old water impoundments on the Proctor Valley parcel (2 acres). Most of these are small and occur on the margins of minor springs or developed cattle ponds.

Eucalyptus

Although eucalyptus is scattered on all three parcels, the only measurable concentration occurs on the Proctor Valley parcel (5 acres).

Otay Mesa Vernal Pool

Vernal pools occur primarily on weathered alluvial soils of mesas and floodplain terraces in Proctor Valley. These pools occur within Diegan coastal sage scrub and chaparral and are mapped as R1, R2, R3+, and R4+ (MBA 1991).

Vernal pools are also located on terraces with hummocked topography immediately north of Otay Lakes Road. The western mesa was previously reported as the K 6 vernal pool area, covering virtually the entire mesa top (Beauchamp and Cass 1979; Bauder 1986), an additional mesa supporting vernal pools (K8+) was identified to the east in 1990 (MBA 1991). Rare vernal pool taxa found within the Proctor Valley parcel include San Diego button-celery in R3+ and little mousetail in K6. The area of vernal pool habitat in this parcel is approximately 15 acres. This acreage circumscribes the concentrations of vernal pools and includes the intervening mima mounds. This acreage is substantially greater than the vernal pool surface area but does not include a buffer area around the pool complexes.

3.3.1.4 Wildlife - General Overview

Wildlife throughout the Otay Ranch project area is discussed below by habitat type. Complete wildlife species lists with scientific names are included in Biological Resources Inventory Reports for Otay Ranch (RECON 1989 and MBA 1989).

Brushlands

Brushland habitats on the Otay Ranch property include Diegan coastal sage scrub, southern mixed chaparral, chamise chaparral, and maritime succulent scrub vegetation communities. Bird species commonly observed in the brushland habitats include California thrasher, California towhee, rufous-sided towhee, rufous-crowned sparrow, California quail, Anna's hummingbird, bushtit, and lesser goldfinch. Sensitive species observed were the California gnatcatcher, southern California rufous-crowned sparrow and sage sparrow. Cactus wren occurs in the Otay River parcel due to the presence of large populations of cacti in the maritime succulent scrub. Another species, Costa's hummingbird was only observed in maritime succulent scrub during the surveys.

Common mammals in the brushland areas include rodents, felids, and canids. Rodent species observed include dusky-footed woodrat, Pacific kangaroo rat, California ground squirrel, black-tailed jackrabbit, cottontail, and valley pocket gopher. Primary predators of these rodent species are coyote, gray fox, bobcat, and mountain lion.

Some reptiles expected to ~~commonly~~ occur or which were observed in brushland habitats include the western fence lizard, southern alligator lizard, gopher snake, northern red diamond rattlesnake, western rattlesnake, and California whipsnake. If the vegetation has open areas, other species such as ~~western~~ Coronado skink and orange-throated whiptail will be found. Many reptiles require rocky outcrops to find chaparral suitable. For instance, the western banded gecko and granite night lizard are found in chaparral only where there is enough exposed rock with crevices to provide protection.

Grasslands

Grassland habitats include non-native grassland and agricultural areas. Wildlife habitat differences between native and non-native grassland communities have not been well-documented, particularly because of the limited extent of native grassland communities. While a greater diversity of plant species is generally associated with native grasslands than with non-native grasslands, there is little functional difference as far as wildlife is concerned.

Grassland communities generally support few amphibious species. When present, they are usually associated with permanent or intermittent water sources. Such species typically include western toad and Pacific treefrog. Pacific slender salamander also occurs occasionally in grassland habitat if sufficient surface debris and/or rock crevices are present for the species to crawl into to prevent desiccation. Several reptile species are commonly found in both native and non-native grasslands, including the western fence lizard, western skink, side-blotched lizard, southern alligator lizard, western patch-nosed snake, glossy snake, and western rattlesnake,.

Birds of grassland communities include Say's phoebe, western kingbird, Cassin's kingbird, horned lark, loggerhead shrike, western meadowlark, lark sparrow, and grasshopper sparrow. Several bird species use other plant communities as primary habitats, but forage in adjacent grassland habitats. These include greater roadrunner and California quail which nest in coastal sage scrub communities, lark sparrow which nests in oak woodlands, and others. Virtually all typical raptors (particularly the American kestrel, northern harrier, black-shouldered kite, red-tailed hawk, and golden eagle) forage in grassland habitats because the open conditions provide little cover for prey. Turkey vulture, great horned owl, American crow, and common raven also forage in grassland habitats. During winter months, the grassland community hosts many individuals of several granivorous species, such as dark-eyed junco and savannah sparrow, as well as the insectivorous water pipit.

Mammal species of grassland habitats include several small rodent species such as the ornate shrew (found along water courses), California vole, western harvest mouse, house mouse, Botta's pocket gopher, deer mouse, southern grasshopper mouse, and little San Diego pocket mouse. Larger grassland mammals include the California ground squirrel, desert cottontail (found near shrub thickets), black-tailed jackrabbit, badger, bobcat, coyote, and mountain lion.

Non-native grassland is a disturbance-type plant community and typically has lower species diversity than native grasslands. Rodents commonly observed in non-native grassland include California ground squirrel and valley pocket gopher. Birds observed utilizing this habitat include horned lark, mourning dove, western kingbird, raven, cliff swallow, lark sparrow, and western meadowlark. Amphibians such as Pacific treefrog and western toad may inhabit irrigation ditches, particularly where standing water has allowed wetland vegetation to develop. Reptiles such as side-blotched lizard, western whiptail, and western fence lizard occupy drier areas.

Birds utilizing agricultural fields and ruderal plant communities include killdeer, mourning dove, ~~spotted dove~~, northern mockingbird, house finch, and house sparrow. Raptors such as American kestrel, red-tailed hawk, black-shouldered kite, and northern harrier also use such habitats for foraging. California ground squirrel is found on the edges of agricultural fields and in other ruderal plant communities. Other mammals expected include the Botta's pocket gopher, desert cottontail, house mouse, and black rat, as well as predators such as striped skunk, coyote, and domestic cats and dogs.

Woodlands

Woodland habitats on Otay Ranch include coast live oak woodland, southern coast live oak riparian forest, sycamore alluvial woodland, and southern interior cypress forest. They support a greater variety of wildlife species than most other habitats including mammals such as dusky-footed woodrat, valley pocket gopher, California ground squirrel, gray fox, coyote, and bobcat.

Small mammals found in oak woodlands include the California ground squirrel, western harvest mouse, deer mouse, dusky-footed woodrat, and western gray squirrel. Virginia opossum, raccoon, ringtail, striped skunk, spotted skunk, mule deer, coyote, bobcat, and mountain lion may visit or reside in these habitats.

Birds seen commonly in woodland areas include Cooper's hawk, mourning dove, great-horned owl, barn owl, acorn woodpecker, Nuttall's woodpecker, ash-throated flycatcher, scrub jay, bushtit, house wren, and northern oriole. Phainopepla are also common, especially in areas with cypress forest.

The moist, protective nature of dense oak woodlands is ideal for amphibians such as the western toad, Pacific slender salamander, ensatina, and arboreal salamander which are found near water sources or under leaf litter and other debris. A layer of leaf litter on the ground in woodland habitats is critical for the survival of amphibians during dry periods. By crawling into places where evaporation is minimized, these species avoid desiccation.

Among the reptiles inhabiting oak woodlands are the western fence lizard, side-blotched lizard, western whiptail, southern alligator lizard, California legless lizard, ringneck snake, coachwhip, common kingsnake, night snake, and western rattlesnakes.

Introduced gum (*Eucalyptus* spp.) trees are used by several bird species, including northern oriole and yellow-rumped warbler, and they provide roosting and nesting sites for raptors, particularly the red-tailed hawk.

Wetlands

Wetland habitats occurring onsite include various types of riparian scrub, freshwater marsh, and vernal pools.

Riparian scrub habitat includes broom baccharis, mule fat, southern willow, and tamarisk scrub plant communities. Much of this habitat onsite has been disturbed to some degree and thus supports poorly represented fauna. Mammals observed in these habitats include black-tail jackrabbit and cottontail rabbit. Bird species observed include mourning dove, song sparrow, cliff swallow, bushtit, American lesser goldfinch, common yellow-throat, red-wing blackbird, northern oriole, and brown-headed cowbird. Blue grosbeak is common along the edges of the habitat. No reptile species were recorded.

Freshwater marsh habitats include areas around old stock ponds. Amphibians observed in these habitats include bullfrog and the Pacific treefrog. Birds seen in the area are common yellow-throat, song sparrow, great blue heron, black-crowned night heron, and Brewer's blackbird. One mammal species, raccoon, was observed utilizing a pond area, and other species are likely to use it as a water source as well.

Vernal pools are temporary wetlands that support a flora and fauna uniquely adapted to the extremes of winter ponding and summer desiccation. Faunal species that are characteristic

inhabitants of vernal pools include two-striped garter snake, western spadefoot toad, fairy shrimp, and various ostracods, copepods, cladocerans, insects, and platyhelminths.

3.3.1.5 Sensitive Resources

Sensitive Plants

A total of 40 sensitive plant species have been recorded on Otay Ranch between 1989 and 1990 and two additional sensitive plants were recorded in previous surveys. This large number of sensitive plants is due in part to the size of the study area, the diversity of habitats, the presence of near-coastal mountain peaks, and the northern extension of Baja flora into southwestern San Diego County.

No federally-listed endangered plant species were observed on Otay Ranch. Nine state-listed endangered species were observed, as well as 14 federal candidate (Category 2) and California Native Plant Society (CNPS) List 1B sensitive plant species. Eleven CNPS List 2 and 3 species and eight plant species of low sensitivity on CNPS List 4 were recorded for Otay Ranch. An explanation of sensitivity codes is provided in Appendix A. Three of the eight state-listed plant species occur in vernal pools.

Locations of sensitive plant species detected in the project study area are provided in Figure 3.3-2a-f. Priority 1 species are state listed rare or endangered. Priority 2 species are federal category 2 candidates or on CNPS List 1B. Priority 3 species correspond to CNPS List 2 or 3, and Priority 4 are CNPS List 4 species. A list of sensitive species occurring or potentially occurring on Otay Ranch is presented in Appendix A-1 along with each species' sensitivity status, habitat affinity, and location on the property (species are listed alphabetically within each grouping). These species are distributed among five major biotic/geologic associations according to general habitat type and elevation of geologic substrate (Table 3.3-2). These associations are: 1) mountainous chaparral and woodland (above approximately 1,200 feet), 2) coastal sage scrub and lowland habitat, 3) clay soils associated with native grassland or scrub habitats, 4) vernal pools, and 5) floodplains and intermittent streams. An annotated listing of sensitive plants by most common association onsite is presented in Appendix A-2. For example, San Diego County needlegrass (*Stipa diegoensis*), narrow-leaved nightshade (*Solanum tenuilobatum*), Munz's sage (*Salvia munzii*), and ashy spike-moss (*Selaginella cinerascens*) occur in chaparral over a wide range of elevations and slopes on the ranch (approximately 500 feet and 1600 feet), but occupy more area overall at lower elevations.

The greatest number of sensitive plants is found in scrub habitat in both the low elevation and mountainous areas (~~15 and 10~~ 10 and 15 species, respectively) (see Table 3.3-3). While sensitive vernal pool species may be concentrated within vernal pools or clay soils, the table shows that sensitive plants of varying rarity are widely distributed on Otay Ranch. Intermittent streams and floodplain areas support five sensitive plants, and vernal pools and areas of clay soil each harbour six sensitive plants. Though the latter have fewer sensitive species, relative to the scrub communities, they also have the greatest proportion of highly sensitive species. Vernal pools and areas of clay soil each have two state-listed endangered plants: San Diego button-celery (*Eryngium aristulatum* var. *parishii*) and Otay Mesa mint (*Pogogyne nudiuscula*) in vernal pools (as well as a historical sighting of California Orcutt grass) and San Diego thornmint (*Acanthomintha ilicifolia*) and Otay tarweed (*Hemizonia conjugens*) in clay soils. Additionally, ~~they each~~ the vernal pools have two federal candidate species, and the clay lenses have three federal candidate species.

Chaparral in the mountainous areas ~~also~~ supports ~~a large~~ the highest proportion of highly sensitive plants including three state-listed species – Dunn's mariposa lily (*Calochortus*

dunnii), slender-pod caulanthus (*Caulanthus stenocarpus*), and Mexican flannelbush (*Fremontodendron mexicanum*) – and ~~four~~ seven federal C2 candidate or CNPS List 1B species. ~~Although~~ The lowland scrub has the highest number of ~~sensitive plants (13), most of these (9) are~~ plants of limited distribution ~~and~~ which are locally abundant (CNPS List 4) ~~or are~~ and plants that are rare in California but more common elsewhere (CNPS List 2). ~~Four~~ Two of the lowland scrub plants are federal C2 candidate or CNPS List 1B species, and none are listed by the state as rare or endangered. The intermittent stream and floodplain areas support only one state-listed species, willowy monardella (*Monardella linoides* ssp. *viminea*), and ~~one~~ no federal C2 candidate species.

Sensitive Wildlife

~~A total of 40 sensitive wildlife species were detected on Otay Ranch. One state- and federally listed endangered wildlife species was observed on the Otay Ranch property. Four species petitioned for federal endangered species status were detected. Fifteen federal candidate wildlife species, two of which are also CDFG Species of Special Concern were detected onsite. An additional 12 CDFG Species of Special Concern occur on the property. Nine species of local sensitivity were also observed. There are 24 other species with federal candidacy or CDFG Species of Special Concern status which may occur in the project area. Specific locations of sightings for the sensitive wildlife species are provided in Figures 3.3-3a-c. A list of all sensitive wildlife species occurring or potentially occurring on the property is presented in Appendix A-3.~~

Otay Ranch has the potential to support over 58 species with at least federal candidacy or California Department of Fish and Game (CDFG) Species of Special Concern status. An additional eight species with state or federal status have a very low potential to occur onsite either as vagrants or to stray onsite from offsite habitats adjacent to Otay Ranch (e.g., Upper and Lower Otay Lakes). Twenty-four species with low sensitivity status (e.g., Andubon blue-list or local status) could also occur onsite. Appendix Table A-3 presents sensitive species which were observed onsite or which could occur onsite. The sensitivity status and scientific name for each sensitive animal species are also presented in Appendix Table A-3.

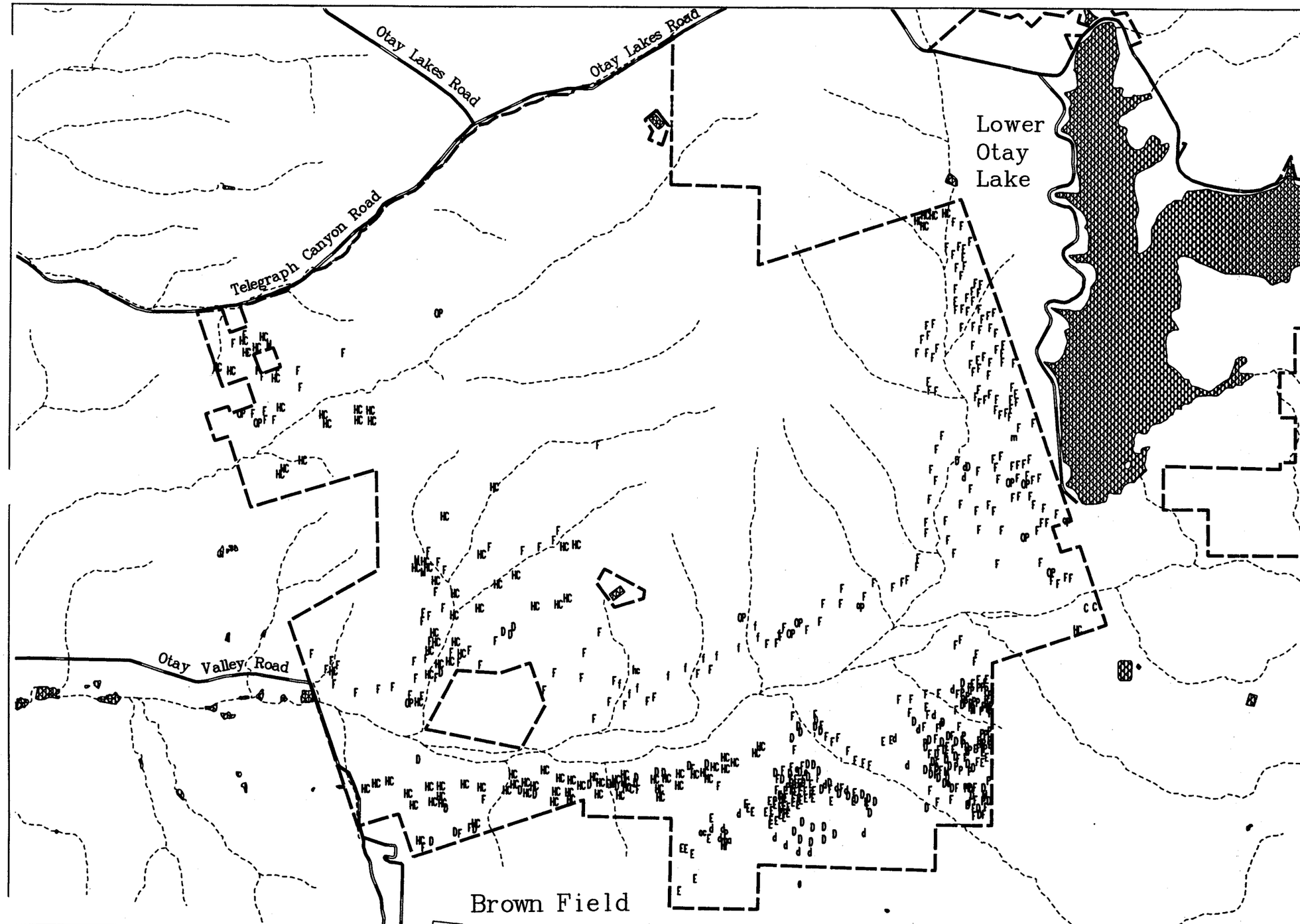
Thirty-six species with at least federal or state sensitivity status were detected onsite. One federally endangered species was observed as were five species petitioned for state or federal listing as endangered. Six species with both federal candidacy and CDFG species of Special Concern status were observed. Another ten species with federal candidacy and fourteen species with CDFG Species of Special Concern status were also observed onsite. Fifteen species with varying degrees of lower sensitivity status were detected onsite. Specific locations of sensitive animals are presented in Figures 3.3-3a-c. Sensitive raptor sightings and nest locations appear in Figure A-5 in the Appendices.

The following wildlife species were observed or have the potential to occur on or near Otay Ranch:

Invertebrates

In 1990, two vernal pool complexes (J25 and J30) on Otay Ranch were surveyed for vernal pool fairy shrimp.

Two sensitive fairy shrimp species were found to occur within these two vernal pool complexes ~~vernal pool habitat on Otay Ranch~~: the Riverside fairy shrimp (*Streptocephalus woottoni*) and the a San Diego vernal pool fairy shrimp (*Branchinecta sandiegensis*) (USD Biology Dept. 1990, CNDD 1992). *Streptocephalus woottoni* is a newly described



Sensitive Plants Priority 1 and 2

AI	Acanthomintha ilicifolia
AO	Arctostaphylos otayensis
B	Brodiaea orcuttii
C	Cupressus guadalupensis ssp. forbesii
CD	Comarostaphylis diversifolia spp. diversifolia
CL	Calamintha chandleri
CS	Caulanthus stenocarpus
D	Dudleya variegata
DU	Calochortus dunnii
E	Eryngium artsulatum var. parissii
F	Ferocactus viridescens
FM	Fremontodendron mexicanum
GR	Calamagrostis densa
HC	Hemizonia conjugens
L	Lepechinia ganderi
M	Muilla clevlandii
MA	Myosurus minimus var. apus
ML	Monardella linoides spp. viminea
NF	Navarretia fossalis
OC	Orcuttia californica
OP	Opuntia parryi var. serpentina
P	Pogogyne nudiuscula
ST	Solanum tenuilobatum

Lowercase letters indicate historic sightings

Uppercase letters indicate recent (1989 and later) sightings

N

0 3000

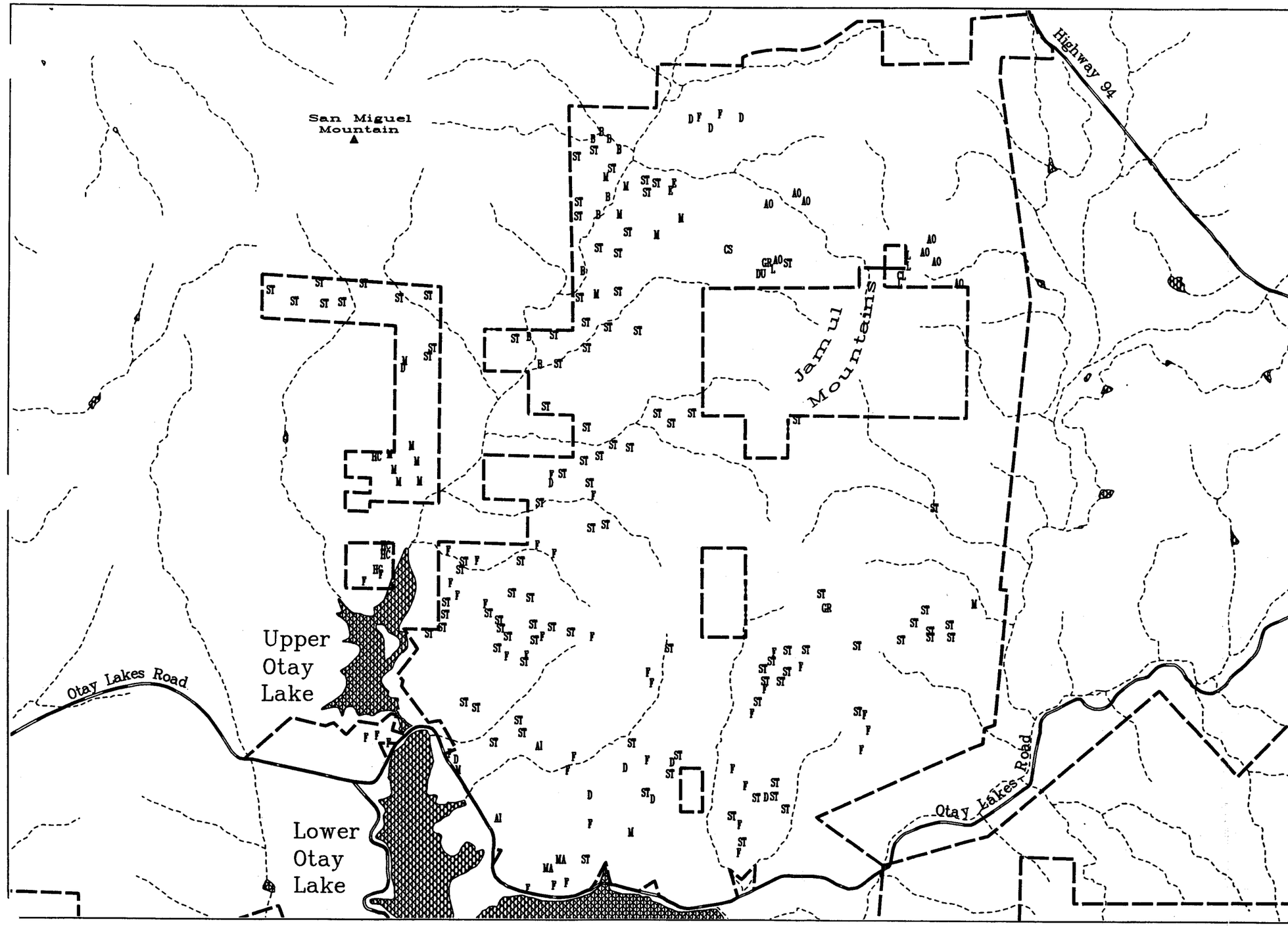
FEET

OGDEN

Sensitive Plants Priority 1 and 2 within Otay River Parcel

FIGURE

3.3-2a



Sensitive Plants Priority 1 and 2

AI	Acanthomintha ilicifolia
AO	Arctostaphylos otayensis
B	Brodiaea orcuttii
C	Cupressus guadalupensis ssp. forbesii
CD	Comarostaphylis diversifolia spp. diversifolia
CL	Calamintha chandleri
CS	Caulanthus stenocarpus
D	Dudleya variegata
DU	Calochortus dunnii
E	Eryngium artsulatum var. parissii
F	Ferocactus viridescens
FM	Fremontodendron mexicanum
GR	Calamagrostis densa
HC	Hemizonia conjugens
L	Lepechinia ganderi
M	Muilla clevlandii
MA	Myosurus minimus var. apus
ML	Monardella linoides spp. viminea
NF	Navarretia fossalis
OC	Orcuttia californica
OP	Opuntia parryi var. serpentina
P	Pogogyne nudiuscula
ST	Solanum tenuilobatum

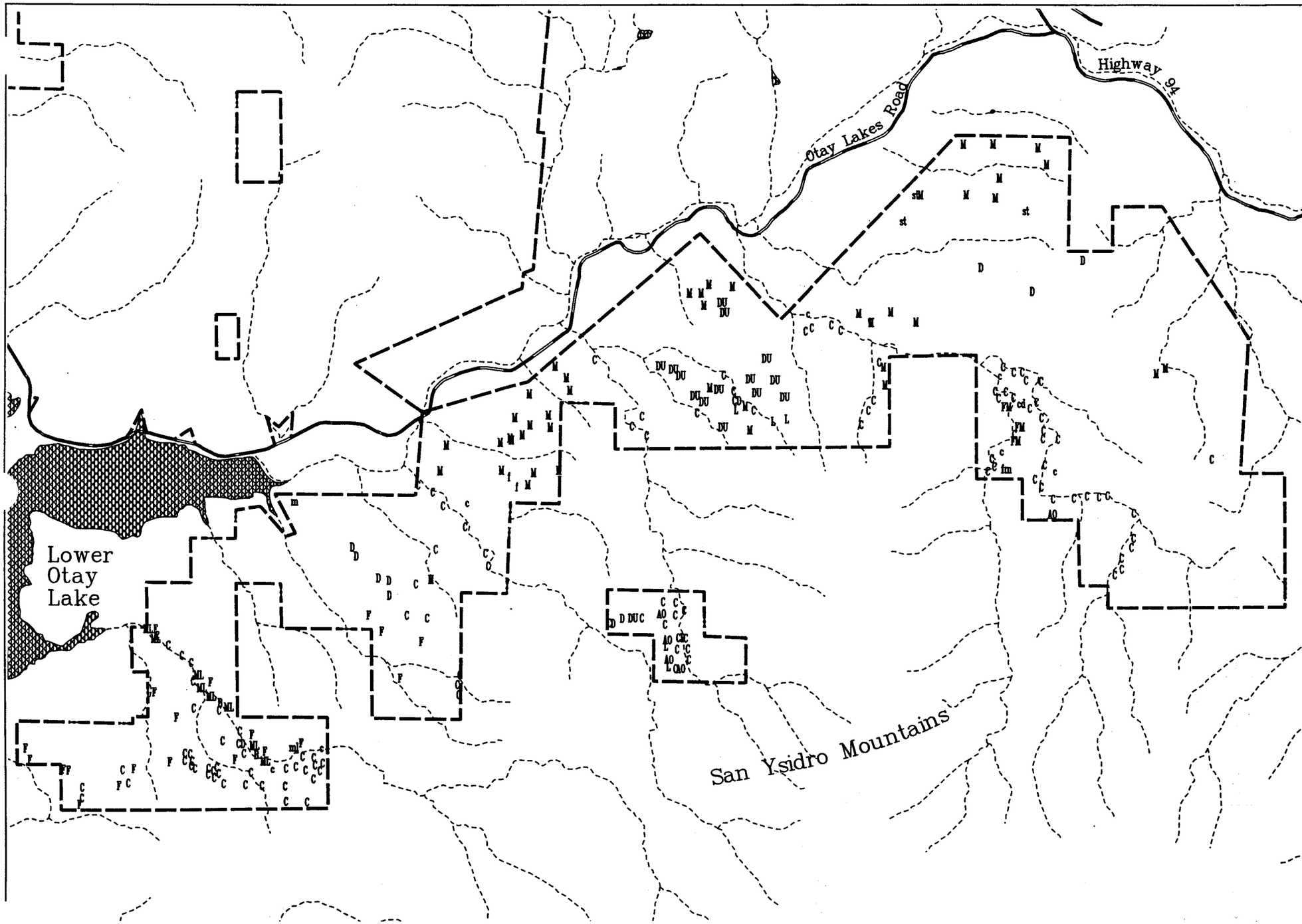
Lowercase letters indicate historic sightings

Uppercase letters indicate recent (1989 and later) sightings

OGDEN

Sensitive Plants Priority 1 and 2 within Proctor Valley Parcel

FIGURE 3.3-2b



Sensitive Plants Priority 1 and 2

AI	Acanthomintha ilicifolia
AO	Arctostaphylos otayensis
B	Brodiaea orcuttii
C	Cupressus guadalupensis ssp. forbesii
CD	Comarostaphylis diversifolia spp. diversifolia
CL	Calamintha chandleri
CS	Caulanthus stenocarpus
D	Dudleya variegata
DU	Calochortus dunnii
E	Eryngium artsulatum var. parissii
F	Ferocactus viridescens
FM	Fremontodendron mexicanum
GR	Calamagrostis densa
HC	Hemizonia conjugens
L	Lepechinia ganderi
M	Muilla clevlandii
MA	Myosurus minimus var. apus
ML	Monardella linoides spp. viminea
NF	Navarretia fossalis
OC	Orcuttia californica
OP	Opuntia parryi var. serpentina
P	Pogogyne nudiuscula
ST	Solanum tenuilobatum

Lowercase letters indicate historic sightings

Uppercase letters indicate recent (1989 and later) sightings

N

0 3000

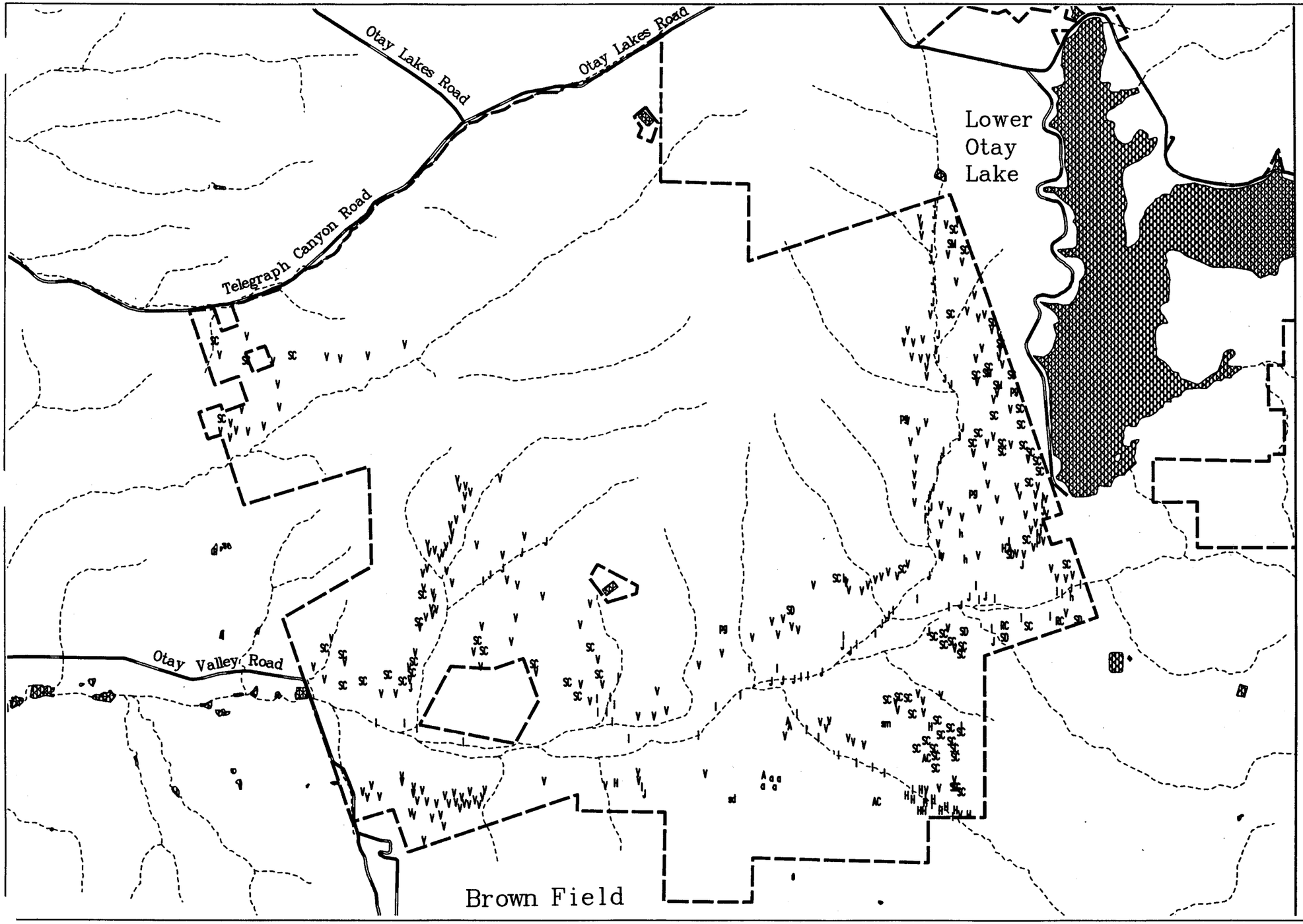
FEET

OGDEN

Sensitive Plants Priority 1 and 2 within San Ysidro Parcel

FIGURE

3.3-2c



Sensitive Plants Priority 3 and 4

A	Adolphia californica
AC	Ambrosia chenopodifolia
AR	Artemisia palmeri
CA	Chamaebatia australis
CK	Clarkia delicata
CO	Cordylanthus orcuttianus
DO	Dichondra occidentalis
H	Harpagonella palmeri
I	Iva hayesiana
J	Juncus acutus var. sphaerocarpus
OL	Ophioglossum lusitanicum
PG	Physalis greenei
PM	Pickeringia montana
Q	Quercus engelmannii
RC	Romneya coulteri var. trichocalyx
SC	Selaginella cinerascens
SD	Stipa diegoensis
SM	Salvia munzii
V	Viguira laciniata

Lowercase letters indicate historic sightings

Uppercase letters indicate recent (1989 and later) sightings

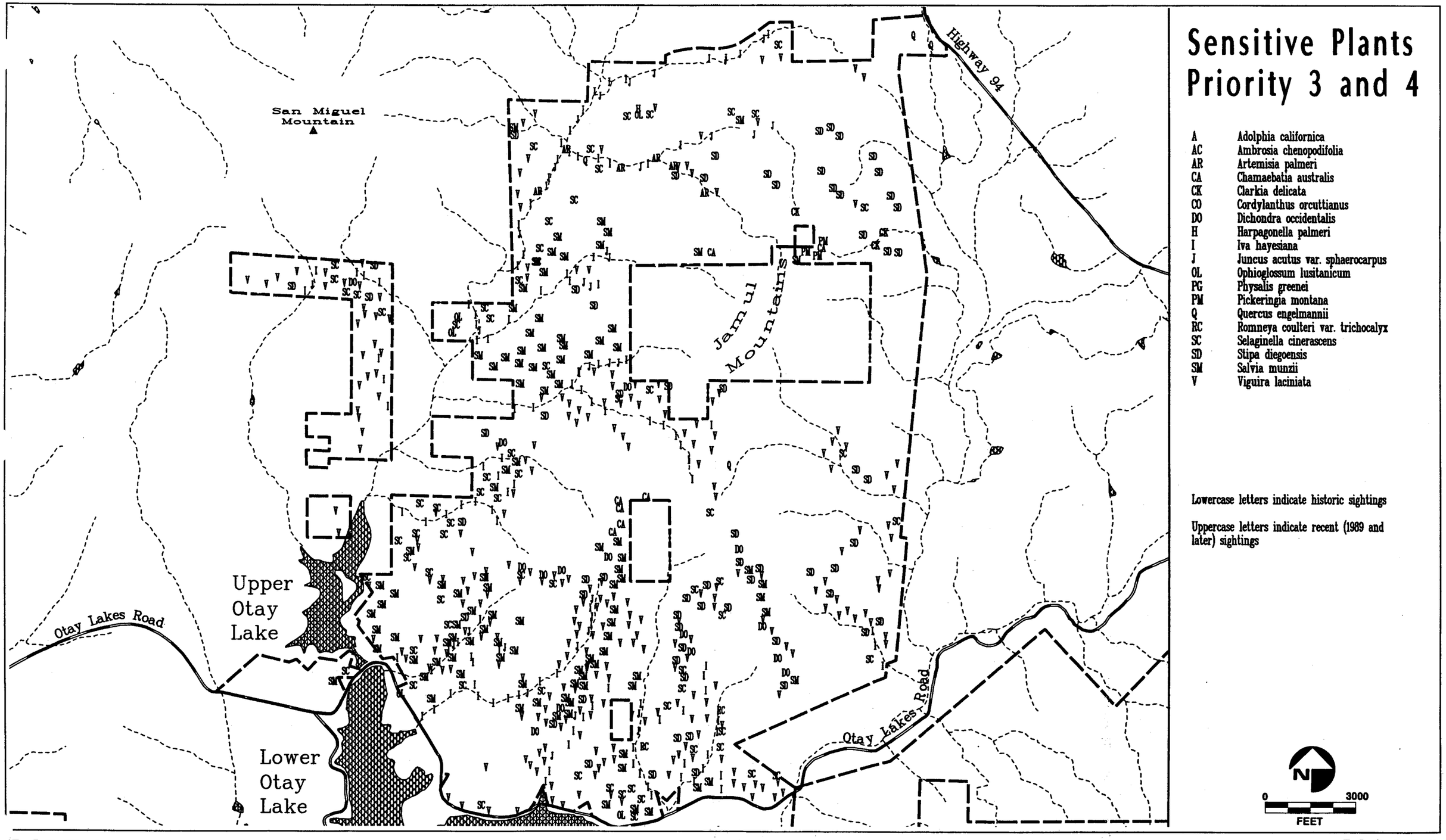
N

0 3000
FEET

OGDEN

Sensitive Plants Priority 3 and 4 within Otay River Parcel

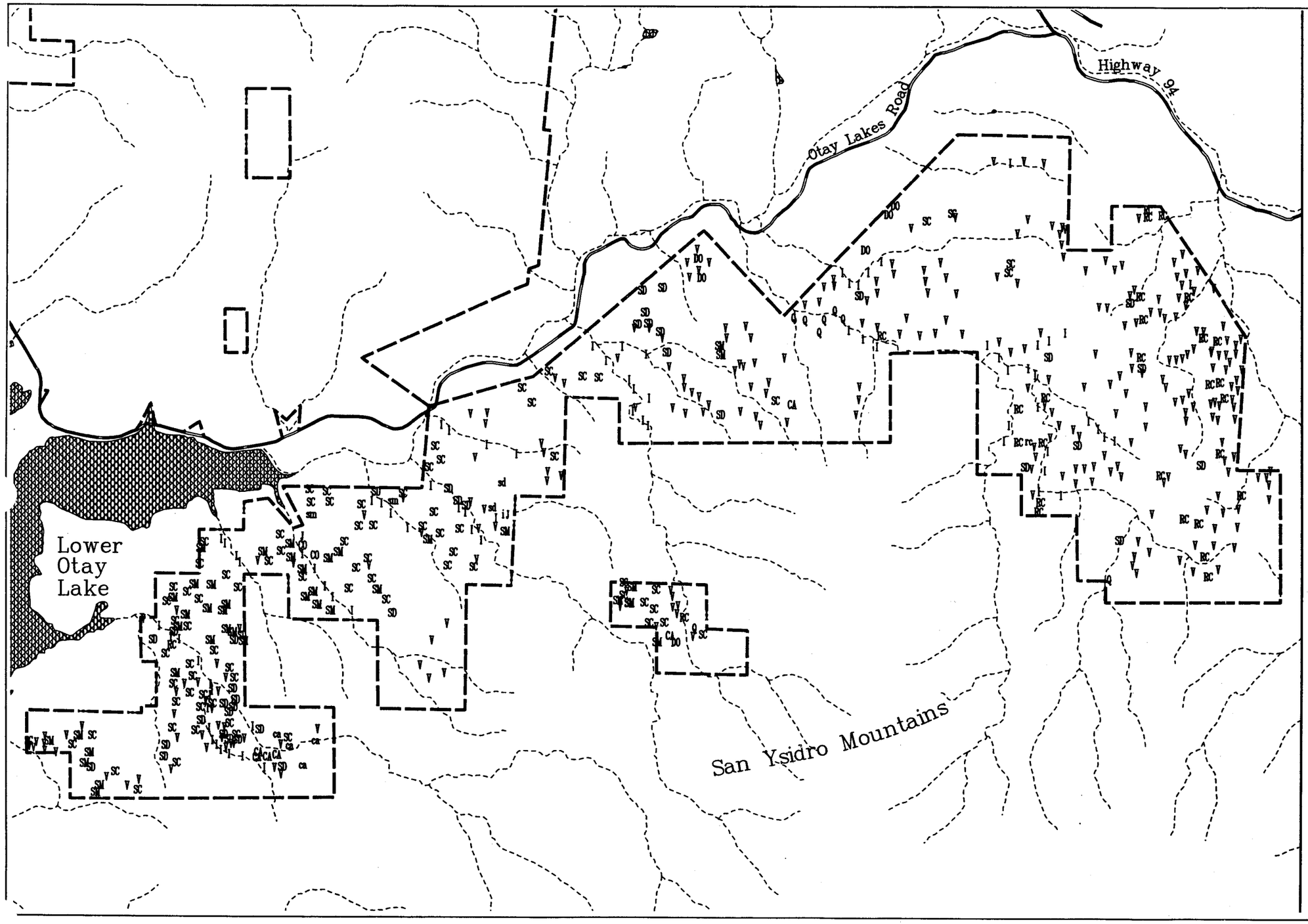
FIGURE
3.3-2d



OGDEN

Sensitive Plants Priority 3 and 4 within Proctor Valley Parcel

FIGURE 3.3-2e



Sensitive Plants Priority 3 and 4

A	Adolphia californica
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Lowercase letters indicate historic sightings

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N

0 3000

FEET

OGDEN

Sensitive Plants Priority 3 and 4 within San Ysidro Parcel

FIGURE

3.3-2f

Table 3.3-2

DISTRIBUTION OF SENSITIVE PLANT SPECIES OCCURRING ON OTAY RANCH

Mountainous Areas, Predominantly Chaparral (Jamul Mountain, Callahan Mountain, Otay Mountain, and San Miguel Mountain)

Otay Manzanita	*Arctostaphylos otayensis*
Dense Reed Grass	*Calamagrostis densa*
San Miguel Savory	*Calamintha chandleri* = *Satureja chandleri*
Dunn's Mariposa Lily	*Calochortus dunnii*
Slender-pod Caulanthus	*Caulanthus stenocarpus*
Southern Mountain Misery	*Chamaebatia australis*
Campo Clarkia	*Clarkia delicata*
Summer-holly	*Comarostaphylos diversifolia* ssp. *diversifolia*
Tecate Cypress	*Cupressus forbesii*
Mexican Flannelbush	*Fremontodendron mexicanum*
Gander's Pitcher-sage	*Lepechinia ganderi*
Chaparral Pea	*Pickeringia montana* ssp. *tomentosa*
Engelmann Oak	*Quercus engelmannii*
Coulter's Matilija Poppy	*Romneya coulteri*
Narrow-leaved Nightshade	*Solanum tenuilobatum*

Coastal Sage Scrub, Scrub Habitat in Lower Elevations

San Diego Bur-sage	*Ambrosia chenopodiifolia*
Western Dichondra	*Dichondra occidentalis*
California Spinebush	*Adolphia californica*
San Diego Coast Barrel Cactus	*Ferocactus viridescens*
Snake Cholla	*Opuntia parryi* var. *serpentina*
Greene's Ground-Cherry	*Physalis greenei*
Munz's Sage	*Salvia munzii*
Ashy Spike-moss	*Selaginella cinerascens*
San Diego County Needlegrass	*Stipa diegoensis*
San Diego Sunflower	*Viguiera laciniata*

Table 3.3-2
(Continued)

DISTRIBUTION OF SENSITIVE PLANT SPECIES OCCURRING ON OTAY RANCH

Clay Soils Associated With Native Grassland and Scrub Habitats

San Diego Thorn-mint	*Acanthomintha ilicifolia*
Orcutt's Brodiaea	*Brodiaea orcutii*
Variegated Dudleya	*Dudleya variegata*
Palmer's Grappling-hook	*Harpagonella palmeri var. palmeri*
Otay Tarplant	*Hemizonia conjugens*
San Diego Goldenstar	*Muilla clevelandii*

Vernal Pools

San Diego Button-celery	*Eryngium aristulatum* var. *parishii*
Little Mousetail	*Myosurus minimus* var. *apus*
San Diego Navarretia	*Navarretia fossalis*
California Adder's-tongue Fern	*Ophioglossam lusitanicum* ssp. *californicum*
California Orcutt Grass	*Orcuttia californica*
Otay Mesa-mint	*Pogogyne nudiuscula*

Floodplains and Intermittent Streams

San Diego Sagewort	*Artemisia palmeri*
Orcutt's Bird-beak	*Cordylanthus orcuttianus*
San Diego Marsh-elder	*Iva hayesiana*
Spiny Rush	*Juncus acutus* var. *sphaerocarpus*
Willowy Monardella	*Monardella linoides* ssp. *viminea*

Table 3.3-3

NUMBER OF SENSITIVE PLANT SPECIES ACCORDING TO RARITY AND HABITAT AFFINITY

	Rarity Codes[1]				
	1	2	3	4	Totals
Mountainous areas, predominantly chaparral/oak woodlands	3	7	1	4	15
Coastal sage scrub, lowland scrub habitats	0	2	6	2	10
Floodplains and intermittent streams	1	0	3	1	5
Vernal pools or closely associated	3	2	0	1	6
Clay soils associated with native grasslands or scrub habitats	2	3	1	0	6
TOTALS	9	14	11	8	42

1 Rarity codes were assigned as follows:

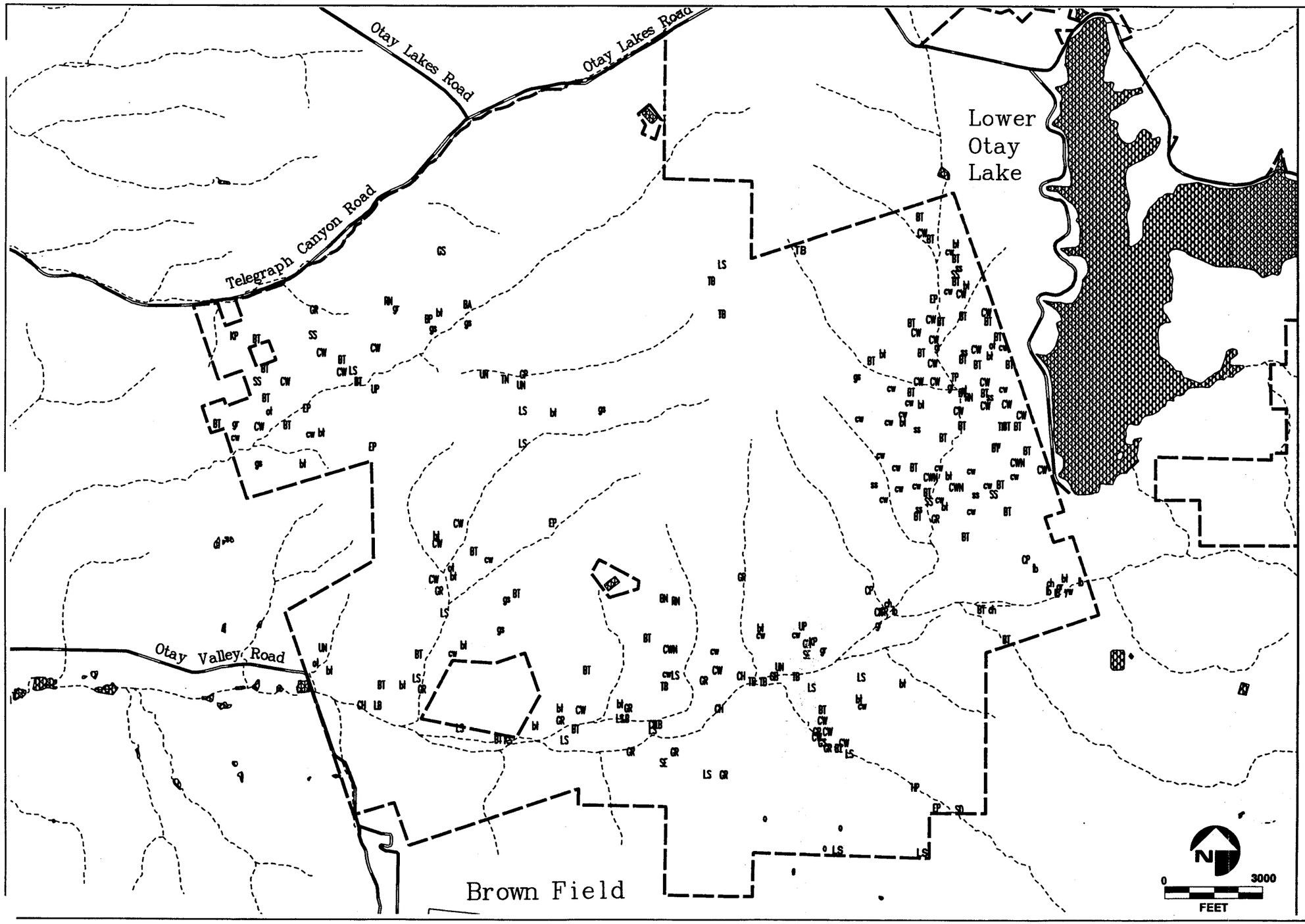
1 State-listed rare or endangered
2 Federal Category 2 candidate or CNPS List 1B
3 CNPS List 2 or 3
4 CNPS List 4

species, known only from five pools in Riverside County (Skunk Hollow area) and two pools in San Diego County (Otay Ranch and NAS Miramar) (USD Biology Dept. 1990). This species was found in the J30 pool complex on Otay Mesa. It is the rarest fairy shrimp in California and has been proposed as endangered by the U.S. Fish and Wildlife Service (Fed. Reg. 11/12/91). *Branchinecta sandiegensis* is a newly discovered species and currently is being described. It has been found only on the San Diego Mesa complex; on Otay Ranch it occurs in pool groups J30 and J25. A petition to list *Branchinecta sandiegensis* as endangered has been prepared. Both of these species have the potential to occur in other vernal pool complexes on Otay Ranch. A detailed discussion of the ecology and habitat requirements of vernal pool fairy shrimp is presented in the report "Sensitive Faunal Elements of the Vernal Pools of Otay Ranch" (Report number 17, in the Otay Ranch Technical Reports, Volume IV, Biology).

The project area is within the historic distribution of four sensitive (federal C1 and C2 candidate) butterfly species: Harbison's dun skipper (*Euphyes vestris harbisoni*), Hermes copper butterfly (*Lycaena hermes*), Thorne's hairstreak (*Mitoura thornei*), and Quino checkerspot (*Euphydryas editha quino*). Neither of the first three species has been recently reported in the project vicinity, and Quino checkerspot butterfly may be locally extirpated due to habitat conversion and degradation and has not been reported from Otay Ranch since about 1980 (R. Allen, personal communication, 1990 Dudek and Associates, 1991). Potential habitat within property boundaries for these four butterfly species is illustrated in Appendix A (Figure A-4a-c).

The Quino checkerspot (a federal C1 species) is difficult to census due to its limited period of emergence (4 to 8 weeks, mid-January through April) and its habit of entering diapause for periods of up to 5 or 7 years (Allen 1990). Habitat for this species is low foothills, mesas, and lake margins, and south-facing slopes of small hills and rises where exposure to the winter sun is greatest (Allen 1990). The principal food plant of Edith's checkerspot is a native annual plantain (*Plantago insularis*), which has not been recorded onsite by either ~~PSBS (1987)~~ RECON (1991)or MBA (1989). Quino checkerspot also utilize *Plantago erecta* and may use other native plantain species as hosts (Dudek and Associates 1991). Preferred habitat is open coastal sage scrub ~~or~~ with vernal pools supporting larval host plants. Populations of this species may still be extant on the ranch in Otay Mesa grassland and vernal pool areas, around the southeastern shores of Lower Otay Lake, in Little Cedar and Cedar Canyons, on the lower reaches of Jamul Mountains surrounding Upper Otay Lake, and in Proctor Valley (Allen 1990). Quino checkerspot have not been documented on the Otay Ranch since 1980 (Dudek and Associates 1991). Historically, the species has been reported within the project boundaries at the K6 vernal pool area, Proctor Valley, the western slopes of the San Ysidro mountains, and Jamul Creek east of the Borderland Air Field. In addition to loss of habitat, drought conditions and unique metapopulation dynamics may have contributed to the decline of this species (Dudek and Associates 1991). The U.S. Fish and Wildlife Service (USFWS) has received a petition to list Edith's checkerspot butterfly as endangered (N. Gilbert, personal communication, 1989).

The Hermes copper butterfly (a federal C2 species) is known only from about Fallbrook southward into Baja California and within 40 miles of the coast. Populations of this species are closely confined to the vicinity of the host plant (*Rhamnus crocea*, redberry) (Emmel and Emmel 1973). The host plant is found throughout the project area in coastal sage scrub and southern mixed chaparral communities and is not confined geographically or by soils. Hermes copper frequently feed upon flat-topped buckwheat (*Eriogonum fasciculatum*) (Dudek and Associates 1991). Loss of habitat to development and wildfire, combined with the sedentary behavior of the Hermes copper, have contributed to its decline. It currently occupies less than half of its former range in San Diego County.



Sensitive Animals

State and Federal Listed
LB Least Bell's vireo

Petitioned/Proposed for Listing
PT Western pond turtle
BT California gnatcatcher
CW Cactus wren
CWN Cactus wren with active nest
TB Tri-colored blackbird

Protected
KP Black-shouldered kite perch

Candidate for Listing
LS Loggerhead shrike
RB Coastal rosy boa
RC Rufous-crowned sparrow
SD San Diego horned lizard
SS Sage sparrow
TS Two striped garter snake
OT Orange-throated whiptail

Species of Special Concern
BA American badger
CH Yellow-breasted chat
CN Cooper's hawk nest
CP Cooper's hawk perch
EP Golden eagle perch
HP Northern harrier perch
O Burrowing owl
YW Yellow warbler

Locally Sensitive
BG Blue-gray gnatcatcher
BH Black-crowned night heron
BN Common barn owl nest
BP Commonbarn owl perch
GB Great blue heron
GH Green-backed heron
GS Grasshopper sparrow
SP Red-shouldered hawk perch

Other Sightings of Interest
BC Bobcat
GP Great horned owl perch
GR Blue grosbeak
KS California king snake
M Mountain lion sign
RN Common raven nest
RP Raptor perch site
RS Probable raptor nest site
SE Snowy egret
ST Swainson's thrush
TN Red-tailed hawk nest
TP Red-tailed hawk perch
UN Unknown raptor nest
UP Unknown raptor perch
VR Verified raptor nest site

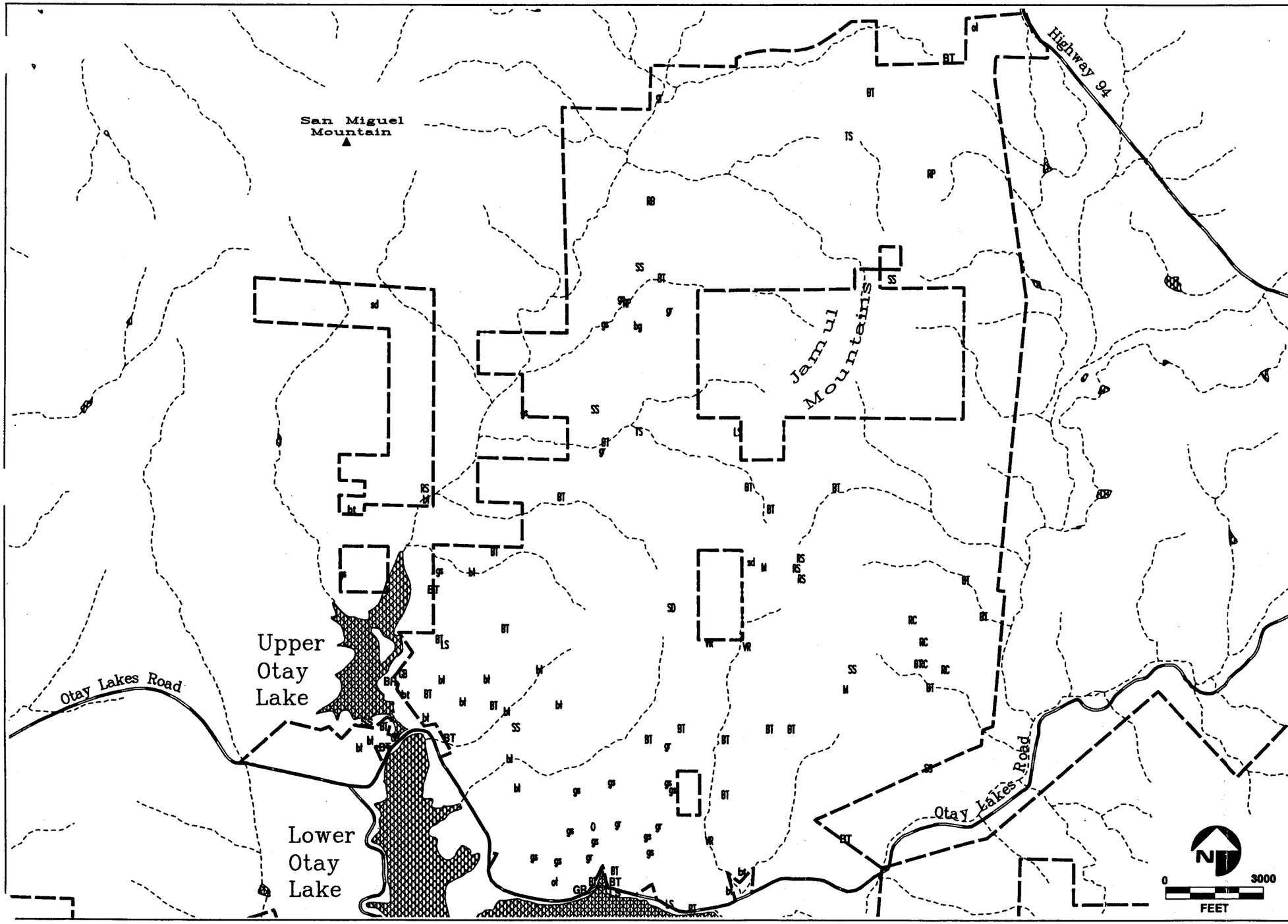
Lowercase letters indicate historic sightings

Uppercase letters indicate recent (1989 and later) sightings

OGDEN

Sensitive Animals within Otay River Parcel

FIGURE
3.3-3a



Sensitive Animals

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PT Western pond turtle
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GR Blue grosbeak
KS California king snake
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RS Probable raptor nest site
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ST Swainson's thrush
TN Red-tailed hawk nest
TP Red-tailed hawk perch
UN Unknown raptor nest
UP Unknown raptor perch
VR Verified raptor nest site

Lowercase letters indicate historic sightings

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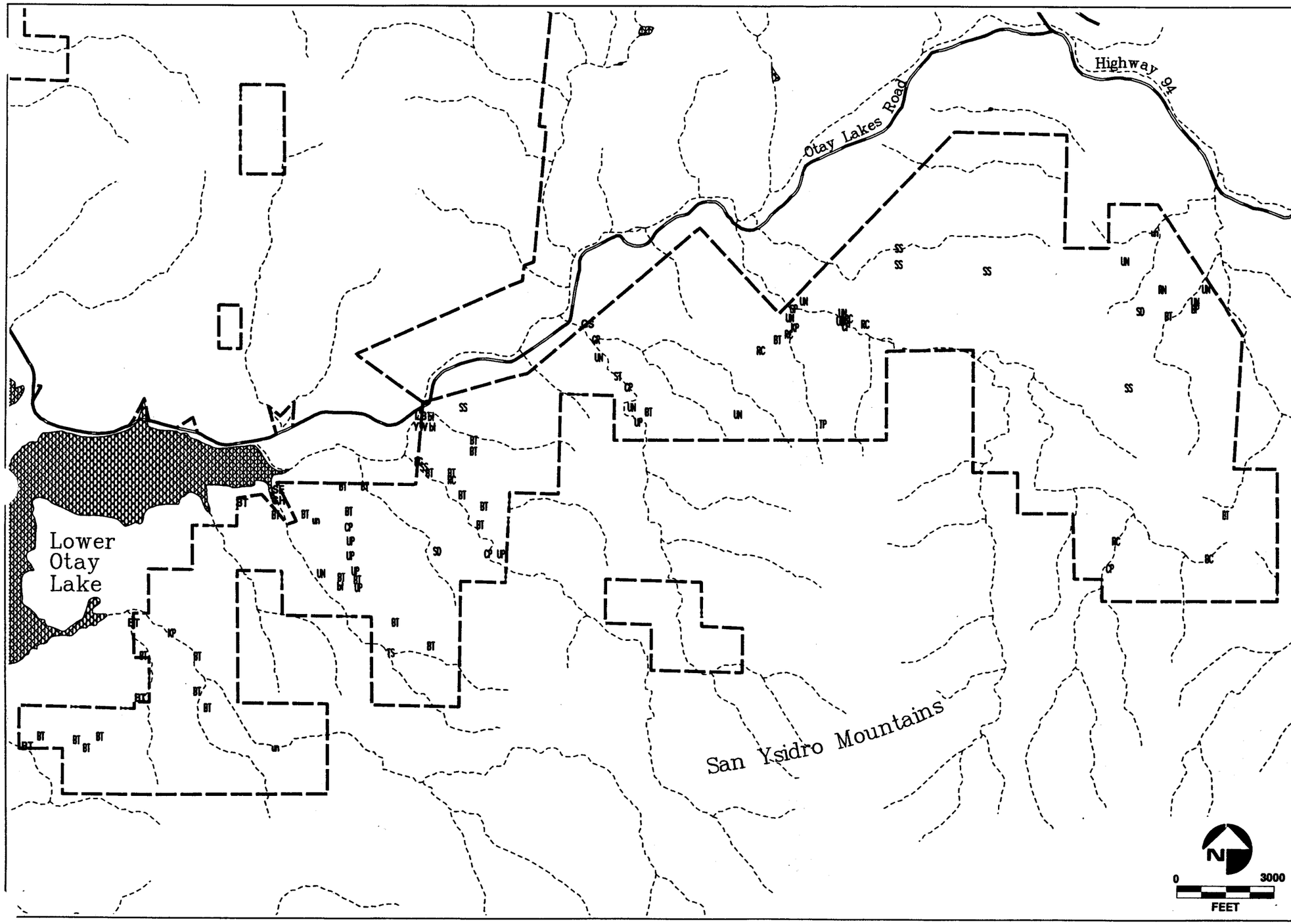
OGDEN

Sensitive Animals within Proctor Valley Parcel

FIGURE
3.3-3b



Sensitive Animals

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CW Cactus wren
CWN Cactus wren with active nest
TB Tri-colored blackbird

Protected
KP Black-shouldered kite perch

Candidate for Listing
LS Loggerhead shrike
RB Coastal rosy boa
RC Rufous-crowned sparrow
SD San Diego horned lizard
SS Sage sparrow
TS Two striped garter snake
OT Orange-throated whiptail

Species of Special Concern
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SP Red-shouldered hawk perch

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GP Great horned owl perch
GR Blue grosbeak
KS California king snake
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RS Probable raptor nest site
SE Snowy egret
ST Swainson's thrush
TN Red-tailed hawk nest
TP Red-tailed hawk perch
UN Unknown raptor nest
UP Unknown raptor perch
VR Verified raptor nest site

Lowercase letters indicate historic sightings

Uppercase letters indicate recent (1989 and later) sightings

OGDEN

Sensitive Animals within San Ysidro Parcel

FIGURE
3.3-3c

Within Otay Ranch, this species has historically been reported in the Jamul Creek area east of the Borderland Air Field. Hermes copper is a likely resident on Otay Ranch property in coastal sage scrub and chaparral habitats with redberry and flat-top buckwheat.

Thorne's hairstreak (a federal C2 species) is known only from Otay Mountain in San Diego County where it flies in close association with its larval food plant, Tecate cypress (*Cupressus forbesii*) (Garth and Tilden 1986). Wildfire or other catastrophic events that might destroy Tecate cypress stands on Otay Mountain present a serious threat to Thorne's hairstreak (Dudek and Associates 1991). On Otay Ranch this species is expected to occur in stands of Tecate cypress.

Harbison's dun skipper (a federal C2 species) has not been documented on Otay Ranch property, although it has been recorded in nearby Dulzura Creek and Otay Mountain (Dudek and Associates 1991). This species is found in San Diego and Orange Counties at the interface of riparian oak woodland and chaparral habitats where a water source supports the larval host plant, San Diego sedge (*Carex spissa*). Development and the introduction of pollutants and invasive, non-native plants have eliminated the host plant from historically important colonies, causing extirpation of Harbison's dun skipper at these locales (Brown and McGuire 1983, Dudek and Associates 1991). San Diego sedge has been reported in oak woodlands in the Proctor Valley and San Ysidro parcels on Otay Ranch. It is highly likely that Harbison's dun skipper is a resident within the project in these oak riparian habitats (Dudek and Associates 1991).

Amphibians and Reptiles

Eight reptile and amphibian species with a sensitivity status of at least federal candidacy or CDFG Sepcies of Special Concern were observed onsite during the course of general biological surveys. Another nine species with state or federal sensitivity could also occur onsite.

~~Six~~ Nine amphibian and reptile species with both federal candidacy and CDFG Species of Special Concern status could occur on Otay Ranch. ~~Two~~ Four of these species were observed, the San Diego horned lizard, ~~and the~~ orange-throated whiptail, Coronado skink, and northern red diamond rattlesnake.

San Diego horned lizard is a federal C2 species, a CDFG Species of Special Concern, and considered endangered by the San Diego Herpetological Society. The species is found only in extreme southwestern California, from the coast to the foothills and valleys of the Peninsular ranges and inhabits open coastal sage scrub, grassland, and broadleaf woodland habitats. It requires large open areas of sandy soil, often on mesas, within these habitats and forages primarily on ants. San Diego horned lizard populations are declining due to habitat loss and destruction and commercial or hobby collecting (McGurty 1980). It was detected in all three parcels of Otay Ranch and offsite along the proposed route for South Dam Road ("A" Way) and on BLM roads.

Orange-throated whiptail is a federal C2 species, a CDFG Species of Special Concern, and is considered threatened by the San Diego Herpetological Society. Distribution of orange-throated whiptail is from coastal San Diego south to the tip of Baja California. This species is found on mesas, dry rocky hillsides, ridges, and valleys in open coastal sage scrub and chaparral plant communities. Urban and agricultural development of orange-throated whiptail habitat has led to a decline in its abundance (McGurty 1980). On Otay Ranch, this species was detected on the Otay River and Proctor Valley parcels.

The Coronado skink is a subspecies of the western skink and is a federal candidate and CDFG Species of Special Concern. This species inhabits a variety of open habitats from grasslands, coastal sage scrub, and chaparral to open woodlands. Rocks, rotting logs, and leaf litter provide cover for this species. A Coronado skink was observed in the Proctor Valley parcel (MBA 1989).

Northern red diamond rattlesnake, a federal candidate and CDFG Species of Special Concern, occurs in coastal sage scrub, chaparral, and open woodlands. It is often near rocks or dense vegetation. This species was observed in the Otay River and Proctor Valley parcels.

~~Four~~ Five other reptile and amphibian species with both federal candidacy and CDFG Species of Special Concern status may occur onsite but were not detected during generalized biological surveys. Specialized surveys are often necessary to detect these species. California red-legged frog and the southwestern pond turtle have been recently petitioned for endangered species status. ~~both~~ Both of these species prefer slow-moving, ponded water habitats; neither ~~of these species was~~ was detected onsite. The California red-legged frog and southwestern pond turtle both require vegetative cover over the water, and a water depth of at least three feet. While the red-legged frog will disperse after rains into woods and meadows, the pond turtle travels farther into upland habitats to find suitable nesting sites. There is only a low potential for their occurrence in ~~the~~ small ponds onsite and in degraded habitat on the Otay River ~~on Otay Ranch~~. The southwestern pond turtle was observed offsite at Upper Otay Lake in 1991 (Ogden, unpublished data). The arroyo southwestern toad ~~prefer~~ could occur in sandy washes and drainages in drier habitats ~~which are also present~~ onsite. It is often associated with riparian fringes and could occur along the Otay River as well as other drainages onsite. San Diego mountain kingsnake inhabits coniferous woodlands and coastal mixed chaparral habitat. This species has a very low potential to occur in cypress forest present on the property. The coast patch-nosed snake would be expected to occur in grassland, chaparral, coastal sage scrub, and agricultural habitats onsite. It is often associated with sandy or rocky areas.

Two federal C2 reptile species are known to occur in aquatic or moist habitats in San Diego County. The two-striped garter snake inhabits wetlands and is found in freshwater marsh and riparian habitats. A two-striped garter snake was observed in a pond in the Otay River parcel by RECON (1989). This species was also detected in the Proctor Valley and San Ysidro parcels in 1991 by Ogden. The San Diego ringneck snake prefers moist habitats. This species was not observed, but would be expected in chaparral and woodland areas near watercourses.

~~Five~~ Three federal candidate species (coastal western whiptail, San Diego banded gecko, ~~northern red diamond rattlesnake~~, and coastal rosy boa, ~~and coast patch-nosed snake)~~ inhabit brushland-type habitat in San Diego County and may occur on the property in the larger undisturbed patches of these habitats. Coastal western whiptail ~~and northern red diamond rattlesnake~~ were detected in the Otay River parcel. ~~The latter species was also observed in Proctor Valley~~. There was a single sighting of a coastal rosy boa in the Jamul Mountains in the Proctor Valley parcel in 1991. There were no sightings of San Diego banded gecko ~~or coast patch-nosed snake~~ on Otay Ranch.

Three reptile and amphibian CDFG Species of Special Concern were either detected or could occur onsite. The western spadefoot toad is an amphibian that was detected on Otay Ranch during baseline surveys (MBA 1989). This species inhabits grasslands and open shrublands with ephemeral water sources such as vernal pools. Spadefoot toads burrow deep into the ground in upland habitats for most of the year. They come out briefly to forage and breed in temporary water sources when rain and temperature conditions are

appropriate (USD Biology Department 1990). The sandstone night lizard and silvery legless lizard were not detected onsite during general biological surveys. The sandstone night lizard requires large granite or sandstone outcrops where it lives in crevices. It is found in chaparral, scrub, and woodland habitats. The silvery legless lizard is found in a variety of open habitats where it requires sand, loose soil, or leaf litter for burrowing. On Otay Ranch this species could occur in sparse chaparral, coastal sage scrub, woodlands, or streamside vegetation.

Birds

Twenty-two avian species with high sensitivity status were detected on Otay Ranch during baseline surveys in 1988 and 1989 (ASI 1988, MBA 1989, and RECON 1991) and wildlife corridor and raptor surveys in 1991-92 by Ogden. One state and federal endangered species, three species petitioned for state or federal listing, ~~eleven~~ twelve CDFG Species of Special Concern, ~~eight~~ four federal candidate species, and two species with ~~proposed~~ federal ~~endangered~~ candidacy and CDFG Species of Special Concern status were observed within the project area. Twelve additional species with lower levels of sensitivity were also observed.

The least Bell's vireo is a state- and federally-listed endangered bird species that inhabits riparian vegetation in southern California. Habitat loss due to channelization of drainages and mining activities has reduced available habitat for this species, causing this vireo to diminish in numbers. Least Bell's vireo have been observed in eight different locations along the Otay River between 1988 and 1991. During 1991, three male vireos were observed along the Otay River on Otay Ranch property. Breeding was suspected, as singing males were encountered fairly regularly. In 1988, four vireos were also observed in the Otay River parcel. A minimum of seven singing males were detected adjacent to the San Ysidro parcel along Dulzura Creek between the east end of Lower Otay Lake and Otay Lakes Road in 1991 (Ogden, unpublished data). At least nine male least Bell's vireos occur further east in riparian habitat along Dulzura Creek, just north of the eastern section of this portion of the property (RECON 1991).

Two other sensitive bird species, yellow-breasted chat and yellow warbler, occur in riparian habitat along Dulzura Creek and Otay River. Both species are CDFG Species of Special Concern and prefer dense riparian woodland habitats. Both species were observed in the Otay River parcel and along Dulzura Creek adjacent to the San Ysidro parcel.

Coastal sage scrub habitat on Otay Ranch supports relatively large populations of California gnatcatcher and coastal cactus wren, two highly sensitive species. California gnatcatcher was proposed for listing as a federal endangered species in September 1991. In ~~September~~ 1993~~2~~, a decision should be made by the United States Fish and Wildlife Service (USFWS) as to whether or not the California gnatcatcher is an endangered species. In fall of 1991, CDFG commissioners rejected a petition to elevate the California gnatcatcher as a candidate endangered species. Currently, the gnatcatcher is a CDFG Species of Special Concern and a federal C2 species.

California gnatcatcher is a resident species restricted to coastal sage scrub habitat in southwestern California, from the Los Angeles basin south to Baja California. Extensive loss of coastal sage scrub habitat due to urban and agricultural development has led to a decline in the population of this species in southern California (Unitt 1984). Brown-headed cowbird parasitism may also be contributing to the decline of this species. A recent study of the ecology of California gnatcatcher at a site along the Sweetwater River documented brown-headed cowbird parasitism in three nests in 1991 (Ogden, unpublished data).

The USFWS (1991) estimate~~s~~d that a total of 1,800 to 2,300 gnatcatcher pairs occur in California. Regionally, the California gnatcatcher is distributed throughout the remaining non-urbanized portions of the coastal plain of San Diego County where suitable habitat exists.

California gnatcatcher occurs on all three parcels of the property. Baseline survey data from 1988 to 1990 together with incidental sightings in 1991 (Ogden, unpublished data) yield ~~an~~ minumum estimate of 140-150 California gnatcatcher pairs on Otay Ranch. This estimate is based on surveys during drought conditions. In years following more favorable weather conditions, it is expected this estimate would increase. The discing of western Salt Creek and Poggi Canyon after 1988 has decreased the estimate to approximately 120-140 pairs currently onsite. The Otay Ranch gnatcatcher population makes up from six to eight percent of the total estimated population of gnatcatchers in the United States. The Otay River parcel supported an estimated 73 pairs of California gnatcatchers at the start of the environmental documentation process in 1988. Currently, the parcel ~~currently~~ supports an estimated ~~50~~ 60 to ~~55~~ 65 pairs which occur in areas of undisturbed coastal sage scrub habitat. The gnatcatcher populations on the San Ysidro parcel (30-35 pairs estimated) are concentrated on the western side of the parcel. There were also additional sightings in 1991 in the eastern San Ysidro parcel, which expanded the distribution of this species in the project area. A population of at least 40 pairs are in the Proctor Valley parcel, concentrated on the lower south-facing slopes of the Jamul Mountains near Lower Otay Lake, in successional scrub habitat south of the hunting lodge, and in several locations in the southern part of Proctor Valley. California gnatcatchers were detected in 1991 in the extreme northeastern portion of the Proctor Valley parcel where they had not been previously reported (Ogden, unpublished data). The vast majority of the sightings were below the 700-foot elevation contour in canyons and on gentle slopes with sufficient plant cover. Populations onsite are presently contiguous with populations to the west on Salt Creek Ranch, Bonita Meadows, Otay Mesa, and the lower Sweetwater River Valley. The ranch was resurveyed for this species in 1991, but a report of the survey results is not available.

Cactus wrens are distributed throughout California deserts and in coastal valleys. A distinct subspecies, the coastal cactus wren, has been proposed (Rea and Weaver 1990). Coastal cactus wren is distributed from southern Orange County into coastal San Diego County and extreme northwestern Baja California. A petition has been made to the USFWS to list the coastal cactus wren as an endangered subspecies. The coastal cactus wren is considered a federal C2 species and CDFG Species of Special Concern. The ~~coastal~~ cactus wren inhabits coastal sage scrub habitat, where it is restricted to thickets of cactus (Unitt 1984). Urbanization of coastal areas has resulted in the decline of this species in San Diego County (Rea and Weaver 1990). A large ~~coastal~~ cactus wren population is located in the Salt Creek drainage which contains large patches of maritime succulent scrub. It is estimated that at least 35 pairs of cactus wren currently inhabit Otay Ranch. Prior to discing in 1988, additional ~~coastal~~ cactus wren pairs occurred west of Salt Creek and in Poggi Canyon. The ~~coastal~~ cactus wren is most concentrated in the Salt Creek Canyon area of the ranch but also occurs in Johnson Canyon, Wolf and Poggi canyons, ~~and~~ on the slopes of the Otay River Valley, and on Otay Mesa.

A detailed raptor study was conducted on breeding and wintering raptor species on Otay Ranch in 1991 and 1992 (Ogden, 1992 ~~in preparation~~). Foraging, nesting, and roosting areas were identified on all three parcels. Initial field effort during the breeding season was highest for the Otay River parcel, as it will be developed first. Subsequent winter survey effort was equally distributed among the three different parcels. Thirteen sensitive raptor species were observed on Otay Ranch. Table 3.3-4 presents an estimate of the number of

Table 3.3-4

ESTIMATED NUMBER OF BREEDING RAPTOR PAIRS ON OTAY RANCH DURING THE 1991 BREEDING SEASON (APRIL THROUGH JULY)

Species	Number of Breeding Raptor Pairs			
	Otay River Valley	Jamul Mountains/ Proctor Valley	San Ysidro Mountains	Total for the Three Parcels
Black-shouldered kite	1	0	0	1
Northern harrier	4	0	0-1	4-5
Cooper's hawk	0	0	1-4	1-4
Red-shouldered hawk	0	1	0	1
Red-tailed hawk	9-10	2-3	3-5	14-18
Golden eagle	0	1	1-2	2-3
American kestrel	4-6	5-6	3	12-15
Great-horned owl	3	0	0-3	3-6

breeding raptors utilizing Otay Ranch during 1991. Raptor sightings and nest locations during the breeding and wintering periods appear in Appendix A (Figure A-5).

The black-shouldered kite is listed as a California Fully Protected Species by CDFG. ~~The~~ This species nests in riparian, oak, and sycamore woodlands. It forages in grasslands and open fields, feeding almost exclusively on voles and other small mammals. Black-shouldered kite, an uncommon breeding species, is more abundant during the winter in San Diego County (Unitt 1984). Individuals were observed in Poggi Canyon and in the Otay River Valley on the Otay River parcel, in a canyon on the west side of the Otay Mountains, and in Dulzura Creek near its intersection with Otay Lakes Road. A pair of black-shouldered kites unsuccessfully attempted to nest in the Otay River parcel in 1991. The male was captured early in the nesting attempt, and a radio transmitter was attached for monitoring of habitat use. Predation of the young resulted in abandonment of the nest. There were no other breeding kites observed on the Otay Ranch in 1991. Winter surveys indicated the presence of 2-3 individuals in the Proctor Valley and Otay River parcels.

Northern harrier is considered a Species of Special Concern by CDFG. This raptor ranges throughout California and occurs in grasslands, agricultural fields, and marshes. Northern harrier is common in San Diego County during winter months, occurring as a migrant and winter visitor. It is a rare summer resident, and is known to breed only in coastal valleys and possibly in Borrego Valley (Unitt 1984). One pair of breeding northern harriers was monitored with radio telemetry in the Otay River parcel. Predation of nestlings caused abandonment of the nest site. There was evidence of three other pairs nesting adjacent to or within the Otay River parcel. Two pairs successfully produced young and were observed using the Otay River parcel. It is possible that breeding may have been attempted in the San Ysidro parcel, although no nest was discovered. Northern harriers were frequently observed on all three parcels during the breeding and non-breeding periods.

Cooper's hawk is a CDFG Species of Special Concern. It ranges through most of California and is a common migrant and rare summer resident in San Diego County. Cooper's hawk breed almost exclusively in oak woodland in the county. However, in winter the species can be found in a wide variety of woodland habitats (Unitt 1984). Cooper's hawk were observed in all three parcels. A nest with a single nestling was found in oak woodland near Hubbard Springs in July 1991. The nest was subsequently depredated. Inactive nests suggestive of Cooper's hawk were detected in oak woodlands in Little Cedar Canyon, Cedar Canyon, and southwest of Hubbard Springs in the San Ysidro parcel. Riparian habitat along Dulzura Creek adjacent to the San Ysidro parcel also supports suspected Cooper's hawk nests.

Red-shouldered hawk is considered sensitive by the National Audubon Society (Tate 1986). This species inhabits riparian woodlands and often uses open fields for hunting. Red-shouldered hawk were observed in the Otay River and Proctor Valley parcels and adjacent to the San Ysidro parcel.

Golden eagle is considered a Species of Special Concern and a California Fully Protected Species by CDFG. The species is also protected under the Bald Eagle Protection Act. It ranges throughout the United States, but is more common in the western half of the country. Three adult pairs and three immature golden eagles were observed utilizing Otay Ranch during the 1991 raptor study. Historic nesting areas for golden eagle were reported adjacent to Otay Ranch on San Miguel Mountain, Jamul Mountains, and San Ysidro Mountains (Scott 1985 and pers. comm.). There was no evidence of breeding during 1991, although courtship displays were observed in January 1992 and a the San Miguel Mountain pair was known to have bred in 1992 (J. Colton pers. comm.).

Five additional sensitive raptor species were observed during the winter on Otay Ranch. Osprey, prairie falcon, sharp-shinned hawk and merlin are CDFG Species of Special Concern and were detected in the project area. Ferruginous hawk, a federal C2 species, was also observed. Open grassland habitats provide foraging opportunities for the prairie falcon, merlin, and ferruginous hawk in the Otay River Valley and at the northern end of the Proctor valley parcel. Sharp-shinned hawks were observed foraging in all three parcels in scrub and wooded habitat. Two osprey wintered in the study area and were frequently observed foraging for fish in Lower Otay Lake. Osprey were detected onsite, although they occurred primarily in adjacent offsite habitat along the lakeshore.

Burrowing owl is a CDFG Species of Special Concern. Burrowing owl range throughout California, occurring in arid grassland and open shrub communities. In San Diego County, the species historically occuredS throughout coastal lowlands and the Borrego Valley (Unitt 1984). This species is rapidly declining in southern California with only scattered populations remaining in San Diego County (Bloom, pers. comm.). Loss of habitat is the primary reason for population decline and has led the CDFG to consider listing the species. This species typically constructs nests in ground squirrel burrows. Burrowing owl were detected on the Otay River and Proctor Valley parcels. Three burrowing owl sightings were recorded in the western parcel by MBA during vernal pool surveys in 1990. The birds were observed on the mesa south of the Otay River Valley and northeast of Brown Field. Burrowing owls were not detected in this area during subsequent raptor surveys by Ogden in 1991, although potential burrow sites were observed. RECON (1991) detected burrowing owl in Poggi Canyon during 1989 surveys. Raptor surveys in 1991 failed to detect any burrowing owl in Poggi Canyon. In January 1992, a burrowing owl was observed in the Proctor Valley parcel on the southern slope of Jamul Mountain.

Long-eared owl is a CDFG Species of Special Concern which inhabits lowland riparian areas in many parts of California (Remsen 1978). This species was formerly a common resident of San Diego County, but has declined in status to that of a rare resident and winter visitor (Unitt 1984). In the late 1970s, long-eared owl were reported from Otay Ranch. During 1991 raptor surveys, feathers of a long-eared owl were discovered in Cedar Canyon. It appeared that the long-eared owl had been preyed upon by an avian predator, such as a great horned owl. It is possible that there are additional long-eared owls in wooded canyons on the property or in adjacent riparian habitat along Dulzura Creek. In early 1992, four long-eared owls were observed offsite, roosting in dense oak scrub in Proctor Valley.

Tricolored blackbird is a federal C2 species ~~which~~ and is proposed for listing as state endangered. This species is highly colonial and nomadic. It is found in wetland habitats in California. Colony sizes and overall populations of tricolored blackbirds have declined dramatically since the 1930s with loss of wetland habitat (Beedy et al. 1991). Tricolored blackbirds were abundant in the Otay River and Proctor Valley parcels during the spring of 1991 (Ogden, unpublished data). A large nesting colony of several hundred pairs was found in the Otay River parcel along the Otay River. The colony was located northwest of the mouth of Johnson Canyon. Tricolored blackbirds were also observed foraging in agricultural fields and grasslands in the two parcels.

Two federal C2 species, loggerhead shrike and California horned lark, were abundant on the Otay Ranch. These species forage in open grassland habitats; loggerhead shrike also require bushes and trees for nesting.

Two federal C2 species inhabiting upland scrub habitats are widespread on all three parcels. Southern California rufous-crowned sparrow inhabits rocky slopes in coastal sage

scrub habitat. Bell's sage sparrow were observed in chaparral and coastal sage scrub bordering chaparral.

Long-billed curlew (federal C3 species) was observed only once flying over the Otay River parcel. This species could occasionally use grasslands onsite. The short-eared owl, a CDFG species of special concern, also utilizes grassland, agricultural, and marshy habitats. A short-eared owl was observed in the Proctor Valley parcel (MBA 1989). Short-eared owl were not observed onsite during the yearlong Otay Ranch Raptor study.

Bird species deemed locally sensitive (Everett 1979) or considered special animals by the CDFG (1992) also occur on the property. Blue grosbeak were observed in all three parcels. This species inhabits riparian scrub and woodland habitats. Grasshopper sparrow were detected on all three parcels and was especially abundant in disturbed grasslands in the Otay River and Proctor Valley parcels. Turkey vultures were observed soaring over the Proctor Valley and San Ysidro parcels. Great blue heron, great egret, snowy egret, green-backed heron, and black-crowned night heron were all observed onsite in riparian habitat.

Several sensitive bird species have the potential to occur on the Otay Ranch property although they were not detected. These are listed below by the habitat type in which they would be expected to occur.

Willow-dominated riparian woodland in the Otay River Valley has the potential to support southwestern willow flycatcher, a federal C1 and state endangered species. This species has been observed historically at Dulzura Creek, adjacent to the San Ysidro parcel. Downy woodpecker, a locally sensitive species (Everett 1979), could also occur in riparian habitat.

Grassland habitats on the site include both native and non-native grasslands and agricultural areas that may support annual grass species. These habitats have the potential for occasional use by mountain plover ~~(a C2 species), and short-eared owl (CDFG Species of Special Concern)~~. Several other sensitive bird species could occur onsite as vagrants or could occur offsite in adjacent habitat. The federally and state-endangered peregrine falcon and bald eagle have a very low potential of occurring onsite. There is a low probability that both species could occur in the winter at Lower or Upper Otay Lakes. Other sensitive species which were observed or could occur on Otay Lakes include the common loon, western grebe, canvasback, redhead, and black tern. These species would not be expected to be residents onsite because of a lack of suitable habitat. The western yellow-billed cuckoo is a state-endangered species. It has historically been a rare breeding resident in dense lowland, riparian woodland in San Diego County and may now be extirpated as a breeding resident (Unitt 1984). It is unlikely the yellow-billed cuckoo would breed on Otay Ranch, although it could pass through during migration.

Mammals

California leaf-nosed bat, Townsend's big-eared bat, and ~~California mastiff~~ pallid bat roost in caves, mining tunnels, and buildings. The California mastiff bat roosts in rock crevices in cliffs. Large rock outcrops on hills and rocky cliffs on the property provide potential habitat for these species. California leaf-nosed and California mastiff bats have been reported from Dulzura, and Townsend's big-eared bats have been reported from Otay Mountain (Bond 1977). The pallid bat historically has been observed roosting on the Otay River parcel and in Dulzura (Bond 1977 and WESTEC 1979). Bat populations are in decline due to extensive loss of habitat to urbanization and agriculture. Widespread use of pesticides may have also reduced insect abundance and poisoned some bats. These ~~three~~ four bat species are CDFG Species of Special Concern. In addition, the California leaf-

nosed bat, Townsend's big-eared bat, and California mastiff bat ~~is a~~ are candidates for federal listing as an endangered species.

Three other bat species with a very low potential to occur onsite except as vagrants are the Mexican long-tongued bat, the spotted bat, and the big free-tailed bat. The Mexican long-tongued bat, a federal candidate and a CDFG Species of Special Concern, has not been documented from the vicinity of Otay Ranch. This species primarily occurs south of the United States in desert habitats. Occasionally it will invade urban San Diego during the winter and feed on pollen and nectar from succulents. The spotted bat is also a state Species of Special Concern and a federal candidate. It is one of the rarest mammals in North America and is known from a single sighting in the La Mesa area of San Diego County. This species typically occurs in desert or open pine forest habitats and would not be likely to occur onsite. The big free-tailed bat could occur onsite in rugged, wooded habitats although it is considered primarily a vagrant to San Diego County (Bond 1977). There are no records of this bat from the Otay Ranch area.

San Diego black-tailed jackrabbit was recently designated a federal C2 species. This species occurs on the west side of the coastal range in San Diego County in open country. San Diego black-tailed jackrabbit were observed on all three parcels.

Pacific little pocket mouse is a federal C2 species and a CDFG Species of Special Concern. The local population belongs to a subspecies which is restricted to coastal areas of extreme southwestern California. This mouse inhabits soils of fine-alluvial sands, and may occasionally be found in coastal sage scrub. It has the potential for occurrence in the western section of the Otay River Valley and other areas with suitable soils. The decline of the Pacific pocket mouse has been attributed to habitat loss due to urbanization, highway construction, and off-road vehicle activity.

San Diego desert woodrat, a federal C2 species, was detected by RECON (1991) in the Otay River and San Ysidro parcels and by MBA (1989) in the Proctor Valley Parcel. The San Diego desert woodrat has also been reported historically in the Proctor Valley area (Bond 1977). The Dulzura California pocket mouse, a federal C2 species, has been reported in Dulzura and may occur in the San Ysidro parcel. This species was not detected onsite; however, no trapping studies were conducted.

Two other federal C2 species occur or may occur on Otay Ranch in open, arid habitats with compact soils. The northwestern San Diego pocket mouse has been recorded in Dulzura and was ~~could occur in the San Ysidro parcel, especially~~ observed onsite by RECON (1991). This species is often found in association with Yucca. Southern grasshopper mouse has also been found in Dulzura and inhabits open areas with a sparse growth of perennial grasses.

Ringtail is a CDFG Fully Protected Species with a potential for occurrence on the property. This species inhabits rocky areas of coastal sage scrub and chaparral habitat in San Diego County, but may occur in other habitat types as well. Ringtails are nocturnal and difficult to observe. The presence of large, relatively undisturbed areas of wilderness quality habitat on and adjacent to the Otay Ranch property indicates that there is potential for the occurrence of this species onsite.

American badger is a CDFG Species of Special Concern that inhabits dry, open habitats. Although the distribution of this species extends well beyond California, the number of badgers in southern California, as well as in the rest of the state, is probably low. One badger den was identified in Poggi Canyon adjacent to agricultural fields. The diet of

badgers includes ground squirrels and other small rodents likely to occur in agricultural areas.

Sensitive Habitats

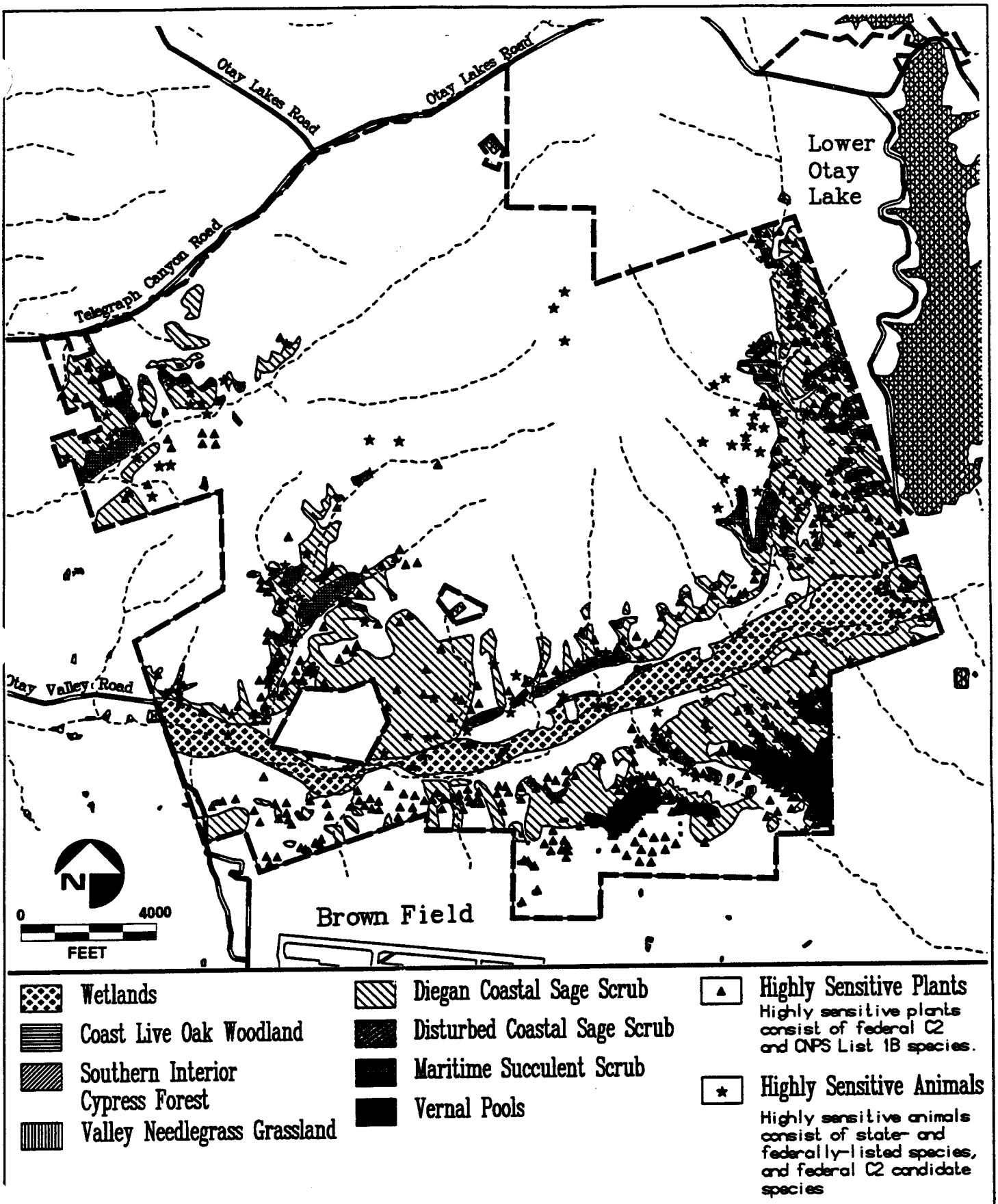
Thirteen sensitive habitats occur on Otay Ranch three of which are considered highest priority. High-priority habitats are those listed on the California Natural Diversity Data Base (CNDDB), while sensitive habitats are those that are either considered rare within the region, listed in the Conservation Element of the General Plan for the County of San Diego (County of San Diego 1980), or support sensitive plants or animals. Appendix A-6 lists the CNDDB priority class with explanations. High-priority habitat types onsite include San Diego claypan vernal pool, southern interior cypress forest, and maritime succulent scrub communities. Sensitive habitats onsite include Diegan coastal sage scrub, valley needlegrass grassland, coast live oak woodland, and wetland habitats. Wetland habitats are subdivided to include seven different types. Areas of clay soils are singled out as a potentially sensitive habitat also. Sensitive habitats cover an estimated 56 percent of the ranch. Sensitive upland habitats along with the most sensitive plant and animal species are mapped in Figures 3.3-4a-c. Wetlands including vernal pools are shown in Figures 3.3-5a-h.

San Diego Claypan Vernal Pool

San Diego claypan vernal pool habitats have declined substantially in San Diego County over the past two decades; an approximate 97 percent loss of the original acreage of vernal pools has occurred in the County according to Oberbauer and Vanderwier (1991). Loss of vernal pool habitat has resulted from land development and highway construction on mesas containing mima mound and pool basin land forms. Vernal pools often support rare plant species and invertebrate animal species because of their unique moisture conditions and chemical properties. The CNDDB ranks this community type in its priority class A2.1, which denotes communities that are very rare and endangered. Vernal pool habitat onsite (see Figures 3.3-5d-h) is represented on the extensive fields of mima mounds on Otay Mesa and on the more disturbed marine terraces above the Otay River Valley and Poggi Canyon in the Otay River parcel. Within the Proctor Valley parcel, vernal pools are represented on the terraces above lower Otay Lake and in Proctor Valley. Within the San Ysidro parcel, vernal pools occur south of the eastern arm of Lower Otay Lake.

The following discussion of the regional vernal pool situation is excerpted from a recent USFWS Biological Opinion.

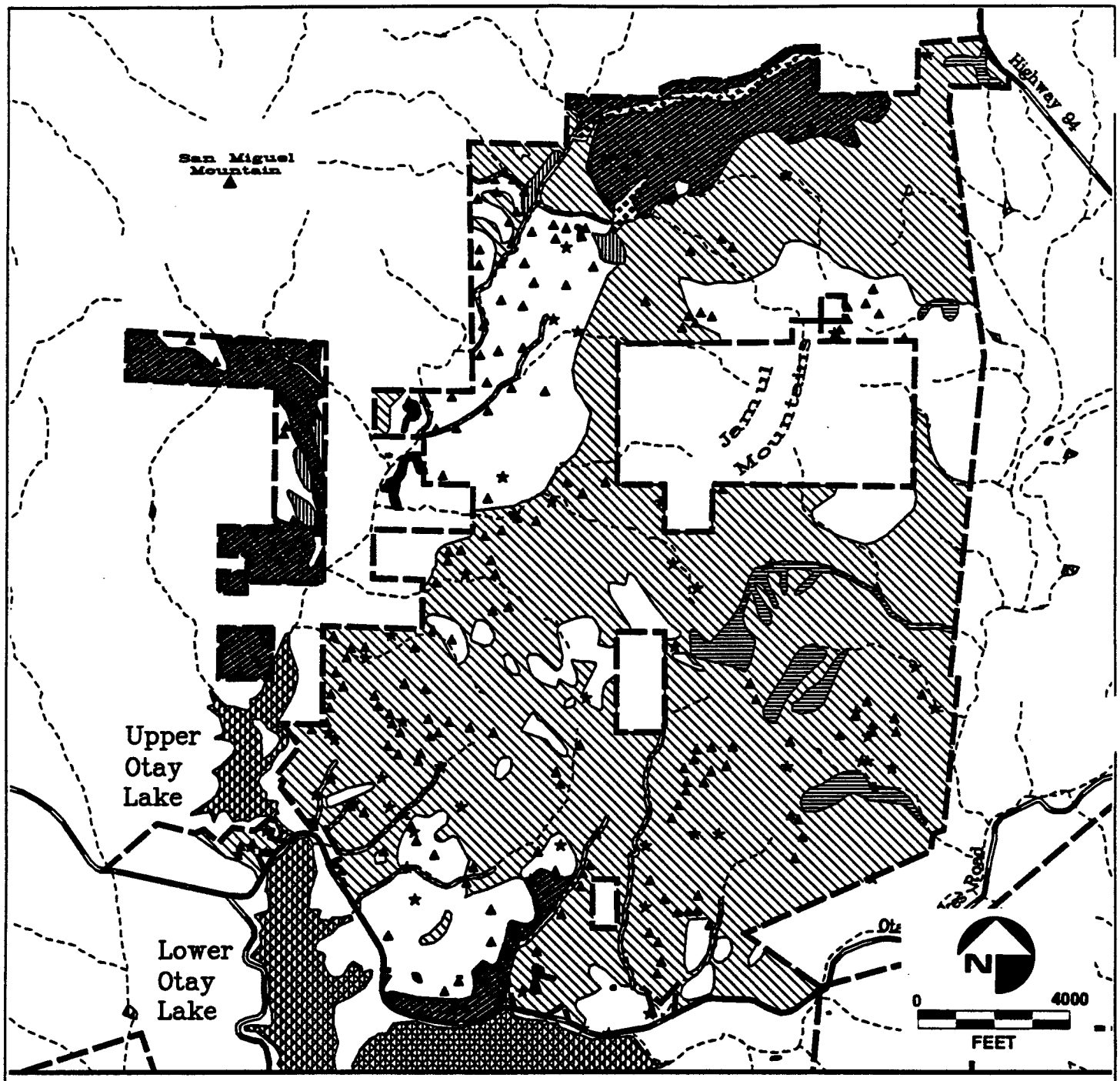
> Within San Diego County, over 93 percent of vernal pool habitat has already been eliminated to date (Bauder 1986). Approximately 28,595 acres of vernal pool habitat (vernal pool habitat consists of the vernal pool, its immediate watershed, and the associated mesa vegetational community) are known to have previously occurred in San Diego County. In 1978, only 2,494 acres or 9 percent remained. Despite the San Diego Vernal Pool Preservation Program enacted by the City in 1980, the remaining 9 percent of vernal pool habitat was reduced such that approximately 1,796 acres (containing approximately 2,657 pools) of vernal pool habitat remain (Bauder 1986). Between 1987 and 1990, an additional 162 pools (on federal and private land) are expected to be destroyed (Bauder 1986). This estimate is fairly conservative. The destruction of vernal pool habitat in this region occurs primarily through housing, commercial development, and highway construction. Additional impacts include off-road vehicle use, agricultural development and illegal dumping. The resulting habitat



OGDEN

Sensitive Habitat within Otay River Parcel

FIGURE **3.3-4a**



Wetlands

Coast Live Oak Woodland

Southern Interior Cypress Forest

Valley Needlegrass Grassland

Diegan Coastal Sage Scrub

Disturbed Coastal Sage Scrub

Maritime Succulent Scrub

Vernal Pools

Highly Sensitive Plants
Highly sensitive plants consist of federal C2 and CNPS List 1B species.

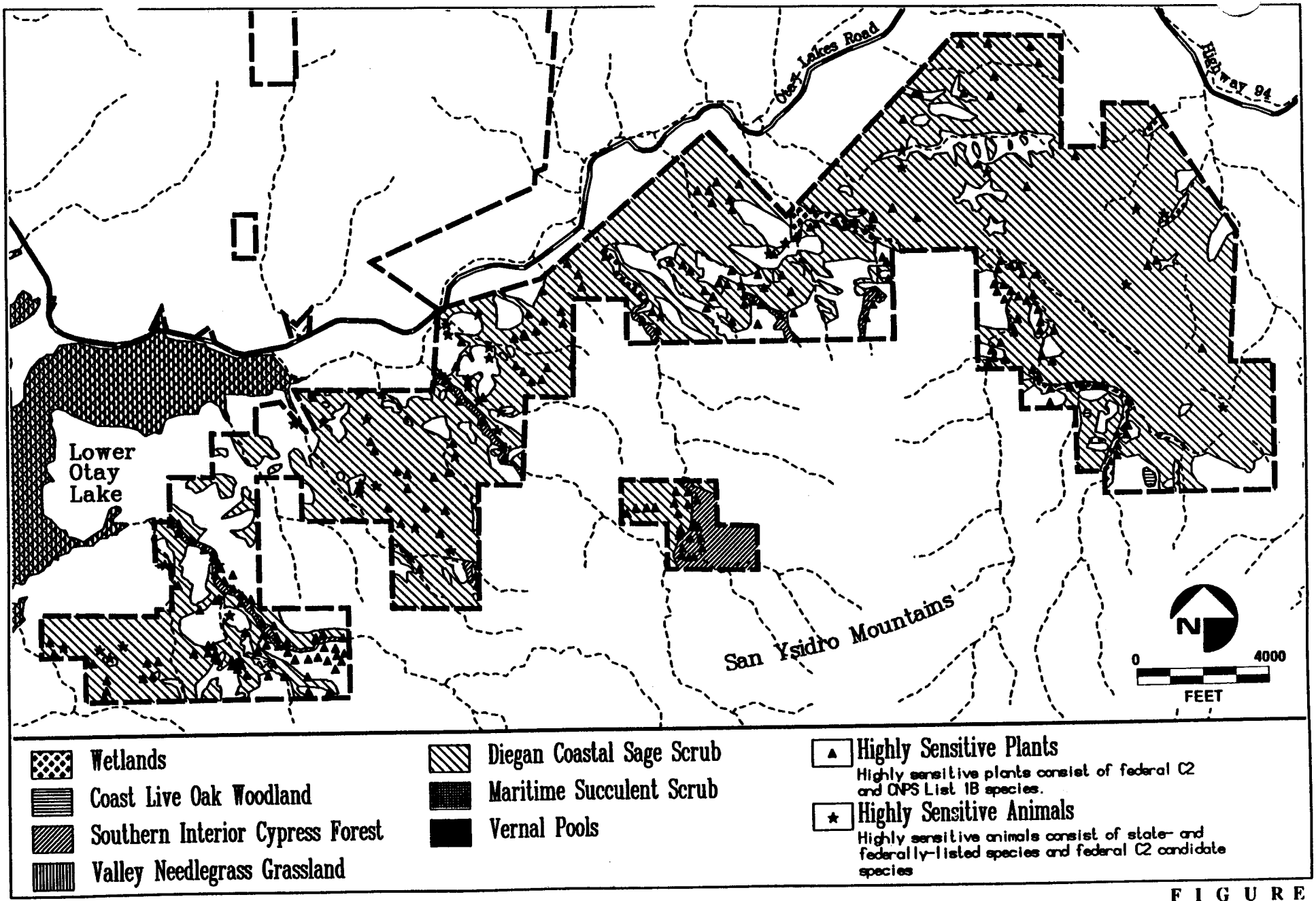
Highly Sensitive Animals
Highly sensitive animals consist of state- and federally-listed species, and federal C2 candidate species

OGDEN

Sensitive Habitat within Proctor Valley Parcel

FIGURE

3.3-4b

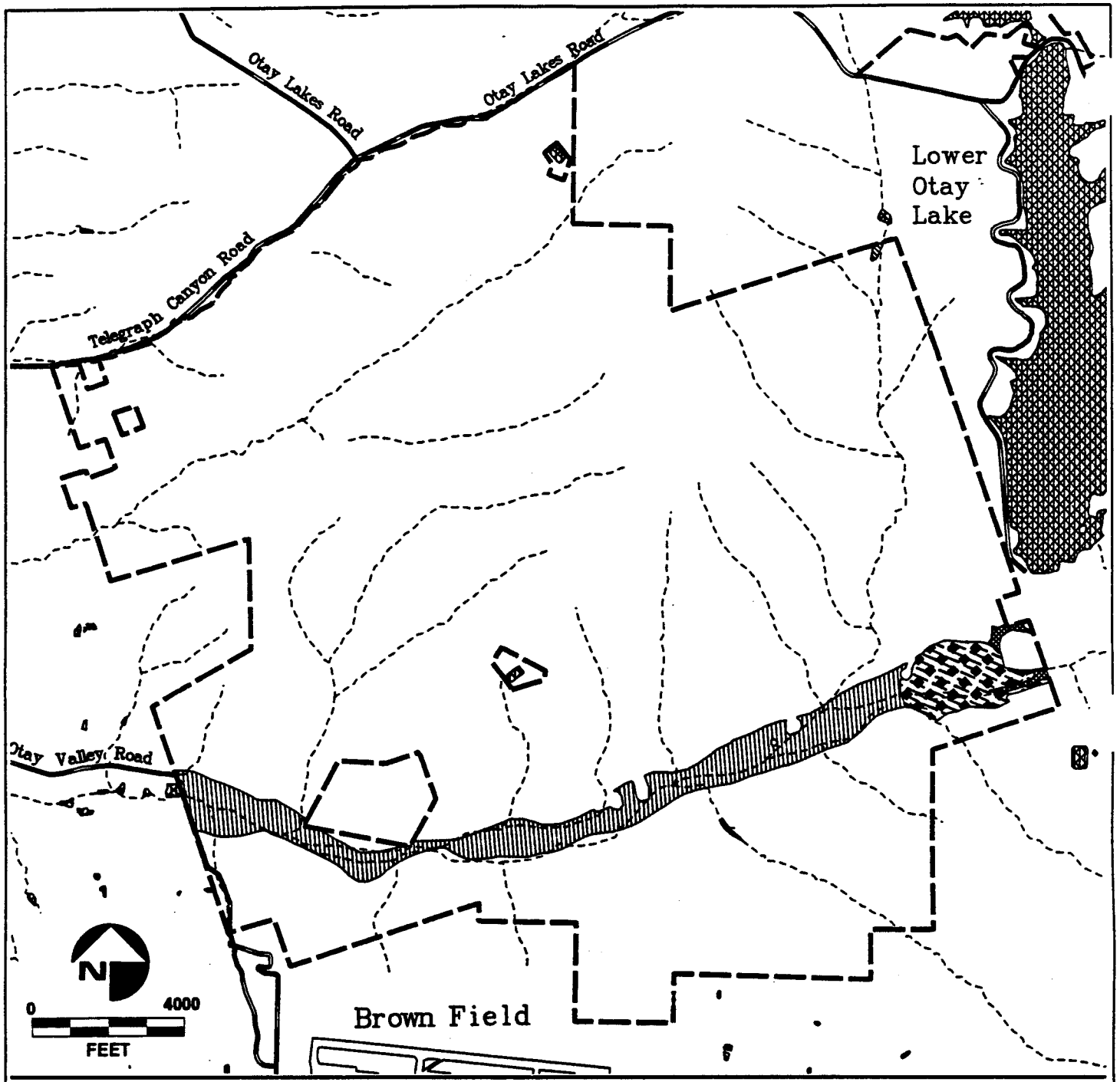


OGDEN

Sensitive Habitat within San Ysidro Parcel

FIGURE

3.3-4c



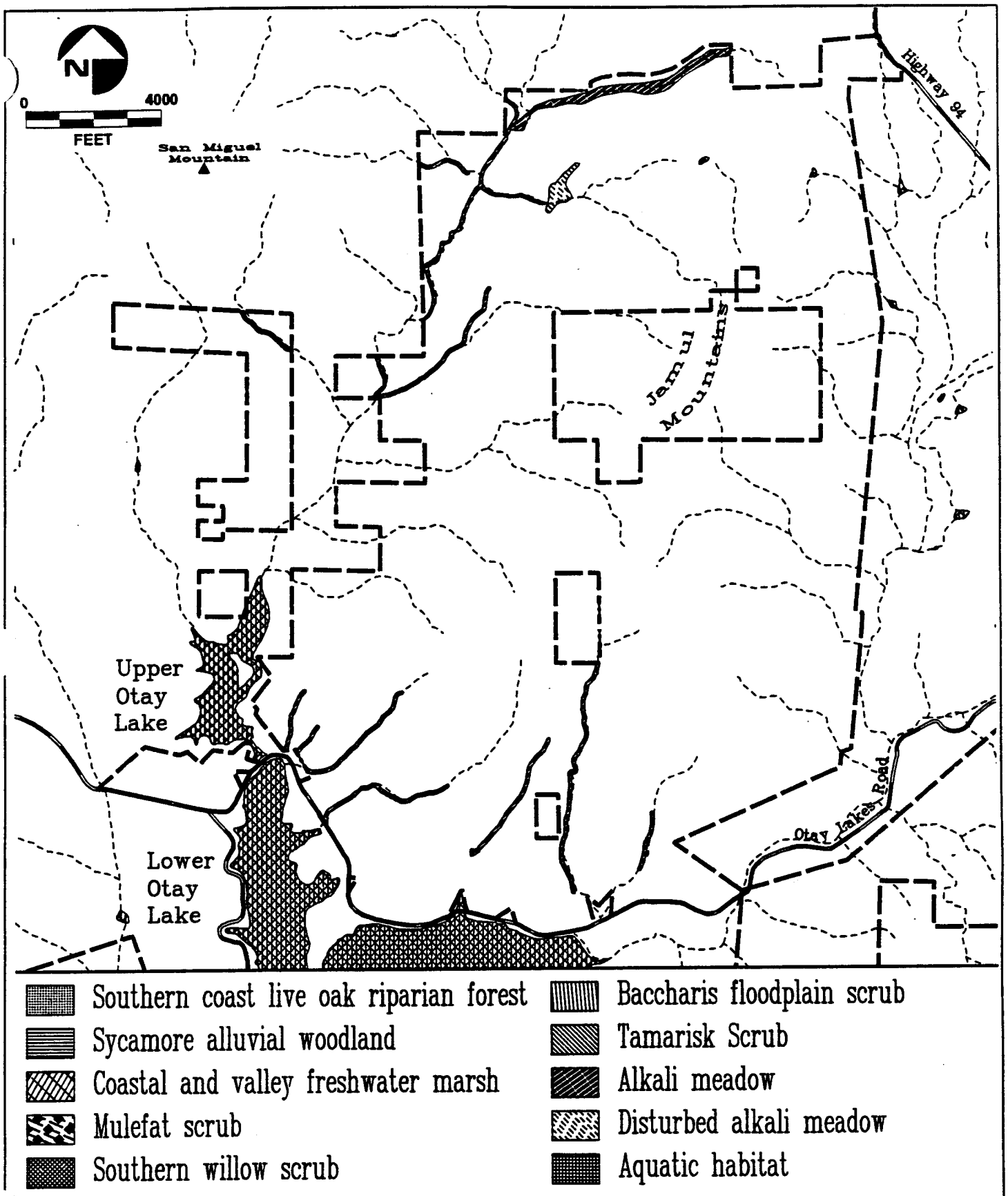
- Southern coast live oak riparian forest
- Sycamore alluvial woodland
- Coastal and valley freshwater marsh
- Mulefat scrub
- Southern willow scrub
- Baccharis floodplain scrub
- Tamarisk Scrub
- Alkali meadow
- Disturbed alkali meadow
- Aquatic habitat

OGDEN

Wetlands within Otay River Parcel

FIGURE

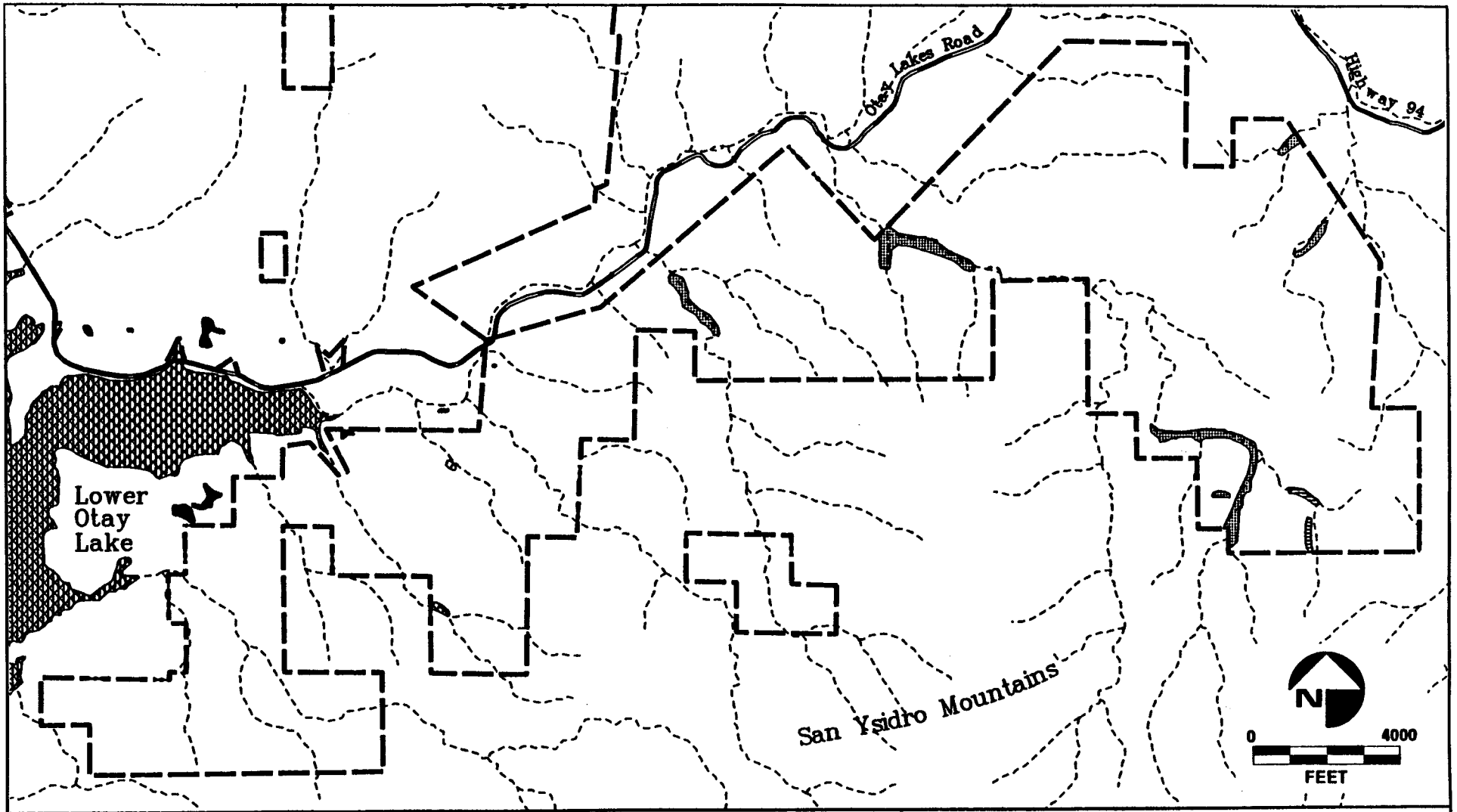
3.3-5a



OGDEN

Wetlands within Proctor Valley Parcel

FIGURE 3.3-5b

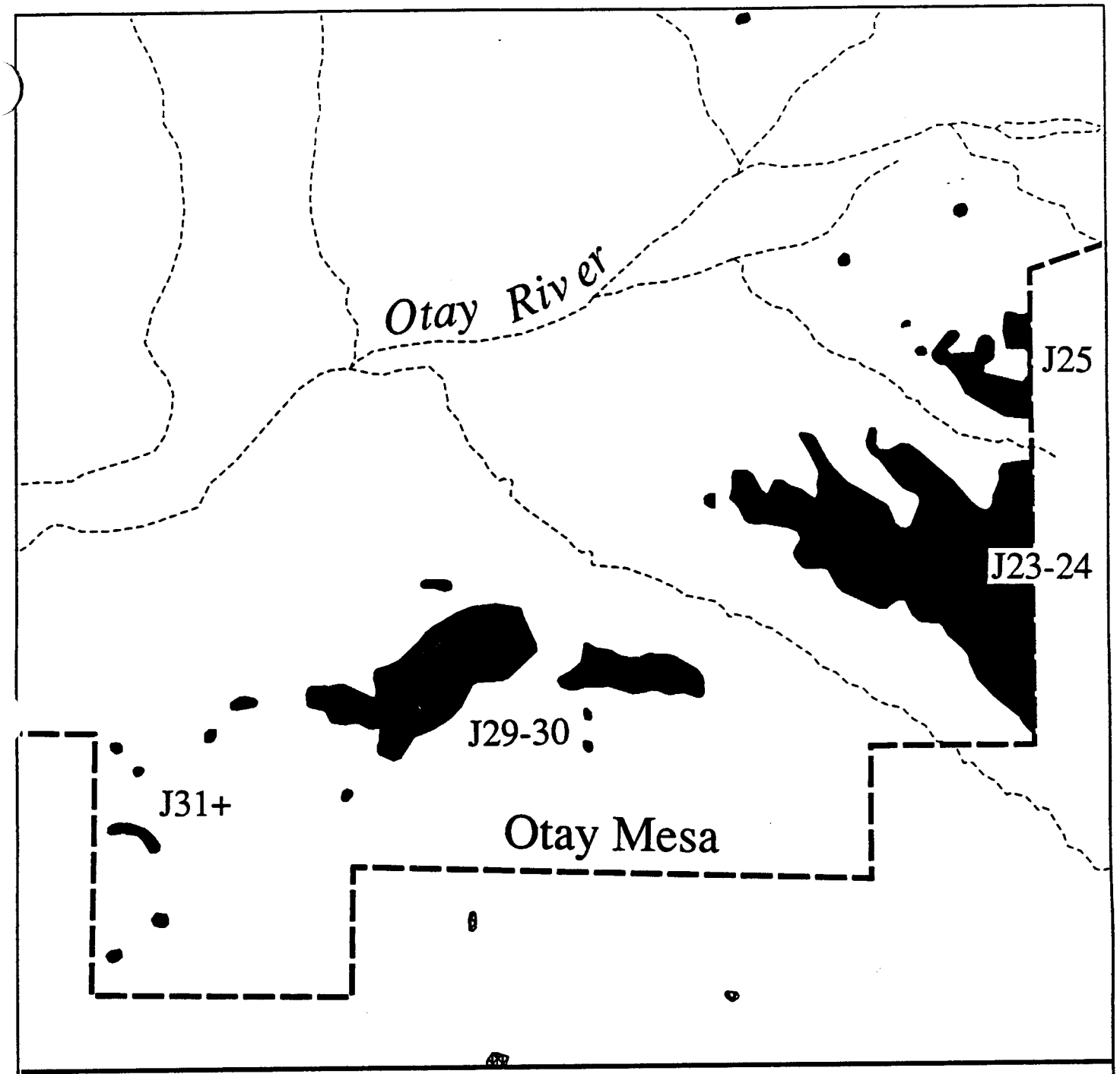


Southern coast live oak riparian forest
Sycamore alluvial woodland
Coastal and valley freshwater marsh
Mulefat scrub
Southern willow scrub
Baccharis floodplain scrub
Tamarisk Scrub
Alkali meadow
Disturbed alkali meadow
Aquatic habitat

OGDEN

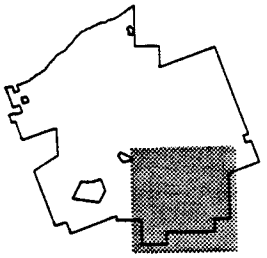
Wetlands within San Ysidro Parcel

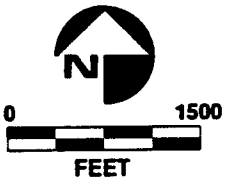
FIGURE 3.3-5c



Vernal Pool Habitat

Includes vernal pools and intervening mima mounds. The habitat does not necessarily include or coincide with vernal pool watershed or buffer area.

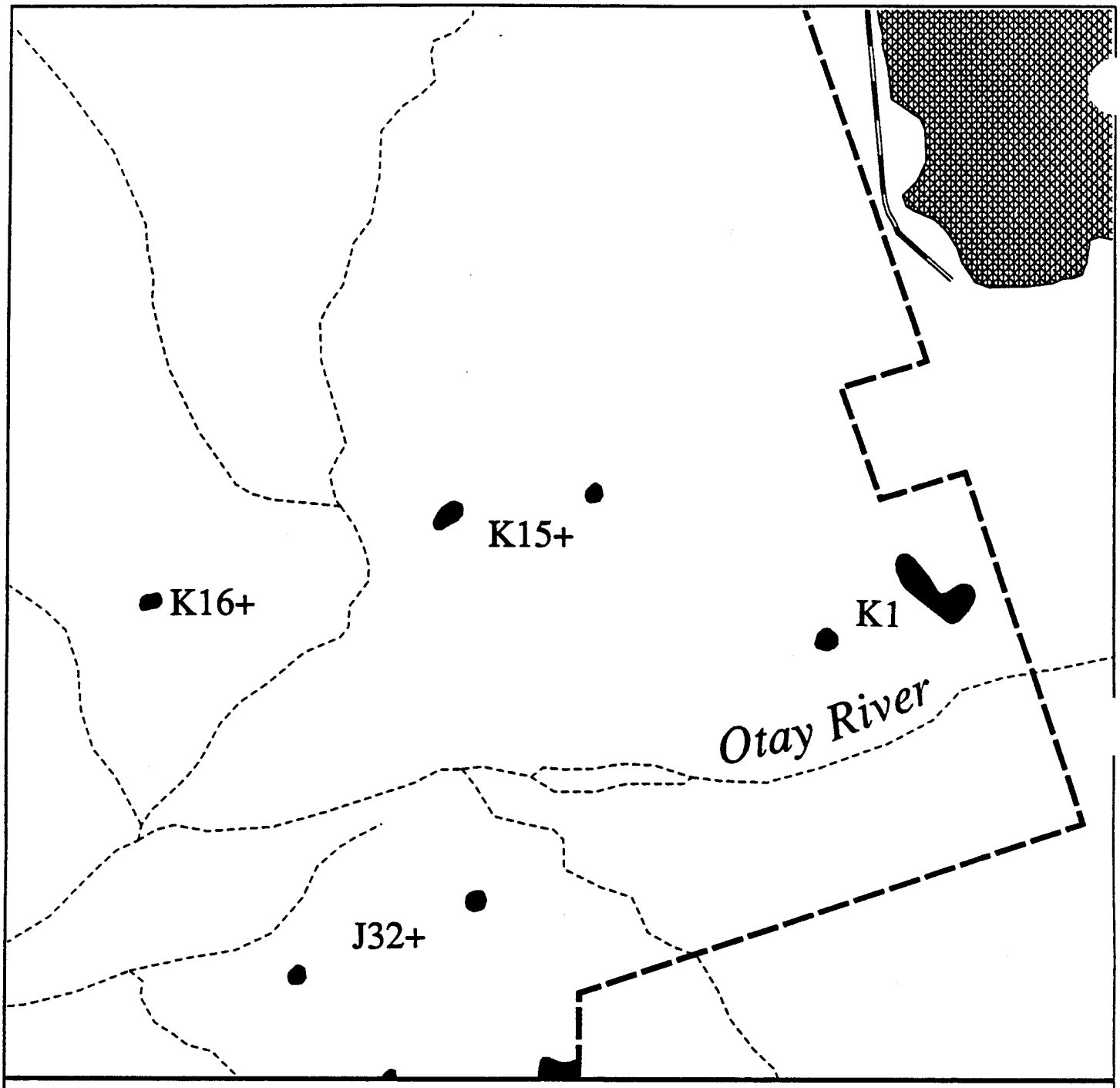




OGDEN

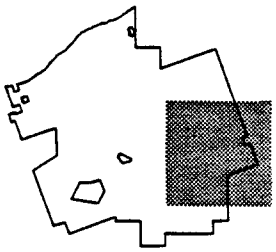
Vernal Pool Habitat within Otay River Parcel

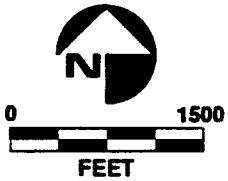
FIGURE 3.3-5d



Vernal Pool Habitat

Includes vernal pools and intervening mima mounds. The habitat does not necessarily include or coincide with vernal pool watershed or buffer area.

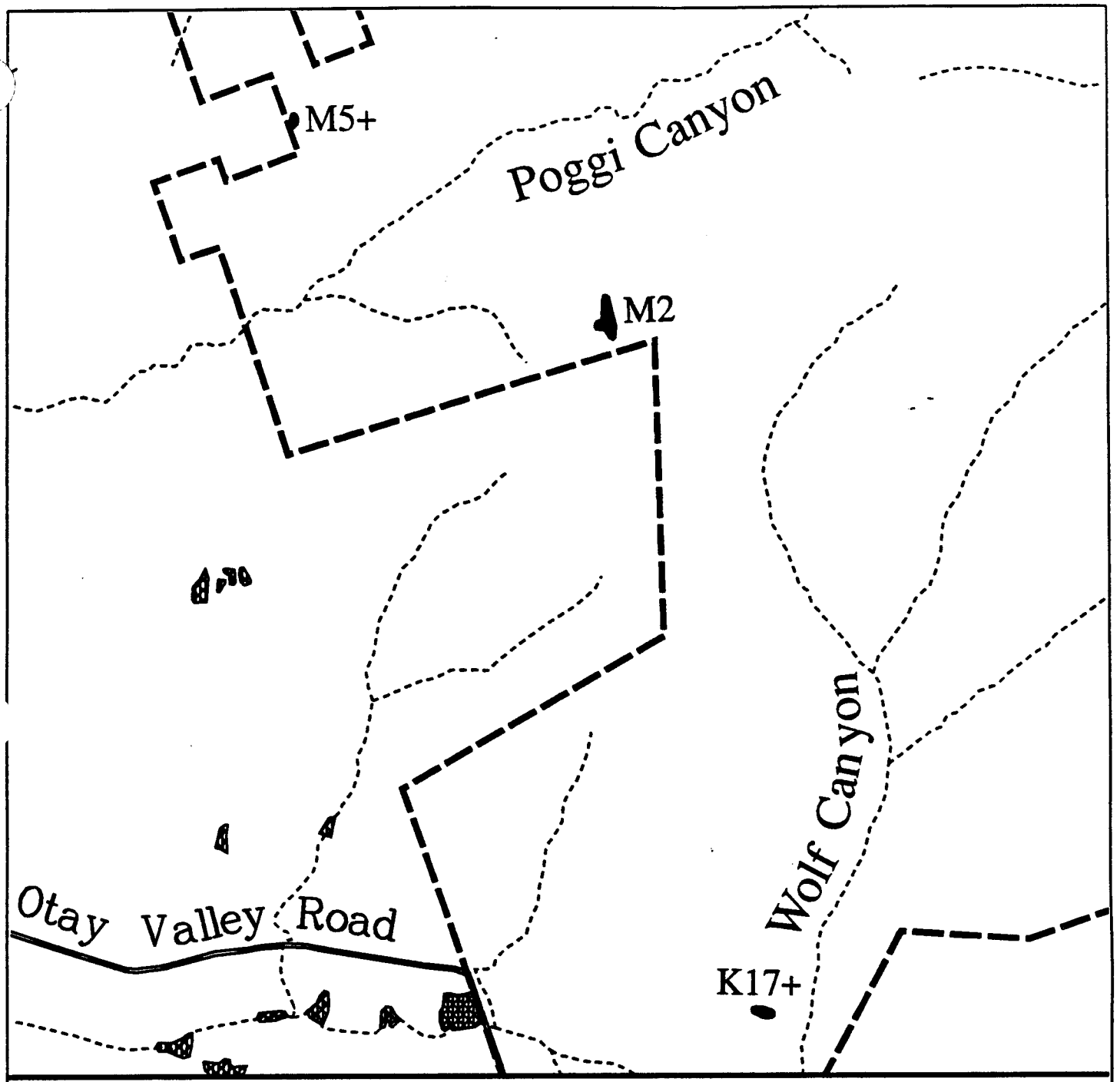




OGDEN

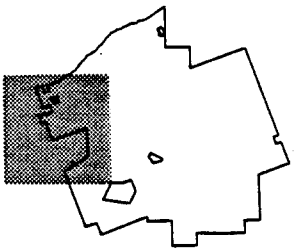
Vernal Pool Habitat within Otay River Parcel

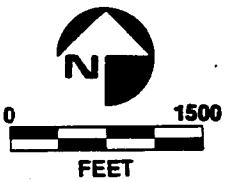
FIGURE 3.3-5e



Vernal Pool Habitat

Includes vernal pools and intervening mima mounds. The habitat does not necessarily include or coincide with vernal pool watershed or buffer area.

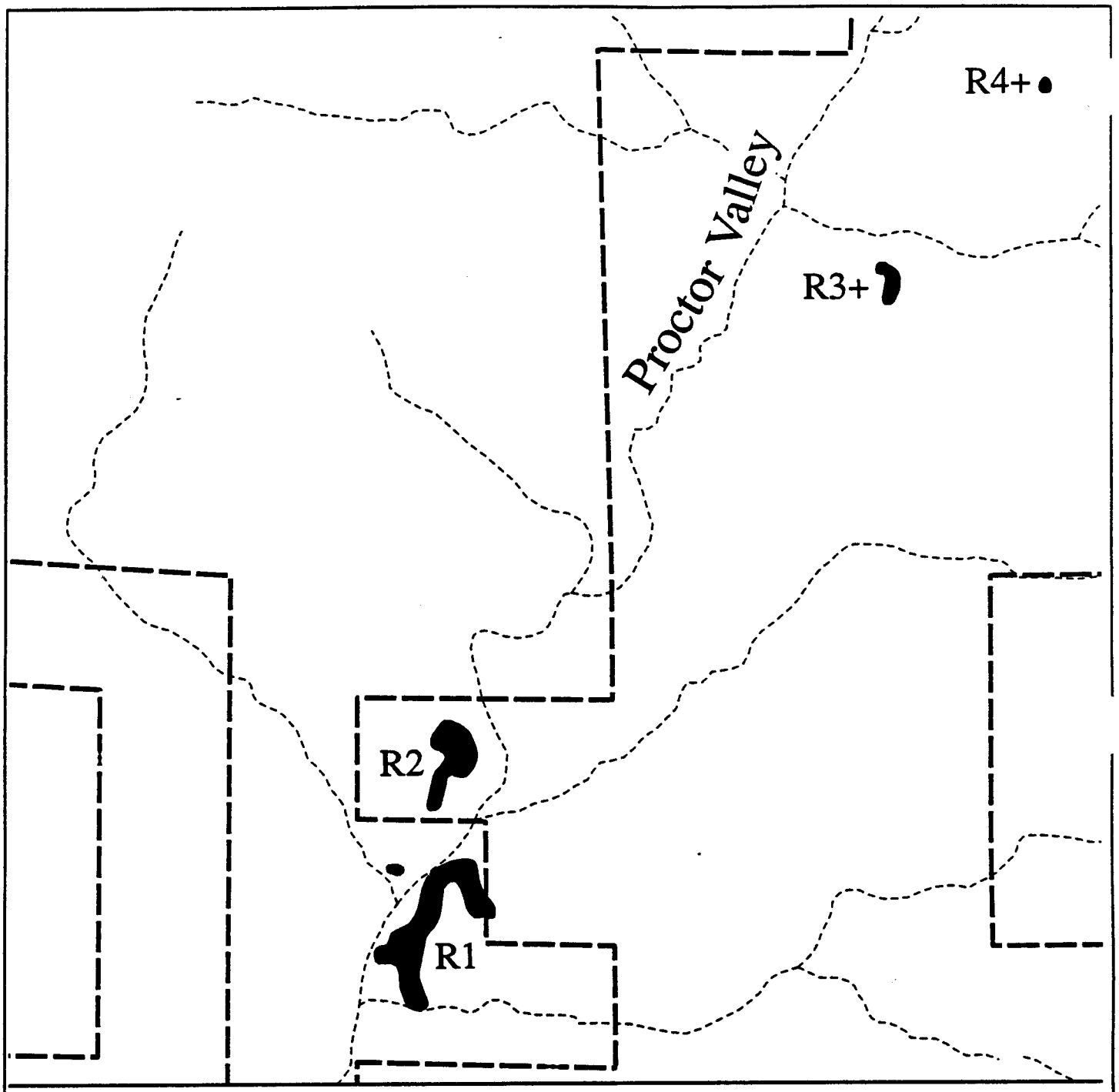




OGDEN

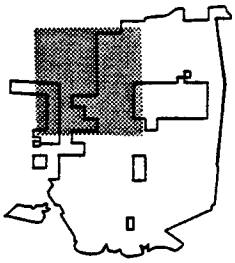
Vernal Pool Habitat within Otay River Parcel

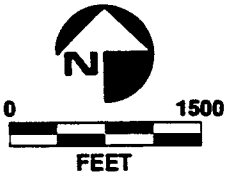
FIGURE 3.3-5f



Vernal Pool Habitat

Includes vernal pools and intervening mima mounds. The habitat does not necessarily include or coincide with vernal pool watershed or buffer area.





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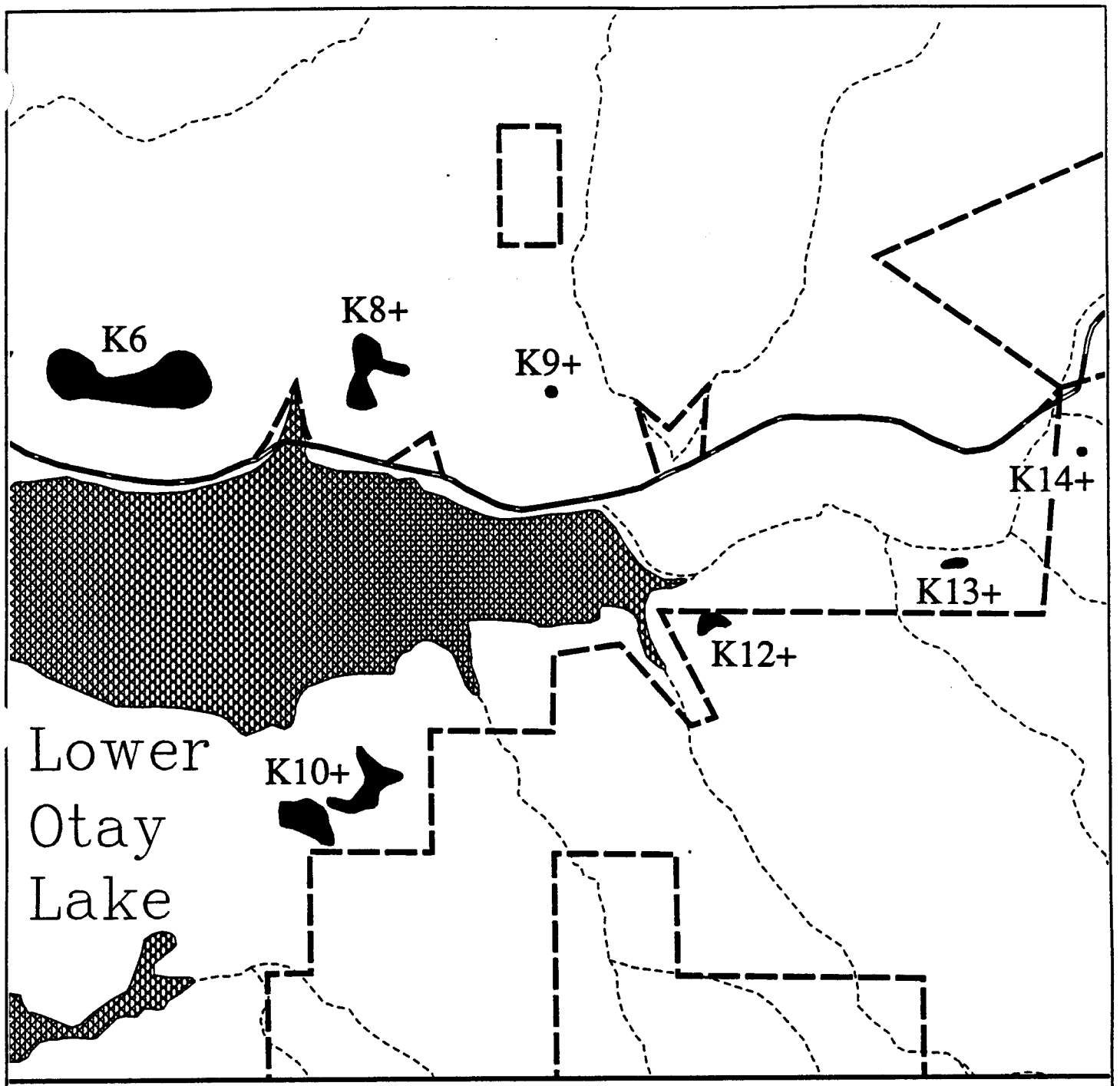
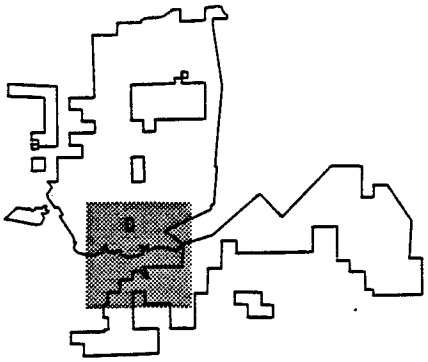
Vernal Pool Habitat within Proctor Valley Parcel

FIGURE 3.3-5g



Vernal Pool Habitat

Includes vernal pools and intervening mima mounds. The habitat does not necessarily include or coincide with vernal pool watershed or buffer area.



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Vernal Pool Habitat within Proctor Valley and San Ysidro Parcels

FIGURE
3.3-5h

fragmentation can significantly deteriorate the viability of the remaining vernal pool habitat.

Clay Soils

Clay soils are singled out as areas potentially supporting sensitive habitat, typically grassland or coastal sage scrub, because of the occurrence of a number of rare and declining plant species in such soils. The distribution of clay soils on Otay Ranch is shown on Figure A-9-15. These areas are mapped as various other habitat types (i.e., valley needlegrass grassland, non-native grassland, and coastal sage scrub). A number of plant species have evolved specifically on these heavy soils which exhibit high water retention along with high expansion and contraction. The dominant clay soil type on Otay Ranch is the Diablo series. Areas mapped with this soil type are considered to have the potential to support a number of sensitive plant species. Some of these species are endemic to vernal pools, while others are more widespread and may be found on clay lenses in scrub or grassland habitat. Plant species associated with clay soils away from vernal pools include *Acanthomintha ilicifolia*, *Brodiaea orcuttii*, *Dudleya variegata*, *Harpagonella palmeri* var. *palmeri*, *Hemizonia conjugens*, *Muilla clevelandii*, and *Ophioglossum lusitanicum* ssp. *californicum*.

Southern Interior Cypress Forest

Southern interior cypress forest is confined to mountain regions of southern California and northern Baja California. In southern California, the San Ysidro Mountains, including Otay Mountain, support the largest population of Tecate cypress approximately 5,648 acres. This community type is ranked by the CNDDB in its priority class A2.2. There are approximately 165 acres of cypress forest on Otay Ranch which constitutes about 3 percent of the total extent of this habitat in the San Ysidro Mountains (including Otay Mountain). The best onsite examples of cypress forest occur on the San Ysidro parcel in deep canyons and on upper elevations in the southern portion of the parcel; they support several sensitive plant and wildlife species.

Maritime Succulent Scrub

Maritime succulent scrub habitat reaches its northern limit of distribution in extreme southwest California. This community type is noted for the presence of an abundance of cacti and succulent species. It often provides habitat for cactus wren and California gnatcatcher. It is on the CNDDB's priority list B1.1 of habitats that are rare and endangered. The highest concentration of maritime succulent scrub occurs on the mesa on the east side of the Otay River parcel, and in Salt Creek, Wolf, and Poggi Canyons in the Otay River parcel. This habitat also supports several sensitive plant and wildlife species.

Diegan Coastal Sage Scrub

Coastal sage scrub is considered a sensitive habitat by the County of San Diego and the CNPS. Oberbauer (1978) estimates that approximately 70 percent of the original acreage of this habitat in the county has been lost, primarily due to urban expansion along the coast. Additional evidence of the decline of this once common habitat is the declining number of plant and animal species associated with it. Coastal sage scrubs is the predominant habitat type within the Proctor Valley and San Ysidro Parcels and covers much of the southern and eastern portions of the Otay River parcel.

Valley Needlegrass Grassland

Native grassland is a rapidly declining and rare regional habitat. This habitat has historically been transformed by ranching and agriculture, and more recently by development. It supports a number of sensitive plant species including San Diego goldenstar, San Diego thorn-mint, Palmer's grappling hook, and California adolphia. Larger grasslands may support the declining grasshopper sparrow (*Ammodramus savannarum*). Valley needlegrass grassland is best represented on the Proctor Valley parcel.

Wetlands

Riparian habitat is considered a sensitive resource by CDFG and wetland by the USFWS (Cowardin et al. 1979). Riparian habitat is specifically addressed by the CDFG Code Sections 1600-1606 (Streambed Alteration Agreement); wetlands are also under the jurisdiction of the U.S. Army Corps of Engineers (ACOE) permit process (Reinen 1978). Riparian habitat is considered a valuable but declining resource locally as well (County of San Diego 1980). This habitat type covered less than 0.2 percent of San Diego County in 1963 (CDFG 1965), and the amount has declined since then.

Wetlands are also subject to Clean Water Act permit provisions regulating their filling. These are enforced by the ACOE and EPA, with technical input from the USFWS. Wetland habitat is naturally restricted in southern California and remaining acreage provides critical habitat for migrant bird species. Many bird species are restricted to riparian habitats and are dependent on it for breeding. Overall wildlife diversity is normally higher in riparian zones than in surrounding upland habitats. Such habitats, by occupying natural drainages, also function to preserve water quality and erosion and function as wildlife corridors.

Wetland habitats on Otay Ranch include coastal and valley freshwater marsh, aquatic habitat (ponds), and southern willow scrub. Other habitats, which have wetland characteristics and may meet federal wetland determination criteria (hydrophytic vegetation, hydric soils, wetland hydrology) or are within the delineation of "waters of the U.S.," include floodplain scrub associations, alkali meadow, sycamore alluvial woodland, southern coast live oak riparian forest, and vernal pools.

Coast Live Oak Woodland

Coast live oak woodland is considered a sensitive habitat in San Diego County because of its limited extent and high wildlife value. On the Otay Ranch, it occurs primarily on the eastern slope of the Jamul Mountains.

Key Resource Areas

Sensitive habitats were mapped along with the the most sensitive plant and animal species (state-listed, federal candidate species, and list 1B species of the California Native Plant Society). Utilizing this map as a baseline, key resource areas were identified on Otay Ranch which could form the foundation of a natural open space system. These areas were delineated by circumscribing the resources. Habitat type, habitat mosaic, and occurrence and abundance of sensitive plant and animal species were taken into consideration. Topography, cover type, and land ownership were considered in delineating potential wildlife corridors. The overall open space network is provided for review and comparison of the project alternatives. It is clearly not intended to delineate a precise permanent preserve boundary. The boundaries are generalized and form a basis for an overall

evaluation of the retention of sensitive species, habitats, and open space continuity on Otay Ranch by each alternative land use plan. The key resource areas identified and shown in Figures 3.3-6a-c are as follows.

Otay Valley Parcel

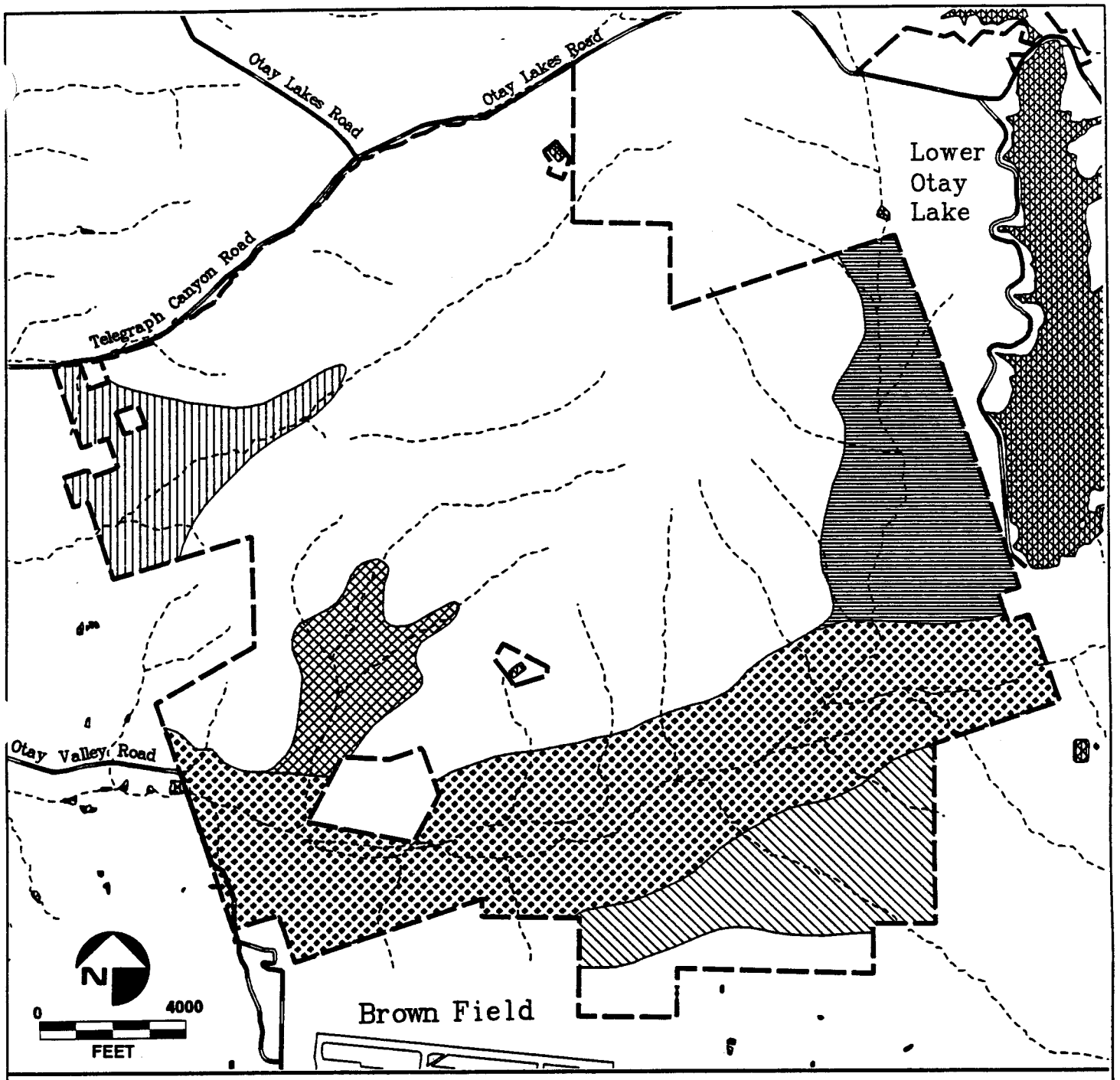
Poggi Canyon. This area is contiguous to a high quality but limited resource area offsite to the west (Sunbow project). It contains maritime sage scrub, Diegan coastal sage scrub, California gnatcatcher, cactus wren, Otay tarweed, and other sensitive plant and animal species. The area has high resource value, but it should to be linked with Wolf Canyon to the south to retain long-term viability.

Wolf Canyon. This area includes all of the key resource elements of Poggi Canyon. It has a good population of Otay tarweed and is heavily utilized by raptors. It is tied to the Otay River Valley to the south and is a potential link to Poggi Canyon and its disjunctive gnatcatcher and wren populations.

Otay River Valley. This river valley has been heavily disturbed in the past by sand mining and agriculture. One of its key attributes is the fact that it could be restored to provide a mosaic of valuable wetland and floodplain scrub habitats. The north side of the valley supports maritime succulent scrub along with California gnatcatcher, cactus wren, and a variety of sensitive plants including snake cholla. This scrub habitat provides a corridor for movement of cactus wren, California gnatcatcher, and other wildlife along the valley. O'Neal Canyon intersects the river valley on the eastern portion of the key resource area. This linkage provides an important corridor for wildlife movement between the site and the San Ysidro Mountains. The Diegan coastal sage scrub habitat supports California gnatcatcher, as well as several second priority sensitive plant species such as San Diego barrel cactus, San Diego golden star, and scattered stands of Tecate cypress throughout the entire length of O'Neal Canyon (Ogden unpublished data). Johnson Canyon supports California gnatcatcher, cactus wren, variegated dudleya, and San Diego barrel cactus. An extensive population of Otay tarweed is present along the south side of the river valley.

Otay Mesa. This area supports extensive vernal pool resources, four state-listed plant species (Otay tarweed, San Diego button-celery, Otay mesa-mint, and California Orcutt grass). It also includes large populations of other sensitive plants. It is important that the vernal pool areas remain linked to a larger open space system to maximize their use by reptiles and amphibians and to maintain exchange between pools. Johnson Canyon diagonally bisects the area and provides a potential corridor between the Otay Mesa and Otay River Valley key resource areas. The habitat in the canyon supports California gnatcatcher, cactus wren, variegated dudleya, and San Diego barrel cactus.

Salt Creek Canyon. This area is the richest on the ranch with regard to California gnatcatcher and cactus wren. Salt Creek Canyon supports 26 percent (38/144) of California gnatcatcher points of occurrence and 62 percent (37/60) of coastal cactus wren locations. Salt Creek is also an important raptor resource area and supports sensitive species such as orange-throated whiptail, northern harrier, ferruginous hawk, golden eagle, prairie falcon, Bell's sage sparrow, and blue grosbeak. The area is a mosaic of maritime succulent scrub and Diegan coastal sage scrub. The area supports large populations of sensitive plants, including San Diego barrel cactus and snake cholla. It is important that this area remain linked to the larger Otay River area.

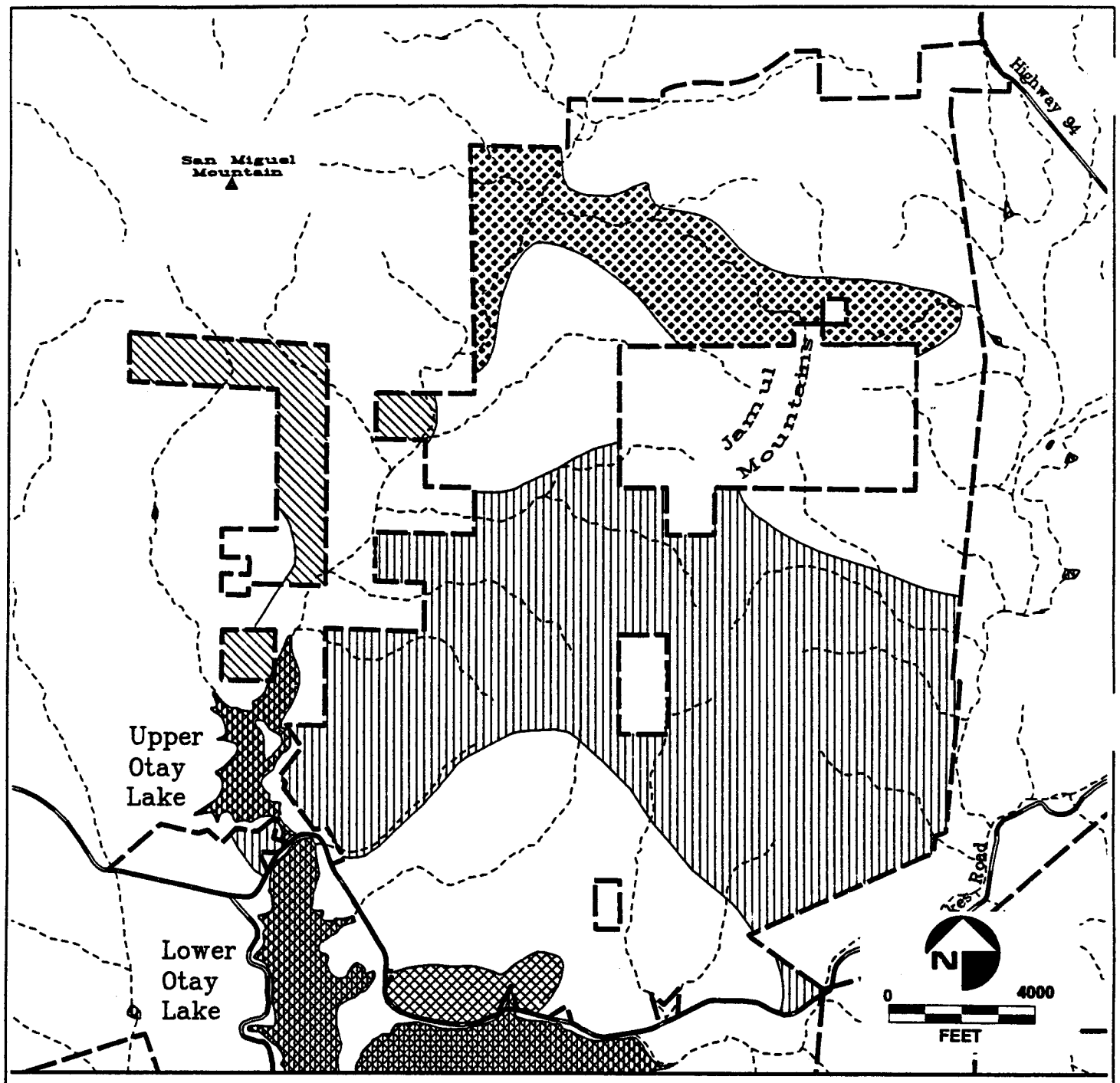


Poggi Canyon
Wolf Canyon
Otay River Valley
Otay Mesa
Salt Creek Canyon

OGDEN

Key Biological Resources Areas within Otay River Parcel

FIGURE
3.3-6a

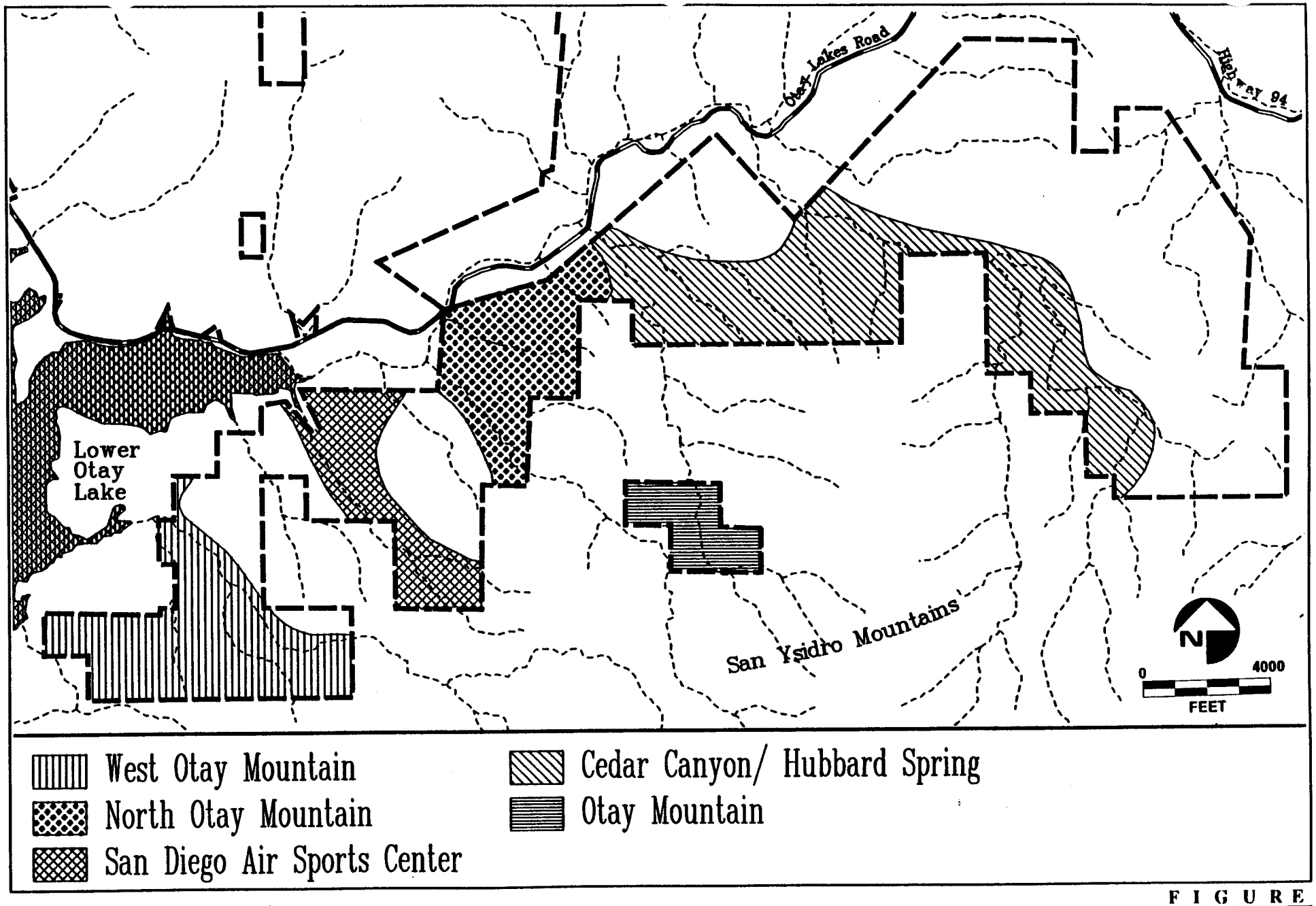


San Miguel Mountain
Jamul Mountain
Otay Reservoir
Proctor Valley
Callahan Mountain

OGDEN

Key Biological Resources Areas within Proctor Valley Parcel

FIGURE
3.3-6b



OGDEN

Key Biological Resources Areas within San Ysidro Parcel

FIGURE 3.3-6c

San Ysidro Parcel

West Otay Mountain. This area supports stands of Tecate cypress, California gnatcatchers in Diegan coastal sage scrub, the state-listed willowy monardella and large populations of other sensitive plants. It provides linkage to Lower Otay Lake from Otay Mountain.

San Diego Air Sports Center. The canyon south of the San Diego Air Sports Center supports California gnatcatcher in Diegan coastal sage scrub, contains some vernal pools and Tecate cypress and was the only place where Orcutt's bird's-beak was sighted on the ranch. It also provides a wildlife movement corridor to the reservoir.

North Otay Mountain. This area supports southern interior cypress forest and a variety of other sensitive plants and animals. It also potentially provides a potential wildlife movement corridor between Otay Mountain and Jamul Mountain. The importance of this area would be reduced if adequate corridors were provided to the east and west; otherwise it would remain the stepping stone to Dulzura Creek and the Proctor Valley parcel.

Otay Mountain. This area is disjunctive from the rest of the parcel within BLM land. It supports large numbers of highly sensitive plants as well as large populations of second priority sensitive plants. It also supports southern interior cypress forest.

Cedar Canyon/Hubbard Spring. This area supports a high number of sensitive plants including Mexican flannelbush. It contains extensive Tecate cypress woodland. Five different habitat types are present. This sensitive area is directly linked to the adjacent BLM open space lands.

Proctor Valley Parcel

Jamul Mountain. The eastern area contains extensive live oak woodland and is considered important in facilitating wildlife movements across Jamul Mountain. The western area supports high numbers of California gnatcatchers in Diegan coastal sage scrub. A number of sensitive plants, including Munz's sage and narrow-leaved nightshade, are also present. This area provides wildlife access to Lower Otay Lake and facilitates wildlife movement to San Miguel Mountain.

Otay Reservoir. This area supports vernal pools and disturbed needlegrass grassland.

San Miguel Mountain. This area supports sensitive plants, limited native grassland habitat, alkali meadows, and vernal pools and provides a major wildlife corridor between San Miguel Mountain and Jamul Mountain. Canyons are present to provide a wildlife movement corridor. Proctor Valley in this area is public land. The corridor would also tie in with Upper Otay Lake.

Proctor Valley/Callahan Mountain. This northerly wildlife movement corridor between San Miguel Mountain and Callahan Mountain also supports a number of highly sensitive plants, alkali meadows, native grassland, and vernal pools. Substantial populations of San Diego golden star are present.

Wildlife Corridors

An essential part of establishing an integrated open space system connecting key resource areas is the provision of adequate wildlife movement corridors. ~~An ongoing study of wildlife corridors on Otay Ranch is currently being conducted by Ogden. Regional wildlife corridors identified by Ogden are presented in Figure 3.3-7.~~ A two-phase study of wildlife

movement corridors was conducted for Otay Ranch as a requirement of the Resource Management Plan. The first phase of the Otay Ranch Wildlife Corridor Study (Ogden 1992) identifies existing wildlife corridors on Otay Ranch. The second phase involves a study of a constrained wildlife movement system in the Miramar/Peñasquitos Canyon area. Results of the second phase provide the basis for recommendations on corridor design for Otay Ranch. The two phases are combined into the Otay Ranch Wildlife Corridor Study (Ogden 1992b).

The study defines a wildlife corridor as "a linear landscape that allows animal movement between two patches of habitat or between habitat and geographically discrete resources (e.g., water)." Regional corridors are defined as linking two or more large areas of natural habitat and are necessary to maintain demographic and genetic exchange between wildlife populations in geographically disjunct areas. A local corridor allows resident animals access to resources (e.g., water, food, cover, or den sites) within a large habitat patch. Figure 3.3-7 presents the regional and local wildlife corridors identified by Ogden.

The connectivity of spatially separated subpopulations is demographically and genetically beneficial for wildlife preservation. The detrimental effects of isolating subpopulations through habitat fragmentation have been widely documented (e.g., Wilcove et al. 1987; Soulé et al. 1988). Isolated local populations are vulnerable to extinction. Movement of animals between subpopulations via corridors has several benefits. These benefits include decreased probability of extinction of subpopulations, increased mean population size of each subpopulation, and reduction of fluctuations in subpopulation size (Vance 1980; Fahrig and Merriam 1985). In addition to these demographic benefits, animal movement also reduces loss of genetic variation through drift (random changes in gene frequencies which are particularly important in small populations) and prevents inbreeding depression (decline in fecundity and survival in small populations).

General and specific corridor design recommendations are presented in the Otay Ranch Wildlife Corridor Study. Generally, corridors should exploit natural topography for cover, funneling animal movement, and for buffering corridors from adjacent development. Corridors in most cases should include rim to rim topography within canyons and ravines. Longer corridors should be wider and provide more vegetative cover to reduce impacts to animals. Manmade corridor elements (e.g., underpasses) must be designed to encourage animal use. Generally, 1000 feet is the recommended combined width of corridors and buffers on Otay Ranch. At road crossings, in some cases depending on the site, corridors may be constricted to a width of 400 feet for a total length of less than 500 feet. Corridors should contain vegetative cover and be properly screened (vegetation, berms, fencing) from adjacent development.

Certain land uses are incompatible with wildlife corridors. These land uses either detract from the attractiveness of a corridor to wildlife or degrade the habitat in the corridor. The only compatible land-use within a wildlife corridor is passive recreation. All other land uses are likely to impede corridor function.

High density residential development is an incompatible land use in areas adjacent to wildlife corridors. The high human population density associated with such developments has the capacity to render corridors ineffective or to cause degradation of the habitat within the corridor. Human use of the corridor, light, noise, and other disturbances will make animals reluctant to use the corridor. Intense human use of the corridor would also lead to degradation of the vegetation within the corridor and a loss of essential cover. It is very likely that corridors adjacent to high density residential areas cease to function over time.

Low-density or large lot residential development may be a compatible land use adjacent to wildlife corridors. The lower population density resulting from such development reduces many of the impacts discussed above, but additional steps to further reduce these impacts may be necessary. Commercial and industrial uses may be compatible. Commercial or industrial uses that do not produce levels of noise, light, or other disturbances which might interfere with corridor use may be permissible.

Roads should not be built within or adjacent to wildlife corridors, ~~if practicable,~~ because noise and light from passing vehicles discourages use of the corridors by the focal species. Roads can also directly impact animals by causing injury and mortality.

All road crossings of a corridor should have appropriate underpasses for animal movement and fencing a minimum of 10 feet high to funnel animals into the underpass. Bridges are recommended as underpasses and should have a length to width ratio of less than two. Noise levels should be less than 60 dBA at the time when animals are expected to use the underpass. There should be minimal artificial lighting at the underpass and a gap between travel lanes is recommended to increase natural lighting within the underpass. Vegetation is important at the entrance to underpasses for providing cover and for enticing animals to use the underpass. Roads crossing California gnatcatcher and cactus wren corridors should be less than 100 feet wide (including roadway and embankments) and should be below-grade where feasible.

Passive recreation is the only compatible land use within a wildlife corridor. Hiking, bird watching, and other passive uses are compatible with wildlife corridors if activities are restricted to trails and use is mostly during daylight hours. Use of off-road vehicles and mountain bikes is not compatible with corridors because of the potential for habitat degradation resulting from these activities. Equestrian activity, if unmanaged, may not be compatible with corridors because of its potential for habitat degradation.

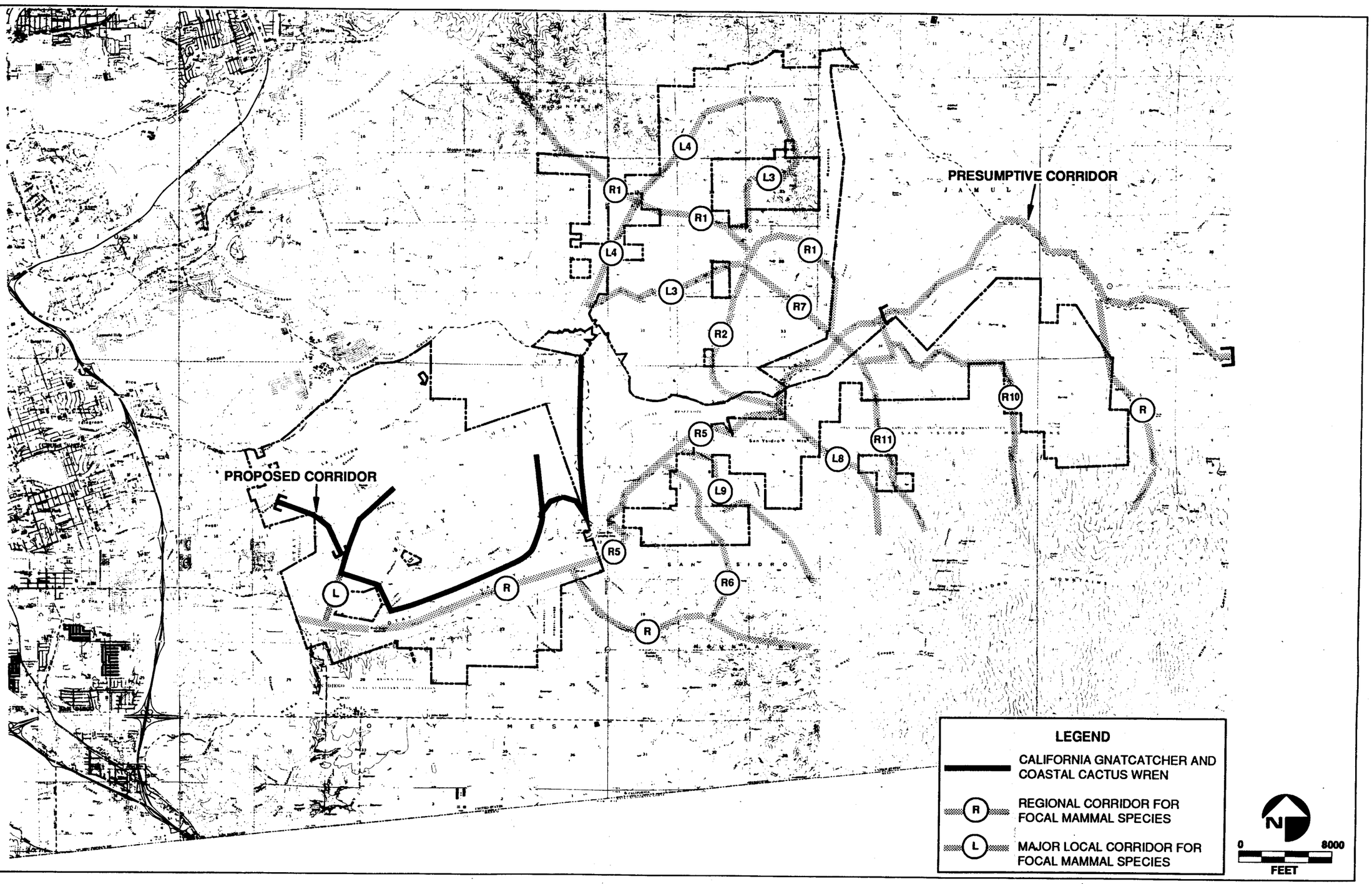
Certain passive and active recreational land uses may be compatible if located adjacent to wildlife corridors. Natural or landscaped open space, playing fields, and golf courses can provide additional buffering for wildlife corridors. Landscaping within these areas can be used to help define and insulate the corridor and can transition with the native vegetation.

Following is a description of regional and important local corridors identified on Otay Ranch.

~~The impact analysis (Section 3.3.2) consisted of evaluating each of the proposed project alternatives relative to following specific recommendations for each of the proposed wildlife corridors.~~

Otay River Parcel Corridors

Based upon the studies completed to date, significant areas of relatively undisturbed wildlife habitat in the Otay River parcel occur in Wolf, Poggi, and Salt Creek canyons. The objective of preserving wildlife corridors in this planning area is to provide connections between these relatively large undisturbed wildlife habitats with the larger tracts of natural open space to the east (San Ysidro Mountains) and to the north (Jamul Mountain, Proctor Valley, and San Miguel Mountain).



OGDEN

Wildlife Corridors

FIGURE

3.3-7

Regional Wildlife Corridors

Poggi Canyon to Wolf Canyon. This proposed corridor would link the westernmost Otay Ranch California gnatcatcher and cactus wren populations with large populations to the east in Salt Creek Canyon by way of the Otay River Valley (Figure 3.3-7). The link between Poggi and Wolf canyons ~~would either~~ should be a continuous band of coastal sage scrub a minimum ~~450~~ 500 feet in width. This width is based on recommendations from the Otay Ranch Wildlife Corridor Study (Ogden 1992b). ~~or patches of coastal sage scrub acting as stepping stones to encourage bird travel through the corridor.~~ This corridor needs to be revegetated to coastal sage scrub to become functional.

Development in this corridor should be constrained by line-of-sight axis between the habitat patches. No structures should be built along this axis to prevent obscuring any of the patches. ~~Extensive use of native landscape vegetation along the axis would probably facilitate movement between the patches.~~

Wolf Canyon to Salt Creek Canyon. The north slopes of the Otay River Valley form an almost continuous east-west corridor of coastal sage scrub linking Wolf and Salt Creek canyons. This continuity should be maintained to ensure a connection between the California gnatcatcher and cactus wren populations in Wolf and Poggi canyons and those in Salt Creek Canyon. Preservation of the valley floor would allow focal mammal movement along the Otay River Valley. The vegetation from the valley rim to the valley floor should be kept intact (i.e., remaining coastal sage scrub) and enhanced in areas where disturbed. Again the objective should be to maintain a minimum ~~450~~ 500-foot wide corridor. This corridor circumvents the quarry by passing above it to the north through coastal sage scrub habitat on Rock Mountain. The section of the valley slopes just east of the mouth of Wolf Canyon, in the vicinity of the quarry, is disturbed and should also be revegetated with coastal sage scrub to complete the corridor.

Wolf Canyon to the Otay River Valley. To allow for connectivity of bobcat populations, it will be necessary to maintain a connection between the floor of the Otay River Valley and Wolf Canyon. This could be achieved by leaving the stream bed and accompanying vegetation intact in Wolf Canyon and allowing it to extend into the valley. Road crossings of this corridor should be designed for use by bobcat and should incorporate drainage culverts (at least 12 feet in height).

Salt Creek Canyon. The important corridor issue is to allow for connections between the focal species populations in the canyon and those in the rest of the region. Salt Creek supports significant populations of both gnatcatchers and cactus wrens. Aside from the populations in Poggi and Wolf canyons, other significant populations of these species occur to the east, south, and north of Salt Creek Canyon. Salt Creek Canyon should not be restricted or constrained by development and there should be no road crossings of this canyon. Corridors linking the Salt Creek populations with these areas are needed and can be accommodated mostly within city-owned land along the shores of Lower Otay Lake. The connection to the east shore of the lake is less direct. A corridor must be left through or around the filtration plant and the campground. Native vegetation that could be preserved as a corridor presently exists in these areas.

Salt Creek Canyon to Otay River Valley. The most obvious and probably the most important connection to Salt Creek Canyon is with the Otay River Valley. To maintain this connection, the confluence of the two drainages must not be reduced in size or area. The mouth of Salt Creek should not be constricted or constrained by any development or roads.

O'Neal Canyon. O'Neal Canyon is an important regional corridor linking wildlife populations in the San Ysidro Mountains with those in the Otay River Valley and Salt Creek Canyon. An impediment to animal movement through O'Neal Canyon is the Alta Road embankment. Providing the level of traffic on this section of Alta Road remains very low, the embankment should not be an impassable barrier for larger mammals; nor does it seem likely that in its current configuration Alta Road blocks movement of cactus wrens or California gnatcatchers. If traffic on Alta Road were to increase or if the road were widened, it ~~might~~ would become necessary to retrofit the road with a much wider bridge type of underpass.

Proctor Valley Parcel Corridors

Regional Corridors

Corridor 1. Corridor 1 (see Figure 3.3-7) is an important regional corridor that extends from Sweetwater Reservoir east through a saddle between Mount Miguel and the Mother Miguel Mountains into Proctor Valley. It continues east, parallel to a transmission corridor, through a saddle in the lowest point in the central Jamul Mountains and into the foothills bordering the Daley Ranch. The corridor then follows Jamul Creek south and crosses Dulzura Creek and Otay Lakes Road and enters Little Cedar Canyon. This is an important corridor because it connects several regions of habitat and resources in a direct manner.

There is water available nearly year round. On the western slope of the Jamul Mountain section, there is an earthen dam reservoir. Although it is dry by late summer, water seeps out below it, and the ground is moist even at the driest time of year. Jamul Creek and Dulzura Creek flow nearly year round, and pools and seeps remain even in late summer. There is also a major drainage in Little Cedar Canyon.

There are jeep trails and foot paths along the whole corridor. This is important for channeling animals through it and there is abundant habitat for animals along the corridor. There are large, rocky outcroppings for bobcat and mountain lion to den in and there is forage for deer and rabbits with good cover in the ravine bottoms. The Jamul Mountain and Little Cedar sections have oak groves in several areas to provide cover for mountain lion. The section of the corridor crossing the floor of Proctor Valley, especially the east side of Proctor Valley Road, has been heavily grazed. Revegetation along the drainage would provide sufficient cover. This section of the corridor will need to have a relatively wide buffer since the topography is flat.

Corridor 2. This regional corridor provides access to the Jamul Mountains for animals following Dulzura Creek. It follows the creek southeast and crosses Otay Lakes Road into the riparian area on the eastern end of Lower Otay Lake. The corridor crosses Otay Lakes Road again going north and enters a large, rocky ravine that leads to the southern ridge of the Jamul Mountains. The ravine has a sycamore grove and the presence of spiny rush indicates that water is present a good part of the year. The riparian vegetation provides cover along the lower parts of this corridor, and the steep canyon walls provide topographic cover in the ravine portion. This corridor requires crossing Otay Lakes Road twice. It is unlikely that animals would remain on the north side of the road, because it is a steep, almost barren hillside.

In December 1991, the runway of the San Diego Air Sports Center was extended at both the eastern and western ends causing the removal of riparian vegetation and reducing the effectiveness of this corridor. Organized paint pellet war games are conducted in the

riparian area bordering the airport; the effects of this activity on the corridor as well as on the nesting of sensitive raptors and the endangered least Bell's vireo are not known.

Deer sign was limited in this corridor and consisted of two deer skeletons and some very old droppings. The southern side of the Jamul Mountains was heavily grazed by sheep until recently and most of the forage for deer has been eliminated. Bobcat sign was found along the length of the corridor. There are den sites in the rocky areas of the ravine. Mountain lion scat was found on the jeep trail entering the ravine about half way up the mountain and on the jeep trail which parallels the ravine on the western edge.

Corridor 7. This corridor is a deep, well vegetated ravine that connects Jamul Peak with Dulzura Creek. There is a reservoir near the eastern end which has water year-round. Abundant deer sign was found in this ravine, as well as bobcat sign near the ridge.

Local Corridors

Corridor 3. This major local corridor consists of ridge trails that connect all the peaks and saddles in the Jamul Mountains. These routes provide quick access to all areas in and around the Jamul Mountains. This corridor extends from the northern part of the parcel southwest along the ridge top and ends at Upper Otay Lake. Deer sign was abundant on the ridge trails, but the majority of the sign found was that of bobcat. In some sections scat piles were extremely common indicating that the ridges may be used as territorial boundaries by bobcats as well.

The ridges do not provide cover, but they do provide good visibility of potential predators. Mountain lions have been reported to spend very little time on ridges. However, deer seem to spend a lot of time on and around the ridges.

Corridor 4. This important local corridor runs the length of Proctor Valley and follows the seasonal stream bed. It leads into Upper Otay Lake on the south and to Indian Spring at the north end, both of which are year round sources of water. There is also a seep near the middle of the route, just southeast of the curve in Proctor Valley Road. Some sections of this corridor provide very little cover. Others, especially in the center, are fairly well vegetated. Deer, bobcat, and mountain lion use this corridor, either traveling in the streambed or on Proctor Valley Road.

There are many other local corridors in the Jamul Mountains. Numerous ravines and jeep trails are used by animals to reach local sources of water and foraging areas. It is likely that any of these local corridors could also be used by dispersing animals. However, the corridors described as important local or regional corridors offer the most direct routes between and through the neighboring mountains, have adequate cover and water for most of the year, and have trails to channel the animals through them.

San Ysidro Parcel Corridors

Regional Corridors

Corridor 5. There is a jeep road along the southeastern edge of Lower Otay Lake that functions as a regional wildlife corridor. Signs of deer, bobcat, and mountain lion were found along this road. It allows for east-west movement as well as for access to the reservoir itself.

Corridor 6. There is a narrow, steep ravine leading from Buschalaugh Cove into the San Ysidro Mountains and connects into O'Neal Canyon. The bottom of this ravine contains

dense Tecate cypress and rock pools with a well defined trail (used nightly by immigrants from Mexico). Deer and bobcat sign were abundant.

Corridor 10. Cedar Canyon is a major connection between Dulzura Creek and the San Ysidro Mountains. The Thousand Trails Campground blocks the entrance into Dulzura Creek, but alternate routes to the west allow animals to reach the creek directly or by entering the base of Little Cedar Canyon.

Corridor 11. Little Cedar Canyon is a valuable regional corridor connection between Jamul Mountain and the San Ysidro Mountains and east and west along Dulzura Creek. Enhancement of the current underpass through Otay Lakes Road would improve the quality of the corridor. The underpass is currently used by bobcat, but not by mountain lion or deer. Traffic along Otay Lakes Road is sporadic, but with continued growth in the region, this traffic is expected to increase and the probability for road mortality of deer and lion would be greater.

Local Corridors

Corridor 8. This major local corridor connects Dulzura Creek with the San Ysidro Mountains through a steep, rocky ravine. The bottom of the ravine contains Tecate cypress and rock pools. There are rocky outcroppings that form cliffs which are potential den sites for bobcat. Bobcat scat was found in the area and deer sign was found on the ridges. At the point where Otay Lakes Road crosses Dulzura Creek, a dirt road leads south. This road narrows into a trail which runs the length of the ravine.

Corridor 9. A jeep trail which runs from the reservoir into the San Ysidro Mountains is used extensively by deer and bobcat.

3.3.2 Impact Analysis

3.3.2.1 Reduction of Vegetative Communities/Habitats

The reduction of both natural and disturbed habitats that would take place due to the New Town Plan is shown in Table 3.3-5. The overall reduction of natural open space, excluding disturbed habitats, by planning area is estimated at 87 percent for the Otay River parcel, 49 percent for the Proctor Valley parcel, and 59 percent for the San Ysidro parcel. An overlay of the proposed development areas onto the vegetation map of Otay Ranch is included in Appendix A-8. The above figures are worst-case estimates and include the university site in the lower Salt Creek drainage and the Otay Valley Regional Park. These estimates are provided at a general plan level and would be refined at the SPA Plan level of analysis. The floor of the Otay River Valley was included, given the intent of the New Town Plan to develop the valley for active recreation, which could include a village center, amphitheater, water world theme park, polo field and horse stable, and an 18-hole municipal golf course. The San Ysidro Regional Park, in contrast, is proposed for passive recreation, with interpretive facilities and preservation of natural resources, and is not assumed to be developed land.

3.3.2.2 Reduction of Sensitive Habitats

A summary of the reduction of sensitive habitats that would occur as a result of the implementation of the New Town Plan is shown in Table 3.3-6. This table consolidates the various sensitive habitats from Table 3.3-5 and separates those habitats which are considered wetlands. These wetland habitats, or portions thereof, may come under the permit requirements of ACOE (404 permit) or CDFG (Streambed Alteration Agreement).

Table 3.3-5

SUMMARY OF IMPACTS TO VEGETATIVE HABITATS DUE TO THE NEW TOWN PLAN

HABITAT	OTAY RIVER Open Acres	OTAY RIVER Impacted Acres	OTAY RIVER Total Existing	OTAY RIVER % Impacted	PROCTOR VALLEY Open Acres	PROCTOR VALLEY Impacted Acres	PROCTOR VALLEY Total Existing	PROCTOR VALLEY % Impacted	SAN YSIDRO Open Acres	SAN YSIDRO Impacted Acres	SAN YSIDRO Total Existing	SAN YSIDRO % Impacted	TOTAL	Total Open	Total Impacted	Total % Impacted
UPLAND SCRUB COMMUNITIES																
Diegan coastal sage scrub	486.2	1330.6	1816.8	73.2%	2904.6	1938.6	4843.2	40.0%	1234.9	2001.0	3235.9	61.8%	9895.9	4625.7	5270.2	53.3%
Southern mixed chaparral	0.0	0.0	0.0	0.0%	515.0	53.8	568.8	9.5%	417.2	100.0	517.2	19.3%	1086.0	932.2	153.8	14.2%
Chamise chaparral	7.0	0.0	7.0	0.0%	218.9	745.6	964.5	77.3%	108.9	360.0	468.9	76.8%	1440.4	276.0	694.0	48.2%
Mixed chaparral/ coastal sage scrub	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	16.5	12.8	30.0	42.7%	30.0	16.5	12.8	42.7%
Mixed chaparral/chamise chaparral	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	23.7	0.0	23.7	0.0%	23.7	23.7	0.0	0.0%
Mixed chaparral/Tecate cypress	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	86.9	0.0	86.9	0.0%	86.9	86.9	0.0	0.0%
Coastal sage scrub/non-native grassland	0.0	9.0	9.0	100.0%	0.0	0.0	0.0	0.0%	62.2	300.5	362.7	82.9%	371.7	62.2	309.5	83.3%
Coastal sage scrub/mixed chaparral	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	91.4	5.8	97.2	6.0%	97.2	91.4	5.8	6.0%
Maritime succulent scrub	115.4	169.3	284.7	59.5%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	284.7	115.4	169.3	59.5%
Disturbed coastal sage scrub	0.0	1.2	1.2	100.0%	122.7	657.4	780.1	84.3%	0.0	0.0	0.0	0.0%	781.3	122.7	658.6	84.3%
SUBTOTAL	**608.6**	**1510.1**	**2118.7**	**71.3%**	**3761.2**	**3395.4**	**7156.6**	**47.4%**	**2041.7**	**2780.1**	**4822.5**	**57.6%**	**14097.8**	**6352.7**	**7274.0**	**51.6%**
FLOODPLAIN SCRUB																
Baccharis scrub	15.4	3.4	18.8	18.1%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	18.8	15.4	3.4	18.1%
Tamarisk scrub	0.0	3.6	3.6	100.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	3.6	0.0	3.6	100.0%
Tamarisk/mulefat scrub	1.0	391.2	392.2	99.7%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	392.2	1.0	391.2	99.7%
Mulefat scrub	6.4	106.4	112.8	94.3%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	112.8	7.0	106.4	94.3%
SUBTOTAL	**22.8**	**504.6**	**527.4**	**95.7%**	**0.0**	**0.0**	**0.0**	**0.0%**	**0.0**	**0.0**	**0.0**	**0.0%**	**527.4**	**23.4**	**504.6**	**95.7%**
GRASSLAND / MEADOW																
Grassland	2.9	35.4	38.3	92.4%	0.00	0.00	0.0	0.0%	0.00	0.00	0.0	0.0%	38.3	2.9	35.4	92.4%
Non-native grassland	330.3	796.3	1126.6	70.7%	1.5	60.4	61.9	97.6%	3.1	94.3	97.4	96.8%	1285.9	334.9	951.0	74.0%
Non-native grassland/coastal sage scrub	38.0	107.3	145.3	73.8%	0.0	0.0	0.0	0.0%	33.3	331.4	364.7	90.9%	510.0	71.3	438.7	86.0%
Disturbed non-native grassland	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	8.2	3.9	12.1	32.2%	12.1	8.2	3.9	32.2%
Valley needlegrass grassland	0.0	0.0	0.0	0.0%	11.9	37.2	49.1	75.8%	0.0	0.0	0.0	0.0%	49.1	11.9	37.2	75.8%
Alkali meadow	0.0	0.0	0.0	0.0%	72.3	65.3	137.6	47.5%	0.0	0.0	0.0	0.0%	137.6	72.3	65.3	47.5%
Disturbed alkali meadow	0.0	0.0	0.0	0.0%	0.0	12.4	12.4	100.0%	0.0	0.0	0.0	0.0%	12.4	0.0	12.4	100.0%
Disturbed valley needlegrass grassland	0.0	0.0	0.0	0.0%	0.0	214.6	214.6	100.0%	0.0	0.0	0.0	0.0%	214.6	0.0	214.6	100.0%
SUBTOTAL	**371.2**	**939.0**	**1310.2**	**71.7%**	**85.7**	**389.9**	**475.6**	**82.0%**	**44.6**	**429.6**	**474.2**	**90.6%**	**2260.0**	**501.5**	**1758.5**	**77.8%**

Table 3.3-5 (Continued)

SUMMARY OF IMPACTS TO VEGETATIVE HABITATS
DUE TO THE NEW TOWN PLAN

HABITAT	OTAY RIVER Open Acres	OTAY RIVER Impacted Acres	OTAY RIVER Total Existing	OTAY RIVER % Impacted	PROCTOR VALLEY Open Acres	PROCTOR VALLEY Impacted Acres	PROCTOR VALLEY Total Existing	PROCTOR VALLEY % Impacted	SAN YSIDRO Open Acres	SAN YSIDRO Impacted Acres	SAN YSIDRO Total Existing	SAN YSIDRO % Impacted	TOTAL	Total Open	Total Impacted	Total % Impacted
WOODLANDS																
Coast live oak woodland	0.0	0.0	0.0	0.0%	163.1	12.5	175.6	7.1%	0.0	5.0	5.0	100.0%	180.6	163.1	17.5	9.7%
Southern live oak riparian forest	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	41.0	34.0	75.0	45.3%	75.0	41.0	34.0	45.3%
Southern interior cypress forest	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	157.0	8.0	165.0	4.8%	165.0	157.0	8.0	4.8%
Sycamore alluvial woodland	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	0.0	7.0	7.0	100.0%	7.0	0.0	7.0	100.0%
Southern willow scrub	0.8	0.0	13.0	0.0%	1.0	0.7	1.7	41.2%	0.0	0.0	0.0	0.0%	14.7	1.8	0.7	4.8%
SUBTOTAL	0.8	0.0	13.0	0.0%	164.1	13.2	177.3	7.4%	198.0	54.0	252.0	21.4%	442.3	362.9	67.2	15.2%
OTHER WETLANDS																
Vernal pool*	49.0	113.0	162.0	69.8%	1.0	14.0	15.0	93.3%	0.0	1.0	1.0	100.0%	178.0	50.0	128.0	71.9%
Coastal and valley freshwater marsh	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	2.3	1.0	3.3	30.3%	3.3	2.3	1.0	30.3%
Aquatic habitat	0.0	0.0	0.0	0.0%	0.0	2.5	2.5	100.0%	0.0	0.0	0.0	0.0%	2.5	0.0	2.5	100.0%
SUBTOTAL	0.0	0.0	0.0	0.0%	0.0	2.5	2.5	100.0%	2.3	1.0	3.3	30.3%	5.8	2.3	3.5	60.3%
OTHER																
Developed	0.0	9.8	9.8	100.0%	0.0	97.9	97.9	100.0%	0.0	0.0	0.0	0.0%	107.7	0.0	107.7	100.0%
Exotic Trees	3.1	21.9	25.0	92.9%	0.0	4.6	4.6	100.0%	1.1	2.3	3.4	67.6%	33.0	4.2	28.8	87.3%
Agriculture	227.9	5385.9	5613.8	97.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	5613.8	227.9	5385.9	95.9%
SUBTOTAL	231.0	5417.6	5648.6	95.9%	0.0	102.5	102.5	100.0%	1.1	2.3	3.4	67.6%	5754.5	232.1	5522.4	96.0%
Grand Total	*1234*	*8371*	*9618*	*87.0%*	*4011*	*3904*	*7915*	*49.3%*	*2288*	*3267*	*5555*	*58.8%*	*23088*	*7475*	*15130*	*65.5%*

* Not included in acreage total because these acres are covered by other habitats.
Represents vernal pool habitat including intervening mima mounds. This acreage circumscribes the concentrations of vernal pools and is substantially greater than the vernal pool surface area.
The pool habitat does not necessarily include or coincide with vernal pool watershed or buffer area.

Table 3.3-6 (Revised)

IMPACT OF THE NEW TOWN PLAN ON SENSITIVE HABITATS

Cover Type	Existing Acres	Impacted Acres	% Impacted
UPLAND COMMUNITIES			
Diegan coastal sage scrub *	11,146	6,244	56.0%
Maritime succulent scrub	285	169	59.3%
Southern interior cypress forest	165	8	4.8%
Coast live oak woodland	181	17	9.4%
Valley needlegrass grassland **	264	252	95.5%
Subtotal	12,041	6,690	55.7%
WETLANDS			
Baccharis scrub	19	3	18.1%
Tamarisk scrub	4	4	99.9%
Tamarisk scrub/mulefat scrub	392	391	99.0%
Mulefat scrub	113	106	94.3%
Alkali meadow	138	65	47.4%
Disturbed alkali meadow	12	12	100.0%
Southern live oak riparian forest	75	34	45.3%
Sycamore alluvial woodland	7	7	100.0%
Southern willow scrub	14	12	86.8%
Vernal pool ***	179	128	71.9%
Coastal and valley freshwater marsh	3	1	31.7%
Aquatic habitat	3	3	100.0%
Subtotal	780	638	81.8%
TOTALS	**12,821**	**7,328**	**57.2%**

* Includes both disturbed (84.3 percent impacted) and undisturbed (53.9 percent impacted) Diegan coastal sage scrub.

** Includes both disturbed (100 percent impacted) and undisturbed (75.5 percent impacted) Valley needlegrass grassland.

*** Not included in acreage total since these acres are covered by other habitats. Represents vernal pool habitat including intervening mima mounds. This acreage circumscribes the concentrations of vernal pools and is substantially greater than the vernal pool surface area. The pool habitat does not necessarily include or coincide with vernal pool watershed or buffer area.

Two-thirds of the wetland impact is associated with the floodplain habitats within the Otay River Valley. These wetland impact estimates should be considered worst-case since many of the habitats are located in drainages which may be preserved when more detailed plans are developed at the SPA plan level. However, impact acreage not known and not included in the table includes infrastructure impacts (roadways, water, and sewer systems). Impacts to floodplains and sensitive habitats associated with increased water runoff and erosion from the eventual buildout of the New Town Plan potentially may be significant. These impacts need to be further assessed at the SPA plan level. Overall, the New Town Plan substantially reduces the acreage of sensitive habitats on Otay Ranch (over 57 percent). Significant impacts would occur to all thirteen sensitive habitats: Diegan coastal sage scrub, maritime succulent scrub, floodplain scrub, vernal pools, valley needlegrass grassland, alkali meadow, southern live oak riparian forest, coast live oak woodland, southern interior cypress forest, sycamore alluvial woodland, southern willow scrub, coastal freshwater marsh and aquatic habitat.

Impacts to Diegan coastal sage scrub, maritime succulent scrub, vernal pools, and alkali meadow are not only significant from a local perspective (within Otay Ranch) but could contribute substantially to the increasing endangerment of these communities on a regional scale. A substantial proportion of the remaining distribution of these habitats occurs onsite. Additionally, the original acreages of these communities in the County have declined dramatically: 72 percent for coastal sage scrub, 92 percent for maritime succulent scrub, and 97 percent for vernal pools (Oberbauer and Vanderwier 1991).

3.3.2.3 Reduction of Sensitive Plants

A summary of the impacts to sensitive plants is included in Table A-7 of Appendix A; the numbers of points of occurrence to be impacted by the New Town Plan and total number of occurrences for each species is presented in Table A-8. An overlay of the New Town Plan on the sensitive plant map for Otay Ranch is included in Appendix A-9. The extensive development would significantly affect sensitive plants, especially those found at lower elevations and in more developable areas.

The impact to each species is analyzed using information on the number and relative sizes (where available) of populations or major aggregations and the number of points of occurrences. This information has been summarized in Table A-7 in Appendix A and lists each major population or aggregation, whether it will be developed or retained in open space, and the separate measure of percent of points of occurrences (localities) that will be disturbed. The percent of points of occurrences is a measure of a proportion of the total distribution of a sensitive species on the ranch. For many species, especially the more widespread species, e.g., Munz's sage, the number of points of occurrences in different areas is also directly related to the number of individuals in those areas. However, the points do not necessarily reflect population size or individuals and in some cases may be correlated with the level of survey effort in different areas. The combined approach of using known populations/aggregations and points of occurrences in the analysis utilizes both a quantitative and qualitative analysis and is a method of cross-checking results.

The significance of impacts is summarized in Table A-7 in Appendix A. The following criteria were used as guidelines for determining the significance of impacts for the sensitive plant species. However, refer to Table 3.3-6.1 for species-specific standards for determining significance which may deviate from the general guidelines on a case-by-case basis.

Table 3.3-6.1 (New)

SENSITIVE PLANT SPECIES STANDARDS FOR DETERMINATION OF SIGNIFICANCE AND MITIGATION

Plant Species	Sensitivity Status State/Fed	Sensitivity Status CNPS	Standard for Determining Significance % preserv.	Standard for Onsite Preservation % preserv.	RMP Policy % preserv.	Regional Significance of Otay Ranch Populations	Survey Requirements at SPA Level
Priority One Species							
Calochortus dunnii	CR, C2	1B	100	100	100	Population in Little Cedar Canyon and along Minnewawa Truck Trail on Otay Ranch is one of several major occurrences in San Diego County. Also ranges into Baja California. The Otay Ranch population represents a lower elevational range extension for this species.	Survey during a "wet year" to get detailed mapping of population limits and size and assess current status of populations. "Wet year" is defined as any year that has average or greater than average precipitation and is preceded by one or more such years.
Fremontodendron mexicanum	CR, C2	1B	100	100	100	Individuals in Cedar Canyon on Otay Ranch comprise the only verified occurrence in the U.S. Also known from Baja California.	General biological survey will be adequate.
Monardella linoides ssp. *linoides*	CE, C2	1B	100	100	100	Population east of Otay Reservoir is one of three or four disjunct populations known in the U.S. This population is a significant range extension for this species. Also known from Baja California.	Focused surveys during blooming period (June-August) of seasonal stream habitat. Survey Bushcalaugh Canyon population to get detailed mapping of occupied habitat and population size.
Orcuttia californica	CE, PE	1B	100	100	90	Only a few extant populations remaining in San Diego County; historic location occurs on Otay Mesa within Otay Ranch. Also known from Riverside County and Baja California.	Survey during a "wet year" impacted vernal pools and potential VP habitat, e.g., mesa habitat south of main J 29-30 complex. "Wet year" is defined as any year that has average or greater than average precipitation and is preceded by one or more such years.
Pogogyne nudiuscula	CE, PE	1B	100	100	100	All extant U.S. populations restricted to several vernal pool complexes on Otay Mesa, including portions of Otay Ranch. Ranges into Baja California.	Survey during a "wet year" impacted vernal pools and potential VP habitat, e.g., mesa habitat south of main J 29-30 complex. "Wet year" is defined as any year that has average or greater than average precipitation and is preceded by one or more such years.
Acanthomintha ilicifolia	CE, C1	1B	100	95	95	Relatively widespread distribution in San Diego County; however, the occurrence at the southern end of the Jamul Mountains parcel on Otay Ranch may be one of the largest known populations. Also ranges into Baja California.	Focused surveys of clay lenses during blooming period (April-May); assess current status of known populations, including recent disturbances, health, and sizes of populations.
Caulanthus stenocarpus	CR, C2	1B	100	95	100	Relatively widespread distribution throughout San Diego County in small populations. Also ranges into Baja California. On Otay Ranch a small population occurs in the northwest corner of Jamul Mountains parcel; however, it may be more widespread at lower elevations within the project site.	Focused surveys in late March to early April to obtain better data on Otay Ranch distribution and population sizes.

Table 3.3-6.1 (New) (Continued)

SENSITIVITY PLANT SPECIES STANDARDS FOR DETERMINATION OF SIGNIFICANCE AND MITIGATION

Plant Species	Sensitivity Status State/Fed	Sensitivity Status CNPS	Standard for Determining Significance % preserv.	Standard for Onsite Preservation % preserv.	RMP Policy % preserv.	Regional Significance of Otay Ranch Populations	Survey Requirements at SPA Level
Eryngium aristulatum var. *parishii*	CE, PE	1B	100	98-100*	95	Occurrence on west Otay Mesa on Otay Ranch is one of the major known regional populations. Range includes Riverside and San Diego counties and Baja California.	Survey during a "wet year" impacted vernal pools and potential VP habitat, e.g., mesa habitat south of main J 29-30 complex. "Wet year" is defined as any year that has average or greater than average precipitation and is preceded by one or more such years.
Hemizonia conjugens	CE, C2	1B	100	80	70	Large populations on Otay Ranch in Wolf Canyon, the Otay River Valley, and along Salt Creek are several of the only major known populations of this species in San Diego County. Also known from northwestern Baja California.	Survey populations in Otay River and Proctor Valley parcels to get detailed mapping of occupied habitat and approximate population sizes.
Second Priority							
Myosurus minimus var. *apus*	C2	3	100	100	****	Extremely rare vernal pool taxon. In San Diego County, restricted to several vernal pool complexes, including the K6 vernal pool area on Otay Ranch. Also known from Riverside and San Bernardino counties and Baja California.	Survey during a "wet year" impacted vernal pools and potential VP habitat, e.g., mesa habitat south of main J 29-30 complex including historical location.
Navarretia fossalis	C2	1B	100	100	****	Currently resticted to several extant populations in San Diego County. Also known from western Riverside County and Baja California. On Otay Ranch it occurs within the J30 vernal pool complex.	Survey during a "wet year" impacted vernal pools and potential VP habitat, e.g., mesa habitat south of main J 29-30 complex.
Arctostaphylos otayensis	C2	1B	90	80**	75	The population in the northern portion of the Jamul Mountains parcel of Otay Ranch is one of the few known locations of this species. It is restricted to San Diego County on Otay, San Miguel, Jamul, and Guatay Mountains.	Survey known locations near Cedar and Little Cedar Canyons and northern Jamul Mountains if impacts are proposed to get detailed mapping and population sizes.
Comarostaphylos diversifolia ssp. *diversifolia*	None	1B	90	80**	75	This species has a relatively widespread distribution in areas with coastal influence in San Diego County and Baja California. Only several individuals encountered on Otay Ranch.	General biological survey will be adequate.
Cupressus forbesii	C2	1B	90	80***	75	Restricted to three major locations on Otay, Tecate, and Guatay mountains in San Diego County. Also occurs in the Santa Ana Mountains of Orange County. Occurs in canyons and north slopes of San Ysidro parcel of Otay Ranch along the base of Otay Mountain.	Surveys of southern interior cypress forest habitat to obtain detailed mapping and number of trees impacted.

Table 3.3-6.1 (New) (Continued)

SENSITIVE PLANT SPECIES STANDARDS FOR DETERMINATION OF SIGNIFICANCE AND MITIGATION

Plant Species	Sensitivity Status State/Fed	Sensitivity Status CNPS	Standard for Determining Significance % preserv.	Standard for Onsite Preservation % preserv.	RMP Policy % preserv.	Regional Significance of Otay Ranch Populations	Survey Requirements at SPA Level
Lepechinia ganderi	C2	1B	90	80**	75	Restricted to San Miguel, Otay, and Jamul mountains in San Diego County. Also known from Baja California. Several populations along Minnewawa Truck Trail and in Little Cedar Canyon in the San Ysidro parcel on Otay Ranch.	General biological survey will be adequate.
Opuntia parryi var. *serpentina*	C2	1B	90	80	75	In San Diego County, restricted to several disjunct populations in southern portions of County. Occurrences along Otay River River Valley and Wolf and Poggi Canyons. Ranges into northern Baja California.	Survey in Otay River parcel to get detailed mapping and population size.
Brodiaea orcuttii	C2	1B	90	75	75	Relatively widespread distribution in San Diego County. Also occurs in Riverside County and northern Baja California. Two occurrences along drainage east of Otay Reservoir on Otay Ranch represent one of the southernmost known populations of this species.	Focused surveys during blooming period (typically May) within seasonal streams particularly in southern Jamul Mountains and San Ysidro parcel.
Calamintha chandleri	C3c	4	90	75	50	Uncommon in San Diego County, known from only several locations including Otay, McGinty, Jamul, and San Miguel Mountains. Small population on Callahan Mountain is the only occurrence on Otay Ranch. Range also includes Riverside and Orange counties and Baja California.	General biological survey will be adequate.
Cordylanthus orcuttianus	C2	2	90	75	75	Restricted to a few populations in southwestern San Diego County, including the Otay Ranch population. Otay Ranch location represents a range extension of several miles. Also known from northern Baja California.	Focused surveys in Otay River and associated drainages (March to Sept) and survey of known location to estimate population size.
Dudleya variegata	C2	4	90	75	50	Distribution restricted to southern San Diego County and northern Baja California. On Otay Ranch it is common on the Otay River parcel and occurs in smaller populations on the Proctor Valley and San Ysidro parcels.	Focused survey during blooming period (May-June) to get detailed mapping and population size estimates.
Ferocactus viridescens	C2	2	90	75	75	Relatively widespread distribution of disjunct populations in coastal San Diego County. Occurrence along Salt Creek on Otay Ranch is one of the higher density populations remaining. Also occurs in north coastal Baja California.	Survey to obtain population estimates.

Table 3.3-6.1 (New) (Continued)

SENSITIVE PLANT SPECIES STANDARDS FOR DETERMINATION OF SIGNIFICANCE AND MITIGATION

Plant Species	Sensitivity Status State/Fed	Sensitivity Status CNPS	Standard for Determining Significance % preserv.	Standard for Onsite Preservation % preserv.	RMP Policy % preserv.	Regional Significance of Otay Ranch Populations	Survey Requirements at SPA Level
Muilla clevelandii	C2	1B	90	75	75	Restricted to several highly disjunct populations in southern San Diego County and northwestern Baja California. Several occurrences on Otay Ranch, with one very extensive population covering 30 acres in northern Proctor Valley. Also large populations on the San Ysidro parcel.	Focused surveys during blooming period (typically April to early May) of suitable habitat.
Solanum tenuilobatum	C2	1B	90	75	75	Relatively narrow distributional range in southern San Diego County. Common component of chaparral and coastal sage scrub in the Proctor Valley-Jamul Mountains portion of Otay Ranch. Also known from northern Baja California.	General biological survey will be adequate.
Calamagrostis densa	C3c	4	60	50	50	San Diego County endemic with a relatively wide distribution in the county. Single occurrence in the Jamul Mountains on Otay Ranch.	General biological survey will be adequate.
Third Priority							
Adolphia californica	None	2	75	75	75	Widespread distribution in coastal San Diego County. Common in some areas along the Otay River Valley on Otay Ranch. Ranges into Baja California.	Survey to get detailed mapping and population sizes on the Otay River parcel.
Ambrosia chenopodiifolia	None	2	80	75	75	Narrow distributional range in California being restricted to coastal San Diego County near Chula Vista and Otay. On Otay Ranch it is found in Johnson Canyon and on Otay Mesa. Also ranges into Baja California.	Survey to get detailed mapping and population sizes.
Clarkia delicata	None	2	75	75	75	Limited to several small populations in San Diego County and northern Baja California. Single occurrence on Otay Ranch on the eastern slopes of the Jamul Mountains.	Focused surveys during blooming period (April) of suitable habitat.
Iva hayesiana	None	2	80	75	75	Relatively widespread distribution within San Diego County. On Otay ranch it is a common component of many of the small drainages on all project parcels. Ranges into northern Baja California.	Detailed mapping of alkali meadow required. Map habitat polygons with this species as a dominant or subdominant.
Physalis greenei	None	3	80	75	50	Relatively widespread distribution in San Diego County, but uncommon. Also occurs in Orange County and Baja California. Single occurrence on Otay Ranch on the Otay River parcel.	Focused surveys during blooming period (March-June) in favorable year for this species to determine if extirpated from the Ranch.

Table 3.3-6.1 (New) (Continued)

SENSITIVITY PLANT SPECIES STANDARDS FOR DETERMINATION OF SIGNIFICANCE AND MITIGATION

Plant Species	Sensitivity Status State/Fed	Sensitivity Status CNPS	Standard for Determining Significance % preserv.	Standard for Onsite Preservation % preserv.	RMP Policy % preserv.	Regional Significance of Otay Ranch Populations	Survey Requirements at SPA Level
Salvia munzii	None	2	80	75	50	Relatively common where it occurs, but restricted to southwestern San Diego County and Baja California. Several large populations occur on Otay Ranch on the Otay River and Jamul Mountains parcel.	Mapping of subtypes of coastal sage scrub to include habitat with *Salvia munzii* as a dominant or subdominant species. Surveys should also include extrapolation of population size by sub-sampling the populations.
Stipa diegoensis	None	2	80	75	75	Range includes southwestern San Diego County and Baja California. On Otay Ranch this species is relatively common in the Jamul Mountains and occurs on all three parcels.	Survey in May-June to map distribution and estimate population sizes.
Viguiera laciniata	None	2	80	75	75	Relatively widespread distribution in southwestern San Diego County, often dominating scrub habitat where it occurs. Common component of coastal sage scrub on Proctor Valley, Otay River and San Ysidro parcels of Otay Ranch. Ranges into Baja California.	Mapping of subtypes of coastal sage scrub to include habitat with *Viguiera* as a dominant or subdominant species. Surveys should also include extrapolation of population size by sub-sampling the population.
Harpagonella palmeri var. *palmeri*	None	2	60	60	75	Widespread distribution in San Diego County. Also ranges into Baja California, Arizona, and north into Los Angeles County. Several small populations on Otay Ranch in Proctor Valley, the otay River Valley, and the Salt Creek drainage.	Focused survey of clay soils to define polygons of occupied habitat.
Artemisia palmeri	None	2	50	50	75	Widespread distribution in San Diego County. Also ranges into Baja California. Limited to a single small population on Otay Ranch.	General biological survey will be adequate.
Fourth Priority							
Quercus engelmanni		4	90	75	50	Ranges from Los Angeles County south into Baja California. Widespread distribution in coastal and foothill areas of San Diego County. Abundant at a single location on the San Ysidro parcel and rare within the Jamul Mountains on Otay Ranch.	Survey to get detailed mapping of Engelmann oak woodland and determine impacts to individual trees.
Chamaebatia australis		4	50	50	50	Locally common in southwestern San Diego County and Baja California. On Otay Ranch abundant at high elevations in the Jamul Mountains and in small patches in the San Ysidro area.	General biological survey will be adequate.
Juncus acutus var. *sphaerocarpus*		4	50	50	50	Widespread distribution includes San Luis Obispo County south into Baja California and east to Arizona. Common component of alkali seeps and drainages on Otay Ranch.	General biological survey will be adequate.

Table 3.3-6.1 (New) (Continued)

SENSITIVE PLANT SPECIES STANDARDS FOR DETERMINATION OF SIGNIFICANCE AND MITIGATION

Plant Species	Sensitivity Status State/Fed	Sensitivity Status CNPS	Standard for Determining Significance % preserv.	Standard for Onsite Preservation % preserv.	RMP Policy % preserv.	Regional Significance of Otay Ranch Populations	Survey Requirements at SPA Level
Ophioglossum lusitanicum spp. *californicum*		4	50	50	50	Discontinuous distribution from central California south to Baja California. Locally common in southwestern San Diego County. Extensive population around vernal pools in Proctor Valley on Otay Ranch.	Survey in early spring soon after rains to detect any additional large populations that may have been undetected.
Pickeringia montana ssp. *tomentosa*		None	50	50	None	Distributed from San Bernardino Mountains south to Baja California. San Diego County occurrences primarily southern foothills. Several populations near Callahan Mountain on Otay Ranch.	General biological survey will be adequate.
Selaginella cinerascens		4	50	50	50	Relatively widespread distribution in coastal San Diego County, as well as Orange County and Baja California. Extensive populations throughout chaparral and sage scrub on Otay Ranch.	General biological survey will be adequate.
Romneya coulteri		4	50	50	50	Distribution includes Riverside and Orange counties and south coastal and foothill San Diego County. On Otay Ranch it is frequent at higher elevations in the Jamul Mountains and also occurs on the Otay River and San Ysidro parcels.	Survey upper slopes in Jamul Mountains to map occupied habitat.
Lepidium latipes		4	50?	50?	50	Status currently unknown. Recorded from the J29-30 vernal pool complex on Otay Mesa (Dudek 1992).	Focused surveys during blooming period.
Chorizanthe procumbens var. *procumbens*		4	35	35	50	Ranges from San Bernardino County south to San Diego County. Status unknown on Otay Ranch.	General biological surveys will be adequate to map occupied habitat.
Dichondra occidentalis		4	35	35	50	Distribution includes central California south to Baja California and the Channel Islands. On Otay Ranch it occurs on the Otay River, San Ysidro, and Jamul Mountains parcels.	General biological survey will be adequate.

* Preserve 100 percent of species where occurring with other vernal pool indicator species.
** A higher preservation standard is set for these species because mitigation would involve restoration of higher elevation chaparral about which relatively little is known.
*** 100 percent preservation if it occurs with Thorne's hairstreak or in Tecate cypress forest habitat.
**** The RMP policy is to assure the continued survival of these species.

Sensitivity of Species	Allowable Net Loss
High priority (State or Federally-Listed)	0%
Second Priority (Federal C2, CNPS List 1B)	<20%
Third Priority (CNPS List 2 & 3)	<20% – 40%
Fourth Priority (CNPS List 4)	<40% – 60%

These criteria are based in part on the San Diego County Guidelines for Implementation of CEQA but are left somewhat flexible to allow for differences in sensitivity levels within a given priority category and in size or significance of the onsite population(s). The County guidelines state that a 0 to 20 percent loss of the area of sensitive plants is allowable. If populations on surrounding properties, however, are large and have the potential for protection, a higher percent loss may be allowable. The overall sensitivity of a species also should be considered in determining the percent loss that is allowable.

Because of the regulatory constraints associated with any loss of federally or state-listed plants, all impacts to these species will be considered significant for the purposes of this analysis.

Species in the 2nd Priority category include candidates for listing as endangered, threatened, or rare, or those species that are considered endangered, threatened, or rare in California and elsewhere by the CNPS (List 1B). Determination of significant impacts for these species generally adheres to County guidelines (<20 percent allowable loss). A wider range of allowable impacts is presented for 3rd and 4th Priority species, respectively.

The 3rd Priority species include plants on CNPS lists 2 and 3. List 2 species are generally the same as List 1B species except that they are common outside California. List 3 includes species for which more information is necessary; these species could be given either a higher or lower sensitivity level. The <20-40 percent allowable loss would accommodate the range of sensitivity levels found within this category.

The 4th Priority category includes species on List 4, which is basically a "watch" list for species that are uncommon but not yet considered rare. Some of these species, however, may be considered significant on a local level. The <40-60 percent range for allowable losses to this group of plants also reflects the varying sensitivity levels represented here, and accounts for those species which may be more important in the project area than is reflected by their overall sensitivity rating.

Determination of significance of impacts has been conducted on a species-specific basis, and takes into account sensitivity level as well as additional factors such as relative population size (if known), overall distribution and abundance onsite and in the surrounding area, and degree of protection onsite or offsite in designated open space areas.

Table 3.3-6.1 provides species-by-species standards for determining significance of impacts and requirements for onsite (*in situ*) preservation. The general guidelines presented above were used in conjunction with the distribution and sensitivity of each particular species and its significance on Otay Ranch. The policies currently being developed for the Multiple Species Conservation Plan (MSCP) and the RMP also were consulted for consistency.

A description of the regional significance of each species onsite and the RMP policy for preservation are included in Table 3.3-6.1. Survey requirements at the SPA level also are included in Table 3.3-6.1.

Potentially significant indirect impacts to sensitive plant species may occur within populations that are adjacent to proposed development areas. Indirect impacts occur when project-related activities affect biological resources in a manner other than direct. Indirect impacts would potentially include increased levels of human activity and disturbance including trampling of vegetation, dumping of trash, disturbance from domestic animals, and increased soil erosion. Introduction of exotic plant species from landscaped areas in backyards, along roads, businesses, and public parks potentially threaten sensitive plant populations. Development also may cause changes in drainage patterns, surface runoff, the amount of surface water within floodplain areas, surface water quality, and groundwater quality and quantity. These changes will in turn affect sensitive plant species.

The following is a species-by-species discussion of the direct impacts from development of the New Town Plan.

Highest Priority Species (State-listed Threatened or Endangered)

Development of the New Town Plan would result in significant impacts to all of the highest priority species with the exception of slender-pod caulanthus and Mexican flannelbush.

San Diego Thorn-mint (*Acanthomintha ilicifolia*)

The two populations found on Otay Ranch would be lost. Both sites are in the Proctor Valley parcel near lower Otay Lake. This is considered a significant impact.

Dunn's Mariposa Lily (*Calochortus dunnii*)

This species would be impacted in the disjunct parcel near Little Cedar Canyon, and a small portion of the large population near the Minnewawa Truck Trail would be impacted. The population on a peak in northwestern Jamul Mountains would be retained. The number of point occurrences impacted would be 3 out of a total of 16 occurrences, (19 percent).

Slender-pod Caulanthus (*Caulanthus stenocarpus*)

There would be no impact to the one recorded sighting at higher elevations on Jamul Mountain.

San Diego Button-celery (*Eryngium aristulatum* var. *parishii*)

The extensive populations associated with J23, J24, J25, J29, and J31+ vernal pool complexes on Otay Mesa would be lost. The largest population, i.e., in the J30 vernal pool complex on Otay Mesa, would be retained in open space. Part of the small population in upper Proctor Valley, i.e., R3+, would be retained. The number of vernal pools with San Diego button-celery that would be developed is 44 out of a total of 153 pools with this species, i.e., 29 percent. Impacts to San Diego button-celery are considered significant.

Mexican Flannelbush (*Fremontodendron mexicanum*)

This species occurs in Upper Cedar Canyon on the San Ysidro parcel and would be retained in open space associated with San Ysidro Regional Park.

Otay Tarweed (*Hemizonia conjugens*)

The extensive populations of this species on the Otay River parcel, i.e., Salt Creek, Poggi Canyon, Wolf Canyon, and slopes of the Otay River Valley would be impacted heavily by development. An estimated 78 percent of the occurrences within the Otay River parcel would be adversely affected by development. This estimate could be higher depending on the location of Otay River Valley Parkway in the southwestern corner of the parcel. This species also would be lost where it occurs on the isolated parcel west of Proctor Valley, including one large population (estimated at greater than 10,000 plants). The number of point occurrences impacted within all of Otay Ranch would be 84 out of a total of 106,(79 percent). Impacts to Otay tarweed are considered significant.

Willowy Monardella (*Monardella linoides* ssp. *viminea*)

This species may be impacted at the lower end of the canyon in the western portion of the San Ysidro parcel. However, additional surveys for the SPA plan may indicate that no direct impact would result from this plan. The species would be retained throughout the rest of the canyon. The number of point localities that potentially may be impacted is 1 out of a total of 9, depending on the exact locations of the plants in the lower part of the canyon. This is a potentially significant impact. Potentially significant indirect impacts also may occur from the adjacent development. Alterations in the amount of water flowing into the canyon and disturbance from pedestrians, horses, mountain bikes, and dumping of trash all pose a threat to the continued survival of this population.

California Orcutt Grass (*Orcuttia californica*)

The location of this previously recorded species in the J-29 vernal pool complex on Otay Mesa would be lost. This is a potentially significant impact. Additional field surveys in a wetter year(s) would better confirm either the extirpation or presence of this vernal pool species on the ranch.

Otay Mesa Mint (*Pogogyne nudiuscula*)

This species would be lost from the largest populations, i.e., the J-23, J-24, and J-25 vernal pool complexes on Otay Mesa. It would be retained in the majority of the J30 complex on Otay Mesa, but may be affected by proposed developments along the southern perimeter. The number of vernal pools with Otay mesa-mint that would be developed is 80 out of a total of 97 pools with this species, (82 percent). This is considered a significant impact.

Second Priority Species (Federal C2 and CNPS List 1B)

~~Four~~ Two out of the 14 second priority species would not be impacted significantly by the New Town Plan, including San Miguel savory, and summer-holly~~, Tecate cypress, and Gander's pitcher sage~~.

Otay Manzanita (*Arctostaphylos otayensis*)

A portion of the Otay manzanita population in the disjunct parcel near Little Cedar Canyon would be impacted. The manzanita on the upper slopes of cedar canyon and in the northern part of Jamul Mountains would be retained in open space. The number of occurrences that would be impacted is 3 out of 13 on the ranch, (23 percent). This is considered a significant impact.

Orcutt's Brodiaea (*Brodiaea orcuttii*)

A portion of the extensive population in Proctor Valley Creek and the eastern tributary to Proctor Valley would be impacted. The population in the steep canyon in western San Ysidro Mountains would be retained. The number of occurrences to be impacted is 6 out of 12, (50 percent). This is considered a significant impact.

Dense Reed Grass (*Calamagrostis densa*)

This species was recorded previously in two localities at higher elevations on the Proctor Valley parcel. One of the occurrences would be affected by the development plan, i.e., 50 percent. This is considered a significant impact.

San Miguel Savory (*Calamintha chandleri*)

This species was recorded at high elevations near Callahan Mountain in the Jamul Mountains and would not be affected by development on the Proctor Valley parcel.

Summer-holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)

This species would be retained in its entirety within the proposed San Ysidro Regional Park and in the same open space associated with willowy monardella on the San Ysidro parcel.

Tecate Cypress (*Cupressus forbesii*)

A small portion of the cypress forest would be impacted in the three broad areas of occurrence on the ranch, i.e., Little Cedar Canyon, Cedar Canyon, and canyons in the western portion of the San Ysidro parcel. Major areas of this species, however, would be retained in open space. Only 22 out of 128 occurrences would be impacted, i.e., 17 percent. The impact to Tecate cypress as a sensitive species is ~~not~~ considered significant.

Variegated Dudleya (*Dudleya variegata*)

The largest populations, i.e., on Otay Mesa and Otay Valley, would be developed as well as the smaller populations on the western slope of Rock Mountain and in the Jamul Mountains would be developed completely. A portion of the Otay Mesa population would be retained in open space, principally in association with the J30 vernal pool complex. The majority of occurrences in the San Ysidro parcel also would be impacted. The number of occurrences that would be impacted on the ranch is 89 out of 128, (70 percent), which is considered a significant impact.

San Diego Barrel Cactus (*Ferocactus viridescens*)

Portions of all the major areas of occurrence would be developed, including portions of Salt Creek, north of Otay Valley, Otay Mesa, Jamul Mountains, and the western side of the San Ysidro parcel. The highest concentration of this species, located within the Salt Creek area of the Otay River parcel, potentially would be further impacted by siting the university in that area. The number of occurrences that would be impacted on the ranch is 241 out of 344, (70 percent), which is considered a significant impact.

San Diego Golden Star (*Muilla clevelandii*)

Impacts would occur to San Diego golden star within the majority of all of its population areas, including the extensive populations in upper Proctor Valley, west of Sycamore Canyon, near Minnewawa Truck Trail, east of San Diego Air Sports Center, and on Otay Mesa, and the smaller populations in the Jamul Mountains and west of Proctor Valley. The largest amount of this species retained in open space would be in the San Ysidro parcel near Minnewawa Truck Trail. The number of occurrences that would be impacted is 51 out of 68 (75 percent). Impacts to this species are considered significant.

Little Mousetail (*Myosurus minimus* ssp. *apus*)

Both the historic location on Otay Mesa (J30 vernal pool area) and recent occurrences north of Lower Otay Lake (K-6 vernal pool area) of this species would be lost to development. This loss is considered a significant impact.

San Diego Navarretia (*Navarretia fossalis*)

This species would be lost due to development of vernal pools in the southernmost extent of the J30 vernal pool complex on Otay Mesa. This is ~~not~~ considered a significant impact at this level of review.

Snake Cholla (*Opuntia parryi* var. *serpentina*)

All of the populations of this species in Poggi Canyon, on the north side of the Otay River Valley, at the mouth of Wolf Canyon, and in Salt Creek Canyon would be lost to development. Some retention could be expected given the design of the university in Salt Creek Canyon. The impacts to snake cholla are considered significant.

Narrow-leaved Nightshade (*Solanum tenuilobatum*)

An estimated 61 percent of the points of occurrence of this species would be affected by the proposed development plan (63 out of 104). This species is frequent in the Jamul Mountains, but would be heavily affected by the proposed development. Impacts to this species are considered significant.

Gander's Pitcher Sage (*Lepechinia ganderi*)

A small portion of the population on peaks in northern Jamul Mountains and in the disjunct parcel near Little Cedar Canyon would be affected by the proposed development. However, this species would be mostly retained on the peaks in Jamul Mountains and would be left in open space near the Minnewawa Truck Trail in the San Ysidro parcel. Number of occurrences that would be impacted on the whole ranch is 1 out of 9, (11 percent). This is ~~not~~ considered a significant impact at this level of review.

Third Priority Species (CNPS List 2 and 3)

Five of the 11 third priority species would not be impacted significantly by the proposed New Town Plan. They include California spinebush, San Diego sagewort, delicate clarkia, Orcutt's bird's beak, and Palmer's grappling-hook.

California Spinebush (*Adolphia californica*)

Populations of California spinebush would be developed on the slopes of Otay River Valley and possibly in Wolf Canyon (exact localities are unknown). A stand would be preserved adjacent to the J-30 vernal pool complex on Otay Mesa. The number of recorded occurrences that would be impacted is estimated to be 3 out of 10 (30 percent). This ~~is not~~ is considered a significant impact at this level of review.

San Diego Bur-sage (*Ambrosia chenopodiifolia*)

The population on Otay Mesa in the J23-24 vernal pool area would be lost to development. The location at the edge of Johnson Canyon on the Otay River parcel would be retained. The 50 percent loss of this species on the ranch is considered significant.

San Diego Sagewort (*Artemisia palmeri*)

Two of the six occurrences (33 percent) of this species would be impacted in Proctor Valley. San Diego sagewort is uncommon on the ranch and is not considered a regionally significant population; therefore, the impacts to this species are not considered significant.

Campo Clarkia (*Clarkia delicata*)

This species is found high on the northeastern slope of Jamul Mountains and would not be affected by development. Therefore, no significant impacts would occur.

Orcutt's Bird's-beak (*Cordylanthus orcuttianus*)

The one population south of the San Diego Air Sports Center would not be affected by the development plan. Therefore, no significant impacts would occur.

Palmer's Grappling-hook (*Harpagonella palmeri* var. *palmeri*)

Three of the four areas that this species occupies on the ranch would be developed, i.e., near the mouth of Salt Creek, south slopes of Otay River Valley, and upper Proctor Valley. Most of the occurrences, however, are in Johnson Canyon and would be retained in open space. Seven out of 20 occurrences on the ranch would be impacted, (35 percent). Because of the small extent of this species on the ranch and its relatively low sensitivity, impacts are not considered significant.

San Diego Marsh-elder (*Iva hayesiana*)

This species would be impacted on all three planning parcels: an estimated 64 percent on the Proctor Valley parcel, as much as 70 to 90 percent on the Otay River parcel due mainly to park development, and 30 percent on the San Ysidro parcel. Overall, the number of occurrences that would be impacted is 140 out of 255, (55 percent). This is considered a significant impact.

Greene's Ground-cherry (*Physalis greenei*)

This species previously was recorded on the ranch in the Salt Creek area and north of the Otay River Valley. Both localities would be affected by the development plan. Although this species was not located in the 1989 and 1990 surveys, it is presumed to be extant until directed surveys in a wetter year indicate otherwise. Impacts to this species are considered potentially significant.

Munz's Sage (*Salvia munzii*)

This species would be impacted by development on all three parcels. On the Proctor Valley parcel, 75 out of 104 occurrences (72 percent) would be developed; on San Ysidro parcel, 29 out of 42 (69 percent) would be developed; and on Otay River parcel 3 out of 4 (75 percent) would be developed. The highest concentrations on the lower slopes in the western San Ysidro parcel and on the southwestern slopes of the Jamul Mountains are proposed for development. Overall, 71 percent of occurrences on the ranch would be affected. This is considered a significant impact.

San Diego County Needlegrass (*Stipa diegoensis*)

An estimated 47 percent of the points of occurrence of this species would be lost on the Proctor Valley parcel, 67 percent on the Otay River parcel, and just under 50 percent on the San Ysidro parcel. This species is relatively common within the Proctor Valley and San Ysidro parcels, and its abundance on the ranch is considered significant in a regional context. The loss of 54 out of 111 occurrences (49 percent) is considered a significant impact.

San Diego Sunflower (*Viguiera laciniata*)

This common element of Diegan coastal sage scrub would be reduced substantially by the reduction of this habitat on all three planning parcels. Approximately 65, 58, and 66 percent of the point occurrences would be lost on the Otay River, Proctor Valley, and San Ysidro parcels, respectively. Overall 486 out of 774 occurrences (63 percent) would be developed on the ranch. The impacts to San Diego sunflower are considered significant.

Fourth Priority Species (CNPS List 4)

Because of their lower sensitivity, ~~most~~ many of the fourth priority species (~~5~~ 3 out of 8) would not be significantly impacted.

Southern Mountain Misery (*Chamaebatia australis*)

The population in the disjunct parcel in Little Cedar Canyon would be impacted by the proposed development; however, none of the other populations would be affected, i.e., ridges in northern Jamul Mountains, steep canyon on the western side of the San Ysidro Mountains, and the ridge east of Minnewawa Truck Trail. Just 1 out of 17 point occurrences (6 percent) would be impacted by development; thus, no significant impacts would result.

Western Dichondra (*Dichondra occidentalis*)

A large portion of the localities of this plant, near Cedar Canyon and southern Jamul Mountains, would be impacted be development. This species was relatively uncommon on the ranch and is not considered a regionally significant occurrence because of the species' wide distribution and overall low sensitivity. Therefore, although the impact to this species is slightly above the 40 to 60 percent range set as a guideline for significance determinations of fourth priority species, it is not considered significant.

Spiny Rush (*Juncus acutus* var. *sphaerocarpus*)

This species would be impacted most heavily on the Otay River parcel where 29 out of 48 point occurrences (60 percent) would be lost. The Proctor Valley parcel would lose 15 out of 36 occurrences (42 percent), but the only 2 occurrences on the San Ysidro parcel would be retained. Overall the reduction in spiny rush would be approximately 51 percent. Although large concentrations of this plant occur on the ranch, it is found abundantly in other parts of the county, and its distribution is more widespread. Impacts to spiny rush, however, are ~~not~~ considered significant at this level of review. Reduction of alkali marsh habitat, of which this species is an important part, is evaluated separately under impacts to sensitive habitats.

Chaparral Pea (*Pickeringia montana* ssp. *tomentosa*)

The only occurrence of this species on the ranch is on a ridge in the northern Jamul Mountains. This high elevation location would be left in open space; however, the proposed development abuts the locality and could potentially impact a small portion of the population. There would be no significant impact to this species.

California Adder's-tongue Fern (*Ophioglossum lusitanicum* ssp. *californicum*)

This species would be lost in both of its locations on the ranch, i.e., Proctor Valley and north of Lower Otay Lake. This is considered a significant impact.

Engelmann Oak (*Quercus engelmannii*)

A portion of the Engelmann oak groves would be lost in Cedar Canyon and Jamul Mountains. Three out of the 12 point occurrences (25 percent) on the ranch would be developed. Although the impact is below the 40 to 60 percent range set as a guideline for significance determinations of fourth priority species, the County guidelines indicate that any loss to oak trees within an oak woodland may be considered significant. If oaks are dispersed and cover larger areas, losses of up to 10 percent may be allowed. Therefore, the reduction of Engelmann oak trees on the ranch is considered a significant impact.

Coulter's Matilija Poppy (*Romneya coulteri*)

This species would be affected by the proposed development on all three parcels. The largest impact would be in the eastern part of the San Ysidro parcel (20 out of 29 occurrences). Lesser impacts would occur east of O'Neal Canyon in the Otay River parcel (1 out of 2 occurrences) and in the Jamul Mountains where one occurrence is on the edge of the proposed development. The total amount of impact would be approximately 64 percent of occurrences. ~~Although this is slightly above the 40 to 60 percent guideline range, the population on Otay Ranch is relatively small and is not considered significant in a regional context~~. Impacts to this species are ~~not~~ considered significant at this level of review.

Ashy Spike-moss (*Selaginella cinerascens*)

This species would be impacted heavily on all three parcels. The losses would be approximately 89 percent on the Otay River parcel, 74 percent on the Proctor Valley parcel, and 80 percent in the San Ysidro parcel. Overall, the number of occurrences impacted would be 179 out of 221 (81 percent). This is considered a significant impact.

3.3.2.4 Reduction of Sensitive Animals

An overlay of the New Town Plan on the sensitive wildlife map for Otay Ranch is included in Appendix A-9. Potential and observed impacts to sensitive wildlife species were evaluated for each parcel along with an overall determination of the significance of the impacts. Focused studies provided detailed distribution and abundance data for ~~coastal~~ cactus wren, California gnatcatcher, and sensitive raptors on Otay Ranch. However, location data for other sensitive species is limited to baseline resource surveys and incidental sightings obtained during focused raptor and wildlife corridor studies. Point of occurrence data correspond to locations where sensitive species were detected during surveys. Each point of occurrence reflects the location of at least one individual of that particular sensitive species. Estimates for California gnatcatcher pairs were obtained from point of occurrence data. Estimates for raptor pairs were made through a spot mapping analysis of point of occurrence data obtained during raptor surveys (Ogen 1992). However, for most species point of occurrence data verify that habitat is occupied and do not characterize the number of individuals occurring onsite. For many of these species, there is not enough point of occurrence data to make a quantitative assessment of impacts. In addition, some species with the potential to occur in the project area were not detected. For these reasons, it was necessary to look at potential impacts to these species based on the reduction of suitable habitat. Table 3.3-7 presents an evaluation of the observed and potential direct impacts for each sensitive wildlife species. Observed direct impacts are the number of points of occurrence for a species which would be impacted by implementation of the New Town Plan. Potential direct impacts are categorized for each species as high, moderate, low, or none. These categories were determined by the percent of suitable habitat being impacted for each species (Table 3.3-5). Habitat reduction of greater than 40 percent is considered a high impact, 20-40 percent is moderate, low is 1-20 percent and none is 0 percent. Finally, a determination of the significance of the direct impacts is presented. Significance was determined by the following criteria:

Sensitivity of Species	Allowable Loss
Priority One: State and/or federal threatened and endangered species (includes those proposed or petitioned for state and/or federal threatened/endangered status)	0%
Priority Two: USFWS C2 and CDFG Species of Special Concern	< 20%
Priority Three: Species with local sensitivity and avian species on the National Audubon Society's' Blue List (1986)	< 40%

Quantifiable criteria for determining significance of impact are not well developed for wildlife species with the exception of those with Priority One status. San Diego County Guidelines for the Implementation of CEQA, the City of Chula Vista's General Plan EIR, and the Otay Ranch RMP were consulted in formulating allowable loss and significance determinations. Allowable loss was also based on the criteria developed for determination of significance of impacts to sensitive plants on Otay Ranch.

Table 3.3-7 (Revised)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE NEW TOWN PLAN

Species Name	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Significance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]			
First Priority Species									
Endangered Species									
Southwestern willow flycatcher	—	H	—	N	—	N	PS	100% or HCP/ MSCP	See measures 1b-d, 2, 3, 4, 5, and 6.
Least Bell's vireo	8/8	H	—	N	—	N	S	100% or HCP/ MSCP	1. a. Impacts are unmitigable for this species under the New Town Plan. b. At the SPA Level, conduct a focused study of the distribution and abundance of this species in riparian habitat on Otay Ranch and offsite at Dulzura Creek. c. Assess direct and indirect impacts from proposed development and roads upon availability at the SPA Level of the Otay Valley Regional Park plan and detailed road alignment information. d. Prepare a general mitigation plan for significant impacts. Minimum mitigation measures include: - Preserve in natural open space all occupied habitat and high quality potential habitat.. - Preserve a 100 foot biological buffer and a 100 foot planning buffer adjacent to occupied and potential vireo habitat. - Incorporate 100 percent of onsite occupied and potential habitat into the Management Preserve outlined in the Resource Management Plan. 2. Assess direct impacts from proposed road construction at the following alignments: a. Otay Valley Parkway adjacent to the Otay River b. SR-125 and associated frontage road crossings of the Otay River c. Otay Lakes Road crossing at Dulzura Creek d. Jamul Access Road/unnamed 2 or 4 lane collector crossing of Dulzura Creek e. Alta Road crossing of the Otay River f. South Dam Road adjacent to Dulzura Creek and the east end of Lower Otay Lake g. Any other proposed roads with potential for direct impact to occupied or potential habitat. 3. Prepare a mitigation plan for significant direct road impacts and incorporate into the general mitigation plan (see measure 1c). The plan shall include the following measures: a. Redesign alignments to avoid impacts. Where avoidance of impacts is not feasible, redesign alignments to reduce impacts. - Otay Valley Parkway - move alignment north, away from river. Provide a minimum 200 foot open space buffer (see 1c) between the road alignment and occupied, high quality potential, and restored habitats. The buffer width could change pending the results of the noise studies (see 4b), and consultations with, and approval by the resource agencies. - SR-125 avoid impacts to potential or occupied habitat. Elevate above the Otay River Valley to reduce noise impacts. - Otay Lakes Road - keep within existing road corridor at Dulzura Creek to avoid impacts. If this is not feasible, design the crossing to minimize impacts and mitigate impacted habitat through restoration. - Jamul Access Road/unnamed 2 or 4 lan collector - eliminate Dulzura Creek crossing. - Alta Road - eliminate this crossing of the Otay River. If it is infeasible to eliminate this crossing, design so that the alignment does not impact occupied habitat. - South Dam Road - avoid impacts to offsite occupied and potential habitat at Dulzura Creek and at the east end of Lower Otay Lake.

Table 3.3-7 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel				
Species Name	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]	Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance

b. To mitigate impacts to high quality potential habitat, which is identified at the SPA Level, restore disturbed riparian habitat in the Otay River. Mitigation ratios for occupied and potential habitat shall be based on accepted standards at the time that SPA development occurs, and shall be set through consultation with, and approval from, the resource agencies.

4. Conduct a study of indirect impacts on this species from proposed development and roads. The focus for least Bell's vireo should be on the effects of a village center and residential housing on the Dulzura Creek population, the effects of the proposed Otay Valley Regional Park on the Otay River population, and the effects of roads on both populations. Evaluation of impacts shall be based on the baseline data in the Final Program EIR and from the distribution and abundance data obtained from surveys conducted at the SPA Level (see measure 1a). A partial listing of potential indirect development and road impacts which shall be considered are:
   a. Human activity and disturbance.
   b. Noise impacts from roads and adjacent development. Conduct a noise study to determine noise impacts from roads adjacent to, within, or near vireo habitat, and from development adjacent to vireo habitat (e.g., at Dulzura Creek). Provide recommendations to reduce impacts.
   c. Introduced predators such as cats.
   d. Increased potential for brown-headed cowbird parasitism
   e. Construction noise, dust, and disturbance.
   f. Invasion of non-native vegetation (i.e., *Eucalyptus* species., *Arundo* species, etc.)
   g. Artificial lighting from developed areas.
   h. Recreation related impacts.
   i. Habitat degradation and fragmentation.
   j. Changes in existing water quality and quantity which could negatively affect riparian habitat.
5. If indirect impacts from adjacent development or roads are significant, prepare and implement a mitigation plan at the SPA Level. Incorporate this mitigation into the general mitigation plan (see measure 1c). Mitigation measures shall be based on approved standards in effect at the time of the SPA development. Where appropriate, mitigation should coincide with recommendations of the Resource Management Plan (e.g., in regards to lighting, plantings allowed in landscaping adjacent to occupied habitat, etc.). Incorporate as a minimum, the following measures into the mitigation plan :
   a. Restrict human access to occupied habitat in the breeding season (March 15 to August 31).
   b. Require a minimum of a 100 foot biological and an adjoining 100 foot planning buffer along the edges of occupied, potential, and restored habitats.
   c. As necessary increase open space easements to buffer noise impacts pending recommendations of the noise study (see measure 4b).
   d. Implement an introduced predator management program.
   e. Implement a brown-headed cowbird management program.
   f. Employ measures to reduce construction impacts, including avoiding construction adjacent to or within occupied habitat during the breeding season (March 15 to August 31).
   g. Limit landscaping adjacent to occupied habitat (within the buffer zones) to native vegetation.
   h. Restrict the use of invasive, introduced plantings in landscaping adjacent to the buffer zones.
   i. Restrict lighting close to occupied habitat.
   j. Maintain and enhance where appropriate the existing water quality and quantity in occupied, potential, and restored habitats for this species.
6. At the SPA Level, prepare and implement a management plan for this species (this can be done in conjunction with the Resource Management Plan). The species management plan shall include provisions for periodic monitoring of populations within the Management Preserve as well as any significant onsite populations not included within the Management Preserve. The species management plan shall include appropriate management techniques approved by the resource agencies to maintain and where feasible to enhance existing onsite population(s).

Table 3.3-7 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

Species Name	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]			
Species Petitioned for Federal and/or State Listing									
Invertebrates									
Streptocephalus woottoni	—	H	—	H	—	H	S	100% or HCP/ MSCP	7. At the SPA Level, conduct a focused study of the distribution and abundance of this species within vernal pool habitat on Otay Ranch. 8. Assess direct and indirect impacts to occupied and potential habitat (includes vernal pools and associated watersheds) from proposed development and roads. The following is a partial listing of impacts to consider: a. Direct impacts to occupied and potential habitat (includes vernal pools and associated watersheds). b. Modifications of the watershed from development or roads which could change the water availability and water quality (e.g., pool chemistry) in vernal pools. Any changes to the watershed or vernal pools themselves could affect this species in an adverse way. c. The introduction of harmful chemicals into vernal pools through runoff from adjacent development, roads, and other land uses. d. Habitat degradation and fragmentation from adjacent development and roads. e. The introduction and proliferation into potential or occupied habitat of sensitive fairy shrimp, competitor species, such as *Branchinecta lindahli*. Harmful competitors could be introduced through the habitat restoration and enhancement process or through improper fairy shrimp reintroduction techniques. f. Any adverse impacts from increased human activity and presence (e.g., off-road vehicle activity, trampling of pools, illegal dumping, etc.). 9. Prepare and implement a mitigation plan for significant direct and indirect impacts from proposed development or roads. The following shall be incorporated into the mitigation plan: a. Preserve vernal pool complexes and associated watersheds where this species occurs or has the potential to occur. Redesign to avoid impacts to all occupied habitat. Redesign to avoid and minimize to the greatest extent feasible impacts to potential habitat. b. Include within the Management Preserve all occupied, restored, and potential vernal pool habitat and associated watersheds. c. Provide a 100 foot buffer around all preserved vernal pool complexes and associated watersheds. d. Restore or enhance disturbed vernal pool habitat to mitigate for unavoidable direct impacts to potential habitat or for indirect impacts to occupied habitat. Mitigation ratios for potential vernal pool habitat shall be based on accepted standards at the time that SPA development occurs, and shall be set through consultation with, and approval from the resource agencies. e. Restore or enhance disturbed habitat prior to impacting potential vernal pool habitat. f. As mitigation for impacts to potential habitat, conduct a study at the SPA Level concerning the feasibility of reintroducing this species into restored or enhanced vernal pool habitat. If feasible, use approved methodologies for introduction and monitoring of reintroduced populations. g. Maintain connectivity within vernal pool complexes and between adjacent or nearby vernal pool groups. h. Develop and implement a plan to eliminate harmful runoff from development and roads while still maintaining sufficient water supply for maintaining and where appropriate enhancing occupied, potential, and restored vernal pool habitat.

Table 3.3-7 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel				
Species Name	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]	Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
									10. Develop and implement a management plan for this species (see measure 6).
Brachinecta scandiegensis	—	H	—	H	—	H	S	100% or HCP/ MSCP	See mesures 7-10
Harbison's dun skipper	—	N	—	L	—	L	PS	100% or HCP/ MSCP	11. a. Conduct focused surveys for this species in appropriate habitat. b. Assess direct and indirect impacts from proposed development and roads. c. Prepare and implement a mitigation plan for significant impacts. The following measures shall be incorporated into the mitigation plan: - Redesign to avoid impacts to occupied habitat. - Preserve in natural open space all occupied habitat. Preserve in natural open space, high quality potential habitat (including all southern live oak riparian forest), and locations where the host plant, San Diego sedge *(Carex spissa)* occurs. - Enhance as appropriate, unoccupied southern live oak riparian habitat in preserve areas through the introduction of San Diego sedge. - Incorporate a minimum of 75 percent of preserved habitat for this species into the Management Preserve. - Maintain, and enhance as appropriate, the existing water quality and quantity in habitat preserved for this species. d. Develop and implement a management plan for this species (see measure 6).
Hermes copper	—	N	—	M	—	L	PS	100% or HCP/ MSCP	12. a. At the SPA Level, conduct focused surveys for this species in appropriate habitat. b. Assess direct and indirect impacts from proposed development and roads. c. Prepare and implement a mitigation plan for significant impacts. The following measures shall be incorporated into the mitigation plan: - Redesign to avoid impacts to occupied habitat. - Where appropriate, implement mitigation for this species in conjunction with mitigation for other species. d. Develop and implement a management plan for this species (see measure 6)
Thorne's hairstreak	—	N	—	N	—	L	PS	100% or HCP/ MSCP	13. a. At the SPA Level, conduct focused surveys for this species in appropriate habitat. b. Assess direct and indirect impacts from proposed development and roads. c. Prepare and implement a mitigation plan for significant impacts. The following measures shall be incorporated into the mitigation plan: - Redesign to avoid impacts to occupied habitat. - Preserve in natural open space all occupied habitat and potential habitat in Tecate cypress *(Cupressus forbesii)* stands. d. Prepare and implement a Fire Management Plan to prevent catastrophic wildfire destruction of the larval host, Tecate cypress. The fire control measures should include as a minimum, the following measures: - Prohibition of recreational off-road vehicle activity in the San Ysidro parcel. - Restriction of camp fires to designated areas. - Prohibition of gun shooting in the San Ysidro parcel. - Development of a public wildfire education and prevention program. - Development and implementation of a program for conducting controlled burns. e. Develop and implement a management plan for this species (see measure 6).

Table 3.3-7 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

Species Name	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]			
Quino checkerspot	—	H	—	H	—	H	PS	100% or HCP/ MSCP	14. a. At the SPA Level, conduct focused surveys for this species in appropriate habitat. b. Assess direct and indirect impacts from proposed development and roads. c. Prepare and implement a mitigation plan for significant impacts. The following measures shall be incorporated into the mitigation plan: - Redesign to avoid impacts to occupied habitat. - Preserve in natural open space all occupied habitat. - Preserve historical habitat in conjunction with mitigation for other species (e.g., see measures 7-10 and 24-25). - Introduce into vernal pools where appropriate, native *Plantago* species, the larval hosts for Quino checkerspot.
Reptiles and Amphibians									
California red-legged frog	—	L	—	L	—	L	PS	100% or HCP/ MSCP	15. a. At the SPA Level, conduct focused surveys for this species in appropriate habitat. b. Assess direct and indirect impacts from proposed development and roads. c. Prepare and implement a mitigation plan for significant impacts. The following measures shall be incorporated into the mitigation plan: - Redesign to avoid direct impacts to occupied habitat and to avoid or reduce impacts to potential aquatic habitat. - Preserve in natural open space all occupied habitat. Preserve in open space as feasible, potential aquatic habitat. - Enhance or restore as appropriate, disturbed wetlands adjacent to occupied habitat and in the Otay River, to mitigate for indirect impacts to occupied habitat and impacts to potential habitat. - Restore or enhance disturbed aquatic habitat prior to impacting potential aquatic habitat. - Preserve in open space, buffer zones around occupied, potential, and restored habitats. The minimum width of the buffer zone shall be determined at the SPA Level in conjunction with, and upon the approval, of the resource agencies. Retain connectivity between upland habitats, identified as essential at the SPA level for this species, and adjacent occupied, potential, and restored aquatic habitats. d. Develop and implement a management plan for this species (see measure 6). Provisions shall be made for controlling introduced predators of this species (e.g., bullfrog and large-mouthed bass).
Southwestern pond turtle	—	L	—	L	—	L	PS	100% or HCP/ MSCP	See measure 15. Additional mitigation: - Preserve occupied and potential upland nesting habitat adjacent to occupied, potential, or restored aquatic habitat.
Birds									
Cactus wren								100% or HCP/ MSCP	16. The regional importance of the onsite population and the magnitude of impacts under this plan make offsite mitigation infeasible. Impacts from the proposed plan are unmitigable for this species: • Development of Salt Creek drainage for University would result in an unmitigable loss of individuals and high quality habitat. 17. At the SPA Level, reassess impacts to this species using detailed development plans, [illegible] data from the Final Program EIR, and updated distribution and abundance data from SPA [illegible]eys.
Development Impacts:[5]	40/60	H	—	N	—	N			
Road Impacts:[6]	3/60	—	—	—	—	—			
Total Impacts:[7]	43/60	H	—	N	—	N	S		

Table 3.3-7 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel				
Species Name	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]	Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance

a. Conduct focused surveys of appropriate habitat at the SPA Level to determine abundance and distribution of this species prior to development. Territories shall be delineated for those individuals/pairs which occur or could occur within or adjacent to proposed development and roads.
b. Evaluate direct impacts to territories of individuals and pairs from proposed development. Impacts to locations of pairs/individuals for which habitat has been eliminated since the start of the environmental documentation process should also be evaluated.

18. Develop and implement a mitigation plan to avoid, reduce, and otherwise mitigate direct impacts from proposed development to a level below significance. This SPA Level mitigation plan shall include as a minimum the following measures:
    a. Redesign to avoid development impacts to occupied habitat. Minimum redesign requirements are described in measures 24 a, b, c, and 25 a, b, c, and d.
    b. In cases where it is infeasible to completely avoid impacts to occupied habitat, it is necessary to redesign to reduce impacts to the greatest extent feasible.
    c. Unavoidable impacts to occupied habitat shall be mitigated through habitat creation, restoration, or enhancement of disturbed habitats. Impacts to high quality potential habitat and to sighting locations for which habitat has been eliminated since the start of the environmental documentation process for the Final Program EIR shall also be mitigated through habitat creation, restoration, or enhancement. Mitigation ratios for occupied and potential habitat shall be based on accepted standards at the time that SPA development occurs, and shall be set through consultation with, and approval from the resource agencies.
    d. Creation, restoration, and enhancement of disturbed habitat as mitigation for occupied habitat, shall occur prior to impacting the occupied habitat. A focused study shall document occupancy and breeding of the impacted species in the created, restored, or enhanced habitat before the occupied habitat can be impacted.
    e. Incorporate into the Management Preserve outlined in the Resource Management Plan, a minimum of 80 percent of the onsite population of this species.
    f. Prepare and implement a long-term management plan for this species (see measure 6).
19. Assess direct impacts from proposed road construction at the SPA Level. Road alignments to be considered include:
    a. SR-125 crossing on the north slope of the Otay River Valley and in Johnson Canyon.
    b. Palomar Street north or Poggi Canyon and across Salt Creek Canyon.
    c. Orange Avenue through Poggi Canyon and across Upper Salt Creek Canyon.
    d. Hunte Parkway along the western edge of Salt Creek Canyon.
    e. Otay Valley Parkway along the Otay River Valley.
    f. Otay Valley Road/Paseo Ranchero Road through Wolf Canyon and across Poggi Canyon.
    g. Alta Road at the mouth of Salt Creek, on the south slope of the Otay River Valley, and in O'Neal Canyon.
    h. Any additional roads with potential for direct impact.
20. Prepare and implement a mitigation plan for direct impacts from roads. Minimum mitigation measures shall include as appropriate:
    a. Redesign alignments to avoid impacts to occupied habitat. Where is is infeasible to avoid direct impacts, redesign to reduce to the greatest extent feasible significant impacts. Potential realignments include but are not limited to:
        - SR-125 - move alignment west to avoid occupied habitat in Johnson Canyon. Site the alignment where it avoids any occupied habitat documented in measure 9a.
        - Palomar Street - avoid impacting native scrub habitats adjacent to Poggi Canyon and eliminate the crossing of Salt Creek Canyon.
        - Orange Avenue - avoid impacting native scrub habitats in Poggi Canyon. Avoid CSS/MSS in Salt Creek Canyon.

Table 3.3-7 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel				
Species Name	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]	Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
									- Hunte Parkway - move alignment west away from Salt Creek and onto the mesa. Site the alignment west of all occupied and potential habitat, as well as any areas which are identified and planned for habitat creation, restoration, or enhancement. - Otay Valley Parkway - realign further north onto the mesa to avoid occupied and potential habitat along the north slope of the Otay River Valley. Any areas which are identified and planned for habitat creation, restoration, or enhancement should be avoided. - Otay Valley Road/Paseo Ranchero Road - move alignment west out of Wolf Canyon. Avoid all occupied or potential habitat, as well as any areas which are identified and planned for habitat recreation, restoration, or enhancement. Eliminate Poggi Canyon crossing if feasible. If elimination of Poggi Canyon crossing is not feasible, realign the road to avoid impacts to occupied habitat. - Alta Road - Move alignment west to avoid occupied habitat in O'Neal Canyon and at the mouth of Salt Creek Canyon. Avoid occupied or potential habitat at the mouth of Salt Creek Canyon. Avoid occupied or potential habitat on the north and south slopes of the Otay River Valley and in O'Neal Canyon. Because of the impacts to a number of species and the difficulty of siting this road to avoid impacts, it is recommended that this alignment crossing the Otay River Valley be eliminated. b. All roads crossing gnatcatcher and cactus wren corridors shall conform to the recommendations of the completed two-phase Otay Ranch Wildlife Corridor Study (1992b). c. Restoration, enhancement, or creation of new habitat may be used to mitigate for unavoidable impacts to occupied or potential habitat. See measures 18 c and d. 21. Assess indirect impacts for pairs/individuals with territories adjacent to or near (within 600 feet) of proposed development and roads. The figure of 600 feet could change pending information obtained in future studies on the extent of indirect and edge effects from development and roads on this species. The minimum indirect impacts which shall be considered include those listed in measure 4a-i for the least Bell's vireo. 22. Prepare and implement a mitigation plan for significant indirect impacts from development and roads identified in measure 21. Include as a minimum those measures listed in measure 5a-i for the least Bell's vireo. For the cactus wren and California gnatcatcher the breeding season differs from that for the least Bell's vireo and is from February 1 to August 31.
California gnatcatcher									23. Impacts from the proposed plan are unmitigable for this species: The level of impact to undisturbed CSS and MSS potential and occupied habitats is unmitigable. • Insufficient acreage available onsite for full mitigation through enhancement and restoration of disturbed habitats. • Regional importance and magnitude of impacts make offsite mitigation infeasible. 24. See measures 17 - 22 Unmitigable CSS/MSS areas for this species that should be preserved as natural open space are: a. Salt Creek drainage - preserve entire drainage from rim to rim and any adjacent or nearby areas with CSS/MSS. b. Poggi and Wolf canyons - preserve both canyons from rim to rim and any adjacent or nearby areas with CSS/MSS. c. Existing CSS on Rock Mountain and all existing CSS/MSS on the north slope of the Otay River Valley d. All CSS and any other occupied habitat south of Lower Otay Lake and Dulzura Creek. e. All occupied CSS on the southwest slope of Jamul Mountain and east of Upper Otay Lake.
Development Impacts:[5]	56/73	H	18/40	H	18/31	H			
Road Impacts:[6]	2/73	—	1/40	—	0/31	—			
Total Impacts:[7]	58/73	H	19/40	H	18/31	H	S	100% or HCP/ MSCP	

Table 3.3-7 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel				
Species Name	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]	Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
									25. Areas recommended for enhancement or restoration of CSS/MSS habitats include: a. AG lands on the mesa and in ravines bordering the west side of Salt Creek. b. AG, NNG, and D-CSS habitats along the north slope of the Otay River Valley and as appropriate along the bottom of the valley. c. AG and NNG bordering and within Wolf Canyon, bordering and within Poggi Canyon, and along the shallow ravine identified as a gnatcatcher and cactus wren corridor linking the two canyons. d. NNG within and adjacent to Johnson Canyon. 26. See measures 19 and 20. Additional alignments to consider include: a. La Media/South Dam Road across Salt Creek Canyon and through the San Ysidro parcel. Eliminate the Salt Creek Canyon crossing and avoid occupied habitat in the San Ysidro parcel. Impacts from this road are potentially unmitigable depending on details of the alignment and updated distribution and abundance information for this species at the SPA Level. If feasible, this road should be eliminated. b. Otay Lakes Road through the Jamul mountains. Design the alignment to minimize impacts to occupied habitat. Move the alignment south at the southeast corner of the Proctor Valley parcel to avoid high occupancy habitat. c. Proctor Valley Road through the disjunct L-shaped parcel. Redesign to avoid occupied habitat. d. Two or four lane collector above Lower Otay Lake. Use the existing Otay Lakes Road alignment and do not expand to four lanes.
Tricolored blackbird	6/6	H	—	H	—	L	S	100% or HCP/ MSCP	27. a. At the SPA Level, conduct focused breeding surveys for this species in appropriate habitat. b. Assess direct and indirect impacts to breeding habitat from proposed development and roads. This includes assessing noise impacts from any proposed road alignments adjacent to preserved habitat. c. Prepare and implement a mitigation plan for significant impacts. The following measures shall be incorporated into the mitigation plan: - Redesign to avoid direct impacts to occupied breeding habitat and to avoid or reduce impacts to potential habitat. - Preserve in natural open space all occupied and restored breeding habitat, and where feasible, potential breeding habitat. - Include within the Management Preserve all preserved habitat. - To mitigate for impacts to potential habitat, restore or enhance suitable breeding marsh habitat along the Otay River. - Avoid construction or roads and other development during the breeding season (March 1 to August 31). - Preserve in open space buffer zones around occupied, potential, and restored habitats. The minimum width of the buffer zone shall be determined at the SPA Level in conjunction with, and upon the approval, of the resource agencies. d. Mitigation for foraging habitat loss shall be done in conjunction with mitigation for raptor grassland foraging habitat (see measures 33a-b, 33e-h, and 34a). e. Prepare and implement a management plan for this species (see measure 6).

Table 3.3-7 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

Species Name	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]			
Second Priority Species									
Reptiles & Amphibians:									
Western spadefoot toad	—	H	—	H	—	M	PS	80% or MSCP	28. a. At the SPA Level, conduct focused surveys for this species in appropriate habitat. b. Assess direct and indirect impacts to vernal pool and upland habitat from proposed development and roads. See measures 8a-d and 8f. Assess impacts from predators (e.g., the bullfrog). c. Prepare and implement a mitigation plan for significant impacts. The following measures shall be incorporated into the mitigation plan: - Redesign to avoid impacts to occupied habitat. - Preserve in natural open space occupied upland habitat, and where feasible, potential upland habitat. - Include a minimum of 75 percent of preserved habitat for this species within the Management Preserve. - Maintain connectivity between upland and vernal pool habitats. There shall be no roads or development fragmenting preserved upland and vernal pool habitat. d. Prepare and implement a management plan for this species (see measure 6). Incorporate within the management plan a program for controlling introduced predators (e.g., bullfrogs).
Arroyo southwestern toad	—	H	—	L	—	L	PS	80% or MSCP	29. a. At the SPA Level, conduct focused surveys for this species in appropriate habitat. b. Assess direct and indirect impacts from proposed development and roads. c. Prepare and implement a mitigation plan for significant impacts. The following measures shall be incorporated into the mitigation plan: - Redesign to avoid impacts to occupied upland habitat and where feasible, avoid or reduce impacts to potential habitat. - Preserve in natural open space occupied habitat, and where feasible, potential habitat. - Include a minimum of 75 percent of preserved habitat for this species within the Management Preserve. - Where feasible implement mitigation in conjunction with mitigation for other species. - Enhance or restore disturbed habitat to mitigate for unavoidable impacts to occupied habitat. - When feasible, enhance or restore disturbed habitat prior to impacting occupied habitat.
San Diego banded gecko	—	L	—	L	—	L	PS	80%	See measure 29.
San Diego horned lizard	0/1	H	0/3	H	2/2	H	S	80% or MSCP	30. Impacts are potentially unmitigable under the existing New Town Plan. See measure 29.
Sandstone night lizard	—	M	—	M	—	L	PS	80%	See measure 29.
Coronado skink	—	H	—	H	—	H	PS	80%	See measure 29.
Orange-throated whiptail	3/5	H	2/2	H	—	H	S	80% or MSCP	See measure 30.
Coastal western [illegible]	1/1	H	—	H	—	H	PS		See measure 29.

Table 3.3-7 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel				
Species Name	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]	Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
Silvery legless lizard	—	M	—	M	—	M	PS	80%	See measure 29.
Coastal rosy boa	—	H	1/1	H	—	H	PS	80%	See measure 29.
San Diego ringneck snake	—	H	—	H	—	H	PS	80%	See measure 29.
Coast patch-nosed snake	—	H	—	L	—	H	PS	80%	See measure 29.
San Diego mountain kingsnake	—	L	—	L	—	M	PS	100%	See measure 29.
Two-striped garter snake	—	H	2/2	H	0/1	H	PS	80%	31. See measure 29. Additional mitigation measures include: - Maintain and enhance where appropriate the existing water quality and quantity within the preserved habitat of this species.
Northern red diamond rattlesnake	—	H	—	H	—	H	PS	80%	See measure 29.
Birds:									
Osprey	1/1	N	—	N	—	N	NS		
Northern harrier	33/41	H	16/20	H	10/11	H	S	100% of Breeding Population and 80% of Nonbreeding Population or MSCP	32. Loss of regional raptor foraging and nesting habitat under the proposed plan is not mitigable as: a. Reduction of habitat for sensitive resident raptors cannot be mitigated onsite under current plan. b. Regional impacts on all raptor species cannot be mitigated due to the magnitude of habitat loss. c. Regional ecological impacts on non-raptor species from reduction of raptor predators is not mitigable. d. Offsite mitigation for loss of raptor habitat is not feasible given the regional importance of Otay Ranch raptor habitat. 33. Redesign is required to preserve a majority of the key raptor nesting and foraging areas presented in the Otay Ranch Raptor Management Study. The following areas are identified as key raptor habitat (see Figure 10 in the raptor study): a. Otay River Valley (including the slopes). b. Otay Mesa and Johnson Canyon c. Salt Creek Canyon d. Wolf Canyon e. Poggi Canyon and Telegraph Avenue f. North end of Proctor Valley g. Central Proctor Valley and the adjacent slopes to the east h. Lower southwest slopes of Jamul Mountains i. Disjunct parcel west of the lower end of Upper Otay Lake j. Canyon southeast of Buschalaugh Cove and the area east of Lower Otay Lake Dam k. Western San Ysidro parcel below south shore of Lower Otay Lake and Dulzura Creek l. Little Cedar Canyon m. Hubbard Springs (southern live oak riparian forest and sycamore alluvial woodland) n. Cedar Canyon o. Area adjacent to offsite Sycamore Canyon in the San Ysidro parcel

Table 3.3-7 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

Species Name	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]			
									34. Depending on which and how much of the key raptor areas are preserved, the enhancement of additional areas for foraging and nesting habitat could be required at the SPA Level to reduce impacts to below significance. Areas recommended for restoration are identified in the Otay Ranch Raptor Management Study and include: a. Native grassland restoration for foraging. Potential restoration sites include: • NNG on Otay Mesa south and west of vernal pools. • Portions of suitable AG lands on mesa north of Otay River Valley. - The lower southwest slopes of the Jamul Mountains adjacent to vernal pool _ b. Cliff Nest Enhancement Sites include: • East of Lower Otay Dam • Southeast corner of the Proctor Valley parcel c. Tree Nest Enhancement Areas include: • Appropriate ravines and canyons throughout the three parcels (enhance with sycamore, oak, willow, and cottonwood tree species). 35. Prepare and implement a long term raptor management plan for raptors on Otay Ranch. This plan should be based on the recommendations of the Otay Ranch Raptor Management Study. It should also include as appropriate any other management techniques which become available and are applicable for the raptor population on Otay Ranch. The management plan should include provisions for periodic long term monitoring of onsite raptor populations to determine their status and the appropriateness of management techniques. The goal of the management program shall be to maintain and where feasible enhance preserved raptor populations.
Black-shouldered kite	13/13	H	1/1	H	—	M	PS	60%	See measures 32-35.
Sharp-shinned hawk	1/1	H	1/2	H	0/1	H	NS		
Cooper's hawk	1/1	H	2/2	H	3/6	H	S	80% or MSCP	See measures 32, 33 a, 33i-o, 34c, and 35.
Red-shouldered hawk	3/3	H	2/3	M	—	M	NS		
Ferruginous hawk	3/4	H	2/3	H	—	M	NS		
Golden eagle	8/10	H	16/23	H	1/5	H	S	100% of Breeding Habitat and Asso-cisted Key Foraging Habitat or MSCP	See measures 32-35.
Prairie falcon	4/4	H	5/5	H	—	H	NS		
Merlin	1/1	H	1/1	H	—	H	NS		
Mountain plover	—	H	—	M	—	M	NS		

Table 3.3-7 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel				
Species Name	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]	Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
Long-billed curlew	—	L	—	N	—	N	NS		
Burrowing owl	2/3	H	1/1	H	—	M	S	100% or MSCP	36. See measures 32 and 35. a. At the SPA Level, conduct focused surveys for this species in appropriate habitat. b. Assess direct and indirect impacts from proposed development and roads. c. Prepare and implement a mitigation plan for significant impacts. The following measures shall be incorporated into the mitigation plan: - Redesign to avoid impacts to occupied habitat and where feasible, avoid or reduce impacts to potential habitat. - Preserve in natural open space all occupied habitat, and where feasible include potential habitat. - Include a minimum of 75 percent of preserved habitat for this species within the Management Preserve. - Provide a 300 foot buffer around occupied or potential burrowing owl colonies. - Where feasible implement mitigation in conjunction with mitigation for other species (e.g. see measures 33 a-b, 33e-h, and 34a).
Long-eared owl	—	N	—	N	—	H	PS	100%	See measures 32, 33 a, 33i-o, 34c, and 35.
Short-eared owl	—	H	—	M	—	L	NS		
California horned lark	—	H	—	H	—	H	PS	80%	37. Preservation and restoration of grassland habitats as outlined in measures 33a-b, 33e-h, and 34a would mitigate significant impacts to this species.
Loggerhead shrike	11/15	H	2/3	H	—	L	PS	80%	See measure 37
Yellow warbler	1/1	H	—	N	—	N	PS	80%	See measures 1b-d, 2, 3, 4, 5, and 6
Yellow-breasted chat	8/8	H	—	N	—	N	PS	80%	See measures 1b-d, 2, 3, 4, 5, and 6
Blue grosbeak	16/21	H	6/7	H	0/1	L	PS	60%	Implementation of measures 1-5 for the least Bell's vireo would mitigate significant impacts for this species.
Southern California rufous-crowned sparrow	—	H	3/4	H	2/6	H	PS	80% or MSP	38. Implementation of measures 24-26 for the California gnatcatcher would mitigate for this species.
Bell's sage sparrow	8/12	H	4/6	H	6/6	H	PS	80%	See measure 38.
Grasshopper sparrow	9/9	H	14/15	H	—	L	PS	60% or MSCP	See measure 37.

Table 3.3-7 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

Species Name	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]			
Mammals:									
California leaf-nosed bat	—	L	—	L	—	M	PS	100% of Roosting Habitat	39. a. Conduct focused surveys for this species in appropriate habitat. Identify occupied, historic, and potential roosting areas. b. Assess direct and indirect impacts from proposed development and roads. c. Prepare and implement a mitigation plan for significant impacts. The following measures shall be incorporated into the mitigation plan: - Redesign to avoid impacts to roosting habitat (includes occupied, potential, and viable historic roost sites). - Preserve in natural open space all roosting habitat (includes occupied, potential, and viable historic roost sites). - Incorporate preserved roosting habitat for this species into the Management Preserve. - Design bridges and overpasses to promote their use as potential roost sites for bats. - Foraging habitat for this species should be mitigated for through preservation of habitat for other species onsite (e.g., see measures 1-5, 24-26, and 33-34. d. Develop and implement a management plan for this species (see measure 6). Include provisions for restricting human access and disturbance to bat roosting habitat.
Townsend's big-eared bat	—	L	—	L	—	M	PS	100% of Roosting Habitat	See measure 39.
Pallid bat	—	L	—	L	—	M	PS	100% of Roosting Habitat	See measure 39.
California mastiff bat	—	L	—	L	—	M	PS	100% of Roosting Habitat	See measure 39.
San Diego black-tailed jackrabbit	—	H	—	H	—	H	PS	80%	See measure 38.
Pacific little pocket mouse	—	H	—	L	—	N	PS	100% of MSCP	40. a. Conduct focused surveys for this species in appropriate habitat. b. Assess direct and indirect impacts from proposed development and roads. c. Prepare and implement a mitigation plan for significant impacts. The following measures shall be incorporated into the mitigation plan: - Redesign to avoid and reduce impacts to occupied habitat. - Preserve in natural open space occupied habitat - Include within the Management Preserve 75 percent of the preserved habitat for this species. - Where appropriate mitigation should be implemented in conjunction with mitigation for other species. - Enhance or restore disturbed habitats to mitigate for direct impacts to occupied habitat. - Where feasible, enhancement or restoration of disturbed habitats should occur prior to impacting occupied habitat.
Northwestern San [illegible] pocket mouse	—	M	—	M	—	M	PS	8[illegible]	See measure 40.

Table 3.3-7 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel				
Species Name	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]	Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
Dulzura California pocket mouse	—	M	—	M	—	M	PS	80%	See measure 40.
Southern grasshopper mouse	—	M	—	M	—	M	PS	80%	See measure 40.
San Diego desert woodrat	—	M	—	M	—	M	PS	80%	41. Implementation of measures 17 - 21 for the cactus wren should mitigate for this species.
American badger	1/1	H	—	H	—	M	NS		

Table 3.3-7 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

Notes:

1 The detected direct impact is the number of detected points of occurrence eliminated by proposed development over the total number of points of occurrence in that parcel. The total number of points of occurrence for California gnatcatchers represents an estimate of the number of pairs based on extensive data bases (ASI 1988; MBA 1989 and 1991; Ogden 1991; and RECON 1991).

2 The potential direct impact is based on loss to development of potential habitat for that species.

3 The significance of impact is based on detected impacts, potential impacts from habitat loss to proposed development, and on available distribution and abundance information for each sensitive wildlife species within the project area. Also taken into account were microhabitat use patterns that could reduce or increase the potential for impact to that species. Any adverse impacts to Priority 1 species were considered significant. In most cases, impacts to Priority 2 species that are presumed to be widespread on Otay Ranch were significant if more than 20% of occurrence and/or greater than 20% of potential habitat were lost to development. Species with only a few points of occurrence were evaluated individually.

4 Standards presented in this table are the minimum preservation requirements for each species which is significantly or potentially significantly impacted by the proposed development in the New Town Plan. The preservation standard for a particular species may change at the SPA Level if there is a change in the sensitivity status of that species.

5 "Development impacts" would be due to habitat loss from proposed commercial and residential development.

6 Road impacts would be due to road construction and would apply only to onsite individuals not already affected by "development impacts." Sighting locations which would be impacted by both road construction and habitat loss to development are included in the "development impacts" category.

7 Total impacts combines the Development and Road impact categories.

Legend:
- — = Insufficient quantitative data recording presence of species within parcel
- H = High probability for direct impact through >40% reduction of potential habitat
- M = Moderate probability for direct impact through 20-39% reduction of potential habitat
- L = Low probability for direct impact through 1-19% reduction of potential habitat
- N = No potential impact
- NS = No significant impact
- S = Significant impact
- PS = Potentially significant impact; more data needed on distribution and abundance

Implementation of the New Town Plan would significantly impact one state and federally listed species, ~~one species under consideration for endangered status by USFWS, and another species petitioned for listing as a federal endangered species~~ and five other species petitioned or proposed for endangered species status. In addition, ~~one federal C2 species, three~~ four CDFG Species of Special Concern (~~SSC~~), and two species with both federal C2 and CDFG SSC status would be significantly impacted. Potential impacts could occur to 37 additional species with ~~C1/C2~~ federal candidacy or CDFG ~~SSC~~ Species of Special Concern status depending on their distribution and abundance within the project.

The New Town Plan would substantially reduce key wildlife habitat on the lower elevations of the ranch. Areas of highest concentrations of sensitive animals, such as Salt Creek Canyon, Wolf Canyon, Poggi Canyon, the north slope of the Otay River Valley, the lower western slopes of the San Ysidro parcel, south of Lower Otay Lake and the lower slope of Jamul Mountain adjacent to Upper Otay Lake, would all be substantially impacted by the development plan.

Implementation of the New Town Plan would indirectly affect sensitive animals and wildlife habitat adjacent to roads or development. Animals could be adversely affected by noise, lighting, human activity, and introduced predators (e.g., dogs and cats). Human activity (e.g., off-road vehicles) and adjacent roads or development could cause degradation and fragmentation of habitats. Landscaping in adjacent development could increase the potential for the invasion of non-native plant species into native habitats which could reduce the value of the habitat to some species of wildlife. The introduction of agriculture or livestock into areas adjacent to native habitats could increase the potential for brown-headed cowbird parasitism of nesting birds. Depending on buffer zones and urban runoff systems, development and roads adjacent to Upper and Lower Otay Lakes could potentially impact waterfowl and fish habitat potentially through increased human disturbance, degradation of habitat, and pollution. Increased human presence could also increase the potential for wild fires which could cause mortality of animals and destroy wildlife habitat. These indirect effects of development, roads, and increased human proximity to wildlife could ultimately reduce breeding success and increase the potential for mortality among some sensitive animal species.

~~Highest~~ First Priority Species (Federal and State-listed Threatened or Endangered, Including Petitioned Species)

If the southwestern willow flycatcher occurs onsite, it could be significantly impacted by the development of roads and the Otay Valley Regional Park (see least Bell's vireo discussion).

Significant direct impacts could occur from loss of least Bell's vireo *(vireo bellii pusillus)*habitat in the Otay River Valley. The eight sighting locations would be incorporated into the Otay Valley Regional Park which is proposed for active recreation uses. The level of impacts could vary depending on the design of the park. Development of existing riparian habitat could impact all eight recent least Bell's vireo locations. Even if vireo habitat were retained in the park, there would still be significant direct impacts from the siting of Otay Valley Road. Indirect noise impacts from Otay Valley Road and the SR-125 crossing of the Otay River need to be studied and assessed in more detail.

The population of least Bell's vireo adjacent to the San Ysidro parcel would be significantly affected by the construction of Otay Lakes and Telegraph Canyon Roads across Dulzura Creek. The proposed 2- or 4-lane collector would also significantly impact this population. Long-term indirect effects from traffic noise are of concern. Residential development adjacent to Dulzura Creek would indirectly impact least Bell's vireo. Short-term noise

impacts could occur during grading and construction. Potential long-term adverse effects from residential development include increased human activity and disturbance, an increase in non-native predators (i.e., domestic cats), a possible increase in brown-headed cowbird populations due to the reduction of native plant communities, and an increase in noise and lighting impacts.

Under the proposed New Town Plan, least Bell's vireo would be significantly impacted in the Otay River and San Ysidro parcels. Depending on the level of development of Otay Valley Regional Park, impacts to least Bell's vireo may be unmitigable. A more detailed assessment of impacts will be necessary upon completion of development plans for the Otay River Valley.

The 71.9 percent conversion of vernal pools to development represents a ~~potentially~~ significant impact to two species of fairy shrimp; *Streptocephalus woottoni* and *Branchinecta sandiegensis*. ~~Information on the distribution and abundance of these species in Otay Ranch vernal pools is required to determine the significance of impacts from development~~. These two species would be impacted in the J25 and J30 vernal pool complexes. They could also be affected in other onsite vernal pool complexes for which there is no survey data available. The Quino checkerspot butterfly (*Euphydryas editha quino*) could also be adversely affected by the elimination of vernal pool and coastal scrub habitat. The current status of this rapidly declining butterfly is unknown in the project area. If present on Otay Ranch, development of vernal pool habitat and elimination of associated host plants would significantly impact this species. Development of 34 acres of live oak riparian forest could impact Harbison's dun stripper (*Euphyes vestris harbisoni* if it occurs onsite. The reduction of upland scrub communities by 56 percent could significantly affect the Hermes copper butterfly (*Lycaena hermes*) it if occurs onsite. Thorne's hairstreak (*Mitoura thornei*) is limited in distribution to Otay Mountain which supports its host plant, Tecate cypress. Catastrophic events such as wildfire could potentially impact this species. The development of the San Ysidro parcel could increase the frequency of wildfire and reduce stands of mature Tecate Cypress. A reduction in tree reproduction and fewer mature stands could significantly impact Thorne's hairstreak.

Two aquatic dwelling species, the California red-legged frog (*Rana aurora draytoni*), and southwestern pond turtle (*Clemmys marmorata pallida*) have low potential for impact as they have a low probability of occurring onsite. However, if the few acres of aquatic habitat and freshwater marsh in the Proctor Valley and San Ysidro parcels are developed under the New Town Plan they could be signfiicantly impacted. These species were not observed on the site. A southwestern pond turtle was observed adjacent to the Proctor Valley parcel in the Upper Otay Lake. Additional information on abundance and distribution of these two species within the project area would be needed to assess impacts from development of the New Town Plan.

Impacts to ~~this species~~ California Gnatcatcher (*Polioptila californica*)would closely follow the reduction of Diegan coastal sage scrub and maritime succulent scrub. Substantial reductions of these habitats, especially on the Otay River parcel and the lower western portions of the Proctor Valley and San Ysidro parcels by the proposed development plan, would significantly impact this species. Estimates of the number of California gnatcatcher pairs present on Otay Ranch are based on cumulative sighting location data collected over a three-year period (1988-1991). If more than one sighting was mapped within a 15-acre polygon, only the most recent sighting was retained. If more than one pair were known to have been observed simultaneously at the same location, both sightings were retained on the map. This process minimizes double counting and attempts to reflect the most current

data available. In areas for which there is no recent (1989-1991) data, historic data (1988) was retained to reflect recent changes in the habitat from activities such as discing in western Salt Creek and near Poggi Canyon. Combined data from RECON (1991), 1988 surveys (ASI 1988), and 1991 incidental sightings by Ogden, suggest 140 to 150 pairs occur on Otay Ranch. Under the New Town Plan, at least 92 of these pairs would be impacted by habitat loss development.

Roughly 45 percent of the Otay Ranch gnatcatcher population is located on the Otay River parcel. Based on historic (1988) and recent (1989-1991) data, an estimated ~~60 to 65~~ 70 to 75 pairs of California gnatcatchers have occurred on the Otay River parcel since 1988. Discing activity subsequent to 1988 surveys, reduced available gnatcatcher habitat west of Salt Creek and near Poggi Canyon. Currently, ~~50~~ 60-65 pairs of California gnatcatchers are estimated on this parcel ~~(RECON 1991)~~. Implementation of the New Town Plan would impact at least ~~50~~ 56 of the ~~65~~ 73 original pairs (56/73 points of occurrence). The highest impacts would occur in the Salt Creek area where approximately 50 percent of the Otay River parcel's population occurs. Large populations in Poggi and Wolf canyons would lose most of their habitat and become isolated. The territories on the north side of the Otay River Valley and on Rock Mountain would also be developed. Construction of SR-125 would affect at least one to two pairs in Johnson Canyon. Depending on the design, SR-125 could become a barrier to movement of gnatcatchers east and west. Other road construction on the Otay River parcel would increase impacts above the estimated 50 pairs. Most road impacts would occur in areas that are already impacted by development. Alignments in developed areas that ewould impact California gnatcatcher are Paseo Ranchero Road/Otay ~~Ranch~~ Valley Road, Otay Valley Parkway/Hunte Parkway ~~Callahan Boulevard~~, ~~Otay Lakes Road, and University Parkway~~ Palomar Street, Orange Avenue and Alta Road. ~~Additional impacts to California gnatcatchers would occur from construction of Orange Avenue through undeveloped portions of Poggi Canyon~~. Road construction in the Otay River parcel needs to be further evaluated for potential direct and indirect impacts to California gnatcatchers.

On the San Ysidro parcel, at least 18 of the 31 to 35 pairs of California gnatcatchers would be impacted. The highest concentration of gnatcatchers occur on the western half of the parcel near Lower Otay Lake. Adjacent City of San Diego owned lands also support a high number of California gnatcatchers. Four California gnatcatcher sightings on or immediately adjacent to the property border could also be impacted by the New Town Plan. Development of the western portion of the San Ysidro parcel would directly impact 15 onsite pairs. Only four gnatcatcher sightings were recorded east of the Daley Quarry, two of which would be retained in open space at the San Ysidro Regional Park. Construction of ~~"A" Way~~ La Media Road/South Dam Road would affect onsite gnatcatchers ~~already impacted by habitat loss to development~~. in Salt Creek and in the San Ysidro Parcel A number of offsite gnatcatchers (at least 5 pairs) on City of San Diego property would also be impacted by portions of the alignment south of Lower Otay Lake.

Baseline survey data (ASI 1988 and MBA 1989), recent surveys (Dudek and Associates 1991), and incidental sightings (Ogden, unpublished data) of California gnatcatchers indicate there are at least 40 pairs on the Proctor Valley parcel. Implementation of the existing New Town Plan would eliminate 18 of 40 pairs. California gnatcatchers are more diffusely distributed in this parcel than in the other two parcels. The highest impacts would occur south of Upper Otay Lake and along the lower southern and western slopes of Jamul Mountain. One gnatcatcher sighting location would be impacted by Proctor Valley Road at the southeast corner of the L-shaped parcel. Other road impacts would occur in areas already affected by development. Eight additional California gnatcatcher locations on the

property line or immediately adjacent offsite could also be impacted by the New Town Plan.

Currently, a minimum of 28 pairs of ~~coastal~~ Coastal Cactus Wren (*Campylorhynchus brunneicapillus*) are estimated to occur on Otay Ranch within the Otay River parcel (RECON 1991). Cactus wren location data (ASI 1988 and Recon 1991) indicate additional cactus wren inhabited the parcel prior to discing west of Salt Creek and near Poggi Canyon. The addition of incidental sighting data (Ogden, unpublished) results in 60 points of occurrence for cactus wren on Otay Ranch. Habitat loss and road construction in developed areas of the New Town Plan would impact 40 (66.6 percent) of these locations. The great majority of this impact would occur within Salt Creek Canyon. At least two to three additional cactus wren locations not impacted by habitat loss to development, would be impacted by road alignments in the Otay River parcel. Road impacts are detailed in the discussion of impacts to California gnatcatchers on the Otay River parcel. The overall cactus wren impact is closely associated with the reduction of maritime sage scrub estimated at 59 percent (Table 3.3-5) and is considered significant.

Tricolored blackbird (*Agelaius tricolor*) would be significantly impacted by the development of floodplain and willow scrub in the Otay River Valley. A large tricolored blackbird colony was observed in 1991 at the proposed SR-125 Otay River crossing. Tricolored blackbird are nomadic and do not always use the same nesting colony in subsequent years. However, region-wide reductions in potential nesting colonies makes the Otay River an important resource for this species. Tricolored blackbird would also be significantly impacted by the conversion of foraging habitat in agriculture lands to urban development under the New Town Plan.

Second Priority Species (Federal Candidates and/or CDFG Species of Special Concern)

Development of the New Town Plan would reduce existing upland scrub communities by 56.1 percent on Otay Ranch. This reduction in habitat and particularly the elimination of ~~5,270~~ 5,755 acres of undisturbed coastal sage scrub and maritime succulent scrub habitats would impact a number of sensitive species. Sensitive species that would be significantly impacted include San Diego horned lizard (*Phrynosoma coronatum blainvillei*) and orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*). Species that occur onsite and could be significantly impacted are coastal western whiptail (*C. tigris multiscutatus*), coastal rosy boa (*Lichanura trivirgata roseofusca*), northern red diamond rattlesnake (*Crotalus ruber ruber*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), Bell's sage sparrow (*Amphispiza belli belli*), San Diego desert woodrat (*Neotoma lepida intermedia*), and San Diego black-tailed jackrabbit (*Lepus californicus bennetti*). Undetected species inhabiting upland scrub such as ~~Hermes copper butterfly (*Lycaena hermes*)~~, San Diego banded gecko (*Coleonyx variegatus*), coast patch-nosed snake (*Salvadora hexalepis virgultea*), northwestern San Diego pocket mouse (*Perognathus fallax fallax*), Dulzura California pocket mouse (*Perognathus californicus femoralis*), and southern grasshopper mouse (*Onychomys torridus ramona*) could be impacted if they occur onsite. Distribution and abundance data for these species within the project boundaries are lacking for a determination of the significance of impacts.

Pacific little pocket mouse (*Perognathus longimembris pacificus*) and Arroyo southwestern toad (*Bufo microscaphus californica*) could potentially occur in the sandy soils of the Otay River Valley. Development of the Otay River Park could impact these species if they are present. The Arroyo toad could also be impacted by development of sandy washes and drainages in the Proctor Valley and San Ysidro parcels. Additional data on their

distribution and abundance onsite would be required to determine the significance of impacts.

Yellow-breasted chat (*Icteria virens auricollis*), and yellow warbler (*Dendroica petechia*), would be impacted by development of riparian and willow scrub habitat in Otay River Park. Indirect and direct impacts to yellow-breasted chat and yellow warbler in the Otay River and San Ysidro parcels are the same as for the least Bell's vireo. The willow flycatcher (*Empidonax traillii*) has been historically reported from Dulzura Creek adjacent to the San Ysidro parcel. If found to occur in the project area, this species could be significantly impacted by the development of riparian areas in the same manner as the least Bell's vireo.

Two-striped garter snake would be impacted by development in drainages on the Proctor Valley parcel. The significance of these impacts depends on the distribution and abundance of this species elsewhere onsite.

Regional raptor populations would lose substantial foraging and breeding habitat with the implementation of the New Town Plan. Of the 509 raptor locations in the project boundaries, 407 would be eliminated by development. Each location represents one or more raptors. An additional 405 locations were mapped adjacent to the project area. The Otay River Valley had the highest raptor use with 239 locations, 83.3 percent of which would be developed. On the western parcel, areas of highest raptor use occurred in the Otay River Valley, the Salt Creek drainage, Wolf Canyon, and the mesa south of the Otay River Valley. The San Ysidro parcel had the lowest number of raptor locations (108) of which 75.9 percent occur in areas proposed for development. Highest concentrations of raptors in the San Ysidro parcel occurred at the west end adjacent to Lower Otay Lake, especially at Dulzura Creek. Other areas of high raptor activity in the San Ysidro parcel were Hubbard Springs and associated valleys, and the northeast corner near Sycamore Canyon. These areas are all proposed for residential development. The Proctor Valley parcel had 162 raptor locations, 77.8 percent of which would be developed. High concentrations of sensitive raptor activity, especially in the winter, were observed at the northern end of the parcel. Additional areas of high raptor use included Proctor Valley and along the southern slopes of the Jamul Mountains above the Lower Otay Lake. These key raptor areas are designated for development. The areas surrounding Upper and Lower Otay Lakes are an important regional resource for raptors based on the high number of sightings on and off the project site.

The reduction of raptors from loss of habitat to New Town Plan development would be a significant impact to the regional raptor population. There would also be significant ecological impacts to other species from the reduction of the regional raptor population. The elimination of a large numbers of raptors from the area could cause an increase in small predator populations. This phenomenon has been documented when an elimination of top predators such as raptors occurs in an area (Karr 1982, 1992; Soulé et al. 1988). Small intermediate predators (snakes) become overly abundant with the loss of predators which once functioned to keep their populations in check. The growth of small predator populations can have deleterious impacts on other species, especially nesting birds. The large-scale reduction in raptors also has the potential to cause an increase in regional rodent populations.

Nesting areas for numerous raptor species would be eliminated by implementation of the New Town Plan. Elimination of 80 acres of native woodland and 29 acres of exotic trees would result in the loss of 21 of 27 detected raptor nests. Sensitive raptor species including black-shouldered kite (*Elanus caeruleus*), northern harrier (*Circus cyaneus*), red-shouldered hawk (*Buteo lineatus*) and Cooper's hawk (*Accipiter cooperii*) would be

impacted by the development of nesting areas. Documented nesting locations for northern harrier and black-shouldered kite in the Otay River Valley could be eliminated by development of the Otay River Park. Additional harrier nesting habitat would be developed north of Poggi Canyon and on the mesa south of the Otay River Valley. In the San Ysidro parcel near Hubbard Springs, southern riparian oak forest supporting an active Cooper's hawk nest in 1991 is proposed for development. Nesting golden eagles (*Aquila chrysaetos*) on San Miguel and Otay Mountains adjacent to the property boundaries could be indirectly impacted by development and associated increases in human activity near nesting areas. However, a more significant direct impact to golden eagle would be the disturbance of foraging habitat.

An overall loss of 1758 acres of grassland habitat, 7692 acres of upland scrub, and 5386 acres of agriculture fields represents a significant regional loss of raptor foraging habitat. Sensitive breeding and wintering raptors including black-shouldered kite, northern harrier Cooper's hawk, and golden eagle would lose important foraging habitat. Wintering species such as sharp-shinned hawk (*Accipiter striatus*), ferruginous hawk (*Buteo regalis*), merlin (*Falco columbarius*), and prairie falcon (*Falco mexicanus*) would also be adversely affected by disturbance of foraging habitat. However, the occurrence of only a few of these individuals in the project area during the raptor study indicates the overall impact to these last four species would not be significant.

Other second priority wildlife utilizing agricultural fields and grasslands in the project boundaries are burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), California horned lark (*Eremophila alpestris actia*), and American badger (*Taxidea taxus*). Loss of habitat for California horned lark, loggerhead shrike, and grasshopper sparrow constitutes a potentially significant impact. Further assessment of impacts is necessary at the next level of review. Burrowing owl locations on Otay mesa and on the southern slope of Jamul Mountain would be disturbed. An American badger den and burrowing owl location in Poggi Canyon would also be impacted. Short-eared owl (*Asio flammeus*) were not observed during any surveys, although an individual was detected in the area historically. Impacts for this species would not be significant because of their rare use of the site.

Development of 34 acres of southern live oak riparian forest in the San Ysidro parcel could potentially impact several sensitive species. These species are ~~Harbison's dun skipper (*Euphyes vestris harbisoni*)~~, San Diego ringneck snake (*Diadophis punctatus similis*), San Diego mountain kingsnake (*Lampropeltis zonata pulchra*), Cooper's hawk, and long-eared owl (*Asio otus*). The first three species have not been detected in the project during recent surveys. Cooper's hawk nesting habitat would be significantly impacted by implementation of the New Town Plan. Long-eared owl remains were found in Cedar Canyon in habitat similar to that being developed in Hubbard Springs. A roost of four long-eared owl was also observed in 1992 in a Proctor Valley drainage adjacent to the Proctor Valley parcel. Additional surveys for undetected species would provide information on the actual significance of any impacts from development of the oak woodland at Hubbard Springs.

Sensitive bat species inhabiting the more rugged and inaccessible portions of the project area may not be significantly impacted at their roost sites. These species include California leaf-nosed bat (*Macrotis californicus*), pallid bat (*Antrozous pallidus pacificus*), Townsend's big-eared bat (*Plecotus townsendii townsendii*), and California mastiff bat (*Eumops perotis californicus*). However, roosting areas near to development could be affected. Foraging areas could be reduced by the loss of agriculture and riparian habitat. Species which are unlikely to occur onsite except as vagrants (e.g., peregrine falcon and

spotted bat) were not considered to be significantly impacted. Refer to Section 3.3.1.5 for a discussion of species with a very low probability for occurring onsite.

3.3.2.5 Analysis of Open Space Design

Given the size of the Otay Ranch project, its large number of sensitive plants and animals, and the programmatic nature of this EIR, it is appropriate to evaluate the proposed development plan not only in terms of its ability to retain sensitive species and supporting habitats, but to retain the open space in a configuration which has the greatest potential to conserve the largest number and diversity of species in a viable long-term preserve. This multi-species approach to biological planning and evaluation is consistent with the City of Chula Vista/County of San Diego joint planning goals to comprehensively plan for the protection of open space, sensitive natural resources, and the provision of regional recreation opportunities. The Project Team has drafted a Resource Management Plan (RMP) for Otay Ranch to address the creation and management of a large preserve. The key component of the establishment of the preserve is to "provide large, connected natural areas with varied habitats that offer refuge, food, and shelter to multiple species of native plants and animals."

A composite mapping of all of the sensitive habitats on Otay Ranch was conducted along with a plotting of the highest sensitivity plant and animal species (Figure 3.3-4). The areas of concentration of sensitive plants, animals, and habitats were delineated. Potential key wildlife movement corridors were also delineated. The proposed open space system of the New Town Plan was overlaid on these key resource areas to determine how well it achieves the desired preserve goals.

Adjacent Natural Areas

A key component of the open space system onsite is its linkage to offsite natural areas, as appropriate. Important linkages should be with the following areas:

- Otay Mountain/BLM lands
- Otay Lakes and associated City of San Diego-owned land
- San Miguel Mountain

In addition to providing effective wildlife movement corridors between these areas, the proposed project has also been evaluated with regard to cumulative indirect effects the Otay Ranch project may have on adjacent offsite resources associated with the areas noted above as well as Dulzura Creek.

The New Town Plan would retain about 41 percent of the San Ysidro parcel acreage as open space contiguous to the adjacent BLM land to the south. The proposed development of the disjunctive parcel and the provision of facility access and fire protection are considered significant impacts to the overall management and preservation of natural open space on Otay Mountain. The New Town Plan would create a development barrier to wildlife movement between Otay Mountain and Jamul Mountain to the north and Lower Otay Lake. Development within the San Ysidro parcel adjacent to Dulzura Creek may potentially cause impacts to the least Bell's vireo and other sensitive species associated with the riparian habitat.

This alternative conflicts with the BLM acquisition of Cedar Canyon and the inholding parcel on Otay Mountain as recommended in the recent BLM Resource Management Plan and EIS (BLM 1991). A limited amount of rural estate planned community would be affected in Cedar Canyon and low density residential displaced on the inholding parcel.

The New Town Plan would not link Poggi Canyon with other natural areas on Otay Ranch and would not adequately protect Wolf Canyon resources due to encroachment and the provision of a golf course. The plan would not protect critical natural habitat along the north side of the Otay River Valley and would fail to establish a critical link between the Otay Mesa vernal pool areas, Johnson Canyon, and the river valley. Development of the south side of the river valley would become more detrimental to maintaining an east-west wildlife linkage with development on the north side and extensive park development proposed within the Otay River Valley. The plan would also block the entrance to O'Neal Canyon, a key wildlife corridor linking Otay Mountain with the river valley.

The New Town Plan would create a development barrier between Jamul Mountain and Lower Otay Lake, as well as between Jamul Mountain and San Miguel Mountain. The full development of the university site in Salt Creek Canyon could also affect a planned movement corridor on the Olympic Training Center between Salt Creek and natural habitat around the west side of Lower Otay Lake.

Infrastructure

Infrastructure facilities were reviewed with regard to their potential effect on designated open space areas. Pipelines may cause temporary disturbance, and an area or swath of habitat can be restored. Permanent structures or the provision of access roads for maintenance incrementally impact open space areas. Such incursions into open space areas would potentially contribute to the cumulative degradation of such areas.

Water Distribution System

This system proposes five reservoirs with associated lines and access roads in natural open space in Proctor Valley, two on the San Ysidro parcel open space, and one offsite on BLM land (Wilson Engineering 1989). All of these facilities would further reduce natural open space acreages while potentially introducing points of access to preserve areas. Particularly problematic is the combination of lift or booster stations and reservoirs in the southeastern corner of the Proctor Valley parcel. The service system and associated disjunctive development areas in this part of the planning parcel would adversely impact the potential wildlife movement corridor which must traverse this area to Otay Mountain. Pipeline "K", which crosses Wolf Canyon, would potentially affect two California gnatcatcher territories, and reservoir 4, pipe "F", would potentially impact a gnatcatcher on the southwestern slope of Jamul Mountain. Some of these effects may be minimized by careful placement of lines and restoration of temporary impacts.

Reservoir Protection System

This system surrounds Lower Otay Lake and is intended to bypass urban runoff around the lake. The provision of the system calls for a conveyance around the perimeter of the reservoir on city-owned lands. Such a system could potentially affect resource areas, specifically vernal pools east of the reservoir.

Reclaimed Water Use System

This system would not directly affect natural areas since it would be installed only on the Otay River parcel, its principal use area being the Otay River Valley. This system would facilitate the restoration and mitigation of habitats, specifically wetland habitats.

Regional Parks

Large regional parks can be integral to open space protection. Two regional parks are designated in the New Town Plan: Otay Valley Regional Park along the Otay River in the Otay River Valley planning area, and the San Ysidro Mountains Regional Park along the north-facing slopes of San Ysidro Mountain in the San Ysidro Mountains planning area. Proposed recreational uses within the Otay Valley Regional Park (approximately 1,000 acres) include a golf course, playing fields, equestrian center, picnic grounds, and community facilities. These active recreational developments are to be concentrated in nodes, cover approximately 300 acres, and be located primarily in the disturbed upland areas north of the Otay River. The ultimate design of this park is currently under the Joint Powers Authority of the County of San Diego, City of Chula Vista, and City of San Diego.

The proposed San Ysidro Mountain Regional Park is approximately 900 acres in size, and would provide passive recreational opportunities such as hiking, picnicking, horseback riding, and camping.

The impacts to the biological resources associated with these parks are related to the placement of active recreation facilities and trails. These facilities may also affect the movement of wildlife through the area. The proposed Otay Valley Regional Park would potentially affect sensitive biotic resources depending upon the location of the various active recreational uses planned for the area. The proposed park will be the subject of separate environmental review. As currently proposed, the park boundaries would include populations of the state-listed *Hemizonia conjugens* along the southern slopes of Otay River Valley and at the mouth of Wolf Canyon. Larger populations and more localities of this plant occur outside of the proposed park boundaries along the southern slopes of the Otay River Valley and farther up into Wolf Creek Canyon. Although the majority of the native habitats within this portion of the Otay River Valley have been heavily disturbed, there are remnants of Diegan coastal sage scrub and maritime succulent scrub within the proposed park boundaries as well as wetlands and vernal pools at the east end of the park. The park does not include a series of vernal pools and other sensitive habitats located along the northern side of the valley. These remnant native habitats can best be utilized as connection points of a larger restored wildlife corridor through the middle of the valley and along its north and south slopes. The proposed park would include seven locations of the California gnatcatcher, two localities of the cactus wren, and at least seven sightings of the least Bell's vireo. Although these represent a small percentage of the sightings of these species in the project study area, the potential for habitat improvement and dispersion of these species throughout the park area is noteworthy.

In summary, the currently proposed Otay Valley Regional Park boundaries ~~do not~~ contain a significant number of sensitive habitats or sensitive plant and animal species. Habitat quality in this area, however, has been degraded relative to other areas in the project study area. The most sensitive areas currently existing in the park are located along the southern slopes of the Otay River Valley, the mouth of Wolf Canyon, and at the eastern end of the proposed park. The effectiveness of the park to preserve sensitive habitats and species would be greatly improved if the park boundaries were expanded in these areas as well as along the northern slopes of the valley. Restoration of native riparian habitats along the Otay River would improve the wildlife corridor quality of this area. Active recreational facilities (i.e., golf course, ball fields, community centers, etc.) should be located away from these sensitive areas and consolidated as much as possible.

The proposed San Ysidro Mountains Regional Park contains three sensitive habitats: Diegan coastal sage scrub, southern interior cypress forest, and riparian woodlands. The

proposed passive recreational use of this area would have some effect on existing resources but is not expected to significantly affect sensitive resources.

Conference Center

The New Town Plan proposes a conference center in a narrow canyon on the northwestern slopes of the Jamul Mountains in the Proctor Valley parcel. This site is within a canyon between Callahan Mountain and Jamul Mountain. This canyon represents a potential regional wildlife movement corridor between Jamul Mountain and San Miguel Mountain. The canyon represents one of the two largest canyon systems on the western side of the Jamul Mountains. The other one is identified as a wildlife corridor on the New Town Plan in upper Proctor Valley. The area has not been as heavily disturbed as other canyons in Proctor Valley. It has a narrow wetland strip along the drainage with scattered oaks and almost a continuous narrow strip of San Diego marsh-elder. This sensitive species, as well as the sensitive San Diego County sunflower and San Diego County needlegrass, could be affected by the proposed project. The disruption of a key regional wildlife corridor is considered a significant impact of the New Town Plan.

University Site

This alternative proposes a 400-acre university site in the eastern portion of Salt Creek Canyon. This is one of the more sensitive areas in the project study area. The entire area supports two sensitive plant communities (coastal sage scrub and maritime succulent scrub), five sensitive plant species, and the largest populations of both California gnatcatcher and cactus wren on Otay Ranch. This area perhaps also supports the highest concentrations of ~~*Ferocactus viridescens*~~ San Diego coast barrel cactus in the Otay River Valley and greater than 50 percent of the ~~*Opuntia parryi var. serpentina*~~ snake cholla occurrences on the Otay River parcel.

Thirty-eight pairs of California gnatcatcher points of occurrence have been recorded in Salt Creek Canyon. This represents approximately 26 percent of the 140-150 gnatcatcher pairs located within the entire Otay Ranch. Similarly, 37 of 60 pairs (62 percent) of coastal cactus wren locations occur within Salt Creek. It is clear from these data that the proposed university location within Salt Creek Canyon would impact significant California gnatcatcher and cactus wren populations.

Roadways

Roadways linking development areas can create impacts and cause blockages or barriers to wildlife movement. Roadways which would potentially disrupt open space continuity and viability are as follows.

Paseo Ranchero

This roadway would run up Wolf Canyon, disrupting the open space; it provides a "Tee" connection across Wolf Canyon, and could disrupt a possible wildlife corridor connection to Poggi Canyon. Depending on the alignment and design, this road could significantly impact wildlife movement, coastal cactus wren, and California gnatcatcher.

Otay River Valley Parkway

This 4-lane major roadway is proposed through the east-west wildlife corridor (Otay River Valley), which would significantly impact wildlife movement. This road could also

indirectly impact least Bell's vireo in the Otay River Valley. Further assessment of the significance of impacts to least Bell's vireo is necessary

SR-125

State Route 125 is proposed by Caltrans independent of the Otay Ranch Project. This highway alignment would cross the Otay River Valley via Johnson Canyon on the south, thereby substantially isolating the mesa top vernal pool area and Johnson Canyon. If this roadway bridged the valley, the effects would be substantially reduced but corridor-related problems between the mesa and Johnson Canyon would remain. This alignment would significantly impact a tricolored blackbird nesting colony, 2-3 pairs of cactus wren, and 2-3 pairs of California gnatcatcher.

Palomar Road

This roadway would cross the Salt Creek drainage presumably to service the university site. This crossing would further degrade this highly sensitive area and reduce wildlife movement northward. This roadway could significantly impact 3-4 pairs of cactus wren, 3-4 pairs of California gnatcatcher, and would significantly impact wildlife movement.

"A" Way

This roadway would cross the mouth of Salt Creek and cross the Otay River south of the dam and run easterly across city-owned land onto the San Ysidro parcel. This roadway was referred to as the South Dam Road in the earlier biological technical report (RECON 1991). At least 3-4 pairs of California gnatcatcher would be impacted onsite. This alignment could significantly impact a large population of gnatcatchers on adjacent City of San Diego land. Potential significant impacts to the cliffs adjacent to the lake, which are utilized by raptors, would occur in this area, as well as increased noise and human access to the southern shore of the lake. This roadway would cross three regional wildlife corridors between Otay Mountain and the lake, and would run along a fourth corridor. These would constitute significant impacts to wildlife movement within the region.

Alta Road

This roadway would tie into Otay River Valley Parkway via O'Neal Canyon. This roadway would significantly impact O'Neal Canyon which serves as a key wildlife corridor to the Otay River Valley. A two lane road would considerably reduce impacts to wildlife movement compared with a larger road.

Jamul Creek Access Road

This unnamed offsite access road would service five disjunctive low density residential areas in the southeastern corner of the Proctor Valley parcel. It would require crossing Dulzura Creek in an area which supports the federally-listed least Bell's vireo. Potential impacts from this crossing need to be evaluated at the next level of review.

Access Roads to Isolated Low Density Residential Areas

A number of access roads are required to serve four additional disjunctive residential areas in the Jamul Mountains. A BLM access road would be required to serve an isolated residential area in the San Ysidro parcel. California gnatcatcher could be significantly impacted, depending on the final alignments.

Wildlife Corridors

This plan blocks or constrains 17 wildlife corridors on all three parcels (Figure 3.3-7). Wildlife movement in the region would be significantly impacted. Eight regional corridors would be significantly impacted; five other regional corridors would be potentially impacted by road alignments and adjacent development. Three important local corridors would be significantly impacted and one important local corridor would be potentially impacted.

Otay Valley Parcel

It is important to link populations of California gnatcatcher and coastal cactus wren in Poggi Canyon with those in Wolf Canyon and the Otay River Valley. Two alternative connections have been proposed by the Baldwin Wildlife Corridor Study; both follow shallow passes between these two canyons. One pass is near the ranch house, the other is just east of the landfill site. Both of these possible connections are blocked by low-medium density residential development over most of their length. Development of these potential corridors would significantly impact coastal cactus wren and California gnatcatcher populations.

Wolf Canyon is habitat for bobcats and small mammals as well as gnatcatchers and wrens. The connection between Wolf Canyon to the Otay River Valley is essential for the dispersal of these species. In the New Town Plan, the link between these areas is proposed to be developed for parks and recreation. The Paseo Ranchero and Otay ~~Ranch~~ Valley Road alignments could also block this corridor. These land uses are not compatible with wildlife corridors and could significantly impact wildlife movement.

The strip of coastal sage scrub which runs along the lower slopes on the north side of the Otay River Valley and Rock Mountain form an essential corridor for dispersing California gnatcatchers. This corridor links populations in Wolf Canyon with those in Salt Creek and the east end of the valley. The Rock Mountain section of this corridor is blocked by low-medium density residential development. The remainder of the corridor would be developed for parks and recreation. This type of land use, combined with the impact of having low to moderate density residential development along its entire northern boundary would significantly preclude this narrow strip from being a viable corridor.

Salt Creek Canyon has a large population of California gnatcatcher and coastal cactus wren, so it is primarily important as habitat. It also serves as a link between the Otay River Valley and the strips of coastal sage which runs along the entire edge of Lower Otay Lake. This strip of city-owned land is an important dispersal corridor for gnatcatchers moving between the Otay River Valley and the populations in the Jamul and San Ysidro mountains. In the New Town Plan, Salt Creek is proposed as the site for a university, thus removing it as both habitat and a corridor. The Palomar Street, Orange Avenue, and Alta Road crossings of this corridor would significantly impact it. This would be a significant impact to coastal cactus wren and California gnatcatcher.

O'Neal Canyon links animals in the Otay River Valley with those in the San Ysidro Mountains. The base of O'Neal Canyon would be developed for recreation and low to medium residential, blocking movement of animals. The Alta Road alignment would adversely affect this corridor. ~~This~~ These would be significantly impacts to wildlife movement.

Proctor Valley Parcel

Corridor 1 links the Sweetwater Reservoir and Mount Miguel with the Jamul Mountains and the San Ysidro Mountains. The portion connecting San Miguel Mountain with Jamul Mountain would be blocked by residential development on both sides of Proctor Valley. The corridor follows a steep ravine on the west slope of Jamul Mountain. This section of the corridor contains undisturbed oak woodland and provides some of the best cover for large mammals, such as mountain lion, found anywhere in the area. The New Town Plan designates this currently undisturbed ravine as the site for visitor/commercial uses. This would eliminate this area as a wildlife corridor and significantly impact wildlife movement.

Corridor 2 provides access to Jamul Mountain for animals dispersing along Dulzura Creek. It requires an underpass or bridge (as recommended by the wildlife corridor study) under Otay Lakes Road to provide safe crossing between the riparian area to the south and the steep, rocky canyon which channels animals up the southern slope of Jamul Mountain. The New Town Plan calls for town center development north of Otay Lakes Road adjacent to the corridor. If this development includes any all-night facilities such as service stations or food marts, the negative impact on the corridor could be significant. These potential significant impacts need to be assessed in further detail at the next level of review.

Corridor 3 connects the northern end of Proctor Valley with Upper Otay Lake via Callahan Mountain and Jamul Mountain ridge lines. The ridge lines would not be impacted by the New Town Plan; however, the connection between the western end of the Jamul Mountain ridge and the upper reservoir would be blocked by proposed low to medium residential development. This would be a significant impact to wildlife access to Upper Otay Lake.

Corridor 4 runs along the floor of Proctor Valley, following the creek bed. This corridor would be significantly impacted by development on both sides of Proctor Valley Road.

Corridor 7 connects Dulzura Creek and Jamul Mountain. This deep ravine would be relatively free from impact by the New Town Plan except for the possible effects of low density residential development on the north ridge. This ridge is heavily used by mule deer and bobcat. Depending on the final design, impacts from adjacent development ~~w~~could be potentially significant.

San Ysidro Parcel

Regional Corridors

Corridor 5 connects the east end of Lower Otay Lake with the Otay River Valley. It runs along the southeast shore and through the steep canyon below the dam. The proposed residential development along this shore would significantly block any east–west wildlife movement.

Corridor 6 is constrained and potentially blocked by development and roads (e.g., ~~"A" Way~~ South Dam Road) at the northern end near Lower Otay Lake. This would disrupt one link between Lower Otay Lake and the San Ysidro Mountains and limit access to the Otay River Valley via the connecting O'Neal Canyon corridor. This is a potentially significant impact to wildlife movement.

Corridor 10 is Cedar Canyon. Historically, it connected the San Ysidro Mountains with Dulzura Creek. The Thousand Trails Campground which now occupies the northern end of the canyon blocks direct access to the creek, but it may still be reached by animals following one of the side ravines which lead to the Minnewawa Truck Trail. From the

truck trail, animals can reach Dulzura Creek directly by a small ravine which parallels the truck trail to the west, or by a large ravine that connects with the bottom of Little Cedar Canyon. Both of these routes would be blocked by the planned low density housing along Otay Lakes Road. These are significant impacts to wildlife movement.

Corridor 11 follows Little Cedar Canyon and connects the San Ysidro Mountains with Dulzura Creek and the Jamul Mountains. The proposed park at the north end of the canyon near Otay Lakes Road could block wildlife movement. The Otay Lakes Road crossing of this corridor could also impact animal movement. Depending on park design, impacts to this corridor are potentially significant.

Local Corridors

Local corridor 9 would be blocked by residential development along the reservoir. This is a significant impact because of the importance of the reservoir as a source of drinking water for animals.

Corridor 8 could be constrained and indirectly impacted by adjacent development.

Preservation of Key Resources

Based on an overlay of the New Town Plan over the composite map of key resources (see Appendix A-9), this alternative would retain an estimated 55 percent of the areas delineated on the composite sensitive resource mapping. Differences by key resources area are shown in Table 3.3-8.

Otay Valley Parcel

The principal difference between the New Town Plan and the composite key resource areas is in the Otay Valley parcel. A large part of this difference is the classification of Otay Valley Regional Park as developed. This accounts for 1,000 acres of the difference. The development of portions of the Otay Mesa vernal pools and peripheral issues in Poggi, Wolf, and Salt Creek canyons constitute the other differences in the Otay River parcel. The figures do not include the proposal to site a golf course in Wolf Canyon which would further reduce the overall protection of key resources.

Proctor Valley Parcel

Differences between the New Town Plan and the composite key resource areas are distributed throughout this parcel. The largest difference is within the Jamul Mountain subarea and is due in large part to nine development areas scattered over the steeper mountain slopes. Proposed development adjacent to Upper Otay Lake would conflict with the preservation of California gnatcatchers in that area; development in the canyon of a proposed convention facility would conflict with the provision of a major wildlife corridor.

San Ysidro Parcel

Like the Proctor Valley parcel, the differences are distributed among the subareas. The major difference is in the north Otay Mountain subarea where development potentially conflicts with a wildlife movement corridor.

Table 3.3-8

COMPARISON OF OPEN SPACE DESIGN OF NEW TOWN PLAN TO COMPOSITE KEY RESOURCES MAP

Planning Parcel/ Subareas	Planned Open Space within New Town Plan (acres)	Composite Key Resources (acres)	Differences Between Plan and Key Resource Areas (acres)	% Planned Open Space within Key Resource Areas (acres)
Otay River				
Poggi Canyon	129	462	-333	28
Wolf Canyon	112	305	-193	37
Otay River North	369	2335	-1967	16
Otay River South/Otay Mesa	554	1101	-548	50
Subtotal	**1163**	**4204**	**-3041**	**28**
Proctor Valley/Jamul Mountains				
Proctor Valley/Callahan Mtn	517	737	-220	70
San Miguel Mtn	139	360	-221	39
Jamul Mtn	2713	3059	-346	89
Otay Reservoir	0	135	-135	0
Subtotal	**3369**	**4291**	**-922**	**79**
San Ysidro Mountains				
West Otay Mtn	478	630	-152	76
San Diego Air Sports Center	188	337	-149	56
North Otay Mtn	124	398	-275	31
Otay Mtn	74	175	-101	42
Cedar Canyon/Hubbard Spring	883	1196	-312	74
Subtotal	**1746**	**2735**	**-989**	**64**
TOTAL	**6278**	**11231**	**-4952**	**56**

3.3.3 Proposed Mitigation

Significant impacts would occur through the reduction of sensitive habitats and species and the elimination of regional wildlife movement corridors. Mitigation may be habitat or species-specific restoration or enhancement, or may call for redesign where mitigation is not feasible. A map of disturbed habitats potentially available for restoration and enhancement is included in Appendix A-9; acreage potentially available ~~for restoration, enhancement, and habitat re-establishment~~ after implementation of the New Town Plan is shown in Table 3.3-9. It should be noted that a more detailed examination of the areas tabulated in Table 3.3-9 will be necessary to determine the feasibility of utilizing them for the specific mitigation needs of each SPA as it is approved. (See following Section 3.3.3.4 on Habitat Restoration Guidelines, Initial Data Collection.) In addition, the general framework for biological resource protection and potential mitigation sites is being established in the Resource Management Plan for Otay Ranch which is presently at a draft stage of development.

The following section of this report will cover three basic subjects related to mitigation for rare/endangered species and habitats at the Otay Ranch Project.

1. The major provisions of the proposed resource protection plan for Otay Ranch including the standards for creation of a management preserve open space for the project.

2. The incompatibility of the New Town Plan with the resource management plan.

3. The general framework for mitigation planning for sensitive habitats and sensitive species.

~~The table shows that there is inadequate acreage availablefor mitigation of the loss of upland habitats. The capability of resolving wetland impacts is dependent upon the extent of impact to wetlands in the Otay River Valley where 79 percent of the impacts could potentially occur from recreational/park development.~~

3.3.3.1 Proposed Resource Management Plan

A Resource Management Plan (RMP) has been produced by Dudek and Associates under the direction of the Otay Ranch Project Team. The combined resource values and preservation opportunities available on Otay Ranch encouraged the City of Chula Vista and County of San Diego to request completion of a comprehensive resource management study as part of the General Plan Amendment process. The goal of the RMP is to provide for the long-term protection, enhancement, and management of sensitive natural and cultural resources on Otay Ranch and create a manageable and permanent open space system. The RMP recognized that due to the size and complexity of the study area, longer-term studies and research would be required to identify and define biological issues. The RMP is therefore a phased process. The Phase I RMP has been drafted and provides a framework for the comprehensive RMP (Dudek and Associates 1992b). It also establishes the framework for applicant proposed mitigation of biological impacts on the ranch. A discussion of cultural resources management through the RMP is provided in Section 3.4. Cultural resources will be protected through dedication of open space easements and, in some cases, in the management preserve.

Table 3.3-9 (Revised)

NEW TOWN PLAN
DISTURBED HABITAT POTENTIALLY AVAILABLE FOR ENHANCEMENT, RESTORATION, AND HABITAT RE-ESTABLISHMENT*

HABITAT	OTAY RIVER		PROCTOR VALLEY		SAN YSIDRO		Total Acres in Open Space	Total Acres Impacted
	Acres in Open Space	Impacted Acres	Acres in Open Space	Impacted Acres	Acres in Open Space	Impacted Acres		
Coastal sage scrub/non-native grassland	0	9	0	0	62	301	62	310
Non-native grassland/coastal sage scrub	38	107	0	0	33	331	71	438
Disturbed coastal sage scrub	0	1	123	657	0	0	123	658
Baccharis scrub	15	3	0	0	0	0	15	3
Tamarisk scrub	0	4	0	0	0	0	0	4
Tamarisk scrub/mule fat scrub	1	391	0	0	0	0	1	391
Mulefat scrub	6	106	0	0	0	0	6	106
Non-native grassland	330	796	2	60	3	94	335	950
Disturbed non-native grassland	0	0	0	0	8	4	8	4
Disturbed alkali meadow	0	0	0	12	0	0	0	12
Disturbed valley needlegrass grassland	0	0	0	215	0	0	0	215
Agriculture	228	5386	0	0	0	0	228	5386
Vernal pool restorable areas (1,2)	42	252	0	38	0	0	42	290
Clay soils (1)	460	1069					460	1069
TOTAL	618	6803	125	944	106	730	849	8477

(1) Not included in acreage total since these acres are covered by other habitats.
(2) Vernal pool restorable acreages are taken from Report on Hydrology and Flora of the Otay Ranch Vernal Pools (MBA 1991).

*Note: More detailed studies will be necessary to determine the feasability and techniques to be used to meet each specific plan mitigation requirement.

RMP Objectives and Policies Pertaining to Biological Resources

The following objectives outlined in the Otay Ranch Resource Management Plan (RMP) are presented along with the policies, guidelines, and standards that enable fulfillment of those objectives pertaining to biological resources. These objectives and policies are taken from Draft 1 of the Phase I Otay Ranch Resource Management Plan (Dudek and Associates, 1992b). The draft RMP is currently undergoing review, and portions could be changed. However, as mentioned above, either the City of Chula Vista or the County of San Diego, as their jurisdiction dictates, will approve a final version of this plan and its conditions will be incorporated into the final conditions of project approval. The RMP defines an objective as a specific end, condition, or state that is an intermediate step toward attaining a goal. A policy is a specific statement that guides decision making and is based on a plan's goals and objectives as well as data analysis. A standard is a measurable criterion used to evaluate achievement of a stated policy and a guideline is a suggested method or procedure for achieving identified standards. Thus all developments which would take place in the Otay Ranch General Plan Area would be subject to the following RMP conditions relative to the open space preserve:

Objectives:

1. Identify sensitive and significant biological, cultural, paleontological, agricultural, and scenic resources within the 23,088-acre Otay Ranch study area that require protection and/or management.

2. Preserve sensitive and significant biological, cultural, paleontological, floodplain, visual, and agricultural resources.

3. Enhance, restore, and re-establish sensitive biological resources (species and habitats) in disturbed areas where the resources either formerly occurred or have a high potential for establishment.

4. Establish functional connections for onsite resources and integrate the Preserve into a larger regional system.

5. Effectively manage the Preserve to protect, maintain, and enhance resources in perpetuity.

6. Identify permitted land uses within the Preserve.

7. Identify appropriate uses within designated land use categories for areas adjacent to the Management Preserve.

8. Identify interim uses and activities that may continue within the proposed Management Preserve until conveyance to the Preserve Owner/Manager.

9. Provide a regulatory framework for future permitting by resource agencies and amendments to the RMP.

In order to achieve the above-stated objectives, the following policies, standards, and guidelines would be implemented under the Resource Management Plan for the Preserve area, sensitive habitats, sensitive plants, sensitive animals, and wildlife corridors. The first digit of each policy number corresponds to the number of the objective which that policy would fulfill.

Policies

The Management Preserve

1.1 - Use existing resource data to identify key resource areas.

2.1 - Include large blocks of key biological resource areas within the preserve.

Guideline: (1) The criteria for identifying key biological resource areas are as follows:

- Presence of State- or Federally-listed endangered or threatened species.
- Concentrations CNPS listed plant species.
- Co-occurrence of USFWS Category 2 candidates and/or CDFG species of special concern.
- Large contiguous areas of coastal sage scrub.
- Areas supporting locally and regionally recognized sensitive habitat types (e.g. wetlands, southern interior cypress forest, etc.).
- Important local and regional wildlife corridors.

(2) The boundaries of the key resource areas are generalized. Key biological resource areas are identified on Figure 9 of this document and described in Section 2.2, and include the following: Wolf Canyon, Otay River Valley, Otay Mesa, Salt Creek, West Otay Mountain, San Diego Air Sports Center, North Otay Mountain, Otay Mountain, Cedar Canyon/Hubbard Spring, Jamul Mountain, Otay Reservoir, San Miguel Mountain and Proctor Valley/Callahan Mountain.

5.3 - Develop and implement a strategy that facilitates effective, long-term management of the Management Preserve consistent with the goal of the RMP.

Standard: Management activities shall be undertaken to ensure no reduction in habitat values and no adverse impacts to biological resources included within the Management Preserve.

5.4 - Establish a comprehensive monitoring program for the biota of the Preserve in conjunction with Phase 2 RMP.

5.5 - Monitoring programs associated with management of the Preserve shall conform to and carry out programs required by CEQA (PRC 21081.6) but shall not replace other monitoring programs required in conjunction with site-specific environmental review of individual development within Otay Ranch.

5.6 - Develop a plan for the orderly conveyance of parcels of land to the Preserve.

6.2 - Active recreational use acreage within the Preserve shall not be greater than 400 acres and shall be consistent with the resource protection and enhancement objectives of the RMP.

6.3 - Provide a system of trails throughout the Preserve that are compatible with resource protection. This is considered to be a passive use and not part of the 400 acre active recreational area.

6.4 - Motorized vehicular access by the public to the Preserve shall be restricted.

6.5 - Identify "Restricted Areas" within the Management Preserve.

Standard: Public access may be restricted within and adjacent to wetlands, vernal pools, restoration areas, and sensitive wildlife habitat (during breeding season) at the discretion of the Preserve Owner/Manager.

6.6 - Infrastructure may be allowed within the Preserve.

Standard: Develop a general infrastructure plan in conjunction with Phase 2 RMP that provides standards and criteria to guide specific infrastructure siting and design during the phased buildout of Otay Ranch.

6.7 - Fire roads shall be permitted within the Management Preserve only where absolutely necessary to assure public safety and control wildfires that may damage biological resources.

6.8 - Ecologically necessary controlled burning may be permitted within the Preserve.

7.1 - The "edge" of the Preserve is a strip of land 100 feet wide that surrounds the perimeter of the Preserve. It is not a part of the Preserve - it is a privately or publicly owned area included in lots within the urban portion of Otay Ranch immediately adjacent to the Management Preserve.

7.2 - All development plans adjacent to the edge of the Preserve shall be subject to review and comment by the Preserve Owner/Manager, the City of Chula Vista, and the County of San Diego to assure consistency with resource protection objectives and policies.

8.1 - Existing conditions shall be maintained or enhanced.

8.3 - Construction activities associated with infrastructure necessary for implementation of an approved development plan shall be allowed as an interim activity.

8.4 - Develop a range management plan.

Standard: As part of the Phase 2 RMP, a Range Management Plan shall be developed. Under this plan, the most sensitive areas (i.e., areas that support sensitive species) shall be fenced. The plan shall be subject to review and comment by the Preserve Owner/Manager, the City, and the County.

9.5 - The Otay Resource Management Plan is not a substitute for site-specific CEQA review of individual developments within Otay Ranch.

Standards:

1. All future Specific Plans and SPA Plans shall be subject to site-specific environmental review by the County, City, and resource agencies to assure consistency with the RMP and CEQA.
2. Site-specific resource studies shall be completed for each SPA/Specific Plan.
3. Future resource studies will reflect changes in State and Federal agency status of sensitive plant and wildlife species.

Guideline: Where feasible, open space recommendations, recommendations for preservation of sensitive resources, and mitigation measures for biological and cultural resources required for each SPA shall be designed to complement and enhance the Preserve.

9.6 - Establish a procedure for amending the RMP.

9.7 - An amendment shall be required for any land use within the Preserve that is not specifically identified in Objective 6, Policies 6.1-6.9, in accordance with the procedure outlined in Policy 9.6.

Guidelines:

1. Location of a university, landfill, or other development within the Preserve not specifically identified in Policies 6.1 - 6.9, shall require an amendment to the RMP.
2. Amendments allowing additional uses within the Preserve will result in Preserve boundary modifications to ensure consistency with the goal, objectives, and policies of the RMP and to conform with the standards established under Policy 9.8.

9.8 - Preserve boundary modifications shall be made based on site specific studies completed for individual SPA/Specific Plans.

Standards:

1. The overall size of the Preserve shall not be reduced by a Preserve boundary modification.
2. Boundary modifications shall conform with the setback criteria listed below.
3. Boundary modifications are intended for use at the SPA level to make minor refinements to include additional resources within the Preserve.

Guidelines:

1. Coastal sage scrub and chaparral shall be provided with a 100 foot setback where interfacing with residences, and a minimum of 50 feet where interfacing with commercial and industrial development, active park uses, and schools.

2. Gnatcatcher or cactus wren occupied coastal sage scrub habitat shall be provided with a setback of at least 200 feet. ("Occupied habitat" includes the area encompassed by a bird's foraging territory).
3. Perennial (native) grassland shall be provided with a setback of a minimum of 25 feet and a maximum of 50 feet between the habitat and proposed development.
4. Vernal pool setbacks must include the watershed and a minimum of an additional 100 feet, depending on the adjacent land use.
5. Mulefat scrub should be provided with a setback that is a minimum of 50 feet and a maximum of 100 feet wide, depending upon the quality of the habitat and its function within the matrix of the surrounding vegetation (e.g., corridor, foraging habitat, etc.), and the specific type of adjacent development.
6. Riparian woodlands should be provided with a setback of a minimum of 100 feet and a maximum of 200 feet between the woodland and development (commercial and residential).
7. Oak woodlands should be provided with a setback of a minimum of 50 feet and a maximum of 100 feet between the woodland and development (commercial and residential).
8. Southern interior cypress forest should be provided with a setback of a minimum of 50 feet and a maximum of 100 feet between the forest and residential or commercial development.

Sensitive Habitats

1.5 - Identify and map floodplains within the 23,088 acre study area.

2.2 - Preserve coastal sage scrub habitat (including Diegan coastal sage scrub, disturbed coastal sage scrub, maritime succulent sage scrub, coastal sage scrub/non-native grassland, and coastal sage scrub/chaparral).

Standards:

1. Preservation and restoration activities shall result in equal or greater overall habitat values than occur under existing conditions.
2. A minimum of 85% of the total acreage of coastal sage scrub habitat onsite shall be preserved or restored.
3. The 85% standard may be achieved through a combination of preservation (a minimum of 70% of existing habitat) with the remainder through restoration of disturbed and/or non-native habitats.

Guidelines: 1)The following blocks of high quality coastal sage scrub shall be included in the Preserve - Salt Creek Canyon, Wolf Canyon, Poggi Canyon, southwestern Jamul Mountains, western San Ysidro Mountains, slopes south and north of the Otay River. 2) Habitat values can be measured in terms of number of acres, biodiversity, habitat maturity, and presence of sensitive species.

2.3 - Preserve native grasslands (valley needlegrass grassland).

Standards:

1. A minimum of 80% of the total acreage of native grassland habitat onsite shall be preserved or restored.
2. The 80% standard may be achieved through a combination of preservation (a minimum of 25% of existing habitat) with the remainder through restoration of disturbed and/or non-native habitats.
3. Restoration must result in habitat for threatened and endangered species that is of equal or greater value than that of the habitat disturbed.

2.4 - Preserve the following habitat types: southern interior cypress forest, coast live oak woodland, oak riparian forest, riparian woodland, and sycamore alluvial scrub.

Standard: 100% of the acreage of southern interior cypress forest, coast live oak woodland, oak riparian forest, riparian woodland, and sycamore alluvial woodland (as mapped by MBA/Recon 1989) shall be preserved. Where it is infeasible to include these areas within the Preserve, include in non-Preserve open space.

2.9 - Preservation of a minimum of 95% of the vernal pool habitat on the ranch supporting vernal pool indicator species (as defined in the vernal pool report).

Standards:

1. In conjunction with the Phase 2 RMP, develop a Vernal Pool Preservation and Management Plan.
2. Establish a vernal pool preserve of no less than 330 acres on Otay Mesa south of the Otay River to include all vernal pools identified by the California Department of Fish and Game (Bauder 1986) as J23, J24, J25, J30, and identified sensitive portions of J29.
3. Preserve a minimum of 95% of the Otay Ranch distribution of the State-listed San Diego button celery (*Eryngium aristulatum* var. *parishii*) and 100% of the State-listed Otay Mesa mint (*Pogogyne nudiuscula*), in locations identified in the vernal pool report (Dudek and Associates 1992).
4. Assure the continued survival of little mousetail (*Myosurus minimus* var. *apus*) and San Diego navarretia (*Navarretia fossalis*) on Otay Ranch through preservation of present known localities for these species on the Ranch plus a combination of enhancement, restoration, and management efforts.
5. Develop a vernal pool plan to achieve the following:
   - restore the biota of individual, badly degraded vernal pools;
   - increase diversity and frequency of native biota in all disturbed vernal pools;
   - preserve and enhance vernal pools on K-6 where little mousetail occurs;
   - reduce the effects of alien plants;
   - increase the populations of sensitive species;
   - stabilize soils on mounds and in watershed areas; and
   - provide research and educational opportunities.

2.10 - Preserve and enhance wetlands.

Standard: No net loss of in-kind wetland quality or quantity in accordance with the standards of the U.S. Army Corps of Engineers (COE), implementing Section 404 of the Clean Water Act, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game implementing Section 1600 of the California Fish and Game Code.

Guidelines:

1. Include at least 90% of identified wetlands within the Preserve.
2. Where feasible, preserve wetlands not included within the preserve within non-preserve open space.
3. Conduct a wetland delineation for each SPA development using the methodology appropriate for the permit or approval being sought.
4. Compensate for impacts to wetlands outside the Preserve by wetland creation, restoration, and enhancement within the Preserve, primarily in the Otay River Valley.
5. When and where feasible, wetland creation, restoration, and enhancement within the Preserve shall be completed prior to actual habitat disturbance for which these activities are considered mitigation.

3.1 - Identify areas within the Management Preserve that possess high potential for habitat restoration.

3.4 - Develop a restoration program for coastal sage scrub (and maritime succulent scrub) habitat.

3.5 - Develop a restoration program for riparian habitats.

3.6 - Develop a restoration program for native grassland habitats.

3.7 - Develop a vernal pool restoration program.

9.3 - Complete wetland delineations using the Federal Unified Method, or approved modification thereof, for each Specific Plan or SPA containing wetlands.

9.4 - Identify areas subject to CDFG Section 1600 Streambed Alteration Agreements concurrent with site-specific environmental review of each Specific Plan or SPA.

See Policy 9.8 in the Preserve section above for guidelines on setback distances for sensitive habitats.

Sensitive Plants

2.6 - Preserve onsite State and Federally-listed rare, threatened, and endangered species.

Standards:

1. Include the Preserve 95% of San Diego thorn-mint (*Acanthomintha ilicifolia*) known to be present on the Ranch, i.e., the large population including several thousand plants located in the southwestern portion of the Proctor Valley parcel.
2. Include within the Preserve 100% of Dunn's mariposa lily (*Calochortus dunnii*) known to be present on the Ranch, i.e., one small population at the upper end of Little Cedar Canyon and one small population on a peak in the northwest corner of the Jamul Mountains.
3. Include within the Preserve 100% of the Mexican flannelbush (Fremontodendron mexicanum) known to be present on the Ranch, i.e., three individuals in upper Cedar Canyon.
4. Include within the Preserve 70% of the Otay tarplant (Hemizonia conjugens) known to be present on the Ranch, i.e., several thousand plants in Salt Creek, Wolf Canyon, and the detached, inverted "L" parcel. Although this standard is below that for other State and Federally-listed plant species, the large number of individuals and widespread occurrence of Otay tarplant onsite indicate that it is less vulnerable than other State and Federally-listed species. The remaining populations onsite are extensive enough to assure the continued survival of this species.
5. Include within the Preserve 100% of the willowy monardella (*Monardella linoides* ssp. *viminea*) known to be present on the Ranch, i.e., several hundred plants in the bottom of a deep drainage on the west side of the San Ysidro Mountain parcel.

Guidelines:

1. Achievement of these standards may be measured by evaluation of the sensitive plant maps (MBA/RECON, 1989, 1990) as updated by Phase 2 RMP field mapping efforts which include measured areas of the populations to establish the number of individuals within those populations. Status reports shall be submitted with each SPA to ensure long-term documentation of population status.
2. Preservation of at least 90% of remaining populations of species recognized as threatened or endangered by CDFG and/or USFWS in the future.

2.7 - Preserve onsite populations of plant species recognized as sensitive by the California Native Plant Society (CPNS) (Smith and Berg 1988).

Standards:

1. Include within the Preserve a minimum of 75% of Otay Ranch populations of plant species recognized as List 1B or List 2 by the California Native Plant Society (Berg and Smith 1988) (excluding those listed above in Policy 2.6): California adolphia (*Adolphia californica*), San Diego bur-sage (*Ambrosia chenopodiifolia*), Otay manzanita (*Arctostaphylos otayensis*), San Diego sagewort (*Artemisia palmeri*), Campo clarkia (*Clarkia delicata*), summer-holly (*Comarostapylos diversifolia* ssp. *diversifolia*), Orcutt's bird's-beak (*Cordylanthus orcuttianus*), Tecate cypress (*Cupressus forbesii*), San Diego barrel cactus (*Ferocactus viridescens*), Palmer's grappling hook (*Harpagonella palmeri*), San Diego marsh-elder (*Iva hayesiana*), Gander's pitcher-sage (*Lepechinia ganderi*), San Diego golden-star (*Muilla clevelandii*), snake cholla (*Opuntia parryi* var. *serpentina*), narrow-leaved nightshade (*Solanum tenuilobatum*), San Diego County needlegrass (*Stipa diegoensis*), and San Diego County viguiera (*Viguiera laciniata*).
2. Include within the Preserve a minimum of 50% of the Otay Ranch populations of plant species recognized as List 3 or List 4 by the California Native Plant Society (Berg and Smith 1988): dense reed grass (*Calamagrostis densa*), San Miguel

savory (*Calamintha chandleri*), southern mountain misery (*Chamaebatia australis*), Fallbrook spine-flower (*Chorizanthe procumbens* var. *albiflora*), western dichondra (*Dichondra occidentalis*), variegated dudleya (*Dudleya variegata*), spiny rush (*Juncus acutus* var. *sphaerocarpus*), dwarf pepper-grass (*Lepidium latipes*), California adder's-tongue fern (*Ophioglossum lusitanicum* ssp. *californicum*), Greene's ground-cherry (*Physalis greenei*), Engelmann oak (*Quercus engelmannii*), Coulter's matilija poppy (*Romneya coulteri*), and ashy spike-moss (*Selaginella cinerascens*).

3. Include within the Preserve a minimum of 50% of the Munz's sage (Salvia munzii) known from the Ranch. Although recognized as a List 2 species by CNPS, Munz's sage is extremely common and widespread on the Proctor Valley parcel. Hence, Preservation of at least half of this population will assure the continued survival of the species on the Ranch.

   Guideline: Achievement of these standards may be measured by evaluation of the sensitive plant maps (MBA/RECON, 1989, 1990) as updated by Phase 2 RMP field mapping efforts which include measured areas of the populations to establish the number of individuals within those populations. Status reports shall be submitted with each SPA to ensure long-term documentation of population status.

2.8 - Preserve onsite populations of plant and wildlife species recognized as Category 2 Candidates for listing by USFWS.

Standard: Include within the Management Preserve a minimum of 75% of Otay Ranch populations of plant and wildlife species recognized as Category 2 candidates by USFWS.

Guideline: Achievement of this standard may be measured by evaluation of the sensitive plant and animal maps (MBA/Recon 1989, 1991) as updated by Phase 2 RMP field mapping efforts which include measured areas of the populations to establish the number of individuals within these populations. Status reports shall be submitted with each SPA to ensure long-term documentation of population status.

See Policy 2.9, Standards 3 and 4 (under Sensitive Habitats above) for RMP protection of sensitive vernal pool plants.

See Policy 6.5 (under Sensitive Habitats above) for designation of restricted use areas.

Sensitive Animals

2.5 - Maintain large, viable populations of the California gnatcatcher and cactus wren within the Preserve.

Standards: Include within the Preserve sufficient occupied habitat to maintain at least 80% of existing documented pairs/individuals of California gnatcatcher include within the Preserve sufficient to achieve no loss of cactus wrens.

Guidelines:

1. Achievement of this standard may be measured by evaluation of the sensitive animal maps (MBA/Recon 1989, 1991) as updated by field mapping completed for the California gnatcatcher/cactus wren study as part of the Phase 2 RMP.
2. Achievement of this standard may include maintenance of populations in non-Preserve Open Space.

See Policy 2.6 (under Sensitive Plants above) for RMP protection of state and federally listed wildlife such as the least Bell's vireo.

See Policy 2.8 (under Sensitive Plants above) for RMP protection of USFWS Category 2 wildlife species.

2.11 - Preserve habitat for raptor nesting, roosting, and foraging.

Guideline: Incorporate into the Preserve areas that support raptor populations as identified in the Raptor Habitat/Foraging Study (Ogden, in review).

3.8 - In coordination with USFWS and CDFG, the Preserve Owner/Manager shall develop a program for creation or enhancement of habitat for sensitive species that were formerly, or are occasionally present (e.g. as migrants) on Otay Ranch.

Standards:

1. Prepare riparian revegetation plans to create habitat in the Otay River Valley of acceptable quality for breeding and nesting least Bell's vireo (*Vireo bellii pusillus*).
2. Investigate the possibility of habitat enhancement and re-introduction of Quino checkerspot (*Euphydryas editha quino*) in the vernal pool preserve during Phase 2 RMP.
3. Continue to identify potential restoration opportunities for additional threatened and endangered species as they are listed by the resource agencies.
   See Policy 6.5 (under Sensitive Habitats above) for designation of restricted use areas.
   See Policy 9.8 (under Preserve section above) for guidelines on setback distances for occupied California gnatcatcher and cactus wren habitat.

Wildlife Corridors

4.1 - Design the preserve to provide adequate habitat linkages and wildlife corridors to accommodate gene flow and wildlife movement.

Standards:

1. Incorporate important wildlife corridors, as identified by the Wildlife Corridor Study (Ogden, in progress), into the Preserve.
2. Integrate resource components of the Preserve with the Otay Regional park JEPA in a manner consistent with the goals and objectives of the Resource Management Plan.

   Guidelines:

   1. Incorporate all regional wildlife corridors into the Preserve.
   2. Incorporate a majority of the local wildlife corridors into the Preserve, applying criteria established by Ogden (in progress) for preservation of corridors at the SPA level.
   3. Where feasible, provide linkages between all habitat patches, both within the Preserve and to offsite preserved open space.
   4. Provide appropriate buffers for corridors as recommended in the Wildlife Corridor Study (Ogden, in progress).
   5. Incorporate wildlife crossings into design of infrastructure facilities.
   6. Provide for a direct riparian connection for the Otay River from Lower Otay Lake westward to San Diego Bay by preserving and restoring a continuous riparian habitat along the portion of the river within Otay Ranch.
   7. Implementation of resource preservation and enhancement plans shall be consistent and coordinated with the Otay Valley Regional Park JEPA plan, if this plan is adopted.

3.3.3.2 Compliance of the New Town Plan with the RMP

The New Town Plan does not satisfy the goal of the RMP to establish an open space system in a Management Preserve that would protect and enhance biological resources on Otay Ranch. It would also not allow the maintenance of long-term biological diversity or ensure the survival and recovery of native species and habitats within a Preserve.

Key Resource Areas

The New Town Plan would not include large blocks of key resource areas within the Management Preserve as required by RMP Policy 2.1.

Sensitive Habitats

Sensitive habitats would not be adequately preserved under the New Town Plan according to RMP objectives and policies. There would be a 56 percent reduction in coastal sage scrub habitats compared with the RMP standard (Policy 2.2) which allows a maximum reduction of 30 percent of existing coastal scrub habitats. In addition, there would be insufficient acreage onsite to meet the coastal sage scrub restoration requirement of 15 percent. Thus, 85 percent of coastal sage scrub habitats would not be preserved or restored onsite as required by the RMP. Undisturbed native grasslands would be reduced by 75.5 percent which would just exceed the minimum requirement of the RMP (Policy 2.3) for native grassland preservation. There could also be insufficient land available onsite for 55 percent grassland restoration as other sensitive habitats would require onsite restoration acreage onsite as well. There could be a significant reduction to wetlands under the New Town Plan depending on more detailed development plans at the SPA level. The RMP requires that there is no net loss of wetlands (Policy 2.10); this condition does not appear to be met by the New Town Plan. The New Town Plan also does not meet RMP standards (Policy 2.9) for vernal pool preservation. It would preserve only a portion of Otay Mesa vernal pool J30, whereas the RMP requires preservation of vernal pools; J23, J24, J25, and J30 as well as portions of J29. Native woodlands such as, southern interior cypress forest, coast live oak woodland, southern live oak riparian forest, and sycamore alluvial woodland would be significantly reduced by the New Town Plan. In contrast, the RMP calls for 100 percent preservation of these sensitive woodland habitats (Policy 2.4).

Sensitive Plants

The New Town Plan would not preserve the minimum standard for populations of six species of the nine state and federally-listed plant species onsite as required by the RMP (Policy 2.6). The following highest priority species would not meet RMP standards; San Diego thorn-mint, Dunn's Mariposa lily, San Diego button celery, Otay tarweed, California orcutt grass, and Otay mesa mint. There is also the potential for willowy monardella to be impacted beyond the level allowed by the RMP depending on more detailed development plans. The RMP standards of 75 percent retention for California Native Plant Society List 1B or List 2 sensitive plants (Policy 2.7) is not met for the following species: Otay manyanita, Orcutt's brodiaea, summer-holly, San Diego barrel cactus, San Diego goldenstar, little mousetail, San Diego navarretia, snake cholla, narrow-leaved nightshade, Gander's pitcher-sage, California adolphia, San Diego bur-sage, San Diego sagewort, Palmer's grappling-hook, San Diego marsh-elder, San Diego County needlegrass, and San Diego sunflower.

The RMP standard of 50 percent retention for California Native Plant Society List 3 or List 4 sensitive plants (Policy 2.8) is not met for the following species: dense reed grass, variegated hasseanthus, Munz's sage, Greene's ground cherry, western dichondra, spiny rush, California adder's tongue-fern, Coulter's Matilija poppy, and ashy spike-moss.

Sensitive Animals

Least Bell's vireo, a federal and state-listed species could be impacted at a higher level than allowed by the RMP (Policy 2.6) depending on the final development plan for Otay Valley Regional Park. The New Town Plan would not maintain large, viable populations of California gnatcatcher and coastal cactus wren as required by RMP Policy 2.5. It would also not preserve 80 percent of occupied California gnatcatcher habitat or achieve no net loss of cactus wrens. RMP requirements of 75 percent preservation of federal candidate populations (Policy 2.8) would not be met for at least eleven wildlife species. An

additional 19 federal candidates could potentially be impacted at levels greater than allowed by the RMP depending on their distribution and abundance onsite.

Wildlife Corridors

The New Town Plan blocks eleven wildlife corridors and constrains or potentially impacts the remaining six corridors. This plan would not provide the adequate linkages and wildlife movement corridors within a Preserve that are required by the RMP (Policy 4.1).

3.3.3.3 Sensitive Habitats Mitigation

The EIR standards for onsite preservation of sensitive habitats are presented in Table 3.3-9.1. The table also shows the RMP preservation policies which apply only to areas included within the management preserve.

A summary of impacts, determination of significance, and mitigation is given in Table 3.3-10.

~~The RMP lists a number of goals with which the New Town Plan can be compared.~~ Specific goals of the RMP and of this document for the retention of ~~75 percent of the~~ Diegan coastal sage scrub and maritime succulent scrub are not met by a substantial amount of acreage. The RMP and EIR goals of preserving the vernal pool resources on Otay Mesa and other specified sensitive habitats (southern interior cypress forest, coast live oak woodland, oak riparian forest, riparian woodland and sycamore alluvial woodland) also are not met (see Table 3.3-6). The proposed plan would need to be redesigned substantially to allow these goals to be met and to avoid significant unmitigable impacts.

Avoidance of impact to natural drainages would substantially reduce a potential impact of 169 acres to wetland habitats occurring principally along drainages. It is important to minimize the loss of wetlands and "waters of the U.S." to reduce the mitigation obligation which could be required through wetlands permitting processes.

The vegetation may will be refined at the SPA level of review to gain consistency with the MSCP vegetation mapping and to increase the accuracy of vegetation boundaries. The updated vegetation maps shall be based on aerial photographs and field surveys. Mitigation, however, shall be required for sensitive habitats mapped at the Program EIR level that have subsequently been disturbed or degraded.

Potential indirect impacts shall be mitigated by providing a minimum 100-foot buffer area around preserved sensitive habitats. No development, landscaping, or cleaning for fire management shall be allowed within the buffer areas. In addition, active recreation areas shall be located a minimum of 100 feet away from areas occupied by sensitive biological resources.

Coastal Sage Scrub

Mitigation of the 6244-acre impact to coastal sage scrub to below a level of significance will require implementation of the following measures:

(1) Major redesign of the project to retain 80 percent of the coastal sage scrub onsite and the key areas identified in the Phase I-Progress Plan mitigation table (Table 4.2.4-8).

Table 3.3-9.1 (New)

OTAY RANCH PRESERVATION STANDARDS FOR SENSITIVE HABITATS

Sensitive Habitat	EIR Standard for Determining Significance	EIR Standard for Onsite Preservation	RMP Preservation Policy (inside preserve)
Diegan Coastal Sage Scrub	100	80	70
Maritime Succulent Scrub	100	98	Not specified
Valley Needlegrass Grassland	100	50	25
Southern Interior Cypress Forest	100	100	100
Coast Live Oak Woodland	100	100	100
Southern Live Oak Riparian Forest	100	100	100
Sycamore Alluvial Woodland	100	100	100
Southern Willow Scrub	100	95	95
Floodplain Scrub	100	95	95
Freshwater Marsh/Aquatic	100	95	95
Alkali Meadow	100	98	95
Vernal Pool	100	98 - 100*	95

* 100% preservation is required for all large or high value vernal pool complexes as defined in the EIR.

Table 3.3-10 (Revised)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
NEW TOWN PLAN

Habitats	Acres Impacted	RMP Goals Percent Retention	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)	Recommended Mitigation
Upland Scrub Communities							
Diegan Coastal Sage Scrub	6244	70%	> 5 ac.	>0%	S	NM	1. Redesign to retain 80% sensitive habitat and implement habitat restoration to offset remaining impact.
Maritime Succulent Scrub	169 (59%)	70%	> 5 ac.	>0%	S	NM	2. Redesign to retain 98% sensitive habitat and implement habitat restoration to offset remaining impact.
Chaparral	861 (32%)	--	--	--	N		
Floodplain Scrub	505 (96%)	95% Maintain functional wetland values, no net loss	> 0	>0%	S	NM	3. Redesign to retain 95% sensitive habitat and implement habitat restoration to offset remaining impact.
Vernal Pools	128 (72%)	95%	> 0	>0%	S	NM	4. Redesign to preserve 98-100% of all vernal pools onsite. Preserve 100% of large or high value vernal pool complexes. Implement habitat restoration to offset remaining impact.
Coastal Freshwater Marsh/Aquatic	1 (32%)		> 0	>0%	S	M	5. Restore the appropriate acreage of this habitat in Otay River Valley in accordance with resource agencies.

Table 3.3-10 (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
NEW TOWN PLAN

Habitats	Acres Impacted	RMP Goals Percent Retention	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)	Recommended Mitigation
Grassland/Meadow							
Non-native Grassland	1429 (77%)	--	--	--	S	NM	6. Redesign to retain more foraging habitat and restorable habitat.
Valley Needlegrass Grassland	252 (95%)	--	> 5 ac.	>10%	S	NM	7. Redesign to retain 50% sensitive habitat. Partial mitigation through restoration should be conducted in accordance with associated sensitive plant species mitigation: *Acanthomintha ilicifolia*, *Muilla clevelandii*, and *Hemizonia conjugens*.
Alkali Meadow	78 (52%)	95% no net loss	> 0	>0%	S	NM	8. Redesign to retain 98% sensitive habitat. The retention of all natural drainages to the extent practicable at the next level of review would substantially reduce this impact.

Table 3.3-10 (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
NEW TOWN PLAN

Habitats	Acres Impacted	RMP Goals Percent Retention	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)	Recommended Mitigation
Woodlands							
Coast Live Oak Woodland	18 (9%)	100%	--	>0%	S	NM	9a. Redesign to retain 100% of this habitat onsite. Eliminate low density development and accompanying access roads from southeastern aspect of Proctor Valley parcel adjacent to Jamul Creek. 9b. Eliminate low density development and accompanying access roads from extreme northeastern corner of Proctor Valley Parcel. 9c. Avoid and/or minimize impact in eastern San Ysidro parcel at next stage of planning.
Southern Live Oak Riparian Forest	34 (45%)	100%	> 0	>0%	S	NM	10. Redesign to retain 100% of this sensitive habitat. This impact would be partially mitigable by minimizing impacts to this habitat in eastern San Ysidro parcel at next stage of planning.

Table 3.3-10 (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
NEW TOWN PLAN

Habitats	Acres Impacted	RMP Goals Percent Retention	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)	Recommended Mitigation
Southern Interior Cypress Forest	8 (5%)	100%	--	--	S	M	11. Redesign to retain 100% of this habitat onsite. Partially mitigate for any loss through a habitat replacement program at an appropriate ratio. Individual trees may be replaced at a 10:1 ratio. Habitat replacement would be at a lower ratio and would require an approved program and multi-year monitoring plan. Restoration of this habitat type is untried and would not mitigate impacts to below a level of significance. Impacts to Tecate cypress trees that are not mapped as part of this sensitive habitat could be mitigated by restoration.
Sycamore Alluvial Woodland	7 (100%)	100%	> 0	>0%	S	NM	12. Redesign to retain 100% of this sensitive habitat onsite.
Southern Willow Scrub	13 (87%)	95% no net loss	> 0	>0%	S	M	13. See mitigation measure 3 for wetlands.
Cumulative Habitat Reduction	15,561		> 40 ac.	--	S	NM	14. Redesign to protect more sensitive habitats and connective wildlife corridors.

(2) Restoration of approximately 1,500 acres of identified high priority areas within the Otay River parcel (Figure 3.3-8). Mitigation shall be complete and demonstrated successful prior to impact.

(3) Acquisition and long-term protection of approximately 1,000 acres of coastal sage scrub offsite. This will mitigate the impacts remaining after avoiding 80 percent of onsite habitat and restoring the high priority areas identified in Figure 3.3-8. Offsite mitigation shall not be used in place of avoidance or onsite restoration, but is necessary to reduce impacts to below a level of significance. Offsite mitigation shall be purchased in areas identified by the NCCP and MSCP programs as key areas for a South County biological preserve.

The mitigation program shall consist of a four-year experimental phase and an eight-year phase for the full-scale restoration. The mitigation shall be initiated with the first SPA. Because the restoration must be successfully completed prior to impact of sensitive habitats, the first SPA shall be located within non-sensitive habitats. The experimental phase of the mitigation program includes collection of biological data to refine the locations for restoration, to obtain baseline information on adjacent undisturbed habitats, and to develop the most effective restoration methodologies. The full-scale restoration shall include a one- to three-year period for site preparation (i.e., weed removal and planting) and a five-year period for quantitative monitoring and assessment of restoration success. Horticultural monitoring and remedial maintenance will be ongoing. The mitigation must meet the success criteria and be satisfactory to the appropriate jurisdiction before impact to the original sensitive habitat can occur. Refer to the Habitat Restoration Guidelines (Section 3.3.3.4) below for conceptual restoration and enhancement approaches.

With major project redesign, approximately 1,500 acres of disturbed habitat would be available for restoration to coastal sage scrub in the identified high priority areas of the Otay River parcel (Figure 3.3-8). The actual acreage available for restoration will depend on the final approved plan and on the suitability of specific areas for restoration as determined by the revegetation designer, plant ecologist and soil scientist. Note that more than 1,500 acres of restoration acreage is illustrated in Figure 3.3-8. The area shown in the Proctor Valley parcel in Figure 3.3-8 is mapped as disturbed valley needlegrass grassland and is available for native grassland restoration, rather than for mitigation of coastal sage scrub. Most of the disturbed coastal sage scrub in the Proctor Valley and San Ysidro parcels probably would regenerate naturally after the pressure from livestock grazing is removed (H. Wier, T. Oberbauer, pers. comm. 11/92; comment number 7 from the California Native Plant Society letter, 10/6/92; comment number 44 from the Fish and Wildlife Service letter, 10/8/92). Therefore, intensive restoration would be of little value in these areas.

Within the floodplain terraces and north slopes of Otay River Valley, Salt Creek, and Wolf and Poggi canyons lies approximately 650 acres of agriculture and 350 acres of non-native grassland and non-native grassland/coastal sage scrub available for mitigation. Depending on the final approved project, more or less acreage may be available. Restoration in the majority of these areas would involve habitat type conversion rather than enhancement of existing disturbed scrub habitats. For this reason, and because restoration shall occur prior to project impacts, full mitigation credit is appropriate (i.e., 1:1 ratio of restored to impacted habitat). Coastal sage scrub mitigation for impacts associated with the first SPAs shall occur within the Otay River Valley, Salt Creek, and Wolf and Poggi Canyons. Restoration of these areas is critical for habitat and regional corridors for California gnatcatcher and cactus wren.

Approximately 340 acres of non-native grassland/clay lens habitat occupied by the endangered Otay tarweed exists on the south slopes of Otay River Valley. This area has more limited potential for restoration because of the high occurrence of Otay tarweed. Some of this area, however, may be appropriate for enhancement or restoration on slopes that are unoccupied by Otay tarweed. Otay tarweed typically occurs on clay soils, often in disturbed grassy areas, and attempts to rid the site of non-native grasses may also negatively impact tarweed. Micro-sites within this area shall be identified during the experimental phase for potential for restoration to coastal sage scrub, native grassland, or for introduction of sensitive plant species requiring clay soils. Full mitigation credit (1:1 ratio) shall be received for acreage restored/enhanced in the identified micro-sites. Thus, 170 acres credit would be given if one half of the 340-acre site was restored/enhanced.

A second large area (225 acres) with limited potential for restoration exists in the Otay Mesa J 29-30 vernal pool complex. This area has a high occurrence of endangered vernal pool species, and, therefore, has limited potential for some of the large-scale weed control techniques. More experimentation also is required in this area to develop effective methods of selectively removing weed species without damaging vernal pools or natural topographic and soil features. Restoration/enhancement of an open sparse phase of coastal sage scrub and native grassland would be appropriate in this area. Half to full credit (2:1 to 1:1 ratio) shall be received for restoring/enhancing this area, depending on results of experiments to determine how much and what type of manipulation is appropriate. Because this area may benefit most from minor enhancement, and because it still has high biological value in its present disturbed state, a mitigation ratio of 2:1 (half credit) may be most appropriate. Refer to vernal pool section below for vernal pool mitigation.

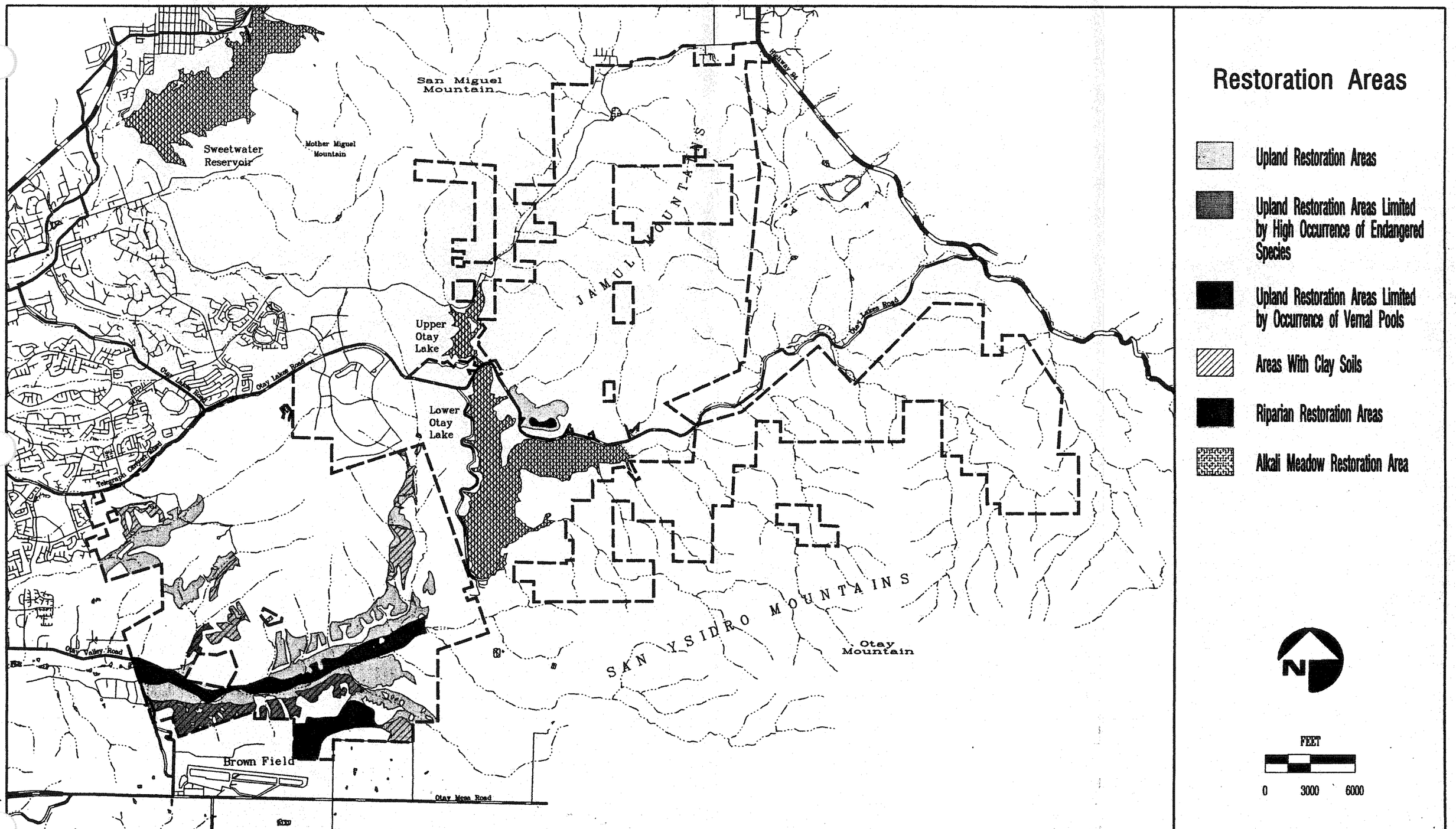
An estimated 1,000 to 1,500 acres of restoration acreage and, therefore, mitigation credit shall be received for restoring and enhancing coastal sage scrub in the high priority areas onsite. It should be reiterated that restoration of the high priority areas discussed above and shown in Figure 3.3-8 is required to the degree determined to be biologically appropriate and feasible by the restoration team including the revegetation designer, plant ecologist, and soil scientist.

With 80 percent preservation of coastal sage scrub, the mitigation burden is reduced to 2,305 acres. With restoration of 1,000 to 1,500 acres and an estimated credit of approximately 1,300 acres, the burden is further reduced to 1,005 acres. Acquisition and preservation of approximately 1,000 acres of coastal sage scrub offsite in coordination with NCCP and MSCP programs is required to complete the mitigation.

Potential indirect impacts shall be mitigated by providing a minimum 100-foot buffer area around all preserved coastal sage scrub. No development, landscaping or clearing for fire management shall be allowed within the buffer areas.

Maritime Succulent Scrub

Mitigation for the 69-acre impact to maritime succulent scrub will require major redesign of the project to preserve 98 percent of this habitat onsite. Restoration of approximately 6 acres is required to offset the remaining impacts. Appropriate locations for restoration of this habitat within the Otay River parcel will be determined by subsequent field transect studies during the experimental phase of the mitigation program. High priority areas for upland restoration are identified in Figure 3.3-8. Replacement ratios and phasing of the mitigation program are discussed in conjunction with coastal sage scrub mitigation.



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High Priority Restoration Areas

FIGURE 3.3-8

Valley Needlegrass Grassland

Mitigation for the 252-acre impact to valley needlegrass grassland will require major redesign of the project to preserve 50 percent of this habitat onsite and restoration of disturbed habitats in the Proctor Valley and Otay River parcels to offset the remaining impacts. High priority areas for native grassland restoration are located within and adjacent to the K6 vernal pool complex north of Lower Otay Reservoir and in selected areas in the Otay River parcel to be determined by subsequent field transect studies (refer to Figure 3.3-8 for high priority upland restoration areas). A ratio of between 1:1 and 3:1 (restored to impacted habitat) would be appropriate depending on the condition of the habitat to be restored and what type of manipulation is appropriate. A mitigation program including a 4-year experimental phase and an 8-year maintenance and monitoring program would be required.

Alkali Meadow

Mitigation requirements for the 77-acre impact to alkali meadow includes redesign of the project to preserve 98 percent of this habitat onsite and restoration of disturbed alkali meadow habitat in the Proctor Valley parcel to offset the remaining impact. Creation of the appropriate hydrological requirements and micro-environmental conditions unique to alkali meadow from graded areas or even other wetland communities is not considered feasible. Restoration within the disturbed alkali meadow habitat area within Proctor Valley, however, is feasible and would be required to mitigate the 2 percent impact.

Potential indirect impacts shall be mitigated by providing a minimum 100-foot width buffer area on either side of all alkali meadow habitat. No development or landscaping would be allowed within the buffer areas. Impacts to alkali meadow from hydrological alterations (including potential displacement of native habitat with exotic and wetland species) shall be mitigated as described herein. The water runoff from surrounding development shall be diverted and controlled to retain the same amount and seasonality of water input existing before development. A study shall be required at the SPA level of analysis to determine existing hydrological conditions of streams containing alkali meadow and what hydrological changes will occur to these streams after development. The results of these studies shall be used to engineer the storm drain system to reflect pre-impact hydrological conditions over the long-term. A low-flow diversion shall be designed in such a way that normal daily nuisance flow would stay in the storm drain system. Flow from rain storms beyond the normal nuisance flow would be diverted into the sensitive resource area up to a designated rate of flow to be determined by the hydrological studies. Such a system would keep the nuisance flow out of the sensitive resource area to prevent the conversion of the drainage into a perennial stream and prevent habitat alteration. It also would protect the drainage from increased storm flows which often accompany development and sometimes damage downstream habitat.

Woodland Habitats

Mitigation for impacts to southern interior cypress forest, coast live oak woodland, southern live oak riparian forest, and sycamore alluvial woodland shall include redesign to preserve 100 percent of these habitats.

Potential indirect impacts shall be mitigated by providing a minimum 100-foot width buffer area around the sensitive habitat, within which no development or landscaping would be allowed. Impacts to these woodlands from hydrological alterations (including potential displacement of native woodland habitats with exotic and wetland species) shall be mitigated as described above for alkali meadow. Adverse impacts are anticipated to occur

to the southern interior cypress forest, sycamore alluvial woodland, and possibly coast live oak woodland. Southern live oak riparian forest, however, may benefit from some nuisance flow. A system shall be devised to best reflect the pre-impact hydrology for each of the woodland habitat types. For the three former woodland types, a modified low-flow diversion as described above for alkali meadow may be most effective for protection of these habitats. The biologist, hydrologist, and engineer shall work together to design the system.

Floodplain Scrub, Southern Willow Scrub, and Aquatic/Freshwater Marsh

Mitigation for impacts to floodplain scrub, southern willow scrub, and aquatic/freshwater marsh habitats includes redesign of the project to retain 95 percent of these habitats and restoration/enhancement of disturbed wetland habitat to mitigate the remaining impacts. Restoration/enhancement shall occur in the Otay River Valley within tamarisk/mulefat scrub habitat (Figure 3.3-7).

Vernal Pools

Mitigation for impacts to vernal pools includes preservation of 100 percent of large or high value vernal pool complexes and 98 percent preservation of all other vernal pools. Restoration of disturbed vernal pool areas is required to offset the 2 percent impact. These preservation standards are consistent with the MSCP standards for vernal pool preservation. High value vernal pools are defined as those that contain sensitive species, a unique or diverse assemblage of species, or that occur within a mosaic of other identified sensitive habitats. The vernal pool complexes on Otay Ranch that are large or of high value and which require 100 percent preservation include J 23-24, J 25, J 29-30, and J 31+ on Otay Mesa; K 1 and K 15+ in Otay River Valley; M 2 near Poggi Canyon; R 1, R 2, and R 3 in Proctor Valley; K 6 and K 8 north of Lower Otay Reservoir; and K 12 in the San Ysidro Parcel.

Mitigation shall include project redesign to include, at the minimum, the above mentioned vernal pool complexes. The allowed 2 percent impact to any of the other vernal pool complexes shall be mitigated by restoration/enhancement of damaged vernal pool habitat within disturbed areas of the preserved vernal pool complexes such that no net loss of vernal pool habitat value or area occurs. Mitigation must be consistent with the requirements of Section 404 of the Clean Water Act. Restoration may include decompaction, sculpting and recontouring, and seeding of basins disturbed by dirt roads, trails, or scraped areas. Several such areas are available for restoration in the J 23-24, J 25, and J 29-30 vernal pool complexes. Enhancement of vernal pools through removal of exotic plant species also may be an appropriate mitigation measure. Reintroduction of greatly declining vernal pool species to suitable areas for recolonization also should be considered. Vernal pool restoration/enhancement shall include a four-year experimental phase and an eight-year maintenance and monitoring period. Impacts to vernal pool habitat will occur only after successful completion of the restoration program. Success criteria shall be based on established standards relative to undisturbed (i.e., least disturbed) vernal pools within the same vernal pool complex. Attributes to be used include water retention, percent cover of native vernal pool species, and diversity of native vernal pool and associated species. Restoration and enhancement methodologies shall be developed during the experimental phase and initially shall follow the strategies outlined in the RMP.

Potential indirect impacts shall be mitigated by providing a minimum 100-foot width buffer area around the vernal pools, their watershed and critical habitat. A larger buffer area and implementation of other measures e.g., fencing, educational sinage, diversion of urban runoff, may be necessary to eliminate adverse effects of drainage, trampling, vehicles,

dumping, and collecting and to provide sufficient resources to support appropriate pollinators and dispersal agents.

3.3.3.4 Habitat Restoration Guidelines

Guidelines for restoring sensitive habitats on Otay Ranch are presented herein and are applicable to the following habitat types: Diegan coastal sage scrub, maritime succulent scrub, valley needlegrass grassland, southern willow scrub, floodplain scrub, freshwater marsh, and alkali meadow. While the phasing of the restoration effort within the Management Preserve and the specific methods which will be utilized for each site cannot yet be identified, an attempt will be made to delineate the general guidelines for such efforts in this section of the report. This framework will also define the qualifications for the people or firms doing the work as well as the general monitoring, installation/maintenance, success standards, and remedial measures.

Qualifications of the Habitat Restorations Designer and Monitor

All habitat mitigation plans shall be designed by a revegetation designer having the following minimum qualifications:

1. Training and/or local experience in growing the native plant species used in the project (either in a nursery setting or in the field).

2. Knowledge of the revegetation associations proposed for the revegetation effort, including species identification, general composition, overstory, understory, and species' ecological positions relative to the water table.

3. A minimum of 2 years of practical horticultural experience, i.e., installation, maintenance or nursery.

4. A minimum of 2 years of study and 2 years of field experience in landscape design and construction, including a knowledge of both irrigation system design and planting plan development.

The revegetation designer shall work with the scientists (plant ecologist, soil scientist, and ornithologist), who carry out the initial regulation surveys and resource mapping to develop an understanding of design opportunities and ecological constraints at the project sites.

The revegetation designer also shall work with a licensed landscape architect when necessary to produce a set of construction documents and specifications for the implementation of each mitigation project. The revegetation designer shall generally provide the landscape architect with desired planting layouts and specifications for planting and irrigation (when required) and shall approve the final construction document package before it is approved by the permitting agency for installation. In general, a formal set of landscape documents will be reviewed for each phase of the mitigation process by habitat type.

The revegetation designer also shall work with a licensed engineer to develop any hydrologic grading or drainage plans necessary to assure mitigation success. The revegetation designer shall approve all grading plans for mitigation sites before their submittal for final processing by the permitting agency.

Bonding Requirements

Each habitat mitigation plan package which is permitted for approval will be bonded with the permitting agency before installation begins for the total cost of installation of the experimental phase and full-scale phase and the designated long-term monitoring and maintenance program. These bonds will be released by the permitting agency only upon the successful completion of the program.

Schedule and Formal Plan Requirements for Habitat Restorations

The habitat restoration process associated with development of the master plan for Otay Ranch will be developed over the buildout life of the project. Except for the riparian habitat types there will be the need for an experimental design approach to be associated with the development of each type of habitat mitigation. There are two reasons for this need. First, the scale of revegetation being proposed for this project is larger than any known mitigation projects to date. Thus, methods need to be analyzed at a small scale for their practicality and economic feasibility before they are carried out on larger areas. In addition, it is expected that many of the areas currently designated for habitat enhancement or type conversion will have unique characteristics which will require differing revegetation strategies to be successful.

The experimental pilot program phase of the initial SPA level mitigation projects for each cover type shall run for 4 years. Later SPA level projects for the same cover types will benefit from the experience of the earlier efforts and thus will not require separate experimental phases. The monitoring period for all full-scale mitigation projects shall be no less than 8 years.

Initial Data Collection

The experimental phase of the mitigation program shall begin with a detailed, quantitative study of sensitive habitat areas in the SPA where mitigation will occur. The study will be used to determine the goals and success standards for future required mitigations. An initial detailed map of vegetation and soils shall be prepared, followed by a stratified random quadrat sampling procedure described below to determine the species compositions, densities, and cover goals for the initial revegetation effort. In addition, bird baseline studies shall be performed to establish the faunal success standards for each mitigation effort.

Baseline vegetation surveys:

The mitigation design process will begin with the collection of baseline data to determine the goals of each revegetation effort. A plant ecologist and a soil scientist will work together to produce maps delineating boundaries of distinctive and more or less homogeneous plant associations. Vegetation associations are generally determined on the basis of edaphic factors such as slope, aspect, moisture availability, and local differences in soil characteristics, but in some situations other combinations of factors may also be important.

Once boundaries of plant associations have been determined, a combination of walk through observations and stratified random quadrat sampling will be used to determine a range of species compositions, covers, and densities typical of the impacted plant communities. Plant ecologists will prepare a species list for each plant association by walking through the site noting species presence. Spring and summer surveys shall be carried out to detect species blooming at different times during the growing season. Then

plant ecologists shall collect data on species presence, cover, and density from quadrats placed randomly within predetermined, representative portions of each plant association. Quadrat sizes of 1 square meter for grassland and up to 10 square meters for scrub habitats are generally most appropriate. To assure that the sampling effort achieves a desirable level of accuracy without needlessly oversampling, quadrat data collection shall continue within each plant association until the standard error for cover and density falls within ± 15 percent of the mean for each of the 10 most abundant native species.

Based on these studies, a revegetation template will be developed for each mitigation area. The range of species values defined by these studies shall then be utilized to define the success standards for the future mitigation efforts. Mitigation planting templates will incorporate a minimum of 60 percent of the species found in the plant associations based on their feasibility for reintroduction to the proposed revegetation site through seed or asexual propagations as determined by the revegetation designer. The species chosen shall also contain the major dominants of each plant association.

Baseline Bird Studies:

A successful mitigation effort must not only reintroduce plants in numbers similar to those found in natural communities but must also reproduce the major ecological functions of the target community. To demonstrate the recreation of habitat for wildlife specific to the target communities, baseline studies of how animals use existing remnants of the target communities must be conducted and compared to data collected similarly from the mitigation areas. Ogden considers bird studies to be of the greatest utility and practicality for this purpose. The goal of studies is to document the species using each plant community and their relative abundances in the intact landscape before it is impacted. Continued monitoring of wildlife using the mitigation sites throughout the 8-year monitoring period shall be compared to the baseline data to determine to what extent the restored habitat quality successfully approaches that of the target communities. The most meaningful comparisons shall be made through the use of similarity and diversity indices, which can condense large amounts of field data into simple, meaningful statistics. Birds are important as predators and agents of seed dispersal, and as prey items for larger animals. Several bird species are also considered endangered or threatened by resource agencies and thus are of special interest. A minimum of 18 visits per year continued over a 2-year period for both grassland and coastal sage scrub will be carried out by an experienced ornithologist to determine bird species composition and frequency standards for mitigation success.

Pilot Programs

Once the goals and success standards for each mitigation type have been determined, a pilot experimental program shall be produced by the revegetation designer. This pilot mitigation program will be a 4-year period of experimental work to determine the larger scale practices for the overall mitigation effort. Pilot programs will be set up for both the coastal sage scrub and grassland mitigations. A minimum of 8 revegetation sites (a combination of type conversions and disturbed habitat enhancements) of from 2 to 5 acres will be to test revegetation methods for these pilot programs. The experimental design will be formalized in a set of installation documents and a maintenance and monitoring plan produced by the revegetation designer and approved after review by the permitting agency (City or County). Simultaneously any necessary permits from state or federal resource agencies will be obtained using the same plan. Once approved, the pilot projects will be let for bid by the owner and installed under the direct field supervision and final approval of the revegetation designer.

Full Scale Mitigation Implementation

At the completion of the pilot programs, the revegetation designer will analyze the monitoring data and draw conclusions for the next stage of larger scale mitigation installations. Based on these conclusions, sufficient large-scale mitigation will then be undertaken to cover the impacts for any phases of the development which are intended for site grading during the first 16-years of development. The remaining mitigation work would then be undertaken after the end of the 8-year postconstruction monitoring period for this phase of work. These full-scale programs shall contain all components of the pilot programs including formal landscape documents reviewed and approved by the revegetation designer, a maintenance and monitoring program covering a minimum of 8 years after initial planting of the projects, bonding, and resource agency permitting if necessary. The full-scale programs shall continue to contain provisions for further experimentation where this is felt to be warranted by the revegetation designer. It is anticipated that most of these mitigation programs will be installed over a 2- to 3-year period because extensive site preparation work will be necessary to eliminate exotic weed species from the sites before planting. Thus these projects are anticipated to take from 7 to 8 years to implement and monitor.

Riparian mitigation is not expected to require a pilot program since the methodologies utilized for such work have gained a high level of standardization and success in the past.

Installation and Maintenance Standards

As a part of the installation specifications for each mitigation program, a detailed specification package will be developed by the revegetation designer in collaboration with the landscape architect. These programs shall at a minimum address the following areas of concern.

Sources (local and/or on site sources shall be required)
Required Contract Growing and/or contract seed collection
Substitutions (none allowed above 10 % of species in plan)
Soil Importation (where required)
Container Replacement Requirements (100% at 60 120, and 365 days
then 80 % at end of each year of monitoring period)
Reseeding Requirements (to be reviewed a minimum of once a year during the monitoring
period; cover standards to be based on baseline studies)
Planting Specifications
Pruning (none to be allowed except by direction of revegetation designer)
Weed Control (both pre and post planting)
Irrigation (type and scheduling)
Fertilization (type and frequency)
Access/Fencing
Staking (To be avoided where possible)
Herbivore Control

Monitoring Program

Both during construction and through the postconstruction maintenance periods a monitoring program shall be required for all mitigation programs. This program will be under the direction of the revegetation designer. The program will be divided into two components: A qualitative horticultural monitoring program focused on supervising the landscape maintenance contractor and quantitative program designed to collect data to demonstrate the success of the mitigation effort. The horticultural monitor shall oversee

each program a minimum of three times a year during the site preparation process, every two weeks during the planting phase, once a month during the first year after installation and at least eight times a year for the remainder of the monitoring period. The quantitative monitoring shall require data collection only on container plant survival (actual count) and seed cover (visual evaluation) during the first 2 years after project installation and then beginning in the third year additional quantitative data will be collected annually to determine the rate of progress in meeting the success standards of the program. These data will be collected in a similar manner to that described above in the baseline vegetation survey and faunal baseline sections. Remedial measures based upon the recommendations of the revegetation designer will be implemented on an ongoing basis as necessary to assure final success of the revegetation efforts.

Success Standards

Success standards for the mitigation efforts shall be based upon the initial plant, and bird, studies done in the baseline study period. Vegetation and insect success standards will incorporate the presence of at least 60% of the species determined to occur in the preferred habitat type. Bird standards will incorporate the presence of at least 80% of the species found to be present in the baseline habitats. Density standards for vegetation will also be developed based on the initial baseline data. Indices of similarity and diversity are also potentially useful for setting standards, but may not be set before collection of baseline data.

If a project fails to meet its success standards by the end of its monitoring process then the monitoring process will be extended one full year until either the site meets its standards or the project is completely redone; in which case, a new monitoring period would be initiated. Any changes to this rule would be subject to the decision of the permitting agencies based upon recommendations of the revegetation designer.

Remedial Measures

When success standards are not met, each mitigation plan shall provide for a range of remedial measures to correct the shortcomings of the effort. These will generally be some form of the same methods utilized to establish the project in the first place, but, may in some instances, involve the application of new methods to a site not previously used. For example, selective herbicide might be used to control a particularly pernicious weed species although no herbicides had previously been used at the site. A list of the various measures is shown in Table 3.3-10.1. In some instances it may be necessary to determine that a given plot program or full-scale program has failed. In this case, it will be necessary to completely redo the mitigation. Such would be the case in a coastal sage scrub conversion of a non-native grassland if annual grass species were not properly controlled before planting and they out-competed all coastal sage scrub seedlings.

Revegetation Strategies

Project impacts noted above will require restoration of at least seven native habitat types as listed above. This section defines the general strategies which will be utilized to approach revegetation in each of these habitat types. Strategies must remain general until the project proceeds to the specific plan level where specific mitigation sites are identified and site-specific mitigation requirements can be developed to successfully achieve project goals. It is expected that the phasing of mitigation installation areas will be tied with both the needs and locations of each specific plan area, but the focus will be on high priority restoration areas identified in Figure 3.3-8. This report defines a general framework for the

Table 3.3-10.1
HABITAT REVEGETATION METHODS BY MITIGATION TYPE

	Disturbed CSS	Converted CSS	Disturbed MSS	Converted MSS	Disturbed Grassland	Converted Grassland	Riparian	Disturbed Alkali Meadow
SITE PREPARATION								
Burn	X?	X		X	X	X		
Mow					X	X		
Disc		X		X		X		
Herbicide								
selective	X	X	X	X	X	X	X	X?
general		X		X		X	X	
Topsoil		X		X		X	X	
Soil Ripping		X		X		X	X	
Sheetsfoot		X		X		X		
Amend Soil		X		X		X	X	X
Excavate							X	X
Dam							X	X
New Drains							X	X
PLANTING								
Containers	X?	X?	X	X	X	X?	X	X
Seed	X	X	X	X	X	X	X	X
Hydroseed	X	X	X	X	X?	X?	X	X
Progagules	X(corms)	X(corms)	X	X	X?	X(corms)	X(cutting)	X
Reinvasion	X	X?	X	X?	X?	X		
MANAGEMENT								
Irrigate								
drip	X	X?	X	X			X	
overhead	X?	X	X?	X	X?	X	X	X
Fertilize								
general	X?	X?	X?	X?	X?	X?		
containers	X	X	X	X			X	X
Cage	X(corms?)	X(corms?)	X(corms?)	X(corms?)	X(corms?)	X(corms?)	X?	
Weed								
hand	X?	X?	X?	X?	X?	X?	X?	X?
herbicide	X?	X	X?	X	X?	X?	X	X
burn	X?						X?	X?
mulch containers	X?	X?	X?	X?			X?	X?
Herbivore Control	X?	X?	X?	X?	X?	X?		
Fencing	X?	X?	X?	X?	X?	X?	X?	X?

CSS = Coastal Sage Scrub; MSS = Maritime Succulent Scrub; X = Method to be used; X? = Method of Questionable Value.

methodologies for these habitat restoration/mitigation efforts to guide future mitigation efforts.

Revegetation Methods

There is a range of horticultural strategies available to enhance or type convert vegetation covers. In general, these can be divided into three categories: site preparation methods, planting methods, and management methods. Each habitat mitigation will benefit from utilizing some or all of these methods. The effectiveness and suitability of these methods will be tested on a site-specific basis with the pilot programs during the experimental phase.

Site preparation methods:

Site preparation methods are most applicable to sites which will be changed from one vegetation type to another. These methods eradicate undesirable vegetation covers to prepare the site for the dominance of a more desirable plant community cover. And, while some of these methods may be selectively utilized on disturbed native site, in general they are applied to an entire site before planting takes place to assure all undesirable species are eliminated before planting. Some of these methods are then again selectively applied once planting takes place to eliminate competition until desirable vegetation cover is established.

In brief, methods which should be considered, either in tandem or separately, to rid a site of non-native species prior to planting with native species are burning, mowing, discing, herbiciding, and beneficial topsoil placement on top of non-native cover. Each of these must consider the environmental factors of the site to determine their times and/or rates of application. In addition, artificial irrigation may be utilized to speed up the process of weed germination and subsequent elimination on a site.

A second aspect of site preparation is soil conditioning. Methods which may be utilized to properly prepare a site's soils to receive seed or plantings are discing or ripping to eliminate compaction, sheepsfooting to produce surface microtopography, the incorporation of soil amendments into the topsoil layer, the importation of topsoils containing desirable propagules and/or soil fungi/microorganisms to a site. Covering non-native vegetation types with native topsoils may also be a means of weed elimination on a site.

A final element of site preparation has to do with site hydrology. In general, this issue only relates to wetland habitat restoration (riparian, alkali meadow) but in some cases upland habitats may be affected if their hydrology is changed by development. In this case, grading or drainage design techniques must be utilized to assure that correct hydrology exists and will be maintained for a given habitat type. For example, in order to produce new riparian acreage, sites along existing drainages are either dammed or excavated to produce suitable hydrologies for riparian species.

The site preparation methods chosen will depend upon what the original site conditions are and the establishment ecology of the new species which will be introduced. For example, herbiciding a site which contains endangered or sensitive plant species would generally be inappropriate. Likewise, general discing of a degraded native vegetation would be avoided because it would destroy the native species as well as the weeds. Costs will also influence the methods chosen. For example, while hand weed clearing of a non-native grassland might be possible, burning or herbiciding the area is often more cost-effective.

Planting methods:

Once a site is rid of non-desirable cover, several strategies exist for reintroducing desired native species to a site. These are container planting, direct seeding, hydroseeding, and asexual propagule planting. In addition, reinvasion of desirable species from adjacent habitat may suffice to achieve revegetation goals on some sites for certain species. The choice of appropriate methods for each species must be based on the reproduction and establishment ecology of the species and to a limited degree upon the horticultural methods used to grow it both in the nursery and in the field. Because many of the species in maritime succulent scrub are not easily grown from seed in the field, this mitigation type would require field-planted container plantings and probably some initial irrigation to establish; whereas, Diegan coastal sage scrub could be established from seed without irrigation. Container plantings in the field generally require supplemental irrigation during the first several years to guarantee high rates of successful establishment. If irrigation is unavailable, then container plantings should be avoided. The planting methods chosen may also depend upon the time frame for revegetation success. If quick establishment is needed, then container plantings may be required.

Horticultural management:

A variety of horticultural methods may be useful in both establishing and speeding up the initial growth of mitigation plantings or shaping the direction of vegetation composition development. These include supplemental irrigation (either through drip irrigation or overhead irrigation), fertilization (of the whole site or of individual container plantings), weeding (either through herbicides or cultivation), pruning or seedling removal, mulching to control weeds, staking, caging to control herbivore damage, trapping or baiting to control vector damage, pesticide use, burning, or access control to eliminate grazing or human impacts from a site during its establishment period.

Specific Methods To Be Used for Each Habitat Revegetation Type

Table 3.3-10.1 shows which of the revegetation strategies discussed above are applicable to each revegetation type. Since all the riparian habitat types have similar considerations except the alkali meadow, these have all been lumped into a single riparian category. It should be noted that, except for the wetland habitat types, each of the major revegetation types is broken into two subcategories: disturbed and type converted. In general, type conversions from one vegetation type to another require considerably more attention to site preparation than enhancement mitigations do because all the non-desirable species must be removed from a site before reintroduction of the new plant palette. On the other hand, with enhancement mitigation activities, one must be careful to preserve the remaining desirable native cover on a site while selectively removing non-native species and replanting with desirable natives. In both types of mitigation activities, sensitive or endangered species populations which are contained within the present vegetation cover need to be preserved during the mitigation process. Often the need to protect such species will limit the methods available for revegetation. For example, the use of a monocot herbicide to eliminate non-native grass species from a site would also eliminate native alliums from the site.

In general, a long preparation period (1-3 years) utilizing several weed removal techniques should be expected for type conversion activities. For example, type converting non-native grassland or weedy agricultural cover to a coastal sage scrub cover would need a 1- to 3-year preplanting weed removal period during which a combination of burning, herbiciding, and discing should be utilized to remove weed species from the site before adding back desirable coastal sage scrub cover.

3.3.3.5 Sensitive Plants Mitigation

All sensitive plant taxa that are considered regionally significant shall be assured long-term survivability on Otay Ranch through preserve design and a combination of habitat restoration and species re-establishment or introduction. Where significant unmitigable impacts occur as a result of the New Town Plan, redesign of specific development areas is recommended.

A certain level of impact is allowable for sensitive plant species that are not state or federally-listed as threatened or endangered; that level is dependent on the sensitivity of the species and the significance of the population on Otay Ranch (population size on the ranch and total distribution of the species). ~~Ranges of significance levels (allowable net loss) were defined in Section 3.3.2.3 for each priority category of sensitive plant species and appear below~~. Table 3.3-6.1 presents the species-by-species standards for onsite preservation and determining significance.

Sensitive plant surveys are required at the SPA level (see Table 3.3-6.1) shall include a detailed mapping of areas occupied by sensitive species shall be provided. Plant densities within occupied polygons shall be estimated in the field based on total population counts or counts within defined sub-areas. Thus, the percent of a species to be impacted by a SPA shall be determined from a quantitative data base of acreages and sizes of populations. Mitigation shall be required for sensitive plant populations that were documented at the Program EIR level but that may not have been recorded in subsequent SPA level surveys.

Any impacts to state or federally-listed threatened or endangered plants are considered significant. Impacts of less than ~~20~~ 10 percent of the onsite distribution may be mitigated by introduction or re-establishment of populations onsite or enhancement of existing onsite populations; impacts in excess of ~~20~~ 10 percent would be considered unmitigable unless the project were redesigned. Significant impacts to plant species listed by CNPS generally can be mitigated; however, because of the regional significance of Otay Ranch to many of the less sensitive species, impacts that remove all populations of a species on the ranch are considered unmitigable. Refer to Table 3.3-6.1 for preservation requirements for each sensitive plant species. Avoidance of impacts is always preferred, and for those species that may be difficult to propagate (e.g., California adder's tongue-fern, ashy-spike moss), ~~mitigation~~ restoration or transplantation may be infeasible.

Mitigation to below a level of significance shall involve project redesign to obtain the species-specific preservation standards (Table 3.3-6.1), restoration or transplantation, and/or offsite acquisition and preservation. After the preservation standards are met, habitat restoration with sensitive plant species or introduction of sensitive plants into the appropriate micro-environment and soil type will be employed to offset remaining impacts. To avoid genetic mixing of distinct populations, species introductions will be made only into appropriate habitat that presently is not occupied by existing populations. All restoration or transplantation programs will require a 2-3 year experimental phase and a 5-8 year maintenance and monitoring period as appropriate for each species mitigation program. The time period needed will depend upon the species growth form, the body of knowledge regarding propagation, soil requirements, etc., and whether restoration of associated habitat is involved. Successful completion of the experimental phase and maintenance and monitoring period as defined by specific success criteria is required before impacts to the original site containing the sensitive species can occur. If success criteria are not met, the project shall be redesigned to retain the original sensitive resource, or offsite mitigation may be pursued.

~~All programs for mitigation of sensitive plants shall require a detailed mitigation plan and a 5-year maintenance and monitoring program~~. The initial mitigation plan shall provide a research phase, experimental phase, implementation phase, and goals for long-term maintenance and monitoring. The final mitigation plantings and long-term maintenance and monitoring shall be based on the results of a minimum of ~~three~~ 2-3 years of data from species-specific experiments. The experimental phase shall include experiments which focus on the species growth requirements and management including methods of propagation, edaphic factors, hydrological and topographic requirements, weed competition, and maintenance practices. Species that have been propagated successfully will require less horticultural work; however, experimental work still may be needed upon introduction into the appropriate site and management of the established population. The research phase shall involve literature review and preliminary tests to aid in the experimental design. Some information can be extrapolated, to a degree, from closely-related species. Tests that are fairly easy to do (but for which sufficient lead time will be required) include germination tests, seed/pollen viability tests, and seed dormancy tests. Habitat information shall be determined from field studies, soil sampling, and literature review. Seed banking shall be included as a mitigation component (i.e., in addition to experimental design), particularly for the more sensitive species. This is a "contingency" measure - it ensures that the gene pool is preserved, at least for the short-term.

A botanist, soil scientist, and revegetation specialist each with at least 5 years of experience in the local flora and ecology shall design and implement the mitigation program including the research, experimental, implementation, and monitoring phases of the program.

Restoration or species introduction projects have been attempted for many of the sensitive species that would be impacted on the ranch. Species for which restoration or creation projects are in progress and for which information is available or presumably can be obtained include: San Diego coast barrel cactus (Caltrans; ERCE), San Diego sagewort (ERCE projects: Talone Lake, FSDRIP), San Diego marsh-elder (ERCE: Talone Lake), San Diego sunflower (Caltrans: I-15 between Friars and 52, I-8 near College Blvd.), spiny rush (ERCE: Talone Lake, FSDRIP), Engelmann oak (Caltrans: I-15 near Rainbow), San Diego thorn-mint (ERCE: Sabre Springs in Poway, Palos Vista at the San Diego Wild Animal Park), willowy monardella (Caltrans: Sycamore Canyon for Highway 52), Orcutt's birds beak (PSBS), California Orcutt grass (PSBS: Otay Mesa J13), San Diego navarretia (PSBS: Otay Mesa J13) and snake cholla (PSBS), Coulter's matilija poppy (Wildcat Canyon Road), variegated hasseanthus (Caltrans: Santee for Highway 52).

Species that have been propagated but for which establishment in a natural habitat has not been seriously attempted include Tecate cypress, summer-holly, Munz's sage, San Diego bur-sage, and possibly dense reed grass.

Closely related species to those on Otay Ranch, for which restoration or creation projects have been done include: thread-leaved brodiaea (*Brodiaea filifolia*) (ERCE: Baldwin Preserve in San Marcos), purple needlegrass (*Stipa pulchra*) (ERCE: Baldwin Preserve in San Marcos), smooth tarplant (*Hemizonia laevis)* (ERCE for MWD), and San Diego mesa-mint (*Pogogyne abramsii*) (Black and Zedler: Del Mar Mesa, NAS Miramar). Species on Otay Ranch that are similar to species in the above mentioned projects or that are related to commonly propagated species include Orcutt's brodiaea, Dunn's mariposa lily, San Diego County stipa, dense reed grass, Otay tarweed, Otay mesa-mint, and Otay manzanita.

Little or no information exists on the propagation or introduction of the remaining sensitive species: narrow-leaved nightshade, Campo clarkia, Greene's ground-cherry, California adder's-tongue fern, and ashy spike-moss.

Indirect impacts to preserved populations of all sensitive plant species shall be avoided or minimized to the extent possible by implementing the following mitigation measures:

- Provide buffers (i.e., set-backs from developed, landscaped, or other use areas) around the occupied and/or critical habitat (e.g., watershed for vernal pools, floodplain or drainage for willowy monardella) for all preserved populations. Buffers shall be of adequate size and configuration to eliminate adverse effects of trampling, vehicles, dumping, collecting, and adjacent construction, and, in conjunction with the preserved habitat, shall include sufficient resources to support appropriate pollinators. Buffer widths shall be a minimum of 50-100 feet for first, second, and third priority species and 25-100 feet for fourth priority species. Buffer widths shall be determined on a species-specific basis, and will be dependent on the sensitivity of the species, the susceptibility/tolerance of the species and/or its habitat to disturbance, and the adjacent land use. Additional measures, such as fencing and/or educational signage, may be required in some cases to ensure protection of preserved, buffered populations. The extent of occupied habitat for annual species shall be determined at the SPA level in several ways: 1) through multiple season surveys, including at least one survey during a year of optimal climatic conditions for the species of concern, 2) by delineating the extent of the habitat or microhabitat (e.g., clay lens), or 3) by calculating the occupied habitat during a single season survey, then adding 25% of additional, adjacent, in-kind habitat. This additional acreage is considered separate from the buffer, and is intended to allow for yearly fluctuations or shifts in population size and location that characterize many annual species. Occupied habitat for bulbous herbaceous perennials can be delineated in a similar fashion, although non-impactive digging (for dormant bulbs or corms) can also be employed to determine the extent of the population.

- For sensitive species occurring within seasonal streams, the water runoff from surrounding development shall be diverted and controlled to retain the same amount and seasonality of water input existing before development. A study to determine existing hydrological conditions and a hydrological analysis of the streams within the proposed development that contain sensitive plant species shall be required at the SPA level of analysis. The results of these studies shall be used to engineer the storm drain system to reflect pre-impact hydrological conditions over the long-term. A low-flow diversion shall be designed in such a way that normal daily nuisance flow shall stay in the storm drain system. Flow from rainstorms beyond the normal nuisance flow would be diverted into the sensitive resource area up to a designated rate of flow to be determined by the hydrological studies in concert with species specific parameters.

  Such a system would keep the nuisance flow out of the sensitive resource area to prevent the conversion of the drainage into a perennial stream and prevent habitat alteration to the detriment of the identified sensitive species. It also would protect the drainage from the increased storm flows that often accompany development and sometimes damage downstream habitat through increased erosion, or sedimentation. Species occurring in intermittent streams for which the above mitigation would apply include willowy monardella, Otay manzanita, Orcutt's brodiaea, summer-holly, Tecate cypress, San Diego sagewort, Orcutt's bird-beak, San Diego marsh-elder, spiny rush, and potentially Campo clarkia, San Miguel savory, and Engelmann oak.

- A fire management plan shall be developed in accordance with the RMP to protect and appropriately manage populations of sensitive plant species. A fire management plan also shall be a requirement of the subsequent EIR's conducted at the SPA level. Published papers and current research involving the effects of fire and fire management on specific habitats and sensitive species occurring on Otay Ranch, e.g., coastal sage scrub, southern interior tecate cypress forest, Otay manzanita, Gander's pitcher-sage, etc. shall be used to develop the fire management plan.

Mitigation recommendations for each of the sensitive plants impacted by the New Town Plan are presented in Table 3.3-11.

3.3.3.6 Sensitive Animal Mitigation

The New Town Plan would significantly impact ~~nine~~ one endangered species, five species petitioned for listing as endangered, and six other species with at least federal candidacy or CDFG Species of Special Concern status. An additional seven first priority and 29 ~~31~~ second priority species may potentially be significantly impacted. The goal of mitigation under the New Town Plan is to reduce these impacts to a level below significance. This objective cannot be met without major redesign and modification of the New Town Plan. Specifically, impacts are unmitigable to ~~coastal~~ Riverside fairy shrimp, San Diego vernal pool fairy shrimp, San Diego horned lizard, orange-throated whiptail, northern harrier, Cooper's hawk, golden eagle, burrowing owl, cactus wren, California gnatcatcher, least Bell's vireo, and tricolored blackbird. Impacts to regional raptor populations are also significant and unmitigable. ~~Depending on the final plan for the Otay Valley Regional Park and road alignments, impacts to least Bell's vireo could also be unmitigable~~. Eleven of ~~seventeen~~ 17 wildlife corridors would be completely blocked by development. Another six would be constricted or ~~potentially~~ impacted by road construction and adjacent development. This limitation of wildlife movement is also unmitigable.

Major project redesign is essential for reducing ~~tion of~~ impacts to a level below significance. Table 3.3-7 outlines ~~recommended~~ required design changes and mitigation measures for each impacted or potentially impacted sensitive wildlife species. Minimum preservation standards are also presented for each species. These standards apply to the preservation of occupied habitat for first and second priority species. In addition, these standards apply other preservation of individuals for First Priority species.

General Mitigation Requirements

Since the projected buildout of the New Town Plan occurs over a 30- to 50-year time period, focused surveys are required at the SPA level for most sensitive wildlife species (see Table 3.3-7). These surveys will determine the distribution and abundance of sensitive animal species on Otay Ranch just prior to buildout. Data collected at this time will more accurately reflect potential impacts from proposed development and road construction.

Focused surveys shall be conducted by qualified biologists experienced with surveying for the particular species for which the focused survey is being conducted. Surveys will be conducted using approved methodologies for each species. These methodologies shall follow those required in the County of San Diego Biological Survey Guidelines unless other specific survey techniques have been adopted and approved by the Natural Community Conservation Program, or the United States Fish and Wildlife Service, or by the California Department of Fish and Game.

Table 3.3-11 (Revised)

SUMMARY OF SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES SENSITIVE PLANT SPECIES NEW TOWN PLAN

Species	Significance of Impacts	Required Mitigation [1,2]
High Priority Species (State-listed Endangered)		
San Diego Thorn-mint (*Acanthomintha ilicifolia*)	Significant	• Project redesign to preserve both populations with adequate buffer north of Otay Lakes Road, or • Redesign to preserve largest population (95% of species onsite), including watershed, any associated critical habitat, and a 100-foot width buffer zone; introduce the species on appropriate soils on the ranch; creation of artificial population shall involve seed salvage of impacted population; nursery propagation to increase seed; sowing of seed; mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required. • A clay soil lens suitable for San Diego thorn-mint that is not presently occupied by this species must be used for the mitigation. If no such area is available, as determined by the plant ecologist and soil scientist during the experimental phase, acquisition and long-term protection of an offsite population shall be required.
Dunn's Mariposa Lily (*Calochortus dunnii*)	Significant	• Project redesign to avoid all impacts, i.e., near Minnewawa Truck Trail and isolated parcel near Little Cedar Canyon.
Slender-pod Caulanthus (*Caulanthus stenocarpus*)	Not Significant	No mitigation required.
San Diego Button-Celery (*Eryngium aristulatum* var. *parishii*)	Significant	• Major project redesign to preserve 98 percent of this species onsite; preserve 100 percent of species where occurring with other vernal pool indicator species; and • Mitigate allowed 2 percent impact through vernal pool restoration and reintroduction of species into disturbed or historical vernal pool areas. Mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required.

Table 3.3-11 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES
SENSITIVE PLANT SPECIES
NEW TOWN PLAN

Species	Significance of Impacts	Required Mitigation [1,2]
Mexican Flannelbush (*Fremontodendron mexicanum*)	Not Significant	No mitigation required.
Otay Tarweed (*Hemizonia conjugens*)	Significant	• Major redesign to include at least 80 percent of populations in open space and introduction of species in areas with appropriate soils, including seed salvage and nursery propagation to increase seed source. Mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required.
Willowy Monardella (*Monardella linioides* ssp. *viminea*)	Significant	• Preserve 100 percent of species; minor redesign by set-back of development from canyon in W. San Ysidro Parcel required; design road crossing of canyon with bridge to avoid all direct and indirect impacts. • Regulation of urban runoff to prevent significant indirect impacts from hydrological alterations from development; refer to buffer requirements and pre-impact hydrological studies and design of low-flow diversion system described in text of this section. • Five-year monitoring of intact population to: a) identify significant indirect impacts of development (e.g., trampling, dumping, hydrological alterations), and b) implement remedial measures (e.g. restoration, trash removal, repair fencing, etc.).
California Orcutt Grass (*Orcuttia californica*)	Potentially Significant	• Additional surveys in a "wet year" and seed bank studies during any year to determine if species extirpated from the ranch. "Wet year" is defined as any year with average or greater than average precipitation, preceded by one or more such years. Collect soil samples during any year from area of historical occurrence and propagate under various conditions of inundation. • If found to be present in seed bank, project shall be redesigned to avoid impacts.

Table 3.3-11 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES
SENSITIVE PLANT SPECIES
NEW TOWN PLAN

Species	Significance of Impacts	Required Mitigation [1,2]
Otay Mesa-mint (*Pogogyne nudiuscula*)	Significant	• Major project redesign to include J23-24 and J25 in a vernal pool preserve and avoid all impacts to populations of this species (100 percent preservation).
Second Priority Species (Federal C2; CNPS List 1B)		
Otay Manzanita (*Arctostaphylos otayensis*)	Significant	• Redesign of project to preserve a minimum of 80 percent of this species (include population on isolated parcel near Little Cedar Canyon, in preserve); **and** • Propagation and re-establishment of any impacted plants on suitable slopes; this mitigation is untried but the genus commonly is grown as a horticultural species; would involve restoration of high elevation chaparral community; develop mitigation plan including a 2-4 year experimental phase and a 5-8 year maintenance and monitoring program.
Orcutt's Brodiaea (*Brodiaea orcuttii*)	Significant	• Redesign to preserve a minimum of 75 percent of population; redesign to set-back development from Proctor Valley Creek and tributaries, **and** • Transplant any impacted plants to adjacent areas in Proctor Valley with appropriate habitat and soils; transplant by salvaging corms and soil; develop mitigation plan including a 2-3 year experimental phase and 5-8 year maintenance and monitoring program; and • Refer to requirements for pre-impact hydrological studies and design of low-flow diversion system described in text of this section. • Five-year monitoring of intact population to: a) identify significant indirect impacts of development (e.g., trampling, dumping, hydrological alterations), and b) implement remedial measures (e.g., restoration, trash removal, repair fencing etc.).

Table 3.3-11 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES
SENSITIVE PLANT SPECIES
NEW TOWN PLAN

Species	Significance of Impacts	Required Mitigation [1,2]
Dense Reed Grass (*Calamagrostis densa*)	Significant	• Redesign project to avoid impacting population on ridge in eastern Jamul Mountains; preservations of a minimum of 50 percent of populations is required; **and** • Seed salvaging; propagation of plugs; introduction of seed and plugs into appropriate habitat area; develop mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program.
San Miguel Savory (*Calamintha chandleri*)	Not Significant	No mitigation required.
Summer-holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)	Not Significant	No mitigation required.
Tecate Cypress (*Cupressus forbesii*)	Significant	• Redesign to preserve populations near Hubbard Springs and in isolated parcel near Little Cedar Canyon; preservation of 80 percent of this species is required; 100 percent preservation is required where plants occur as part of Tecate Cypress forest habitat or where associated with Thorne's hairstreak; **and** • Mitigate any allowable impacts by restoration with Tecate cypress; mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required.
Variegated Hasseanthus (*Dudleya variegata*)	Significant	• Project redesign to preserve at least 75 percent, including representative populations from each of the three parcels; **and** • Transplant impacted plants or otherwise establish species in appropriate habitat and clay soils within same parcel; detailed mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required.

Table 3.3-11 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES
SENSITIVE PLANT SPECIES
NEW TOWN PLAN

Species	Significance of Impacts	Required Mitigation [1,2]
San Diego Coast Barrel Cactus (*Ferocactus viridescens*)	Significant	• Project redesign to preserve at least 75 percent, including representative populations from each of the three parcels; **and** • Transplant impacted plants to appropriate habitat within same parcel; detailed mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required.
San Diego Goldenstar (*Muilla clevelandii*)	Significant	• Project redesign to preserve at least 75 percent, including representative populations from each of the three parcels; **and** • Salvage corms and soil and introduce species in appropriate soils and habitat within same parcel; detailed mitigation plan and including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required.
Little Mousetail (*Myosurus minimus* var. *apus*)	Significant	• Project redesign to retain K6 mesa in open space to prevent loss of species from the ranch; and additional surveys of historical location on Otay Mesa in a "wet year" and seed bank studies to determine if extirpated from that location. Collect soil samples from area of historical occurrence and propagate under various conditions of inundation. • If found to be present on Otay Mesa, project shall be redesigned to avoid all impacts.
San Diego Navarretia (*Navarretia fossalis*)	Significant	• Project redesign to retain J29 pools with *Navarretia* (100% preservation) to prevent loss of species from the ranch.
Snake Cholla (*Opuntia parryi* var. *serpentina*)	Significant	• Redesign to preserve at least 80 percent of populations; **and** • Transplant impacted plants to restored coastal sage scrub in open space; would require detailed mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program.

Table 3.3-11 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES
SENSITIVE PLANT SPECIES
NEW TOWN PLAN

Species	Significance of Impacts	Required Mitigation [1,2]
Narrow-leaved Nightshade (*Solanum tenuilobatum*)	Significant	• Redesign to preserve at least 75 percent; **and** • Re-establish this species in impacted areas with suitable soils or introduce in suitable open space; this species has not been propagated before, so success is less certain, perhaps, than other species. Detailed mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program would be required.
Gander's Pitcher-sage (*Lepechinia ganderi*)	Significant	• Preservation of at least 80 percent of populations required; **and** • Restore habitat with this species to mitigate impacts to this species. Detailed mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required.
Third Priority Species (CNPS List 2 and 3)		
California Spinebush (*Adolphia californica*)	Significant	• Redesign to preserve at least 75 percent of populations onsite.
San Diego Bur-sage (*Ambrosia chenopodiifolia*)	Significant	• Redesign to retain both J23 and Johnson Canyon localities (75% preservation of populations required).
San Diego Sagewort (*Artemisia palmeri*)	Not Significant	No mitigation required.
Delicate Clarkia (*Clarkia delicata*)	Not Significant	No mitigation required.
Orcutt's Bird-beak (*Cordylanthus orcuttianus*)	Not Significant	No mitigation required.
Palmer's Grappling-hook (*Harpagonella palmeri*)	Not Significant	No mitigation required.

Table 3.3-11 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES
SENSITIVE PLANT SPECIES
NEW TOWN PLAN

Species	Significance of Impacts	Required Mitigation [1,2]
San Diego Marsh-elder (*Iva hayesiana*)	Significant	• Redesign project to retain at least 75 percent; **and** • Revegetate at approximately 2:1 with this species in intermittent drainages that are impacted or in previously disturbed alkali meadow; propagate container plants with seed collected from the ranch; include in restoration of alkali meadow habitat. Would require detailed mitigation plan including 2-4 year experimental phase and 5-8 year maintenance and monitoring program.
Munz's Sage (*Salvia munzii*)	Significant	• Redesign project to retain at least 75 percent; **and** • Restore Munz's sage-dominated coastal sage scrub at approximately 2:1 using seed and container plants from the ranch. Would require detailed mitigation plan including 2-4 year experimental phase and 5-8 year maintenance and monitoring program.
Greene's Ground-cherry (*Physalis greenei*)	Significant	• Additional survey work to verify presence of this species.
Greene's Ground-cherry (*Physalis greenei*) (Continued)		• If present, redesign project to preserve at least 75 percent of species; **and** re-establish or introduce this species into suitable habitat, including seed salvage and nursery propagation to increase seed source. Detailed mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program would be required.
San Diego County Stipa (*Stipa diegoensis*)	Significant	• Redesign to preserve at least 75 percent; **and** • Re-establish this species in impacted areas or introduce in suitable open space; salvage seed, nursery propagate plugs, plant plugs and seed. Initial establishment may not be successful; phased plantings over several years is recommended. Detailed mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program would be required.

Table 3.3-11 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES
SENSITIVE PLANT SPECIES
NEW TOWN PLAN

Species	Significance of Impacts	Required Mitigation [1,2]
San Diego Sunflower (*Viguiera laciniata*)	Significant	• Redesign project to retain at least 75 percent; **and** • Restore *Viguiera*-dominated coastal sage scrub at approximately 2:1, using seed from the ranch. Mitigation plan including 2-4 year experimental phase and 5-8 year maintenance and monitoring program would be required.
Fourth Priority Species (CNPS List 4)		
Southern Mountain Misery (*Chamaebatia australis*)	Not Significant	No mitigation required.
Western Dichondra (*Dichondra occidentalis*)	Not Significant	No mitigation required.
Spiny Rush (*Juncus acutus* var. *sphaerocarpus*)	Significant	• Preservation of at least 50 percent of species required; **and** • Salvage seed and revegetate impacted drainages. Use seed in alkali meadow restoration. Mitigation plan that includes this species will be developed for alkali meadow restoration.
Chaparral Pea (*Pickeringia montana* ssp. *tomentosa*)	Not Significant	No mitigation required.
California Adder's-tongue Fern (*Ophioglossum lusitanicum* ssp. *californicum*)	Significant	• Redesign to preserve at least 50 percent of species onsite; increase set-back from Proctor Valley Creek to include the largest population in R2 vernal pool group within open space. This species is the least likely to be successfully introduced and attempts to do so probably would not mitigate impact.
Engelmann Oak (*Quercus engelmannii*)	Significant	• Redesign project to preserve 100 percent oak woodland habitats; preserve at least 75 percent of isolated trees not a part of oak woodland habitat; **and**

Table 3.3-11 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES
SENSITIVE PLANT SPECIES
NEW TOWN PLAN

Species	Significance of Impacts	Required Mitigation [1,2]
Engelmann Oak (*Quercus engelmannii*) (Continued)		• Replace oak trees lost by replanting oaks at a ratio of 10:1; propagate container plants from acorns of trees in area; mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required.
Coulter's Matilija Poppy (*Romneya coulteri*)	Significant	Preservation of at least 50 percent of species required; minor redesign.
Ashy Spike-moss (*Selaginella cinerascens*)	Significant	• Redesign project to retain at least 50 percent; recommendation to retain the highest concentrations of *Selaginella* with *Ferocactus*, *Salvia munzii*, and *Viguiera*, such as Salt Creek and north of Otay Lakes Road (near K9 vernal pool complex).

1 Refer to Table 3.3-6.1 and text within this section for survey requirements at the SPA level.
2 Refer to text within this section for mitigation requirements for indirect impacts; applies to all species in this table.

Surveys shall be conducted at the appropriate time of year, at the appropriate time of the day or night, and in appropriate weather conditions. Surveys shall cover all suitable onsite habitat for each particular species. Adequate survey effort shall be required to obtain the required level of data (e.g., territory delineation versus acquisition of distribution data). Specialized survey techniques are required for difficult-to-detect animals (e.g., reptiles, amphibians, and small mammals). These techniques may include repeated sampling and live trapping methodologies.

The SPA level distribution and abundance data will be used in combination with the baseline data from the Final EIR to determine direct and indirect impacts for each sensitive animal species. Specific mitigation plans shall be formulated for each SPA to reduce impacts below a level of significance for each sensitive species that is significantly impacted. At the SPA level there will be detailed development plans and distribution and abundance information with which to formulate detailed and specific mitigation. The SPA level mitigation plans shall include as a minimum that mitigation required in the Final Program EIR (Table 3.3-7). The SPA level mitigation shall also include current and updated mitigation standards and measures approved by the resource agencies at the time of the SPA development. For significant impacts, avoidance through redesign is the first measure to be implemented to reduce impacts to a level below significance. In cases where it is infeasible to avoid impacts, redesign shall be implemented to the greatest extent feasible to reduce significant impacts. Restoration and enhancement of disturbed habitats can be used as mitigation for some direct and indirect impacts, depending on the particular species (see Table 3.3-7). As a general requirement, enhancement or restoration of disturbed habitat shall occur prior to impacting existing occupied or potential habitat. Enhanced or restored habitat should be documented as being occupied prior to impacting occupied habitat for that particular species. These restoration and enhancement requirements apply to all first priority species and where feasible to second priority species.

3.3.4 Analysis of Significance

The New Town Plan would impact 66 percent of existing open space on Otay Ranch. Sensitive upland habitats would be reduced by 56 percent and wetland habitats by 82 percent. Vernal pool impacts are estimated at 72 percent. Significant unmitigable impacts are identified to sensitive upland habitats, vernal pools and to several sensitive plant and animal species. These impacts are considered unmitigable due to the magnitude of impact and/or the high level of sensitivity of the resource. The New Town Plan would significantly fragment open space and would interrupt presumptive wildlife movement corridors on all three planning parcels by development or infrastructure improvements. It would significantly impact sensitive plant and animal species and a number of their supportive habitats and would retain too little open space to compensate for and mitigate lost resource values.

Impacts to the following sensitive habitats are considered significant but mitigable to below a level of significance through minor project redesign and habitat restoration:

Southern interior cypress forest
Southern willow scrub
Coastal freshwater marsh/aquatic

Impacts to the following sensitive habitats are considered significant and unmitigable without major redesign of the project:

Diegan coastal sage scrub
Maritime succulent scrub

Floodplain scrub
Vernal pools
Valley needlegrass grassland
Alkali meadow
Southern live oak riparian forest
Coast live oak woodland
Sycamore alluvial woodland

Impacts to the following sensitive plant species are considered significant but mitigable to below a level of significance through minor project redesign and habitat restoration:

San Diego thorn-mint (*Acanthomintha ilicifolia*)
Dunn's mariposa lily (*Calochortus dunnii*)
Willowy monardella (*Monardella linoides* ssp. *viminea*)
California Orcutt grass (*Orcuttia californica*)
Otay manzanita (*Arctostaphylos otayensis*)
Orcutt's brodiaea (*Brodiaea orcuttii*)
Dense reed grass (*Calamagrostis densa*)
Tecate cypress (*Cupressus forbesii*)
Gander's pitcher sage (*Lepechinia ganderi*)
California spinebush (*Adolphia california*)
Greene's ground-cherry (*Physalis greenei*)
California adder's-tongue fern (*Ophioglossum lusitanicum* spp. *californicum*)
Spiny rush (*Juncus acustus* var. *sphaero carpus*)
Coulter's Matitija poppy (*Romneya coulteri*)
Engelmann oak (*Quercus engelmannii*)
Ashy spike-moss (*Selaginella cinerascens*)

Impacts to the following sensitive plant species are considered significant and unmitigable without major redesign of the project:

San Diego Button-Celery (*Eryngium aristulatum* var. *parishii*)
Otay tarweed (*Hemizonia conjugens*)
Otay Mesa-mint (*Pogogyne nudiuscula*)
San Diego navarretia (*Navarretia fossalis*)
Narrow-leaved nightshade (*Solanum tenuilobatum*)
Variegated hasseanthus (*Dudleya variegata*)
San Diego coast barrel cactus (*Ferocactus viridescens*)
San Diego golden star (*Muilla clevelandii*)
Little mousetail (*Myosurus minimus* var. *apus*)
Snake cholla (*Opuntia parryi* var. *serpentina*)
San Diego bur-sage (*Ambrosia chenopodiifolia*)
San Diego County stipa (*Stipa diegoensis*)
San Diego marsh-elder (*Iva hayesiana*)
San Diego sunflower (*Viguiera laciniata*)
Munz's sage (*Salvia munzii*)

~~At this level of review, impacts to the following sensitive animal species are considered significant but mitigable to below a level of significance through minor project redesign and other appropriate mitigation measures.~~

~~San Diego horned lizard~~
~~Orange-throated whiptail~~
~~Cooper's hawk~~
~~Tricolored blackbird~~

At this level of review, impacts to the following sensitive animal species are considered significant and unmitigable without major project design.

Streptocephalus woottoni
Branchinecta sandiegensis
San Diego horned lizard
Orange throated whiptail
Northern harrier
Cooper's hawk
Golden eagle
Burrowing owl
~~Coastal~~ Cactus wren
California gnatcatcher
Least Bell's vireo
Tricolored blackbird

~~Thirty-seven~~ Forty species in the impact analysis (Table 3.3-7) that are listed as potentially significant based on available data are ~~not~~ considered significantly impacted at this level of review. At this level of review, impacts for these species are considered unmitigable without major project redesign.

At this level of review, impacts to regional raptor populations are considered significant and unmitigable without major project redesign.

Impacts to wildlife movement are considered significant and unmitigable.

3.4 CULTURAL RESOURCES

3.4.1 Existing Conditions

3.4.1.1 Cultural Setting

The Otay Ranch project area, encompassing approximately 23,088 acres of which 5,916 acres has been intensively surveyed for the proposed development plans, includes a variety of natural habitats that provided a range of resources to prehistoric peoples. Different prehistoric site types occur in these natural areas and related resources. The several large drainages present on the property, such as the Otay River, Jamul Creek, and the Proctor Valley drainages, all contained prehistorically abundant floral and faunal resources providing food and materials for clothing and shelter. Such drainages, along with smaller creeks fed by natural springs, usually contain the highest density of prehistoric sites representing the most substantial occupations. Away from such drainages and springs, prehistoric sites are usually smaller, including temporary camps or resource procurement locations created during forays for specific resources. Examples of such smaller sites include hunting camps, quarries, and other lithic procurement locations. Within the Otay Ranch property, the density and nature of the prehistoric sites that have been located to date generally conform to this pattern. The considerable time span of prehistoric occupation in the area (8,000 years or more), however, enables considerable variations in site locations and types through time due to climatic variation and the associated fluctuations in the vegetation, fauna, and water availability.

Historic development of the San Diego area began in the late 1700s with arrival of Spaniards in coastal California. Spain ruled the area until 1821 when the Mexican independence movement succeeded. From 1821 to the war with the United States in 1848, Mexico governed the area. Use of the land by Spaniards was minimal at first, but during the 1800s and thereafter, the region gradually acquired more residents who implemented ranching and agricultural activities. Remnants of scattered homesteads, related outbuildings, corrals, and water diversion features can be found throughout the project area. The remaining larger ranch complexes are located in the more western, less rugged portions of the project area.

3.4.1.2 Existing Information

The description of the cultural (prehistoric, historic, and prehistoric/historic) resources of the project area that follows is derived from records and literature searches and from several confidential technical reports of cultural resource studies conducted on the property. Principal among these studies is an archaeological overview prepared in 1987 for the project by TMI Environmental Services (Berryman and Berryman 1987). A second major study was an initial planning survey conducted by RECON (Ritz and Bull 1990), for the entire 23,088-acre property. The RECON survey included a record search at the South Coastal Information Center at San Diego State University and at the Museum of Man to determine previously recorded sites located on the property; no literature search to determine previously surveyed areas was conducted as part of that survey. A third study is the intensive survey and spot-check study conducted by Ogden (1991/1992) of approximately 5,916 acres of the proposed development and road corridor areas of the property (see Figure 3.4-1). Other previous surveys (see below) covered smaller portions of the property, mostly for facilities such as roads, pipelines, reservoirs, and transmission line corridors.

The approximately 6,000 acres intensively surveyed by Ogden include the areas most likely to experience intensive development; approximately 17,000 acres of the property still

require future systematic surveys appropriate to project specific details. The level of knowledge concerning the presence and quality of cultural resources is general, consistent with the programmatic approach. Knowledge of the presence of cultural resources is most comprehensive for the approximately 6,000 acres of the property surveyed by Ogden. Future intensive survey of the remaining approximately 17,000 acres, to be conducted at time of the first SPA Plan, could alter the results of any current planning evaluation. The results may require that certain proposed land uses be abandoned or modified to accommodate avoidance or preservation of important culture resources sites. Of the 9,618 acres of the Otay River parcel, approximately 4,400 acres (i.e., 40 percent of the property) have been intensively surveyed for cultural resources. Of the 7,915 acres of the Proctor Valley parcel, approximately 1,500 acres (18 percent of the parcel) have been systematically surveyed for cultural resources. Two hundred acres (5 percent) of the 5,555 acres of the San Ysidro parcel have been intensively surveyed for cultural resources.

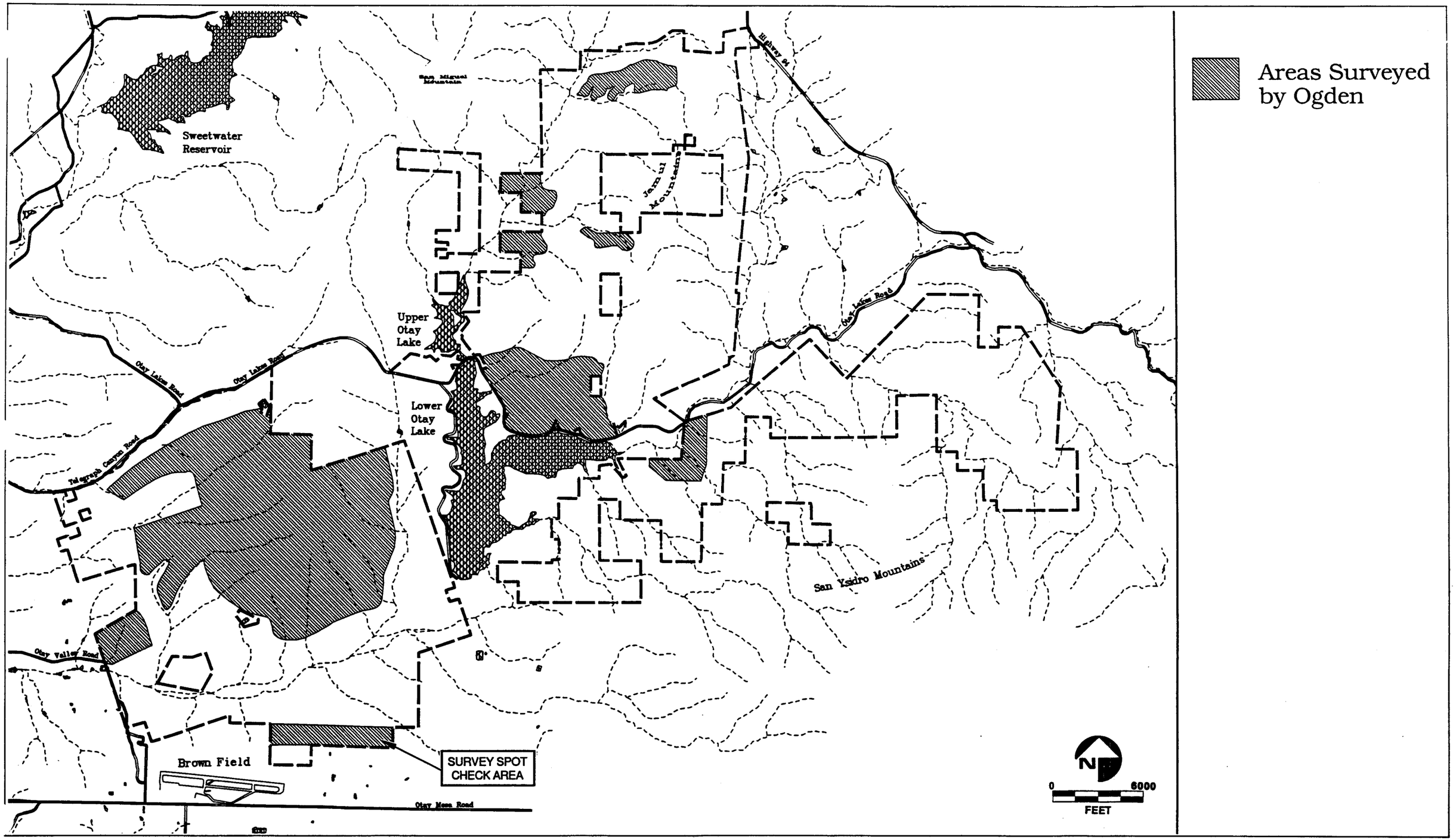
For a mitigation plan to be comprehensive, the following elements are required: 1) all resources (both prehistoric and historic) within the area of potential effect must be identified, 2) the importance of each resource within the affected area must be clearly established based on the knowledge that the realm of sites within the project has been established and that comparison of site types and importance is consistent within that realm, 3) the type and degree of impact is established in terms of direct/indirect, short-term/long-term, significant/insignificant, and 4) development plans are specific enough to accurately determine if the proposed mitigation is feasible and will, in fact, mitigate the impacts to below a level of significance.

The proposed testing and evaluation program within the Otay Ranch will use criteria provided in Appendix K of CEQA as well as the local County of San Diego recommended research approaches. The City of Chula Vista is the lead agency for the Otay Ranch Program EIR under a Memorandum of Understanding (MOU) with the County of San Diego. Under this MOU, the County is a responsible agency, and the County's guidelines and requirements apply for the project, for cultural resources, for the entire project area. Ideally, upon the completion of testing and evaluation, the researcher will be able to provide a project-specific and area-specific research design and approach and state explicitly why sites are deemed as important or non-important.

At this stage of planning, several of the elements presented above are proposed for later stages of planning; not all of the resources have been identified, importance of the resources is assumed rather than verified, impacts are still problematic rather than specific, and development plans are still conceptual. Given these limitations, development of the mitigation plan is necessarily programmatic rather than resource specific.

Stage 1 of the comprehensive mitigation plan will be to complete the intensive, systematic survey of the remaining 17,000 acres. The rationale for performing the survey for the remaining acreage at one time is because it will be cost-effective, it will allow for preparation of a single document that can be comprehensive and take into account all of the resources within the overall project and not just the SPA Plan area, and it will provide reviewers with a more complete data base upon which to formulate planning decisions. Completion of the survey shall occur as soon as feasible and no later than preparation of the first SPA Plan. The survey shall be completed prior to issuance of any discretionary permits.

Stage 2 will be site importance and boundary testing for each resource identified within the first SPA Plan based on a county-approved research design, and for a sample of site types within the overall project. Site testing is required to adequately assess the sites for their importance under CEQA and local guidelines. A sample of site types beyond the SPA Plan



OGDEN

Ogden Cultural Resource Survey Areas

FIGURE 3.4-1

area should be tested as a means of gaining comparative information and to develop a specific program for mitigation and resource management. This would include a report to be prepared by a qualified consultant to be reviewed and approved by the county, on both the survey and testing program.

Following completion of Stage 2 site importance evaluation, those sites that are found to be non-unique, non-significant, and without demonstrated importance will require no further Stage 3 analysis or assessment. As mandated by CEQA, mitigation will have been achieved by recordation, testing, and submittal of the testing report. For those sites that are determined to be important resources, Stage 3, consisting of alternate means of achieving mitigation will be pursued. In general, these forms of mitigation include: 1) site avoidance by preservation of the site in a natural state in open space or in open space easements, 2) site avoidance by preservation through capping the site and placing landscaping on top of the fill, 3) data recovery through implementation of an excavation and analysis program, or 4) a combination of one or more of the above measures.

Additionally, a plan should be developed for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This could be accomplished through adaptive reuse of one of the historic structures within the project or through construction of a building within one of the parks or community centers. It is expected that this interpretive center will only be for temporary curation of those materials being actively used for interpretation and display, and that permanent curation of artifacts and data will be at a regional repository when one is established.

As stated in CEQA, Appendix K site preservation is the preferred mitigation measure for cultural resources. For avoidance to be considered as an adequate mitigation it must be clearly demonstrated that a site will, in fact, be avoided by all project activities such that no possible adverse impacts, direct or indirect, could occur. Specific avoidance measures may include either the location of sites in currently proposed open space areas, or in particular instances, even more specific project design to avoid the resource by maintaining it in a dedicated open space. If preservation through avoidance is infeasible, then programs for data recovery will need to be designed and implemented.

For those sites that are found to be important resources and for which avoidance and preservation is not feasible or appropriate, a data recovery plan will be prepared. The plan, while it may be part of a much larger program for several sites under study, will be site specific. The plan will, at a minimum, include the following: 1) A statement of why data recovery is appropriate as a mitigating measure, 2) A research plan that explicitly provides the research questions that can reasonably be expected to be addressed by excavation and analysis of the site, 3) A statement of the types and kinds of data that can reasonably be expected to exist at the site (based on the Phase 1 testing) and how these data will be used to answer important research questions, 4) A step-by-step discussion of field and laboratory methods to be employed, and 5) Provisions for curation and storage of the artifacts, notes, and photographs will be stated. A memorandum of agreement may be appropriate to formalize the curation policy.

Mitigating measures for historic resources are essentially the same as for prehistoric resources as described above. The same steps and stages should be followed although, as described in the RMP, archival research and historical documentation may be used to augment field testing programs.

If in situ preservation is not possible, recovery of all possible information, both surface and subsurface, is the only other acceptable alternative. The data recovery program will be integrated with a corresponding archival research program to fully assess the significance

of the material found on the sites. By creating a complementary research program that fully incorporates the archival material with the field results, many important research questions can be addressed.

3.4.1.3 Literature Search and Intensive Field Survey Methods

The purpose of the Ogden study was to: 1) provide additional cultural resource information for the entire project area, and 2) conduct an intensive survey of approximately 5,674 acres and a spot-check survey of 242 acres proposed for high density use and/or where flexibility in planning will be most limited. The 242 acres were spot-checked because it was clear from the records and literature information that this area had previously been intensively surveyed, all or in part, several times by several different archaeologists. The spot-check survey was conducted primarily to verify recorded site locations and extents. For the purpose of this EIR, this area is considered to have been intensively surveyed.

Because the TMI overview was conducted in 1987 and the RECON study in 1989, Ogden conducted a record search update and literature search at the South Coastal Information Center at San Diego State University and at the Museum of Man to determine sites recorded on the property since 1989, and areas surveyed and previous archaeological investigations conducted on the property since 1987. Ethnographic research, including a review of Dr. Florence Shipek's materials for the area, is on-going.

The literature review indicated that 27 cultural resource investigations have been performed on the subject property (Table 3.4-1), which, along with a number of informal surveys, has resulted in the recording of 181 cultural resource sites on the property. Based on an examination of the records for the sites previously recorded and on the results of the ongoing field survey, the following site types have been identified on the project property:

- Prehistoric Lithic Scatter – Flaked lithic debitage and/or tools only (includes low density cobble procurement and testing).
- Prehistoric Temporary Camp – Flaked lithic artifacts and at least one other artifact category such as groundstone or a prehistoric rock feature; no identifiable midden.
- Prehistoric Habitation Site – Flaked lithic artifacts and at least one other artifact category such as groundstone and identifiable midden.
- Prehistoric Milling Station – At least one bedrock milling feature with, or without, associated artifacts (habitation site or temporary camp takes precedence if also present).
- Prehistoric Quarry – Bedrock or very localized and focused cobble extraction/reduction areas.
- Historic Rock Feature – Non-cemented rock features not directly associated with historic structures or with prehistoric artifacts.
- Historic Refuse – Scatter of historic trash not associated with structure; also includes dumps.
- Standing Historic Complex – Complex of standing historic buildings or features and associated artifacts.

Table 3.4-1

PREVIOUS CULTURAL RESOURCE STUDIES THAT HAVE RESULTED IN THE RECORDATION OF SITES

Date	Author	Report Title	Number of sites recorded during previous studies within the current project area
1979	WESTEC	Miguel to Tijuana Interconnection Project, 230kV Transmission Line.	2
1981	Townsend, J.	Site Survey and Analysis: Miguel to Mountain Springs Grade (JADE) Archaeological Survey Report.	3
1982	CSRI	Cultural Resource Identification and National Register Assessment Program of the Proposed Miguel-Tijuana 230kV International Interconnection Project	3
1984	CRMC	Archaeological Survey of Two Sewer Line Routes: Proposed Otay Mesa Prison Site, San Diego, California.	8
1984	Roth and Associates	Archaeological Survey of the Proposed Daley Rock Quarry, Jamul Valley, San Diego County, California.	1
1985	CRMC	Archaeological Test Excavations at CA-SDi-9980 and CA-SDi-9981 on the Proposed Otay Mesa State Prison Sewer Line, Route V.	1
1986	Hector, S.	Archaeological Survey of Air/Space America.	1
1988	Kyle, Gallegos & Phillips	Cultural Resource Survey and Testing Program for the East Mesa Detention Facility, San Diego, California	1
1989	Gallegos, D. & A. Pigniolo	Cultural Resource Survey for the Proposed Baldwin and Eastlake Reservoirs.	2
1989a	Smith, B.	Results of an Archaeological Survey and Evaluation of Cultural Resources within the Baldwin/Otay Ranch Business Park.	12
1990	Ritz, F. & C. Bull	Otay Ranch Archaeological Survey: San Ysidro Mountains Parcel, Proctor Valley Parcel, Otay River Parcel.	108
1990b	Rosen, M.	First Addendum Archaeological Survey Report for Proposed State Route 125 from State Route 905 to State Route 54.	2
1991	Cook, J. & C. Serr	Cultural Resource Inventory and Constraints Analysis of the Proposed Otay-2 Pipeline Alternatives, San Diego, California.	2
1991a	Pigniolo, A. & T. Cooley	Cultural Resource Survey of Two Off-Site Parcels for Salt Creek Ranch.	1
1991b	Pigniolo, A. & T. Cooley	Cultural Resource Evaluation of the 63-acre Daley Rock Quarry Property and Adjacent Associated Haul Road.	4
various	-	Sites recorded during informal (unreported) surveys	29
		Total number of previously recorded sites:	180

- Historic/Archaeological Complex – Complex of historic building foundations or features and associated artifacts.

- Historic Structure(s) – Historic foundation, pad, or identifiable feature(s) with, or without associated historic artifacts.

- Historic Features/Refuse – Rock features (not foundations) and associated historic artifacts without evidence of a structure.

The following field methods, which were based on Ogdens's County-approved research plan, were employed during the intensive field survey. All areas included in the resurvey were walked by a team of archaeologists at intervals of not less than 10 and not more than 15 meters. This included areas of steep slopes and dense chaparral. To provide consistently accurate transects and ensure complete coverage, survey crews marked the margin of each survey sweep. All study areas were 100 percent surveyed at 15-meter or less intervals. Overall, the ground visibility was adequate to identify cultural resources within the project area, and no areas surveyed by Ogden will require additional survey.

3.4.1.4 Prehistoric Resources

Cultural Prehistory

This section outlines and briefly describes the known prehistoric cultural traditions associated with the project area.

For at least the past 10,000 years, the area now comprising San Diego County was occupied by Native Americans. This 10,000-year span is generally divided into two major archaeologically distinct periods: Early and Late. The Early Period includes three cultural complexes, the San Dieguito, the La Jolla, and the Pauma. The earliest of these complexes is the San Dieguito, which came to inland and coastal San Diego County areas from the east. Groups of people apparently abandoned drying inland lake shores of the present California desert and arrived in San Diego County circa 9,000 years before the present (B.P.) (Warren 1966; Moriarty 1967; Gallegos and Carrico 1984). The people of the San Dieguito Complex were initially believed to be almost exclusively big game hunters, but were more likely both hunters and gatherers with perhaps an emphasis on hunting. Some researchers suggest that these early occupants made use not only of inland areas but also coastal resources such as shellfish and fish for food (Moriarty 1967; Kaldenberg 1982; Gallegos and Carrico 1984). Debate continues as to whether these people continued to occupy San Diego County or abandoned the region circa 8,000 years B.P. (Gallegos 1987). Diagnostic tool forms associated with the phase known as San Dieguito III include scraper planes, choppers, scraping tools, crescentics, elongated bifacial knives, and intricate leaf-shaped points (Rogers 1939; Warren 1966). This tool assemblage is also referred to as the Western Pluvial Lakes Tradition (Bedwell 1970; Moratto 1984) and the Western Lithic Co-tradition (Davis et al. 1969).

Subsequent to the San Dieguito Complex, and beginning circa 8,000 years B.P., were the La Jolla and Pauma complexes. Initially identified as primarily a coastal dwelling culture, the people of the La Jolla Complex were characterized as depending primarily upon marine resources, as well as seed and vegetable foods (Rogers 1945; Harding 1951). In general, the stone tool technology associated with these people is primarily cobble-based at coastal La Jolla sites. This refers to the use of locally available coarse-grained Eocene cobbles for stone tool manufacture. Later, some inland sites, apparently contemporaneous with La Jollan sites, were identified and termed the Pauma Complex by True (1958). In some ways they resemble San Dieguito sites, with finely made stone tools and a lack of shellfish

remains, but they also resemble La Jollan site assemblages, with a predominance of grinding implements such as manos and metates. Both of these early gathering complexes fall within the Milling Stone Horizon as defined by Wallace (1955). The La Jolla and Pauma Complexes are currently seen as most likely reflective of variability in the availability of food, location of sites, and stone tool material for people occupying different regions of San Diego County within the same general time period. The La Jolla and Pauma complexes lasted until approximately 2,000 to 1,500 years ago.

During the last 2,000 years, identified as the Late Period or Late Prehistoric Period, and up to the first European contact, the distribution of prehistoric groups in California remained the same. During this period, material goods and traits associated with speakers of Yuman languages were brought into Imperial and San Diego Counties from the east, i.e., the Colorado River region. These Yuman-speakers may have interacted and shared cultural traits with the people occupying San Diego County before 2,000 years B.P., but their influence is most clearly documented after 1,300 B.P., with the introduction of small points, pottery, Obsidian Butte obsidian, and the practice of cremation of the dead. Native Americans inhabiting the coastal areas of California were often referred to by the Spanish mission with which they eventually became associated. Consequently, in southern San Diego County, these Yuman speakers were referred to as the Digueño after the Mission San Diego. The Native American name for these people was Kumeyaay (Tipai).

In the southwestern area of San Diego County, recent archaeological investigations have indicated prehistoric occupation dating as far back as circa 8,000 years B.P. (Kyle et al. 1990). Occupation appears to have been continuous into historic times (McGowen 1977; Pigniolo and Gallegos 1990). The results of these and other investigations indicate occupation of the Otay area by the Early Period La Jollan/Pauma Complex people and Late Period Yumans. The earlier San Dieguito Complex is also suggested to have occurred in the area by some researchers (cf. Kyle et al. 1990), but little evidence currently exists to verify this assertion.

Study Results

Based on the records search, 124 prehistoric cultural resources had been recorded on the property prior to the current Ogden survey. The ERCE survey, located an additional 89 prehistoric sites on the property. These 89 prehistoric sites consist of 59 lithic scatters, 10 temporary camps, 10 milling stations, 1 habitation site, 5 quarries, and 4 multiple type prehistoric sites (with more than one site type component present).

Of the total of 213 prehistoric sites known to be present on the property, 88 are located on the 9,618-acre Otay River parcel, 80 on the 7,915-acre Proctor Valley parcel, and 45 on the 5,555-acre San Ysidro parcel (see Table 3.4-2). Of these 213 sites, 144 are categorized as lithic scatters, 27 as temporary camps, 15 as milling stations, 8 as habitation sites, 14 as quarries, and 5 as multiple type prehistoric sites.

The 88 prehistoric sites located within the Otay River parcel consist of 57 lithic scatters, 23 temporary camps, 1 milling station, 4 habitation sites, and 3 quarries. The 80 prehistoric sites located within the Proctor Valley parcel consist of 55 lithic scatters, 1 temporary camp, 10 milling stations, 2 habitation sites, 7 quarries, and 5 multiple type prehistoric sites. The 45 prehistoric sites located within the San Ysidro parcel consist of 32 lithic scatters, 3 temporary camps, 4 milling stations, 2 habitation sites, and 4 quarries.

Table 3.4-2

OTAY RANCH PREHISTORIC SITES

Site Number	Site Type	Parcel
CA-SDi-4,726	Lithic Scatter	Otay River
CA-SDi-4,727	Lithic Scatter	Otay River
CA-SDi-4,728 A & B	Lithic Scatter	Otay River
CA-SDi-4,729	Lithic Scatter	Otay River
CA-SDi-4,730	Lithic Scatter	Otay River
CA-SDi-4,731	Lithic Scatter	Otay River
CA-SDi-4,732	Lithic Scatter	Otay River
CA-SDi-4,733	Lithic Scatter	Otay River
CA-SDi-4,734	Lithic Scatter	Otay River
CA-SDi-4,735	Lithic Scatter	Otay River
CA-SDi-4,737	Lithic Scatter	Otay River
CA-SDi-4,738	Lithic Scatter	Otay River
CA-SDi-4,739	Lithic Scatter	Otay River
CA-SDi-4,740	Lithic Scatter	Otay River
CA-SDi-4,741	Lithic Scatter	Otay River
CA-SDi-4,742	Lithic Scatter	Otay River
CA-SDi-4,743	Lithic Scatter	Otay River
CA-SDi-4,789/SDi-4,988	Temporary Camp	Otay River
CA-SDi-4,790	Temporary Camp	Otay River
CA-SDi-4,989	Temporary Camp	Otay River
CA-SDi-5,352	Temporary Camp	Otay River
CA-SDi-7,212	Habitation Site	Otay River
CA-SDi-7,217 A-E	Temporary Camp	Otay River
CA-SDi-8,086 A, B & C	Lithic Scatter	Proctor Valley
CA-SDi-8,649	Temporary Camp	Otay River
CA-SDi-8,650	Lithic Scatter	Otay River
CA-SDi-8,651	Lithic Scatter	Otay River
CA-SDi-9,970	Lithic Scatter	Otay River
CA-SDi-9,974	Lithic Scatter	Otay River
CA-SDi-9,975	Quarry	Otay River
CA-SDi-9,976	Temporary Camp	Otay River
CA-SDi-9,977 A & B	Quarry	Otay River
CA-SDi-9,978	Quarry	Otay River
CA-SDi-9,979	Lithic Scatter	Otay River
CA-SDi-9,980	Temporary Camp	Otay River
CA-SDi-9,981	Temporary Camp	Otay River
CA-SDi-10,027	Quarry	San Ysidro
CA-SDi-10,452	Temporary Camp	Otay River
CA-SDi-10,622	Lithic Scatter	Otay River
CA-SDi-10,875	Lithic Scatter	Otay River
CA-SDi-11,157	Temporary Camp	Otay River
CA-SDi-11,158	Temporary Camp	Otay River
CA-SDi-11,210	Lithic Scatter	Otay River
CA-SDi-11,211	Lithic Scatter	Otay River
CA-SDi-11,212	Lithic Scatter	Otay River
CA-SDi-11,213	Temporary Camp	Otay River
CA-SDi-11,214	Lithic Scatter	Otay River
CA-SDi-11,215	Lithic Scatter	Otay River
CA-SDi-11,216	Lithic Scatter	Otay River
CA-SDi-11,220	Lithic Scatter	Otay River

Table 3.4-2 (Continued)

OTAY RANCH PREHISTORIC SITES

Site Number	Site Type	Parcel
CA-SDi-11,294	Lithic Scatter	San Ysidro
CA-SDi-11,298	Lithic Scatter	San Ysidro
CA-SDi-11,300	Lithic Scatter	San Ysidro
CA-SDi-11,302	Habitation Site	San Ysidro
CA-SDi-11,303	Lithic Scatter	San Ysidro
CA-SDi-11,304	Lithic Scatter	San Ysidro
CA-SDi-11,307	Lithic Scatter	San Ysidro
CA-SDi-11,308	Lithic Scatter	San Ysidro
CA-SDi-11,309	Lithic Scatter	San Ysidro
CA-SDi-11,311	Lithic Scatter	San Ysidro
CA-SDi-11,312	Lithic Scatter	San Ysidro
CA-SDi-11,313	Lithic Scatter	San Ysidro
CA-SDi-11,314	Lithic Scatter	San Ysidro
CA-SDi-11,315	Lithic Scatter	San Ysidro
CA-SDi-11,317	Quarry	San Ysidro
CA-SDi-11,321	Lithic Scatter	San Ysidro
CA-SDi-11,322	Lithic Scatter	San Ysidro
CA-SDi-11,323	Lithic Scatter	San Ysidro
CA-SDi-11,324	Lithic Scatter	San Ysidro
CA-SDi-11,325	Lithic Scatter	San Ysidro
CA-SDi-11,326	Lithic Scatter	San Ysidro
CA-SDi-11,327	Lithic Scatter	San Ysidro
CA-SDi-11,328	Lithic Scatter	San Ysidro
CA-SDi-11,329	Lithic Scatter	San Ysidro
CA-SDi-11,331	Temporary Camp	San Ysidro
CA-SDi-11,332	Temporary Camp	San Ysidro
CA-SDi-11,333	Temporary Camp	San Ysidro
CA-SDi-11,334	Habitation Site	San Ysidro
CA-SDi-11,342	Lithic Scatter	San Ysidro
CA-SDi-11,344	Lithic Scatter	San Ysidro
CA-SDi-11,345	Milling Station	San Ysidro
CA-SDi-11,346	Quarry	San Ysidro
CA-SDi-11,349	Lithic Scatter	San Ysidro
CA-SDi-11,350	Lithic Scatter	San Ysidro
CA-SDi-11,351	Quarry	San Ysidro
CA-SDi-11,352	Lithic Scatter	San Ysidro
CA-SDi-11,353	Lithic Scatter	San Ysidro
CA-SDi-11,354	Lithic Scatter	San Ysidro
CA-SDi-11,362	Lithic Scatter	Otay River
CA-SDi-11,363	Lithic Scatter	Otay River
CA-SDi-11,364	Milling Station	Otay River
CA-SDi-11,365	Lithic Scatter	Otay River
CA-SDi-11,366	Lithic Scatter	Otay River
CA-SDi-11,369/SDi-11,376	Habitation Site	Otay River
CA-SDi-11,372	Lithic Scatter	Otay River
CA-SDi-11,373	Lithic Scatter	Otay River
CA-SDi-11,378	Habitation Site	Otay River
CA-SDi-11,379	Lithic Scatter	Otay River
CA-SDi-11,381	Lithic Scatter	Otay River

Table 3.4-2 (Continued)

OTAY RANCH PREHISTORIC SITES

Site Number	Site Type	Parcel
CA-SDi-11,388	Quarry	Proctor Valley
CA-SDi-11,389	Lithic Scatter	Proctor Valley
CA-SDi-11,394	Milling Station	Proctor Valley
CA-SDi-11,395	Lithic Scatter	Proctor Valley
CA-SDi-11,401	Lithic Scatter	Proctor Valley
CA-SDi-11,403 Locus F	Lithic Scatter/Milling Station/Quarry	Proctor Valley
CA-SDi-11,404	Lithic Scatter	Proctor Valley
CA-SDi-11,405	Lithic Scatter	Proctor Valley
CA-SDi-11,406	Quarry	Proctor Valley
CA-SDi-11,407	Lithic Scatter	Proctor Valley
CA-SDi-11,408	Lithic Scatter	Proctor Valley
CA-SDi-11,410 A-E	Habitation Site	Proctor Valley
CA-SDi-11,412	Lithic Scatter	Otay River
CA-SDi-11,414	Lithic Scatter	Proctor Valley
CA-SDi-11,951	Lithic Scatter	Otay River
CA-SDi-11,952	Lithic Scatter	Otay River
CA-SDi-11,967	Temporary Camp	Otay River
CA-SDi-11,968	Lithic Scatter	Otay River
CA-SDi-12,034	Milling Station	Proctor Valley
CA-SDi-12,147	Milling Station	San Ysidro
CA-SDi-12,148	Lithic Scatter	San Ysidro
CA-SDi-12,149	Lithic Scatter	San Ysidro
CA-SDi-12,276	Lithic Scatter	Otay River
CA-SDi-12,277	Lithic Scatter	Otay River
CA-SDi-12,278	Lithic Scatter	Otay River
CA-SDi-12,279	Lithic Scatter	Otay River
CA-SDi-12,280	Lithic Scatter	Otay River
CA-SDi-12,281	Temporary Camp	Otay River
CA-SDi-12,282	Temporary Camp	Otay River
CA-SDi-12,283	Lithic Scatter	Otay River
CA-SDi-12,284	Lithic Scatter	Otay River
CA-SDi-12,285	Temporary Camp	Otay River
CA-SDi-12,286	Temporary Camp	Otay River
CA-SDi-12,287	Temporary Camp	Otay River
CA-SDi-12,288	Lithic Scatter	Otay River
CA-SDi-12,289	Temporary Camp	Otay River
CA-SDi-12,290	Lithic Scatter	Otay River
CA-SDi-12,291	Lithic Scatter	Otay River
CA-SDi-12,292	Lithic Scatter	Otay River
CA-SDi-12,293	Lithic Scatter	Otay River
CA-SDi-12,313	Lithic Scatter	Proctor Valley
CA-SDi-12,314	Lithic Scatter	Proctor Valley
CA-SDi-12,337	Lithic Scatter	Proctor Valley
CA-SDi-12,315	Lithic Scatter	Proctor Valley
CA-SDi-12,316	Lithic Scatter	Proctor Valley
CA-SDi-12,317	Lithic Scatter	Proctor Valley
CA-SDi-12,319	Lithic Scatter	Proctor Valley
CA-SDi-12,320	Lithic Scatter	Proctor Valley
CA-SDi-12,321	Lithic Scatter	Proctor Valley

Table 3.4-2 (Continued)

OTAY RANCH PREHISTORIC SITES

Site Number	Site Type	Parcel
CA-SDi-12,322	Lithic Scatter	Proctor Valley
CA-SDi-12,324	Lithic Scatter	Proctor Valley
CA-SDi-12,326	Lithic Scatter	Proctor Valley
CA-SDi-12,329	Lithic Scatter	Proctor Valley
CA-SDi-12,330	Lithic Scatter	Proctor Valley
CA-SDi-12,331	Milling Station	Proctor Valley
CA-SDi-12,332	Lithic Scatter	Proctor Valley
CA-SDi-12,333	Lithic Scatter	Proctor Valley
CA-SDi-12,334	Habitation Site	Proctor Valley
CA-SDi-12,335	Lithic Scatter	Proctor Valley
CA-SDi-12,336	Lithic Scatter	Proctor Valley
CA-SDi-12,338	Milling Station	Proctor Valley
CA-SDi-12,339	Lithic Scatter	Proctor Valley
CA-SDi-12,340	Temporary Camp	Proctor Valley
CA-SDi-12,341	Lithic Scatter	Proctor Valley
CA-SDi-12,342	Quarry	Proctor Valley
CA-SDi-12,343	Quarry	Proctor Valley
CA-SDi-12,344	Milling Station	San Ysidro
CA-SDi-12,345	Milling Station	San Ysidro
CA-SDi-12,349	Lithic Scatter	San Ysidro
CA-SDi-12,353	Lithic Scatter	Proctor Valley
CA-SDi-12,355	Lithic Scatter	Proctor Valley
CA-SDi-12,356	Lithic Scatter	Proctor Valley
CA-SDi-12,357	Lithic Scatter	Proctor Valley
CA-SDi-12,358	Lithic Scatter	Proctor Valley
CA-SDi-12,359	Lithic Scatter	Proctor Valley
CA-SDi-12,360	Lithic Scatter	Proctor Valley
CA-SDi-12,361	Lithic Scatter	Proctor Valley
CA-SDi-12,363	Lithic Scatter	Proctor Valley
CA-SDi-12,364	Lithic Scatter	Proctor Valley
CA-SDi-12,365	Lithic Scatter	Proctor Valley
CA-SDi-12,366	Lithic Scatter	Proctor Valley
CA-SDi-12,367	Lithic Scatter	Proctor Valley
CA-SDi-12,368	Quarry	Proctor Valley
CA-SDi-12,369	Lithic Scatter	Proctor Valley
CA-SDi-12,370	Lithic Scatter	Proctor Valley
CA-SDi-12,371	Lithic Scatter	Proctor Valley
CA-SDi-12,372	Lithic Scatter	Proctor Valley
CA-SDi-12,374	Quarry	Proctor Valley
CA-SDi-12,375	Lithic Scatter	Proctor Valley
CA-SDi-12,377	Quarry	Proctor Valley
CA-SDi-12,378	Quarry/Lithic Scatter	Proctor Valley
CA-SDi-12,379	Lithic Scatter	Proctor Valley
CA-SDi-12,381	Milling Station	Proctor Valley
CA-SDi-12,383	Lithic Scatter	Proctor Valley
CA-SDi-12,384	Milling Station	Proctor Valley
CA-SDi-12,385	Milling Station	Proctor Valley
CA-SDi-12,386	Lithic Scatter	Proctor Valley
CA-SDi-12,387	Lithic Scatter	Proctor Valley

Table 3.4-2 (Continued)

OTAY RANCH PREHISTORIC SITES

Site Number	Site Type	Parcel
CA-SDi-12,388	Lithic Scatter	Proctor Valley
CA-SDi-12,389	Milling Station	Proctor Valley
CA-SDi-12,390	Lithic Scatter	Proctor Valley
CA-SDi-12,391	Milling Station	Proctor Valley
CA-SDi-12,392	Lithic Scatter/Milling Station	Proctor Valley
CA-SDi-12,394	Milling Station	Proctor Valley
CA-SDi-12,397	Quarry/Lithic Scatter/Milling Station	Proctor Valley
CA-SDi-12,398	Quarry/Lithic Scatter/Milling Station	Proctor Valley
CA-SDi-12,635	Lithic Scatter	Proctor Valley
SDM-W-170	Habitation Site	Otay River
CA-SDi-12,465	Temporary Camp	Otay River
CA-SDi-12,466	Temporary Camp	Otay River
CA-SDi-12,467	Lithic Scatter	Otay River
CA-SDi-12,656	Temporary Camp	Otay River
CA-SDi-4,736	Lithic Scatter	Otay River

3.4.1.5 Historic Resources

Historic Research

The purpose of the historic research was to document and map resources over 50 years of age that are known to exist or have existed within the project area. The methods employed in conducting the historical research included the examination of a wide variety of primary sources. First, historic maps were obtained from Ogden's files, the San Diego County Department of Maps and Records, and the San Diego Historical Society. The maps included early USGS topographic and quadrangle maps, historic plat maps of the three parcels showing land ownership in the 1890s–1920s, road survey maps, early rancho maps, railroad maps, and other miscellaneous maps. The existing historic and archaeological data compiled by TMI and RECON were relied upon as accurate. Aerial photographs were checked, including the 1928 Tax Factor Inc. maps located at the County of San Diego Department of Maps and Records and the San Diego Historical Society (SDHS) Research Archives in Balboa Park. The SDHS's extensive TICOR historic photograph collection was also accessed for historic photographs of the project area.

Sources listed in the bibliographies of previous surveys were checked for veracity and used to glean additional information. The manuscript and record collections of the SDHS were researched for documents relating to the families living in the area, agricultural and ranching information, general overall histories of the region, oral interviews conducted by SDHS members during different time periods, and miscellaneous background information. A record of the agricultural activities that took place over the years is difficult to establish because of the great number of years during which the land has been used and the lack of written documentation regarding the specific property. Land use characteristics for the general Otay area were addressed in a thesis by Susan Painter (Painter 1985).

Regional History

A review of historic activities that have taken place within San Diego County provides a record of Spanish, Mexican, and American rule, occupation, and land use since the late 1700s. An abbreviated history of San Diego County is given for the purpose of providing background on the presence, chronological significance, and historical relationships of cultural resources within the study area.

The Spanish Period (1769–1821) represents exploration; establishment of the San Diego Presidio, and the San Diego and San Luis Rey missions; the introduction of horses, cattle, and agricultural goods; and a new method of building construction and architectural style. Spanish influence went beyond the year 1821, when California became part of Mexico, for the missions continued to operate as in the past, and laws governing the distribution of land were also retained for a time.

The Mexican Period (1821–1848) includes the initial retention of Spanish laws and practices until shortly before secularization of the San Diego Mission in 1834, over a decade after the end of Spanish rule. Several land grants were made prior to 1834, but after secularization vast tracts of land were dispersed through land grants. Cattle ranching was the predominant agricultural activity, and the development of the hide and tallow trade increased during the early part of this period. The Pueblo of San Diego was established and transportation routes were expanded. The Mexican Period ended with the Mexican-American War in 1846–1848.

The American Period (1848–present) began when Mexico ceded California to the United States under the Treaty of Guadalupe Hidalgo in 1848 and accelerated with statehood in

1850. Terms of the treaty brought about the creation of the Lands Commission, in response to the Act of 1851, which was adopted as a means of validating land ownership throughout the state through settlement of land claims. Few Mexican ranchos remained intact because of legal costs and lack of sufficient evidence to provide title claims. Much of the land that once constituted the rancho holdings became public land, available for settlement by immigrants to California. The influx of people to California, and to the San Diego region in particular, was the result of various factors, including the discovery of gold in the state, the conclusion of the Civil War, the availability of free land through passage of the Homestead Act, and the importance of San Diego County as an agricultural area supported by the construction of connection railways. The growth and decline of towns occurred in response to increased population and the economic "boom and bust" of the 1880s.

Project Area History

Indian rancherias dotted the landscape of the region during the Spanish Period. A possibility exists that the San Diego Mission padres grazed cattle in the area, as they did in most parts of the county during the mission period. In 1834 secularization of the missions resulted in the release of large tracts of land for other uses. Much of this land was given in grants to former soldiers and prominent families. A significant degree of interrelation between the Spanish families had taken place over the preceding decades in southern California, and major families owned vast tracts of land (Engstrand 1980).

Portions of the project area are located within two of these grants given during the Spanish Period to members of a locally important family, the Estudillos. A brother and sister from this family, Magdalena and Jose Antonio, received the Otay and Janal ranchos from the governor of Alta California, Jose Maria Echeandía, in 1829. Janal, a 4,446-acre parcel, was given to Jose Antonio, and Magdalena received the 6,657-acre Otay Rancho. The ranchos were jointly operated for many years and were used primarily for cattle operations (Pourade 1976).

The expansion of the American presence in California after the Mexican War created significant land problems for Mexican inhabitants. Many land titles were unclear and new laws required proof of ownership. Large numbers of families lost their property during the 1860s and 1870s as the burden of proof regarding rancho ownership and boundaries proved unattainable. The Estudillos managed to hold onto their property, and it was at this time that the ranch area became known as Otay (Dames & Moore 1990c; Rolle 1975). In the 1860s, a stage route crossed the Janal and Otay grants:

> "The first San Diego-Yuma route to run all within United States territory was laid out by the County surveyor, James Pascoe, early in 1869. It was twenty-five miles shorter than the old wagon trail through Warner's Pass to Yuma and it had fifty-five miles less of desert travel" (Pourade 1976: 9).

Pascoe chose a route that used the Otay River course at La Punta, 13 miles south of San Diego. Following the river to the Otay Lake basin, it passed through the Otay, Janal, and Jamul ranchos, and then along the course of Dulzura Creek easterly through the valleys, heading eastward along present State Route 94 (Pourade 1976).

Development of Otay Mesa and surrounding regions began in the late 1880s in response to an economic boom that brought thousands of people to the San Diego area. The promotion of land sales in the San Diego area by Alonzo Horton in the late 1860s brought about the first successful development of San Diego, and encouraged later development of the town and outlying areas. People came from all parts of the country to purchase lots in Horton's

"New Town" that showed a promising future, with San Diego Bay providing a means of travel and transportation of goods by sea and firm plans in the offing for construction of a major railroad connection to the East (Engstrand 1980).

Real estate speculators were a fact of life in San Diego in the 1880s, and water development played a key role in their activities and various aspects of land promotion. Two famous developers of San Diego, Elisha S. Babcock and John D. Spreckels, acquired much of the two land grants in the project area. Babcock, Spreckels, and Charles D. Hind, in combination with other like-minded individuals, embarked on the Otay Dam project. These men had experience in other parts of the county providing the same type of service to potential residents, and their Otay water system was purchased by the City of San Diego in 1896. The purchase was intended to help augment the municipal water supply (Engstrand 1980).

By the 1880s, much of the land in San Diego and in other small communities in the county had been purchased by speculators who subdivided the land and advertised the merits of the property locally and throughout the country. Parcels of land on Otay Mesa and in the surrounding area were promoted on the basis of agricultural potential relative to the presence of rich soil and plans for future irrigation facilities that encouraged land sales. In addition to land purchases, public land was acquired in the Otay Mesa area through homesteading and timber claims (Phillips 1988).

Families in the region established horse and cattle ranches, and raised other forms of livestock for personal use and sale of animal products. Crops grown in the region included barley, lima beans, tomatoes, bell peppers, cucumbers, cabbage, string beans, varieties of lettuce, watermelons, and cantaloupe. The variety of row crops is shown on aerial photographs of the region taken at various intervals over the twentieth century (Phillips 1988; Painter 1985).

The flood of 1916 was devastating to much of San Diego County, and the Otay area suffered greatly due to the collapse of Otay Dam. A wall of water from the broken dam left the Otay Valley in ruins. Many families were washed out, a large number of crops were ruined, and livestock drowned. The Savage Dam, named for the Chief Engineer on the construction project, was built in 1919 (Rush 1965).

Residents of smaller parcels found themselves pushed out of the area due to drought conditions and the effects of the Great Depression of the 1930s. Many of the marginally successful operations failed to survive during this time and were absorbed by the larger owners. Large commercial operations were made possible by the acquisition of the smaller ranches.

The large ranch complexes lasted longer and were more successful in providing a livelihood, whether from livestock ranching or agricultural pursuits. The area during the period 1880–1940 was primarily characterized by single-family ownership; the landowners built a lifestyle around ranching and farming the fertile land (Phillips 1990; Engstrand 1980). With the spread of urban areas during the 1960s and 1970s, many of the large shareholdings sold out to corporations, ending a long period of ownership by individual families.

Study Results

Forty-nine historic resources located within the project area (the Otay River, Proctor Valley, and San Ysidro parcels) were identified through Ogden's field and archival investigations (see Table 3.4-3). Included in the total are 37 previously recorded sites and

Table 3.4-3

OTAY RANCH HISTORIC SITES

Site Number	Site Type	Parcel
CA-SDi-6,723H	Historic Structure	Proctor Valley
CA-SDi-6,968H	Historic Structure	Proctor Valley
CA-SDi-6,970	Historic Archaeological Complex	San Ysidro
CA-SDi-10,155H	Historic Rock Feature	Otay River
CA-SDi-11,221	Historic Refuse	Otay River
CA-SDi-11,299H	Historic Structure	San Ysidro
CA-SDi-11,301H	Historic Camp	San Ysidro
CA-SDi-11,305	Historic Rock Feature	San Ysidro
CA-SDi-11,306H	Historic Camp	San Ysidro
CA-SDi-11,310	Historic Rock Feature	San Ysidro
CA-SDi-11,316H	Historic Refuse	San Ysidro
CA-SDi-11,318	Historic Rock Feature	San Ysidro
CA-SDi-11,319	Historic Rock Feature	San Ysidro
CA-SDi-11,320	Historic Rock Feature	San Ysidro
CA-SDi-11,330H	Historic Refuse	San Ysidro
CA-SDi-11,340H	Historic Structure	San Ysidro
CA-SDi-11,341H	Historic Rock Feature	San Ysidro
CA-SDi-11,343H	Historic Structure	San Ysidro
CA-SDi-11,347	Historic Rock Feature	San Ysidro
CA-SDi-11,348	Historic Rock Feature	San Ysidro
CA-SDi-11,357	Historic Rock Feature	San Ysidro
CA-SDi-11,361H	Historic Structure	Otay River
CA-SDi-11,374	Historic Refuse	Otay River
CA-SDi-11,375H	Historic Structure	Otay River
CA-SDi-11,377H	Historic Structure	Otay River
CA-SDi-11,383H	Historic Structure	Otay River
CA-SDi-11,384H	Historic Complex	Otay River
CA-SDi-11,385H	Historic Archaeological Complex	Otay River
CA-SDi-11,386H	Historic Complex	Otay River
CA-SDi-11,387H	Historic Structure	Otay River
CA-SDi-11,390H	Historic Structure	Proctor Valley
CA-SDi-11,393H	Historic Structure	Proctor Valley
CA-SDi-11,418H	Historic Camp	Proctor Valley
CA-SDi-11,419H	Historic Complex	Proctor Valley
CA-SDi-11,420H	Historic Camp	Proctor Valley
CA-SDi-11,421H	Historic Structure	Proctor Valley
CA-SDi-11,422H	Historic Structure/Historic Refuse	Proctor Valley
CA-SDi-12,271H	Historic Refuse	Otay River
CA-SDi-12,272H	Historic Refuse	Otay River
CA-SDi-12,273H	Historic Refuse	Otay River
CA-SDi-12,274H A & B	Historic Refuse	Otay River
CA-SDi-12,318H	Historic Rock Feature	Proctor Valley
CA-SDi-12,323H	Historic Rock Feature	Proctor Valley
CA-SDi-12,351H	Historic Rock Feature	San Ysidro
CA-SDi-12,352H	Historic Rock Feature	San Ysidro
CA-SDi-12,354H	Historic Rock Feature	Proctor Valley
CA-SDi-12,376H	Historic Rock Feature	Proctor Valley
CA-SDi-12,395H	Historic Refuse/Historic Rock Feature	Proctor Valley
CA-SDi-12,396H	Historic Rock Feature	Proctor Valley

12 sites identified during ERCE's intensive cultural resources survey. Three standing historic complexes have also been identified within the project area, and all appear to be potentially significant historic resources: Otay Ranch (CA-SDi-11,384H), Rancho del Otay (CA-SDi-11,419H), and Bird Ranch (CA-SDi-11,386H). Each consists of complexes of ranch residences and other out-buildings, corrals, and structural foundations. Bird Ranch also has a unique 20-sided quail farm structure.

Of the 49 historic sites, 15 are located on the 9,618-acre Otay River parcel, 15 on the 7,915-acre Proctor Valley parcel, and 19 on the 5,555-acre San Ysidro parcel. Of the 49 sites, 17 would be categorized as historic rock features, 8 as historic refuse, 3 as standing historic complexes, 2 as historic/archaeological complexes, 13 as individual historic structures, 4 as historic features/refuse, and 2 as multiple type historic sites.

The 15 historic sites located within the Otay River parcel include 1 historic rock feature, 6 historic refuse locations, 2 standing historic complexes, 1 historic/archaeological complex, and 5 individual historic structures. The 15 historic sites located within the Proctor Valley parcel consist of 5 historic rock features, 1 standing historic complex, 5 individual historic structures, 2 historic features/refuse locations, and 2 multiple type historic sites. The 19 historic sites located within the San Ysidro parcel include 11 historic rock features, 2 historic refuse locations, 1 historic/archaeological complex, 3 individual historic structures, and 2 historic features/refuse locations.

3.4.1.5 Prehistoric/Historic Resources

In addition to sites which consist entirely of either prehistoric or historic components, a number of the sites on Otay Ranch contain both prehistoric and historic components. These sites are often referred to as multi-component sites. Co-occurrence of prehistoric and historic occupation can be either entirely co-incidental or it can be because of the presence of a resource that was valued both in prehistoric and historic times. Frequently this resource was water, in the form of a spring or spring-fed drainage. Co-incidental occurrences are most frequently in areas where prehistoric lithic procurement activities have resulted in extensive lithic scatters, which co-occur with agricultural fields, rock walls, and homesteads of early farming activities. Primarily for counting purposes, these sites are presented separately from the purely prehistoric or historic sites. As will be indicated below, they will require a combination of mitigation and treatment measures already presented for the prehistoric and historic sites.

Thirty prehistoric/historic multi-component resources located within the project area (the Otay River, Proctor Valley, and San Ysidro parcels) were identified through Ogden's field and archival investigations (see Table 3.4-4). Included in the total are 20 previously recorded sites, and 10 sites identified during Ogden's intensive cultural resources survey. Of the 30 prehistoric/historic sites, 4 are located on the 9,618-acre Otay River parcel, 16 on the 7,915-acre Proctor Valley parcel, and 10 on the 5,555-acre San Ysidro parcel. Of the 30 sites, 1 would be categorized as a prehistoric habitation site/historic structure, 2 as prehistoric lithic scatters/historic refuse scatters, 1 as a prehistoric milling station/historic refuse scatter, 11 as prehistoric lithic scatters/historic rock features, 2 as prehistoric lithic scatters/prehistoric milling stations/historic rock features, 1 as a prehistoric lithic scatter/prehistoric temporary camp/historic rock feature, 9 as prehistoric lithic scatters/historic structures, 1 as a prehistoric lithic scatter/prehistoric milling station/historic structure, 1 as a prehistoric lithic scatter/prehistoric milling station/prehistoric temporary camp/historic structure, and 1 as a prehistoric lithic scatter/historic archaeological complex.

Table 3.4-4

OTAY RANCH MULTICOMPONENT (PREHISTORIC & HISTORIC) SITES

Site Number	Site Type	Parcel
CA-SDi-6,695 A & B	Lithic Scatter/Historic Rock Feature	Proctor Valley
CA-SDi-6,965/CA-SDi-11,398H	Historic Archaeological Complex/Lithic Scatter	Proctor Valley
CA-SDi-11,217	Lithic Scatter/Historic Structure	Otay River
CA-SDi-11,218	Lithic Scatter/Historic Structure	Otay River
CA-SDi-11,219	Lithic Scatter/Historic Structure	Otay River
CA-SDi-11,355	Lithic Scatter/Historic Rock Feature	San Ysidro
CA-SDi-11,356	Lithic Scatter/Historic Structure	San Ysidro
CA-SDi-11,358	Lithic Scatter/Historic Rock Feature	San Ysidro
CA-SDi-11,359H	Lithic Scatter/Historic Refuse	San Ysidro
CA-SDi-11,360H A-C	Historic Structure/Lithic Scatter	San Ysidro
CA-SDi-11,367/CA-SDi-11,368	Lithic Scatter/Historic Rock Feature	Otay River
CA-SDi-11,391 Locus A- C	Historic Structure/Lithic Scatter/Milling Station/Temporary Camp	Proctor Valley
CA-SDi-11,396/H	Historic Structure/Lithic Scatter	Proctor Valley
CA-SDi-11,399H	Historic Structure/Lithic Scatter	Proctor Valley
CA-SDi-11,409	Lithic Scatter/Historic Rock Feature	Proctor Valley
CA-SDi-11,411 A-D	Milling Station/Historic Refuse	Proctor Valley
CA-SDi-11,415	Milling Station/Lithic Scatter/Historic Rock Feature	Proctor Valley
CA-SDi-11,417H	Historic Structure/Lithic Scatter/Milling Station	Proctor Valley
CA-SDi-12,150	Historic Structure/Lithic Scatter	San Ysidro
SDM-W-1,932	Lithic Scatter/Historic Rock Feature	Proctor Valley
CA-SDi-12,328/H	Lithic Scatter/Historic Rock Feature	Proctor Valley
CA-SDi-12,346/H	Temporary Camp/Lithic Scatter/Historic Rock Feature	San Ysidro
CA-SDi-12,347/H	Historic Structure/Lithic Scatter	San Ysidro
CA-SDi-12,348/H	Lithic Scatter/Historic Rock Feature	San Ysidro
CA-SDi-12,350/H	Lithic Scatter/Historic Rock Feature	San Ysidro
CA-SDi-12,362/H	Lithic Scatter/ Historic Refuse	Proctor Valley
CA-SDi-12,373/H	Habitation Site/Historic Structure	Proctor Valley
CA-SDi-12,380/H	Lithic Scatter/Historic Rock Feature	Proctor Valley
CA-SDi-12,382/H	Lithic Scatter/Historic Rock Feature	Proctor Valley
CA-SDi-12,393/H	Lithic Scatter/Historic Rock Feature	Proctor Valley

The 4 prehistoric/historic sites located within the Otay River parcel include 3 prehistoric lithic scatters/historic structures and 1 prehistoric lithic scatter/historic rock feature. The 16 prehistoric/historic sites located within the Proctor Valley parcel consist of 1 prehistoric habitation site/historic structure, 1 prehistoric lithic scatter/historic refuse scatter, 1 prehistoric milling station/historic refuse scatter, 6 prehistoric lithic scatters/historic rock features, 2 prehistoric lithic scatters/prehistoric milling stations/historic rock features, 2 prehistoric lithic scatters/historic structures, 1 prehistoric lithic scatter/prehistoric milling station/historic structure, 1 prehistoric lithic scatter/prehistoric milling station/prehistoric temporary camp/historic structure, and 1 prehistoric lithic scatter/historic archaeological complex. The 10 prehistoric/historic sites located within the San Ysidro parcel include 1 prehistoric lithic scatter/historic refuse scatter, 4 prehistoric lithic scatters/historic rock features, 1 prehistoric lithic scatter/prehistoric temporary camp/historic rock feature, and 4 prehistoric lithic scatters/historic structures.

3.4.2 Impact Analysis

The purpose of the cultural resources studies was to identify and record cultural resources present on the Otay Ranch property. At this point, approximately 6,000 of the 23,000 acres has been intensively surveyed for cultural resources. Following survey of the remaining, approximately 17,000 acres and based on results of the proposed testing phase, resources will be determined as either important or not important under CEQA guidelines; for the present study, in the absence of testing results, each resource is considered to be important. The criteria for determining importance are addressed under the provisions and guidelines of CEQA, and the guidelines for the evaluation of cultural resources of the County of San Diego.

Based on CEQA guidelines, cultural resource importance testing of potentially significant cultural resource sites will be conducted at the SPA or specific plan stage of planning and permitting. Each site, within a given SPA, will be evaluated to determine site size, extent, depth, integrity, and potential to address important research questions. This information will be used as a means of assessing impacts to significant resources and to develop appropriate and feasible mitigation measures.

Two types of impacts can result from the proposed development: direct and indirect impacts. Direct impacts are those associated directly with project construction, such as grading, trenching, filling, and compaction of soil. Direct impacts can also occur to resources beyond and/or adjacent to the expected direct impact area from associated earthmoving activities such as grading of adjacent areas for equipment staging or for access roads. Indirect impacts can occur to resources within the project area independent of specific construction activities. Indirect impacts are most frequently associated with increased public access to cultural resources caused by the project. Such impacts include vandalism and relic collecting. Another example of a project-related indirect impact is increased erosion, causing damage to a resource as a result of changes in the landform contour of an area.

At the program EIR level of planning, it is rarely possible to determine specific impacts to cultural resources. The specific locations of development construction activities including roadways, utilities, and structures must be known to determine the potential for impacts to individual cultural resources. Site importance has not been assessed for most sites on the Otay Ranch property because of the lack of specificity at the program EIR stage. Therefore, the number and density of sites within a particular area may not be indicative of the area's importance from a cultural resource perspective. As indicated under Section 3.4.1, Existing Conditions, almost 17,000 acres of the property will require systematic survey for cultural resources. Consistent with the generalized nature of a programmatic

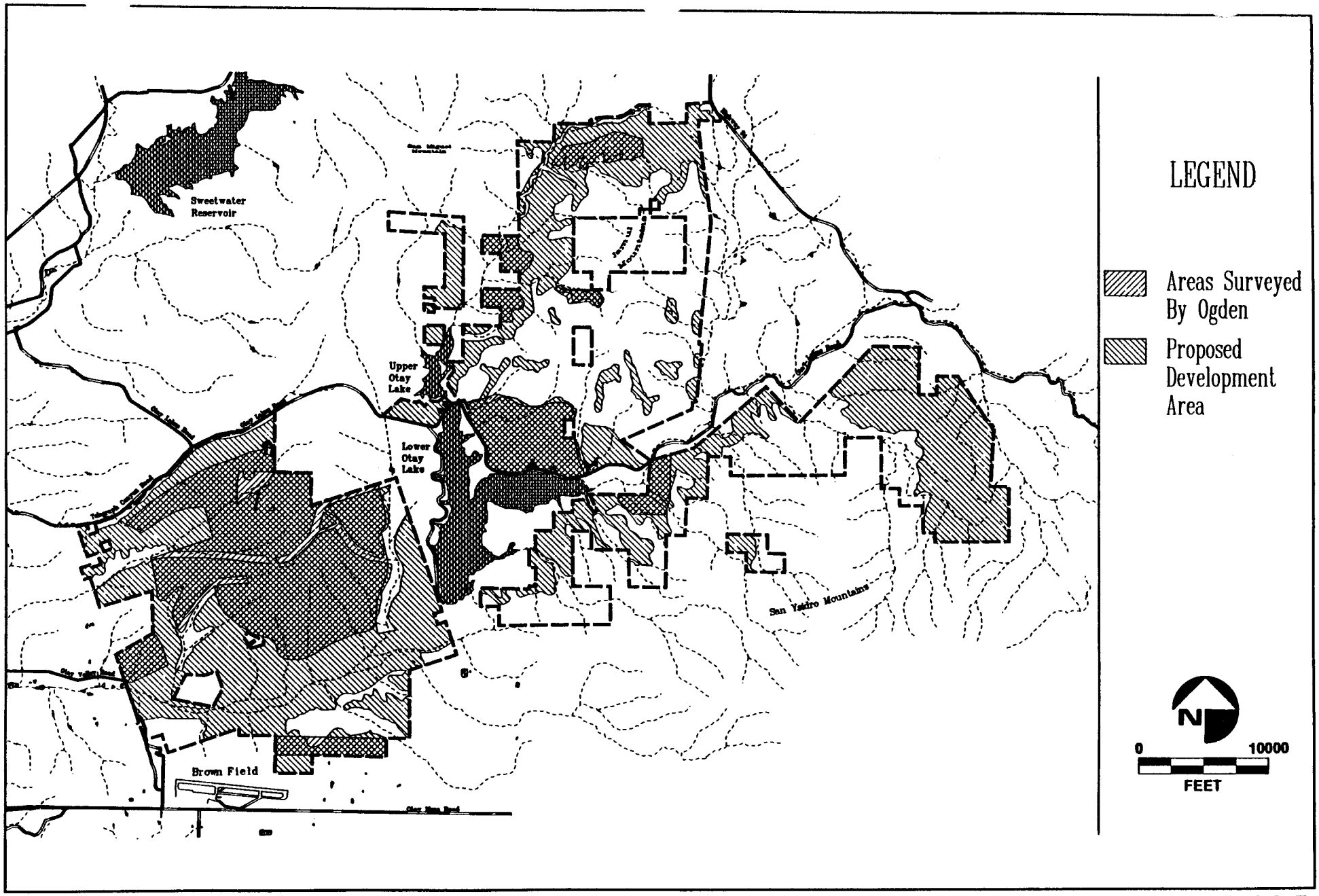
environmental report, the level of knowledge concerning the presence and number of cultural resources is also generalized for project area. The cultural resources impact evaluation is most specific for approximately 6,000 acres of the property and is generalized for the remainder of the project. For the remaining approximately 17,000 acres, a future comprehensive survey, conducted at the time of the preparation of the first specific plan or SPA EIR, will reveal additional cultural resources that may alter the results of the current planning evaluations and affect proposed land use designations. There may be instances where preservation of a large site precludes development across a large area. This loss of acreage or density may not be offset by transfer of the land use or density to another parcel or SPA without amending the affected SPAs.

Impacts to cultural resources for all of the development plans will be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Sites that are found to be important under these criteria will then be assessed for potential impacts and determinations made as to the severity of the impact. Each specific development plan will be assessed based on the type of resources and the proposed land use. At this stage of planning, it is assumed that the areas proposed for higher density development will have potentially greater impacts on resources because the potential for avoidance is less than in lower density areas. The term "development" is used here to denote areas in which buildings or facilities are to be constructed in contrast to areas of undeveloped land usages, such as open space, parks, or agriculture areas. It is assumed that in development areas, significant impacts are more likely to occur to resources, because avoidance, while perhaps not impossible, would be the most difficult to achieve. Acreage proposed for open space and other non-construction related land usages on the other hand has the most potential for site preservation although some open space and, more probably park uses may cause impacts.

3.4.2.1 Prehistoric Resources

Approximately 1,368 acres of the 7,915 acres (19 percent) of the Proctor Valley parcel have been intensively surveyed for cultural resources. Of the 7,915-acre total, 3,260 acres (almost 40 percent) of the parcel in the New Town Plan is consigned to open space. By design, all of the intensively surveyed portions of the parcel are in areas to be developed; therefore, the impact assessments made here may actually reflect a larger percentage (about 30 percent) of the parcel that is proposed for development (Figure 3.4-2). Of the 9,618 acres of the Otay River parcel, approximately 4,334 acres (i.e., approximately 45 percent of the parcel) have been intensively surveyed for cultural resources. Most of this surveyed area also comprises areas slated for the most intensive development. Consequently, impact assessments made for this parcel would be the most accurate of the three parcels. By contrast, of the 5,555 acres of the San Ysidro parcel, only approximately 200 acres (4 percent) have been intensively surveyed for cultural resources.

Impacts to prehistoric resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 213 prehistoric sites currently known to be on the property are considered to be important at this stage of planning. With this assumption, the New Town development plan is assessed below based on the the proposed land use, with areas proposed for development (as defined above) assumed to have greater potential for impacts to resources than non-construction related land usages such as open space, parks, or agriculture.



OGDEN

Ogden Cultural Resource Survey Areas Overlaid with New Town Plan

FIGURE 3.4-2

Of the 213 prehistoric sites currently known to be on the Otay Ranch property, 88 are located on the Otay River parcel, 80 on the Proctor Valley parcel, and 45 on the San Ysidro parcel. On the Otay River parcel, the majority of the sites are located along and adjacent to the Otay River Valley. On the Proctor Valley and San Ysidro parcels, most of the sites are situated along the foothills adjacent to the Proctor and Jamul valleys. Based on the land use proposed for the New Town Plans, 186 of the 213 prehistoric sites on the property are located all or in part within a land use where intense development is proposed. Table 3.4-5 indicates, by parcel, the land use proposed for the New Town Plan, the prehistoric site types, and the occurrences of the sites in the various land uses.

When compared to the other development plan alternatives, the New Town Plan has the highest incidence of prehistoric sites occurring, all or partially, within areas to be developed. Over the the entire Otay Ranch property, 186 prehistoric sites fall all or partially within areas proposed for development. This figure exceeds the next closest alternative, the Phase I-Progress Plan by 36. The New Town Plan also has the lowest number of occurrences of prehistoric sites in areas proposed for undeveloped oriented land use. Only 27 prehistoric sites are located entirely within areas proposed for open space, parks, or agricultural land use in the New Town Plan. This is 36 less than the next closest alternative, the Phase I-Progress Plan Alternative.

Of specific concern is the presence, in an area proposed for development, of one of the few prehistoric resources on the property that has been both tested and determined to be important. This site, CA-SDi-11, 376, also known as the McGowan Site, is a large and important village site with a considerable demonstrated antiquity. In the New Town Plan, the site is located in an area slated for low-medium density residential development. The New Town Plan is the only plan in which the site falls within an area slated for development.

3.4.2.2 Historic Resources

Impacts to historic resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 49 historic sites currently known to be on the property are considered to be important at this stage of planning. With this assumption of importance for all of the historic sites, the New Town Plan is assessed below based on the proposed land use, with areas proposed for development (as defined above) assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture.

Of the 49 historic sites currently known to be on the Otay Ranch property, 15 are located on the Otay River parcel, 15 on the Proctor Valley parcel, and 19 on the San Ysidro parcel. Table 3.4-6 indicates, by parcel, the land use proposed for the New Town Plan, the historic site types, and the occurrences of the sites in the various land uses.

When compared to the other development plan alternatives, the New Town Plan has the highest incidence of historic sites occurring all or partially within areas to be developed and correspondingly, the lowest number of occurrences of historic sites in areas proposed for undeveloped land use such as open space, parks, or agricultural land use. Over the the entire Otay Ranch property, 43 of the 49 historic sites known to be present on the property fall all or partially within areas proposed for development, with only 6 historic sites located entirely within areas proposed for non-construction oriented land use, in the New Town Plan. This is 16 less than the next closest alternative, the Low Density Alternative.

Table 3.4-5

NEW TOWN PLAN
PREHISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-10,452	P/PQ	Temporary Camp	CA-SDi-4,741	LM	Lithic Scatter
CA-SDi-10,622	RI/OA	Lithic Scatter	CA-SDi-4,742	LM/M	Lithic Scatter
CA-SDi-10,875	LM/P	Lithic Scatter	CA-SDi-4,743	LM	Lithic Scatter
CA-SDi-11,157	M	Temporary Camp	CA-SDi-4,789/SDi-4,988	LM	Temporary Camp
CA-SDi-11,158	M/OA	Temporary Camp	CA-SDi-4,790	LM	Temporary Camp
CA-SDi-11,210	RI	Lithic Scatter	CA-SDi-4,989	PQ	Temporary Camp
CA-SDi-11,211	OS	Lithic Scatter	CA-SDi-5,352	RI/NP/OA	Temporary Camp
CA-SDi-11,212	RI	Lithic Scatter	CA-SDi-7,212	OS	Habitation Site
CA-SDi-11,213	RI	Temporary Camp	CA-SDi-7,217 A-E	OS/LM	Temporary Camp
CA-SDi-11,214	RI/OA	Lithic Scatter	CA-SDi-8,649	P	Temporary Camp
CA-SDi-11,215	RI/OA	Lithic Scatter	CA-SDi-8,650	OS	Lithic Scatter
CA-SDi-11,216	RI/OA	Lithic Scatter	CA-SDi-8,651	LM	Lithic Scatter
CA-SDi-11,220	RI/OS	Lithic Scatter	CA-SDi-9,970	RI/OA	Lithic Scatter
CA-SDi-11,362	P/OA	Lithic Scatter	CA-SDi-9,974	RI/OA	Lithic Scatter
CA-SDi-11,363	RI/OS/NP	Lithic Scatter	CA-SDi-9,975	RI/OS/OA	Quarry
CA-SDi-11,364	P	Milling Station	CA-SDi-9,976	RI/P	Temporary Camp
CA-SDi-11,365	RI	Lithic Scatter	CA-SDi-9,977	OS/RI	Quarry
CA-SDi-11,366	RI	Lithic Scatter	CA-SDi-9,978	OS/RI	Quarry
CA-SDi-11,369/SDi-11,376/W-2391	LM/L/P	Habitation Site	CA-SDi-9,979	RI/OS	Lithic Scatter
CA-SDi-11,372	M	Lithic Scatter	CA-SDi-9,980	P/NP/RI	Temporary Camp
CA-SDi-11,373	M	Lithic Scatter	CA-SDi-9,981	P/RI	Temporary Camp
CA-SDi-11,378	P	Habitation Site	CA-SDi-12,465	LM	Temporary Camp
CA-SDi-11,379	OS	Lithic Scatter	CA-SDi-12,466	(OS)/LM	Temporary Camp
CA-SDi-11,381	PQ	Lithic Scatter	CA-SDi-12,467	LM	Lithic Scatter
CA-SDi-11,412	M/LM	Lithic Scatter	CA-SDi-12,276	RC	Lithic Scatter
CA-SDi-11,951	OS	Lithic Scatter	CA-SDi-12,285	LM	Temporary Camp
CA-SDi-11,952	P	Lithic Scatter	CA-SDi-12,286	M	Temporary Camp
CA-SDi-11,967	M/OA	Temporary Camp	CA-SDi-12,287	MH	Temporary Camp
CA-SDi-11,968	RC/OA	Lithic Scatter	CA-SDi-12,288	OS	Lithic Scatter
CA-SDi-4,726	M	Lithic Scatter	CA-SDi-12,289	LM	Temporary Camp
CA-SDi-4,727	LM	Lithic Scatter	CA-SDi-12,290	M	Lithic Scatter
CA-SDi-4,728 A & B	LM	Lithic Scatter	CA-SDi-12,291	P	Lithic Scatter
CA-SDi-4,729	L	Lithic Scatter	CA-SDi-12,292	M/RC/OA	Lithic Scatter
CA-SDi-4,730	L/LM/OS/P	Lithic Scatter	CA-SDi-12,293	M/RC	Lithic Scatter
CA-SDi-4,731	M	Lithic Scatter	CA-SDi-12,277	LM/RC	Lithic Scatter
CA-SDi-4,732	PQ/OS/P	Lithic Scatter	CA-SDi-12,278	L	Lithic Scatter
CA-SDi-4,733	P/PQ	Lithic Scatter	CA-SDi-12,279	NP	Lithic Scatter
CA-SDi-4,734	PQ	Lithic Scatter	CA-SDi-12,280	M	Lithic Scatter
CA-SDi-4,735	P	Lithic Scatter	CA-SDi-12,281	LM	Temporary Camp
CA-SDi-4,736	P	Lithic Scatter	CA-SDi-12,282	LM	Temporary Camp
CA-SDi-4,737	P	Lithic Scatter	CA-SDi-12,283	LM	Lithic Scatter
CA-SDi-4,738	P	Lithic Scatter	CA-SDi-12,284	LM	Lithic Scatter
CA-SDi-4,739	LM/M	Lithic Scatter	SDM-W-170	LM/OS	Habitation Site
CA-SDi-4,740	LM	Lithic Scatter	CA-SDi-12,656	HS	Temporary Camp

TOTALS:		
(Low Density Residential)	L	4
(Low-Medium Density Residential)	LM	26
(Medium Density Residential)	M	15
(Medium-High Density Residential)	MH	1
(Nature Park)	NP	4
(Outside of Area)	OA	13
(Open Space)	OS	16
(Park and Recreation)	P	19
(High School)	HS	1
(Public and Quasi-Public)	PQ	6
(Retail Commercial)	RC	5
(Research Industrial)	RI	21
(Man-made Open Space)	(OS)	1

Table 3.4-5 (Continued)

NEW TOWN PLAN
PREHISTORIC SITES

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-11,388	LM/OS/OA	Quarry	CA-SDi-12,356	LM	Lithic Scatter
CA-SDi-11,389	LM	Lithic Scatter	CA-SDi-12,357	LM	Lithic Scatter
CA-SDi-11,394	M/OA	Lithic Scatter	CA-SDi-12,358	LM	Lithic Scatter
CA-SDi-11,395	L	Lithic Scatter	CA-SDi-12,359	LM	Lithic Scatter
CA-SDi-11,401	M/LM	Lithic Scatter	CA-SDi-12,316	RL	Lithic Scatter
CA-SDi-11,403 F	OS	Lithic Scatter/Milling Station/Quarry	CA-SDi-12,360	LM	Lithic Scatter
CA-SDi-11,404 (OR-113)	LM/OA	Lithic Scatter	CA-SDi-12,361	LM	Lithic Scatter
CA-SDi-11,405 (OR-114)	LM	Lithic Scatter	CA-SDi-12,363	LM	Lithic Scatter
CA-SDi-11,406 (OR-115)	LM	Quarry	CA-SDi-12,364	OS/LM/OA	Lithic Scatter
CA-SDi-11,407 (OR-117)	LM	Lithic Scatter	CA-SDi-12,365	OS/LM	Lithic Scatter
CA-SDi-11,408 (OR-118)	LM/OS	Lithic Scatter	CA-SDi-12,366	OS	Lithic Scatter
CA-SDi-11,410 A-E	OS/L	Habitation Site	CA-SDi-12,367	LM/OS	Lithic Scatter
CA-SDi-11,414	LM	Lithic Scatter	CA-SDi-12,368	LM/OS	Quarry
CA-SDi-12,034	OS/OA	Milling Station	CA-SDi-12,369	LM	Lithic Scatter
CA-SDi-8,086 A-C	LM/OS/OA	Lithic Scatter	CA-SDi-12,317	RL	Lithic Scatter
CA-SDi-12,313	RL	Lithic Scatter	CA-SDi-12,370	LM	Lithic Scatter
CA-SDi-12,321	RL/LM/OA	Lithic Scatter	CA-SDi-12,371	LM	Lithic Scatter
CA-SDi-12,322	RL	Lithic Scatter	CA-SDi-12,372	LM	Lithic Scatter
CA-SDi-12,324	RL	Lithic Scatter	CA-SDi-12,374	VC	Quarry
CA-SDi-12,326	LM	Lithic Scatter	CA-SDi-12,375	L	Lithic Scatter
CA-SDi-12,327	M/OA	Lithic Scatter	CA-SDi-12,377	L	Quarry
CA-SDi-12,329	M	Lithic Scatter	CA-SDi-12,378	L	Quarry/Lithic Scatter
CA-SDi-12,330	M	Lithic Scatter	CA-SDi-12,379	L	Lithic Scatter
CA-SDi-12,314	RL	Lithic Scatter	CA-SDi-12,381	L	Milling Station
CA-SDi-12,331	M/OS	Milling Station	CA-SDi-12,383	L	Lithic Scatter
CA-SDi-12,332	M/OS/OA	Lithic Scatter	CA-SDi-12,384	L	Milling Station
CA-SDi-12,333	OS	Lithic Scatter	CA-SDi-12,385	L	Milling Station
CA-SDi-12,334	M/OS	Habitation Site	CA-SDi-12,386	L	Lithic Scatter
CA-SDi-12,335	M	Lithic Scatter	CA-SDi-12,387	L	Lithic Scatter
CA-SDi-12,336	LM	Lithic Scatter	CA-SDi-12,388	L	Lithic Scatter
CA-SDi-12,338	LM	Milling Station	CA-SDi-12,319	RL	Lithic Scatter
CA-SDi-12,339 A & B	P/LM/OS	Lithic Scatter	CA-SDi-12,389	L	Milling Station
CA-SDi-12,340	LM	Temporary Camp	CA-SDi-12,390	L	Lithic Scatter
CA-SDi-12,337/OR-1-3	RL/OA	Lithic Scatter	CA-SDi-12,391	L	Milling Station
CA-SDi-12,341	TC/VC/LM/OA	Lithic Scatter	CA-SDi-12,392	L	Milling Station/Lithic Scatter
CA-SDi-12,342	LM	Quarry	CA-SDi-12,394	L	Milling Station
CA-SDi-12,343	LM/OS	Quarry	CA-SDi-12,397	L	Quarry/Lithic Scatter/Milling Station
CA-SDi-12,315	RL	Lithic Scatter	CA-SDi-12,398	L	Quarry/Lithic Scatter/Milling Station
CA-SDi-12,353	LM	Lithic Scatter	CA-SDi-12,320	RL/LM	Lithic Scatter
CA-SDi-12,355	LM	Lithic Scatter	CA-SDi-12,635	L	Lithic Scatter

TOTALS:			
	(Low Density Residential)	L	21
	(Low-Medium Density Residential)	LM	37
	(Medium Density Residential)	M	9
	(Outside of Area)	OA	11
	(Open Space)	OS	17
	(Parks and Recreation)	P	1
	(Resort)	RL	11
	(Town Center)	TC	1
	(Visitor Center)	VC	2

Table 3.4-5 (Continued)

NEW TOWN PLAN
PREHISTORIC SITES

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-10,027	LM/OA	Quarry	CA-SDi-11,303	RE	Lithic Scatter
CA-SDi-11,294	RE	Lithic Scatter	CA-SDi-11,304	RE	Lithic Scatter
CA-SDi-11,298	RE	Lithic Scatter	CA-SDi-11,312	RE	Lithic Scatter
CA-SDi-11,300	OS	Lithic Scatter	CA-SDi-11,313	RE	Lithic Scatter
CA-SDi-11,302	RE	Habitation Site	CA-SDi-11,314	RE	Lithic Scatter
CA-SDi-11,307	RE	Lithic Scatter	CA-SDi-11,315	RE	Lithic Scatter
CA-SDi-11,308	RE	Lithic Scatter	CA-SDi-11,317	RE	Quarry
CA-SDi-11,309	RE	Lithic Scatter	CA-SDi-11,321	RE	Lithic Scatter
CA-SDi-11,311	NP	Lithic Scatter	CA-SDi-11,322	RE	Lithic Scatter
CA-SDi-11,342	LM	Lithic Scatter	CA-SDi-11,323	RE	Lithic Scatter
CA-SDi-11,344	P/NP	Lithic Scatter	CA-SDi-11,324	RE	Lithic Scatter
CA-SDi-11,345	L	Milling Station	CA-SDi-11,325	RE	Lithic Scatter
CA-SDi-11,346	P	Quarry	CA-SDi-11,326	RE	Lithic Scatter
CA-SDi-11,349	NP	Lithic Scatter	CA-SDi-11,327	RE	Lithic Scatter
CA-SDi-11,350	L	Lithic Scatter	CA-SDi-11,328	RE	Lithic Scatter
CA-SDi-11,351	NP	Quarry	CA-SDi-11,329	RE	Lithic Scatter
CA-SDi-11,354	RE	Lithic Scatter	CA-SDi-11,331	RE	Temporary Camp
CA-SDi-12,147	LM	Milling Station	CA-SDi-11,332	RE	Temporary Camp
CA-SDi-12,148	LM	Lithic Scatter	CA-SDi-11,333	RE	Temporary Camp
CA-SDi-12,149	LM	Lithic Scatter	CA-SDi-11,334	RE	Habitation Site
CA-SDi-12,345	OS/LM	Milling Station	CA-SDi-11,352	RE	Lithic Scatter
CA-SDi-12,349	LM	Milling Station	CA-SDi-11,353	RE	Lithic Scatter
CA-SDi-12,344	LM	Lithic Scatter			

TOTALS:			
	(Low Density Residential)	L	3
	(Low-Medium Density Residential)	LM	8
	(Nature Park)	NP	4
	(Outside of Area)	OA	1
	(Open Space)	OS	2
	(Parks and Recreation)	P	2
	(Rural Estate Planned Community)	RE	29

Table 3.4-6

NEW TOWN PLAN
HISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-10,155H	RI/OS/NP	Historic Rock Feature
CA-SDi-11,221	RI	Historic Refuse
CA-SDi-11,361H	RI	Historic Structure
CA-SDi-11,374	LM	Historic Refuse
CA-SDi-11,375H	LM	Historic Structure
CA-SDi-11,377H	LM	Historic Structure
CA-SDi-11,383H	LM/M	Historic Structure
CA-SDi-11,384H	MH/LM/NP	Historic Complex
CA-SDi-11,385H	RI/OS	Historic Archaeological Complex
CA-SDi-11,386H	OS/P	Historic Complex
CA-SDi-11,387H	OS	Historic Structure
CA-SDi-12,272H	P/M	Historic Refuse
CA-SDi-12,273H	RI	Historic Refuse
CA-SDi-12,274H A & B	RI	Historic Refuse
CA-SDi-12,271H	M/RC	Historic Refuse

TOTALS:

(Low-Medium Density Residential)	LM	5
(Medium Density Residential)	M	2
(Medium-High Density Residential)	MH	1
(Nature Park)	NP	2
(Open Space)	OS	4
(Parks and Recreation)	P	2
(Retail Commercial)	RC	1
(Research Industrial)	RI	6

Table 3.4-6 (Continued)

NEW TOWN PLAN
HISTORIC SITES

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,390H (OR-98)	LM/OA/P	Historic Structure
CA-SDi-11,393H	L/OS	Historic Structure
CA-SDi-11,418H	P/L	Historic Camp
CA-SDi-11,419H	M/OA	Historic Complex
CA-SDi-11,420H	OS	Historic Camp
CA-SDi-11,421H (OR-133)	RL	Historic Structure
CA-SDi-11,422H	OS/L	Historic Structure/Historic Refuse
CA-SDi-6,723H	LM/OS	Historic Structure
CA-SDi-6,968H	L	Historic Structure
CA-SDi-12,323H	LM	Historic Rock Feature
CA-SDi-12,354H	LM	Historic Rock Feature
CA-SDi-12,376H	VC	Historic Rock Feature
CA-SDi-12,318H	RL	Historic Rock Feature
CA-SDi-12,395H	L	Historic Refuse/Historic Rock Feature
CA-SDi-12,396H	L	Historic Rock Feature

TOTALS:

(Low Density Residential (0-3 du/ac))	L	6
(Low-Medium Density Residential)	LM	4
(Medium Density Residential)	M	1
(Outside of Area)	OA	2
(Open Space)	OS	4
(Parks and Recreation)	P	2
(Resort)	RL	2
(Visitor Commercial)	VC	1

Table 3.4-6 (Continued)

NEW TOWN PLAN
HISTORIC SITES

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,299H	OS	Historic Structure
CA-SDi-11,301H	NP	Historic Camp
CA-SDi-11,305	RE	Historic Rock Feature
CA-SDi-11,306H	RE	Historic Camp
CA-SDi-11,310	RE	Historic Rock Feature
CA-SDi-11,316H	RE	Historic Refuse
CA-SDi-11,318	RE	Historic Rock Feature
CA-SDi-11,319	RE	Historic Rock Feature
CA-SDi-11,320	RE	Historic Rock Feature
CA-SDi-11,330H	RE	Historic Refuse
CA-SDi-11,340H	L	Historic Structure
CA-SDi-11,341H	OS/L	Historic Rock Feature
CA-SDi-11,343H	L/LM/VC	Historic Structure
CA-SDi-11,347	LM	Historic Rock Feature
CA-SDi-11,348	OS	Historic Rock Feature
CA-SDi-11,357 (OR-57)	LM	Historic Rock Feature
CA-SDi-6,970	RE	Historic Archaeological Complex
CA-SDi-12,351H	LM	Historic Rock Feature
CA-SDi-12,352H	LM	Historic Rock Feature

TOTALS:

(Low Density Residential (0-3 du/ac))	L	4
(Low-Medium Density Residential (3-6 du/ac))	LM	5
(Nature Park)	NP	1
(Open Space)	OS	3
(Rural Estate Planned Community)	RE	9
(Visitor Commercial)	VC	1

Of specific concern is the presence, in an area proposed for development, of one of the few standing, potentially important historic resources on the property. Archival research indicated this site, CA-SDi-11,384H, also known as the Otay Ranch Buildings Complex, is the original headquarters for the Otay Ranch, dating back to before the turn of the century (USGS Jamul Mts. Quad 1902). In the New Town Plan, the site extends into areas planned for several land uses including medium-high, medium, and low-medium density residential development, as well as the proposed Orange Avenue road corridor. The site falls within areas slated for construction development on all of the other alternatives as well.

3.4.2.3 Prehistoric/Historic Resources

Impacts to prehistoric/historic resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 30 prehistoric/historic sites currently known to be on the property are considered to be important at this stage of planning. With this assumption of importance for all of the prehistoric/historic sites, the New Town Plan is assessed below based on the proposed land use, with areas proposed for development (as defined above) assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture.

Of the 30 prehistoric/historic sites currently known to be on the Otay Ranch property, 4 are located on the Otay River parcel, 16 on the Proctor Valley parcel, and 10 on the San Ysidro parcel. Table 3.4-7 indicates, by parcel, the land use proposed for the New Town Plan, the prehistoric/historic site types, and the occurrences of the sites in the various land uses.

When compared to the other development plan alternatives, the New Town Plan has the highest incidence of prehistoric/historic sites occurring all or partially within areas to be developed and correspondingly, the lowest number of occurrences of historic sites in areas proposed for undeveloped land use such as open space, parks, or agricultural land use. Over the the entire Otay Ranch property, 28 of the 30 prehistoric/historic sites known to be present on the property fall all or partially within areas proposed for intense development, with only 2 prehistoric/historic sites located entirely within areas proposed for non-construction oriented land use, in the New Town Plan. This ratio (28/2) is the same as the Phase I-Progress Plan and only slightly different than four of the other plans: the Low Density Plan (27/3), the Project Team Plan (26/4), the Fourth Alternative Plan (24/6) and the Phase II-Progress Plan (22/8). All of these plans would impact a large percentage of the prehistoric/historic sites on the property, with the New Town and Phase I-Progress Plans impacting the most.

3.4.3 Proposed Mitigation

3.4.3.1 Prehistoric Resources

The following discussion of mitigation applies to the New Town Plan and all of the project alternatives.

For a mitigation plan to be comprehensive, the following elements are required: 1) all resources (both prehistoric and historic) within the area of potential effect must be identified, 2) the importance of each resource within the affected area must be clearly established based on the knowledge that the realm of sites within the project has been established and that comparison of site types and importance is consistent within that realm, 3) the type and degree of impact is established in terms of direct/indirect, short-term/long-

Table 3.4-7

NEW TOWN LAND USE PLAN
PREHISTORIC/HISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,217	RI	Lithic Scatter/Historic Structure
CA-SDi-11,218	RI	Lithic Scatter/Historic Structure
CA-SDi-11,219	RI	Lithic Scatter/Historic Structure
CA-SDi-11,367/CA-SDi-11,368	OS/RI	Lithic Scatter/Historic Rock Feature

TOTALS:			
	(Open Space)	OS	1
	(Research Industrial)	RI	4

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,391 A-C	TC/LM/OS/OA	Historic Structure/Lithic Scatter/Milling Station/Temporary Camp
CA-SDi-11,396/H (OR-105)	RL/OA	Historic Structure/Lithic Scatter
CA-SDi-11,399H (OR-108)	LM/RL	Historic Structure/Lithic Scatter
CA-SDi-11,409 (OR-119)	LM/OS	Lithic Scatter/Historic Rock Feature
CA-SDi-11,411 A-D	OS/L	Milling Station/Historic Refuse
CA-SDi-11,415	OS	Milling Station/Lithic Scatter/Historic Rock Feature
CA-SDi-11,417H	L	Historic Structure/Lithic Scatter/Milling Station
CA-SDi-6,695 A-B	M/LM/OS	Lithic Scatter/Historic Rock Feature
CA-SDi-6,965/CA-SDi-11,398H	LM/OA	Historic Archaeological Complex/Lithic Scatter
CA-SDi-12,328/H	M	Lithic Scatter/Historic Rock Feature
CA-SDi-12,362/H	LM/OA	Lithic Scatter/ Historic Refuse
CA-SDi-12,373/H	OS	Habitation Site/Historic Structure
CA-SDi-12,380/H	L	Lithic Scatter/Historic Rock Feature
CA-SDi-12,382/H	L	Historic Rock Feature/Lithic Scatter
CA-SDi-12,393/H	L	Lithic Scatter/Historic Rock Feature
SDM-W-1,932	L/OS	Lithic Scatter/Historic Rock Feature

TOTALS:			
	(Outside of Area)	OA	4
	(Low Density Residential (0-3 du/ac))	L	6
	(Low-Medium Density Residential)	LM	6
	(Medium Density Residential)	M	2
	(Open Space)	OS	7
	(Resort)	RL	2
	(Town Center)	TC	1

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,355 (OR-55)	LM	Lithic Scatter/Historic Rock Feature
CA-SDi-11,356 (OR-56)	LM/OA	Lithic Scatter/Historic Structure
CA-SDi-11,358 (OR-58)	LM/OA	Lithic Scatter/Historic Rock Feature
CA-SDi-11,359H	M	Lithic Scatter/Historic Refuse
CA-SDi-11,360H A-C	L/OS	Historic Structure/Lithic Scatter
CA-SDi-12,150	LM	Historic Structure/Lithic Scatter
CA-SDi-12,346/H	LM	Temporary Camp/Lithic Scatter/Historic Rock Feature
CA-SDi-12,347/H	LM	Historic Structure/Lithic Scatter
CA-SDi-12,348/H	LM	Lithic Scatter/Historic Rock Feature
CA-SDi-12,350/H	LM/OS/OA	Lithic Scatter/Historic Rock Feature

TOTALS:			
	(Low-Medium Density Residential (3-6 du/ac))	LM	8
	(Medium Density Residential (6-11 du/ac))	M	1
	(Outside of Area)	OA	3
	(Open Space)	OS	2

term, significant/insignificant, and 4) development plans are specific enough to accurately determine if the proposed mitigation is feasible and will, in fact, mitigate the impacts to below a level of significance.

Definition of Site Significance/Importance

At the state level, the California Environmental Quality Act Appendix K provides several criteria for assessing the importance of archaeological resources. The intent within CEQA, and in Appendix K, was to leave specific determinations up to local agencies based on the resources and unique qualities of the local area under consideration. However, in broad terms, CEQA states that an important archaeological resource is one that:

A. Is associated with an event or person of:
   1. Recognized significance in California or American history or
   2. Recognized scientific importance in prehistory.

B. Can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable archaeological research questions.

C. Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind.

D. Is at least 100 years old and possesses substantial stratigraphic integrity or,

E. Involves important research questions that historical research has shown can be answered only with archaeological methods.

Most prehistoric archaeological sites that are considered to be important are those that qualify under Criteria B, C or D as cited above. Historic archaeological sites usually qualify under Criteria A, D and E and sometimes under C. In addition to these generalized criteria, the County of San Diego requires that under Criteria B and E that the evaluator provide specific research questions that can reasonably be answered by data known to be present at the site and has established a set of county-wide research questions as suggested avenues of research.

The proposed testing and evaluation program within the Otay Ranch will use criteria provided in Appendix K of CEQA as well as the local County of San Diego recommended research approaches. Ideally, upon the completion of testing and evaluation, the researcher will be able to provide a project-specific and are-specific research design and approach and state explicitly why sites are deemed as important or non-important.

Mitigation Plan

At this stage of planning, several of the elements presented above are proposed for later stages of planning; not all of the resources have been identified, importance of the resources is assumed rather than verified, impacts are still problematic rather than specific, and development plans are still conceptual. Given these limitations, development of the mitigation plan is necessarily programmatic rather than resource specific. The following plan, which is adequate for this level of planning, is a synopsis of a more detailed program presented in the Resource Management Plan (RMP). For conciseness, the mitigation plan is presented in a series of interrelated stages or phases.

Stage 1

The first stage of the comprehensive mitigation plan will be to complete the intensive, systematic survey of the remaining 17,000 acres in compliance with the county's requirements. The rationale for performing the survey for the remaining acreage at one time is because it will be cost-effective, it will allow for preparation of a single document that can be comprehensive and take into account all of the resources within the overall project and not just the SPA Plan area, and it will provide reviewers with a more complete data base upon which to formulate planning decisions. The applicant shall complete the survey of the remaining portion of Otay Ranch as soon as feasible with the survey of the first SPA being completed no later than filing of the first SPA Plan application. The survey of the remaining portion of Otay Ranch shall be completed prior to the ~~approval~~ public review of the first SPA Plan.

Stage 2

Stage 2 will be site importance and boundary testing for each resource identified within the first SPA Plan based on a county approved research design, and for a sample of site types within the overall project. Site testing is required to adequately assess the sites for their importance under CEQA and local guidelines. A sample of site types beyond the SPA Plan area should be tested as a means of gaining comparative information and to develop a specific program for mitigation and resource management. This would include a report to be prepared by a qualified consultant to be reviewed and approved by the county, on both the survey and testing programs.

Stage 3

Following completion of site importance evaluation, those sites that are found to be non-unique, non-significant, and without demonstrated importance will require no further analysis or assessment. As mandated by CEQA, mitigation will have been achieved by recordation, testing, and submittal of the testing report. For those sites that are determined to be important resources, alternate means of achieving mitigation can be pursued. In general, these forms of mitigation include:

- site avoidance by preservation of the site ~~within the management preserve~~ in a natural state in open space or in open space easements,
- site avoidance by preservation through capping the site and placing landscaping on top of the fill,
- data recovery through implementation of an excavation and analysis program, or
- a combination of one or more of the above measures.

A preservation plan must be prepared for those sites that are determined to be significant. This is particularly important for sites which are proposed to be capped and landscaped to ensure their long term preservation, or where site vandalism may present a problem and require special circumstances.

Additionally, a plan shall be developed for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This could be accomplished through adaptive reuse of one of the historic structures within the project or through construction of a building within one of the parks or community centers. It is expected that this interpretive center will only be for temporary curation of those materials being actively used for interpretation and display, and that permanent curation of artifacts and data will be at a regional repository when one is established.

Site Avoidance/Preservation

As stated in CEQA Appendix K, site preservation is the preferred mitigation measure for cultural resources. While potential impacts to most cultural resource sites can be mitigated by performing data recovery, analysis, and interpretation, certain classes of sites or resources are such that avoidance and preservation are the only feasible mitigation. For prehistoric resources, sites with human burials, areas that contain rock art (petroglyphs and pictographs), rock shrines, and other rock or stone architectural features shall be preserved and protected. Additionally, sites that may contain particular religious or sacred importance to Native American people will require avoidance and protection measures to ensure that the sites are not destroyed or degraded. For historic resources, intact standing structures and buildings that are found to be significant shall be preserved in place, and to the extent possible, subjected to minor alterations in the immediate setting and character. In some cases architectural features such as walls, flumes, or other permanent elements of the built and altered environment may require in place preservation and protection.

For avoidance to be considered as an adequate mitigation it must be clearly demonstrated that a site will, in fact, be avoided by all project activities such that no possible adverse impacts, direct or indirect, could occur. This determination as to adequacy is made by the lead agency as part of the environmental review performed on each SPA plan. Specific avoidance measures may include either the location of sites in currently proposed open space areas, or in particular instances, even more specific project design to avoid the resource by maintaining it in a dedicated open space. These design measures can include capping of sites with sterile fill soil and/or placing restrictions on access and usage of individual parcels as well as public parks and public open spaces. If preservation through avoidance is infeasible, then programs for data recovery will need to be designed and implemented.

Data Recovery

For those sites that are found to be important resources and for which avoidance and preservation is not feasible or appropriate, a data recovery plan will be prepared. The plan, while it may be part of a much larger program for several sites under study, will be site specific. The plan will, at a minimum, include the following:

1. A statement of why data recovery is appropriate as a mitigating measure.

2. A research plan that explicitly provides the research questions that can reasonably be expected to be addressed by excavation and analysis of the site. The research plan may deviate from the suggested research questions provided by the County of San Diego but if this is the case, the rational for rejecting certain research questions should be provided and more relevant questions posed.

3. A statement of the types and kinds of data that can reasonably be expected to exist at the site (based on the Phase 1 testing) and how these data will be used to answer important research questions.

4. A step-by-step discussion of field and laboratory methods to be employed. This will include the sampling strategy, methods of excavation and recovery of materials for special studies, and laboratory techniques for the analysis and interpretation of the materials.

5. Provisions for curation and storage of the artifacts, notes, and photographs will be stated. A memorandum of agreement may be appropriate to formalize the curation policy.

3.4.3.2 Historic Resources

Mitigating measures for historic resources are essentially the same as for prehistoric resources as described above. The same steps and stages should be followed although, as described in the RMP, archival research and historical documentation may be used to augment field testing programs. Mitigation of impacts to historic resources through preservation may be more feasible for historic sites than for prehistoric sites because they generally comprise a smaller area and can often be synthesized into a development plan. Adaptive re-use of standing historic structures will be strongly encouraged, and preservation plans to ensure long term viability of the structures will be required.

If in situ preservation is not possible, recovery of all possible information, both surface and subsurface, is the only other acceptable alternative. The data recovery program will be integrated with a corresponding archival research program to fully assess the significance of the material found on the sites. By creating a complementary research program that fully incorporates the archival material with the field results, many important research questions can be addressed.

3.4.3.3 Prehistoric/Historic Resources

Mitigating measures for prehistoric/historic resources are essentially the same as for prehistoric and historic resources as described above. The same steps and stages should be followed although, as described in the RMP, archival research and historical documentation may be used to augment field testing programs. Mitigation of impacts to historic components of prehistoric/historic resources through preservation may in some instances be more feasible than for the prehistoric components because they generally comprise a smaller area and can often be synthesized into a development plan.

If in situ preservation is not possible, recovery of a representative amount or sample of information, both surface and subsurface, is the only other acceptable alternative. For historic components, the data recovery program will be integrated with a corresponding archival research program to fully assess the significance of the material found on the sites. By creating a complementary research program that fully incorporates the archival material with the field results, many important research questions can be addressed.

3.4.4 Analysis of Significance

3.4.4.1 Prehistoric Resources

In general, the majority of recorded prehistoric sites in the coastal San Diego County area have not been subject to scientific inquiry. The remaining undeveloped portion of southern San Diego County contains a scientifically valuable repository of undisturbed prehistoric sites. Specifically, in the greater Otay area to date, relatively little controlled excavation has been conducted, and few technical reports have been prepared. With the exception of McGowan in the 1970s, most of the investigation that has occurred has taken place in the last ten years. While some of this recent research has begun to elucidate the prehistory of the area (e.g., Kyle et al. 1990), the Otay area still represents a large and significant gap in the prehistoric record for San Diego County.

The remaining portions of the southern coastal area of the county contain considerable significant research potential. Few areas in San Diego County contain such a potential for prehistoric resources, yet have been so little researched or understood. Prehistoric sites in the area are now known to date from circa 8,000 years B.P. to historic contact (McGowan 1977; Kyle et al. 1990). The project area, encompassing approximately 23,088 acres, and spanning river and creek drainages as well as mountain, rolling foothill, and broad mesa areas, includes a diversity of natural habitats that provided a variety of resources to the prehistoric inhabitants of the area. The 213 prehistoric sites recorded so-far on the property represent many different kinds, including villages, hunting camps, vegetal food procurement locations, quarries, and other lithic procurement sites. These sites reflect an array of prehistoric site types corresponding to natural areas and related resources. Each of these sites contains information about prehistoric resource procurement, tool manufacture, subsistence, settlement, trade, and potentially, changes in all of these cultural aspects through time. Consequently, site importance must be evaluated with a consideration for the potential they have for providing important information about prehistoric lifeways.

While the above stated criteria will eventually be used to evaluate individual site importance, almost no evaluation for importance has yet been conducted for individual prehistoric sites on the Otay Ranch property. Consequently, for purposes of this program-level EIR, all prehistoric sites are considered important and significant resources for planning purposes.

3.4.4.2 Historic Resources

As specific projects are undertaken on Otay Ranch, an evaluation of impacts to specific historic resources will be determined. The resources represent the historic development of San Diego and date primarily to the Anglo-American period and the transition from Hispanic domination to the Anglo culture. Information relating to this transition period and the broad scope of American history and its settlement of the West by newcomers can be gained by review of the types of land use and history of the occupants. The resources contain the potential to give significant information regarding the agricultural development, particularly the period from 1880-1930, of this area of the county. Related water developments and the effects of water, and/or the lack of water, on the growth of the county are potential research realms these resources may help to address. Much valuable information can possibly be gleaned regarding ranching, agricultural, water, and growth developments in San Diego County and its connections to the broader patterns of American history.

While the above stated criteria will eventually be used to evaluate individual site importance, currently, no evaluation for importance has as yet been conducted for individual historic sites on the property. Consequently, for purposes of this program-level EIR, all historic sites are considered important resources for planning purposes.

3.4.4.3 Prehistoric/Historic Resources

The above stated evaluation criteria for importance of prehistoric and historic resources also apply to sites having both prehistoric and historic components. While the above stated criteria will eventually be used to evaluate individual site importance, almost no evaluation for importance has as yet been conducted for individual prehistoric/historic sites on the property. Consequently, for purposes of this program-level EIR, all prehistoric/historic sites are considered important resources for planning purposes.

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3.5 GEOLOGY AND SOILS

3.5.1 Existing Conditions

3.5.1.1 Geologic Setting

The following description of the geologic conditions in the project area was derived from several sources, including geologic maps of the area developed by Kennedy and Tan (1977), Kuper (1977), and the Seismic Safety Study for the City of San Diego. A geotechnical investigation of the Otay Ranch, conducted by Gregg and Associates, Inc. (1987), was the primary source for the technical information presented below. Field tasks performed as part of this geotechnical study included soil borings, soil sampling, test pit excavations, analysis of structural geologic data, installation of ground-water monitor wells, and analysis of ground-water samples.

Topography and Geomorphology

Regionally, the Otay Ranch is located within the Peninsular Range Geomorphic Province. The Peninsular Range is composed of a series of northwest-trending uplifted blocks which are separated by similarly trending faults. The uplifted blocks are composed of Mesozoic-age metamorphic and igneous plutonic basement rocks. In the San Diego area, the Peninsular Range Geomorphic Province is divided into two major physiographic and geologic sections. To the east is the dissected mountain-valley section consisting of uplifted basement rock uplands with intervening alluvial-filled valleys. To the west is the coastal plain section, which is characterized as marine terraces composed of Cretaceous, Tertiary, and Quaternary sediments.

The Otay Ranch site is located in the transitional area between the mountain-valley section and the coastal plain section. The eastern and northern portions of the project area are typical of the mountain-valley section; these areas include the wide, generally flat Proctor Valley area and portions of the Jamul Mountains and San Ysidro Mountains. The western portion is typical of the coastal plain; it consists of broad, gentle mesas traversed by the Otay River Valley and associated finger canyons.

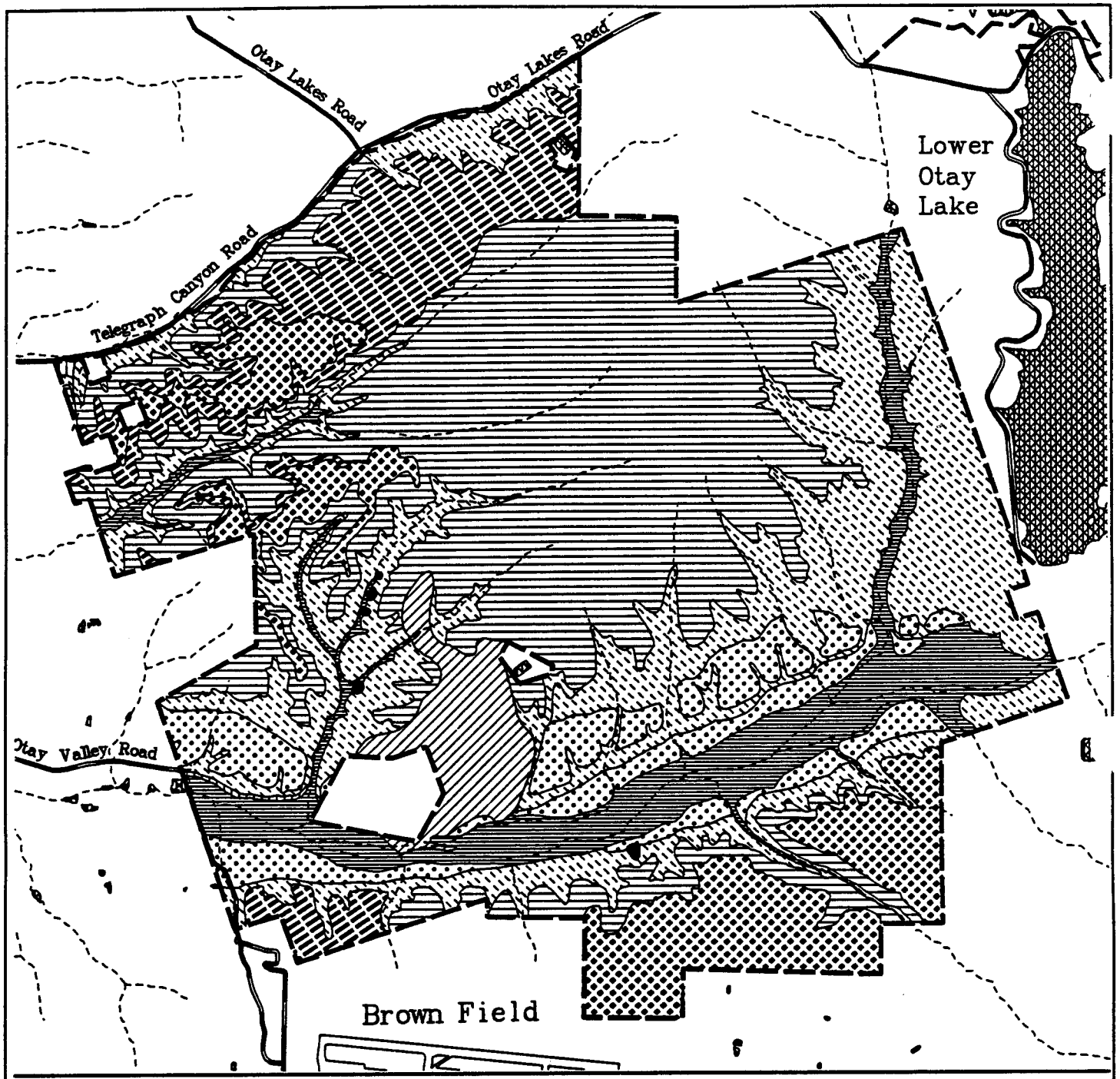
Lithology

The coastal plain section of the Otay Ranch is composed of sedimentary rocks which overlie igneous plutonic and metavolcanic basement rocks. The sedimentary units mapped on the property from oldest to youngest include: middle Eocene-age Mission Valley Formation; late Eocene-age Sweetwater Formation; late Oligocene-age Otay Formation; Pliocene-age San Diego Formation; and early Pleistocene-age Lindavista Formation.

A brief lithological description from Kennedy and Tan (1977) of the formations present in the coastal plain is presented below (see also Figures 3.5-1a - c):

- The Mission Valley Formation is a marine sandstone characterized as an olive gray, soft, and friable medium-grained sand.

- The Sweetwater Formation is a nonmarine sedimentary unit. This formation is composed of reddish-brown to light brown, very dense, clayey, silty, pebbly, fine- to coarse-grained sandstone and claystone.



Alluvium
Land Slide
Stream-terrace deposits
Linda Vista formation
Metavolcanic and granite basement rock
San Diego formation
Otay member
Sweetwater member
Mission Valley formation

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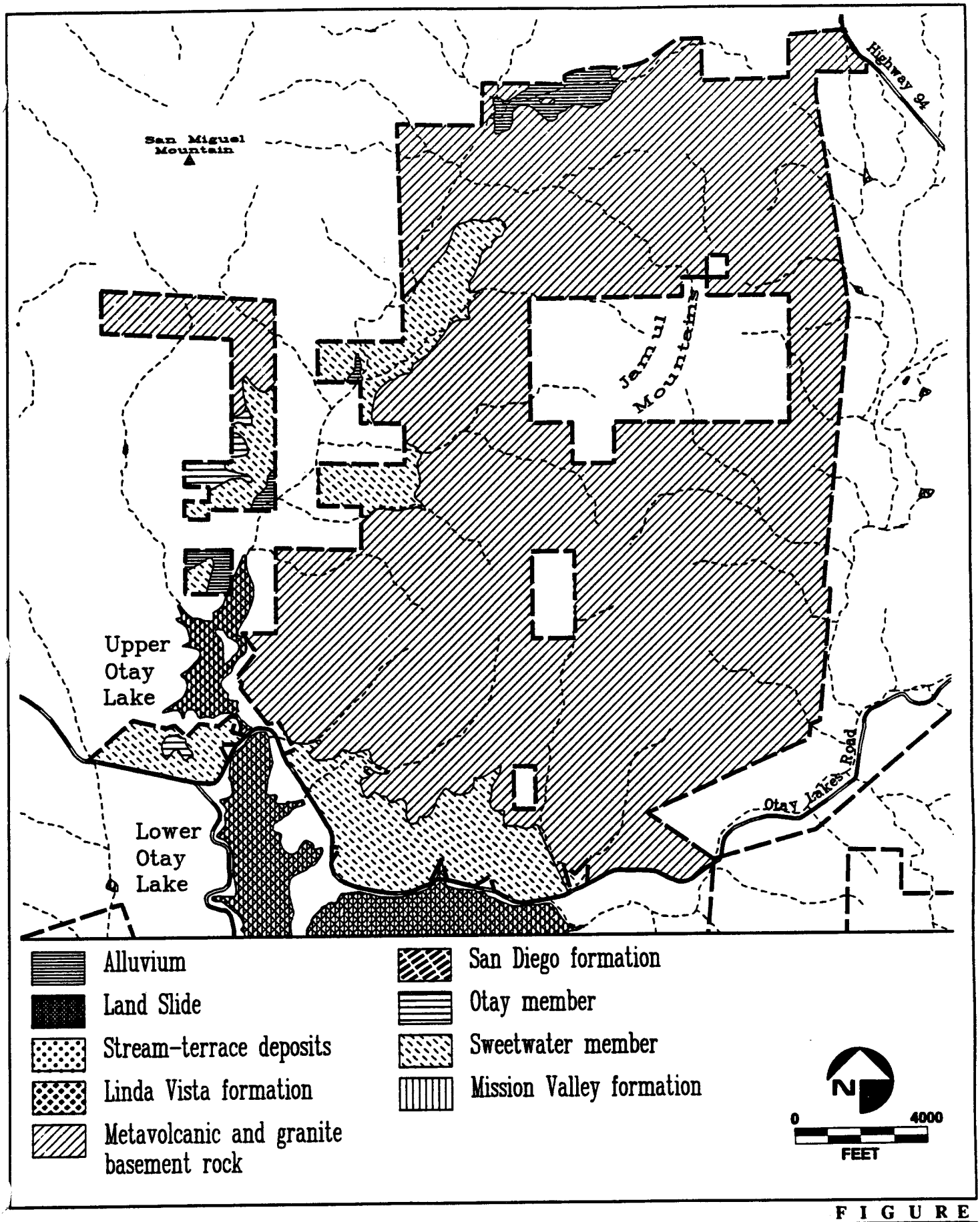
FEET

OGDEN

Geology within Otay River Parcel

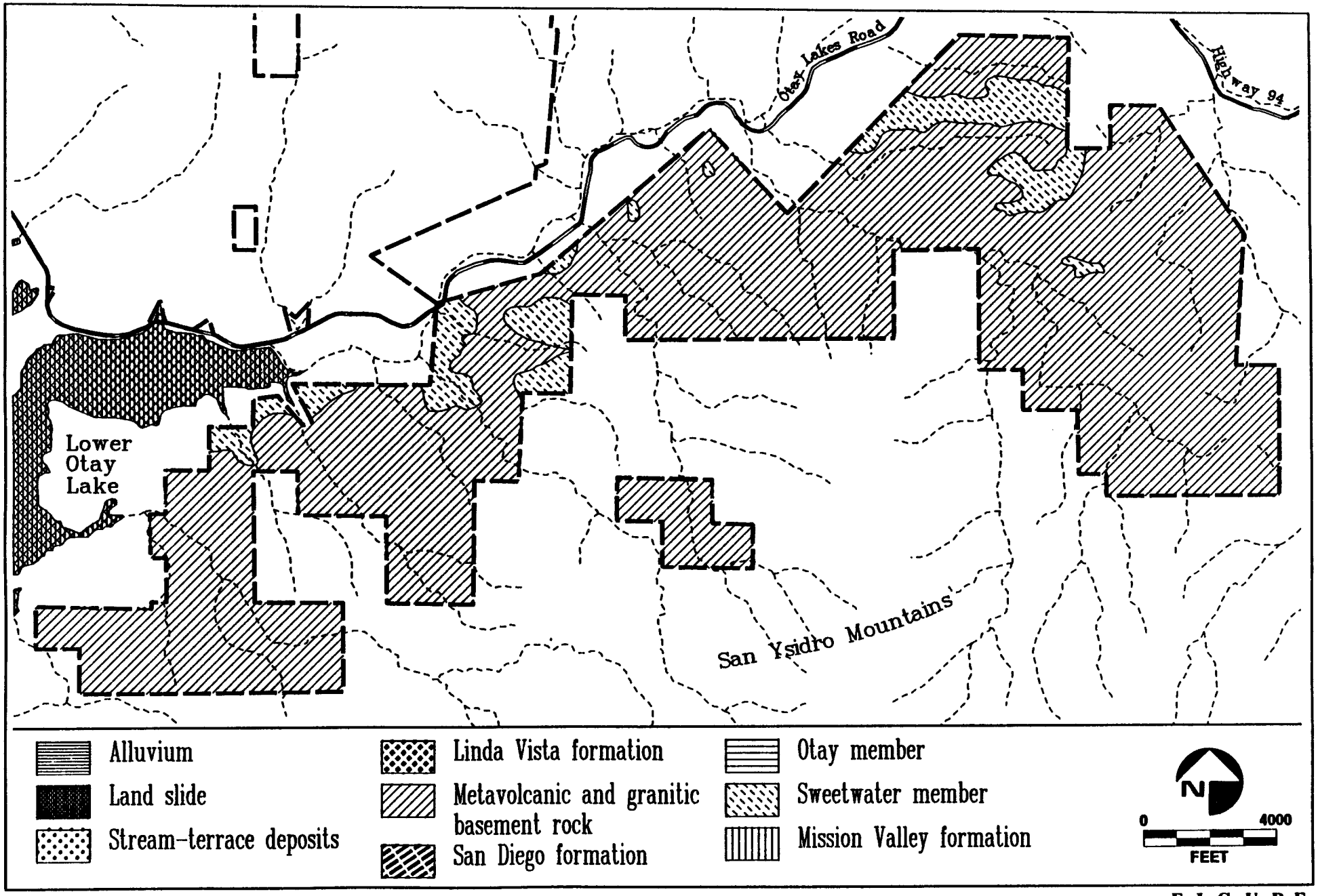
FIGURE
3.5-1a



OGDEN

Geology within Proctor Valley Parcel

FIGURE 3.5-1b



OGDEN

Geology within San Ysidro Parcel

FIGURE 3.5-1c

- The Otay Formation is composed of light gray to light brown, moderately well sorted, poorly indurated, massive, interbedded sandstone, siltstone, and claystone. Bentonite layers exist within the formation.

- The San Diego Formation is divided into two facies, the conglomerate and sandstone facies. The conglomerate portion consists of pebble- to boulder-size conglomerates in a coarse-grained sandstone matrix. This facies is typically poorly sorted, well indurated, and cemented. The sandstone facies is marine in origin and consists of fine- to medium-grained sand. Typically this sandstone facies is yellowish brown, poorly indurated, and locally cemented. Bentonite layers exist within this formation.

- The Lindavista Formation consists of nearshore marine and nonmarine sediments that were deposited on a wave cut platform. These deposits are composed of reddish-brown, resistant, interbedded sandstone and conglomerate.

The mountain-valley section of Otay Ranch is primarily composed of Mesozoic-age metavolcanic rocks. The metavolcanic rocks include the resistant Santiago Peak Volcanics (Upper Jurassic), which are primarily dacite and andesite in composition. Igneous plutonic rocks crop out to the east and northeast of the project and may also be present in the Jamul Mountains in the northeastern portion of the property. Unnamed fanglomerates of middle Tertiary-age crop out along Otay Lakes and are composed of angular clasts in a medium to coarse-grained sandstone matrix (Kennedy and Tan 1977).

Surficial deposits exist throughout the Otay Ranch property and include fluvial-terrace, landslide, topsoil, colluvial, and alluvial deposits. Fluvial-terrace deposits composed of thin, unconsolidated sands and gravels, occur along the Otay River Valley. Landslide deposits exist primarily along the steep slopes of Wolf Canyon, Poggi Canyon, and along the north facing slope of the Otay River Valley. The landslide deposits primarily consist of poorly consolidated sedimentary bedrock (Kennedy and Tan 1977). Topsoil deposits, mantle ridge tops and alluvial deposits exist in the Otay River Valley, Wolf Canyon, Telegraph Canyon, Poggi Canyon, Salt Creek, and Proctor Valley. The alluvium generally consists of fine- to coarse-grained sand, with gravels, cobbles, and boulders. The thickness of the alluvium in the Otay River Valley ranges from 1 to 7 feet, and similar thicknesses are probably present in the other drainages. Subsurface investigations revealed that in one location of Telegraph Canyon, the alluvium is as thick as 30 feet.

Faulting and Seismicity

Faults and fault zones are described as active, potentially active, or inactive according to the guidelines of the Alquist-Priolo Special Studies Zone Act of 1972. An active fault is defined by the State Mining and Geology Board as one which has exhibited surface displacement within Holocene time (the last 11,000 years). Faults showing evidence of surface displacement within the Quaternary Period (the last 1.6 million years) are defined as potentially active. Faults not exhibiting evidence of surface displacement since the Quaternary Period are defined as inactive.

Regional Tectonic Setting

The Inner Continental Borderland is part of a broad zone of northwest-trending faulting associated with the boundary between the Pacific and North American tectonic plates. The Pacific Plate is composed of a number of crustal blocks moving northward at varying speeds encompassing a zone more than 180 miles wide, extending from the San Andreas

Fault on the east to faults west of San Clemente Island. The major faults within this zone strike in a north-northwest direction and include the San Andreas, San Jacinto, Elsinore, Rose Canyon, Coronado Bank, and San Clemente fault zones. Each fault zone generally includes a number of en-echelon, discontinuous segments and secondary faults. Several of these faults could generate ground accelerations and subsequent shaking in the project area.

Local Faults and Fault Zones

Based on a review of published geologic literature and maps of the project area, no active faults are known to directly underlie the project site.

Local active and potentially active faults that are sufficiently close to the project area to pose the greatest earthquake hazard include the Rose Canyon, Coronado Bank, and La Nacion fault zones. These fault zones are described below. The locations of regional and local fault zones are shown in Figure 3.5-2. The distances to these faults are shown in Table 3.5-1.

Rose Canyon Fault Zone

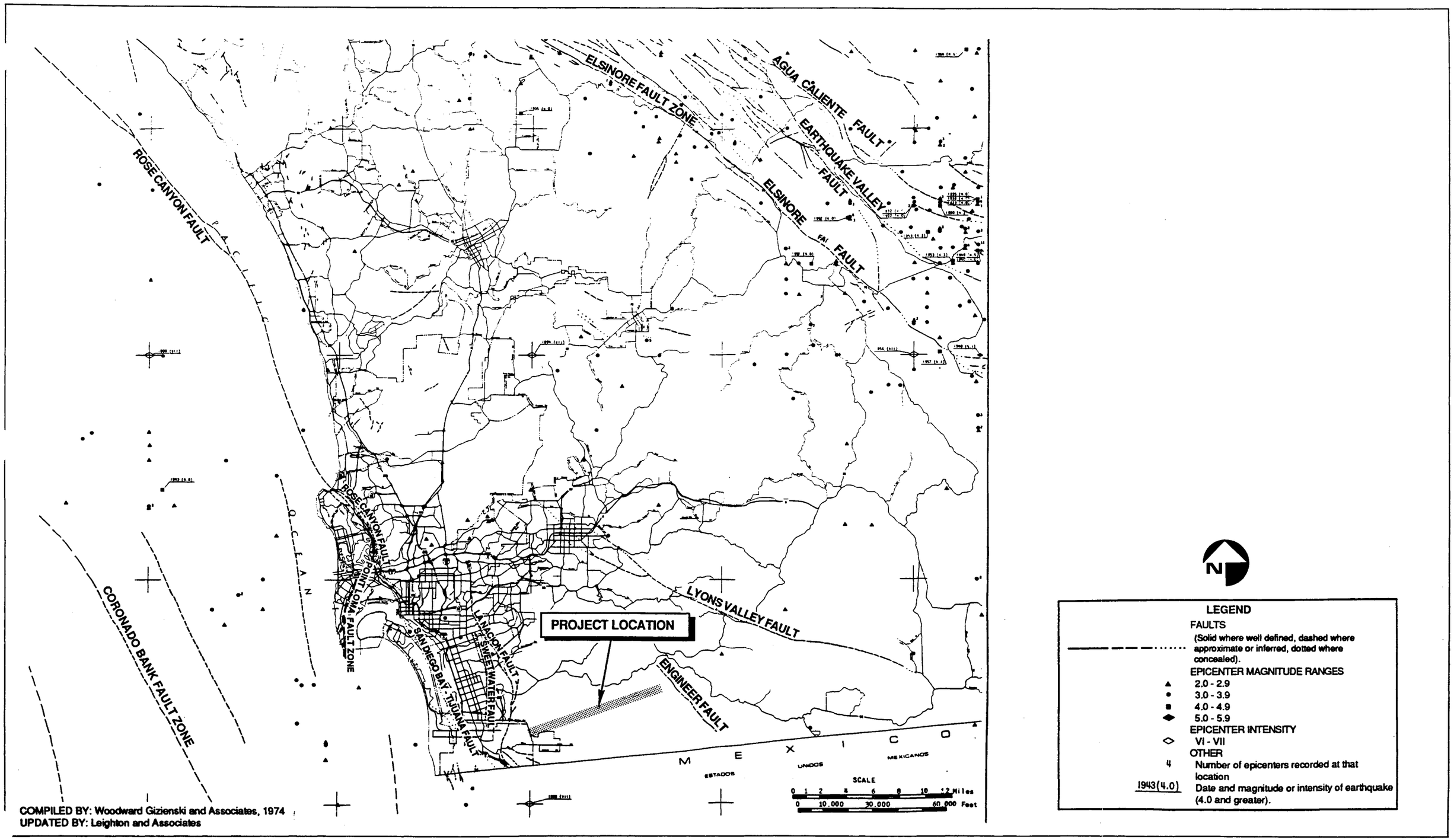
The Rose Canyon fault zone is a complex system of north-to-northwest trending, en-echelon faults extending northward from within San Diego Bay to the continental shelf offshore near Carlsbad (Treiman 1984). More specifically, the onshore components of the Rose Canyon fault zone extend from Point La Jolla in the north, through Old Town, to the downtown area adjacent to San Diego Bay. The fault zone is composed of a number of fault segments. The longer segments include the Rose Canyon, Mount Soledad, and Country Club faults.

According to Rockwell and others (1990), the complexity of the Rose Canyon fault zone has produced two of coastal San Diego's most prominent topographic and physiographic features: Mount Soledad and San Diego Bay. Mount Soledad is a structural high which contains uplifted and deformed Cretaceous and Eocene sedimentary rocks. Overlying the core of older rocks are younger, less deformed Pliocene and Pleistocene sediments (Treiman 1984). The Pleistocene Lindavista Formation, which covers most of the nearly horizontal coastal plain of San Diego, is found near the top of Mount Soledad, implying a minimum vertical separation on the fault of 135 meters (Kennedy 1975). Kern (1977) demonstrated a vertical slip of 60 meters on the Rose Canyon fault zone since the deposition of the 120,000-year old Nestor marine terrace.

The Rose Canyon fault zone has generally been designated as potentially active under the definition of the Alquist-Priolo Special Studies Zone Act. However, based on recent geologic investigations conducted by Rockwell (1989, 1991) in Rose Canyon, radiometrically determined Holocene-aged earth materials were observed to be offset by a previously unmapped fault segment south of and along the trajectory of the Mount Soledad Branch of the Rose Canyon fault zone. It is believed that this fault segment may represent the southerly continuation of the Mount Soledad Branch (Lindvall et al. 1990). Based on these recent findings, the Mount Soledad Branch of the Rose Canyon fault zone has been designated "active" by the California Division of Mines and Geology and a map delineating an Alquist-Priolo Special Studies Zone has been published for this branch of the Rose Canyon fault zone.

Coronado Bank Fault Zone

The active Coronado Bank fault zone is a northwest-trending series of en-echelon faults having both right- and left-stepping segments (Kennedy et al. 1980b). Some of the faults



COMPILED BY: Woodward Gizienski and Associates, 1974
UPDATED BY: Leighton and Associates

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Regional Fault Map

FIGURE 3.5-2

Table 3.5-1

SEISMIC PARAMETERS AND THEIR GROUND SHAKING EFFECTS

Fault	Distance from Fault to Otay Ranch (miles)	Maximum[1] Probable Earthquake (Richter magnitude)	Estimated Acceleration (g) Peak Horizontal[2] Bedrock	Estimated Acceleration (g) Repeatable High[3] Ground	Modified[4] Mercalli Intensity
Coronado Bank	25	6.2	0.11	0.11	VII-VIII
Elsinore	32	7.2	0.15	0.15	IX-X
San Jacinto	56	7.1	0.06	0.06	IX-X
San Andreas	83	7.5	0.05	0.05	IX-X
Rose Canyon Zone	11	6.5	0.28	0.18	VIII-IX
La Nacion	1	6.0	0.61	0.40	VII - VIII

1 After Greensfelder (1974), Bonilla (1970), and Wesnousky (1986)
2 Seed and Idriss, 1982
3 Ploessel and Slosson, 1974
4 USGS, 1980

Note: All faults listed are considered to be active, except the La Nacion, which is classified as potentially active. According to the California Division of Mines and Geology (CDMG), the Mount Soledad branch of the Rose Canyon fault zone, formerly designated as potentially active, is now considered to be active. This new designation is based on recent studies in which strata known to be 11,000 years old or younger (Holocene Age) are offset by this branch of the Rose Canyon fault.

within the zone offset Quaternary marine sediments and can be traced to within a few meters of the sea floor on seismic reflection profiles. The Coronado Bank fault zone may be a central component of a much longer structural zone which includes the Palos Verdes fault zone to the northwest and the Agua Blanca fault zone to the southeast. A definite correlation with the Agua Blanca fault zone has not been substantiated. Relatively small earthquakes have been associated with the Coronado Bank fault zone in the recent past.

La Nacion Fault Zone

The La Nacion fault zone is a north-northwest trending system of faults extending discontinuously northward from the International Border for about 17 miles to La Jolla. These faults form the eastern boundary of the San Diego Bay structural depression and generally dip steeply with west-side-down normal separation. Individual segments of the system include the La Nacion, Sweetwater, and Murphy Canyon faults. Evidence of Holocene offset is lacking, and therefore the La Nacion fault zone has been classified as potentially active.

Gregg and Associates (1987) state that there is a mapped fault striking northwest that transects Telegraph Canyon in the western portion of the Otay Ranch property. This fault is mapped as a normal dip slip fault, with a west-side-down sense of displacement. The fault juxtaposes the San Diego Formation on the west side of the fault against the Otay Formation on the east side of the fault. It is probable that this fault is part of the La Nacion fault zone (Gregg and Associates 1987), although the majority of faults comprising this fault zone are located to the west of the project site.

Other potentially active faults in the vicinity of the project area include the Engineer fault to the southeast, Lyons Valley fault to the northeast, and Point Loma fault to the northwest. In addition, there is also an unnamed lineament which trends east-west in the Otay River Valley.

Seismicity

In the last 50 years, the San Diego region has been characterized by little seismic activity; therefore, it is difficult to predict reoccurrence and intensity of future earthquakes. Based on the maximum probable earthquake magnitudes for the faults listed in Table 3.5-1, as well as the distance of the site from these faults, the most significant probable seismic event likely to affect the proposed development would be an earthquake of Richter magnitude 6.5 (M) on the Rose Canyon fault, which is located approximately 11 miles northwest of the site. The estimated peak horizontal bedrock acceleration produced at the project site by such an event would be 0.28g and the repeatable high ground acceleration would be 0.18g. The corresponding Modified Mercalli Earthquake Intensities are also provided in Table 3.5-1. An explanation of the Modified Mercalli Earthquake Intensities Scale is shown in Table 3.5-2.

Seismically Related Hazards

Liquefaction. Liquefaction is defined as the transformation from a solid to a liquid state as result of increased pore pressure and reduced effective stress due to earthquake vibrations. The most important parameters associated with the liquefaction potential of soils are the *in situ* density, soil type, severity of shaking, and duration of shaking. Liquefaction is generally associated with loose, unconsolidated sands or silts at or near the local water table. Soils with 30 percent or more clay are not susceptible to liquefaction. Table 3.5-3 shows the liquefaction susceptibility of local San Diego formations.

Table 3.5-2
Modified Mercalli Scale, 1956

M §	Intensity	Effects	v, † cm/s	g ‡
	I.	Not felt. Marginal and long-period effects of large earthquakes.		
3	II.	Felt by persons by rest, on upper floors, or favorably placed.		
	III.	Felt indoors. Hanging objects swing. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake.		0.0035-0.007
4	IV.	Hanging objects swing. Vibration like passing of heavy trucks; or sensation of a jolt like a heavy ball striking walls. Standing cars rock. Windows, dishes, doors rattle. Glasses clink. Crockery clashes. In the upper range of IV wooden walls and frames creak.		0.007-0.015
	V.	Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Shutters, pictures move. Pendulum clocks stop, start, change rate.	1-3	0.015-0.035
5	VI.	Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Knickknacks, books, etc., off shelves. Pictures off walls. Furniture moved or overturned. Weak plaster and masonry D cracked. Small bells ring (church, school). Trees, bushes shaken (visibly, or heard to rustle).	3-7	0.035-0.07
	VII.	Difficult to stand. Noticed by drivers of cars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices (also unbraced parapets and architectural ornaments). Some cracks in masonry C. Waves on ponds; water turbid with mud. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged.	7-30	0.07-0.15
6	VIII.	Steering of cars affected. Damage to masonry C; partial collapse. Some damage to masonry B; none to masonry A. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes.	20-60	0.15-0.35
7	IX.	General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. (General damage to foundations). Frame structures, it not bolted, shifted off foundations. Frame racked. Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluviated areas sand and mud ejected, earthquake fountains, sand craters.	60-200	0.35-0.7
8	X.	Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly.	200-500	0.7-1.2
	XI.	Rails bent greatly. Underground pipelines completely out of service.		>1.2
	XII.	Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into the air.		

Note: Masonry A, B, C, D. To avoid ambiguity of language, the quality of masonry, brick or otherwise, is specified by the following lettering (which has no connection with the conventional Class A, B, C construction).

- Masonry A: Good workmanship, mortar, and design; reinforced, especially laterally, and bound together by using steel, concrete, etc.; designed to resist lateral forces.
- Masonry B: Good workmanship and mortar; reinforced, but not designed to resist lateral forces.
- Masonry C: Ordinary workmanship and mortar; no extreme weaknesses such as non-tied in corners, but masonry is neither reinforced nor designed against horizontal forces.
- Masonry D: Weak materials, such as adobe; poor mortar; low standards of workmanship; weak horizontally.

† Average peak ground velocity, cm/s.

‡ Average peak acceleration (away from source).

§ Magnitude correlation.

Table 3.5-3

SETTLEMENT AND LIQUEFACTION SUSCEPTIBILITY OF GEOLOGIC FORMATIONS

Geologic Unit	Susceptibility to Settlement and Liquefaction		
	Very Low	Intermediate	Medium to High
Poorly Compacted, Dumped, or Hydraulic Fill			———
Quarternary Bay and River Alluvial Deposits Beach Sands		———	
Engineered Fill Pleistocene Bay Point and Lindavista Formations	———		
Pliocene San Diego Formation	———		
Miocene, Eocene, and Older Units	———		

Source: Woodward and Gizienski 1974.

Tsunamis and Seiches. A tsunami is a sea wave generated by submarine earth movement, including a submarine earthquake on an active fault. Faults located off the California coast are not believed to be characterized by the large vertical displacements which are required to generate tsunamis.

A seiche is an earthquake induced wave occurring in a confined body of water such as Otay Lake. Resulting oscillations could cause waves tens of feet high. There have been no recorded seiches within the San Diego area; therefore, insufficient data are available to allow for a determination of possible occurrences (Woodward and Gizienski 1974).

Landslides. Several landslides exist on Otay Ranch. Typically, they occur on the side slopes of stream valleys. There are three mapped landslides within Wolf Canyon, one in Poggi Canyon, and several on the north facing slope of the Otay River Valley.

A majority of the landslides result from rotational slumping of valley walls comprising the San Diego and Otay formations. The landslides often become activated by oversaturation and subsequent loading at the heads of slides, or by basal erosion at slide toes which results in oversteepened slopes. Many of the slides in the San Diego and Otay formations fail along multiple slip planes composed of sheared bentonite clay. In addition, landslides may be seismically induced.

3.5.1.2 Soil Setting

There are a total of 17 soil series on Otay Ranch; several of these series are divided into phases. The locations of these soils are shown in Figures 3.5-3a-c. Important geotechnical characteristics of these soil series are delineated in Table 3.5-4.

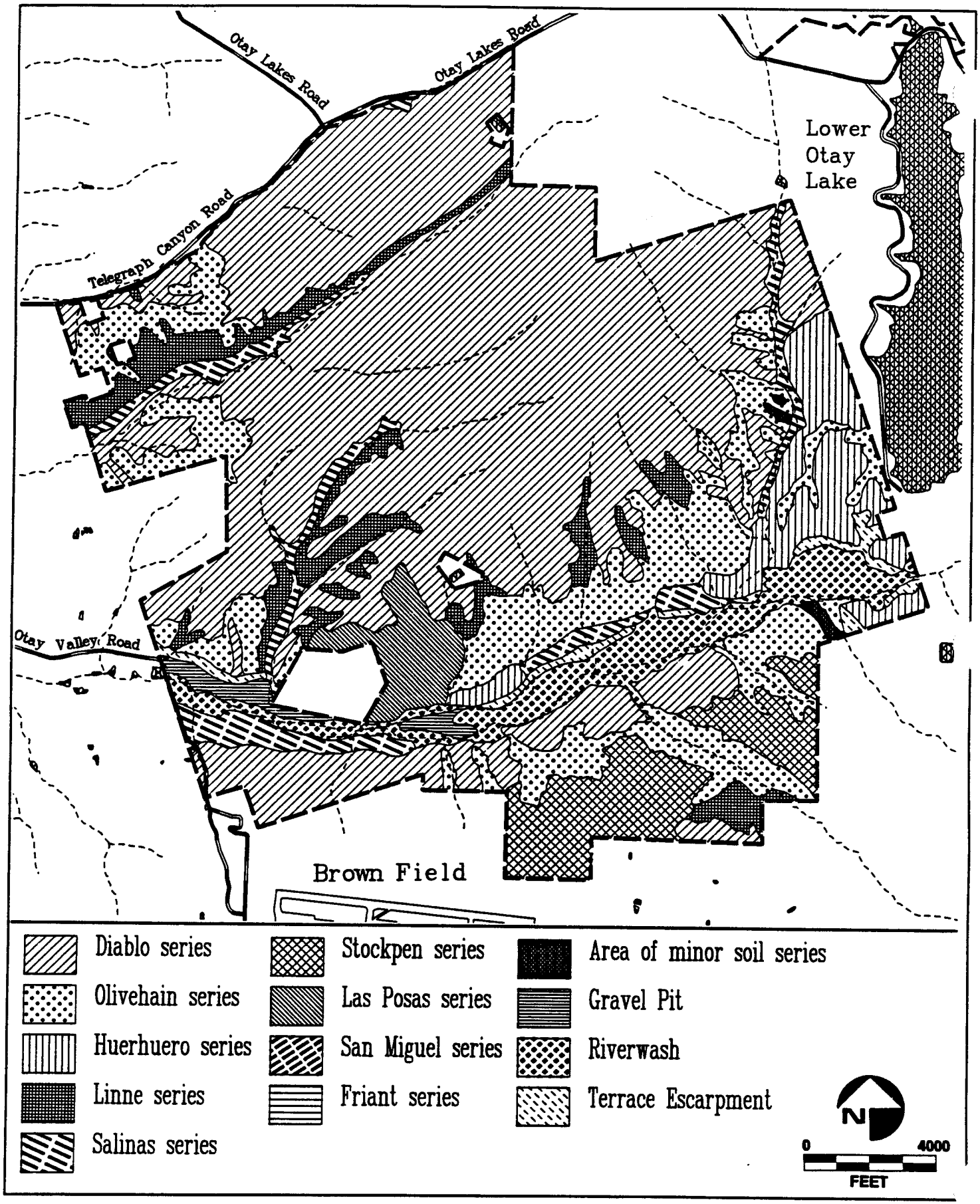
The predominant soil series (more than 1 percent of the project area) are the Diablo clay, Escondido very fine sandy loam, Friant sandy loam, Huerhuero loam, Olivenhain cobbly loam, Riverwash, Salinas clay loam, San Miguel-Exchequer rocky silt, and Stockpen gravelly clay. Other soil series and combinations of soils are present on the property; however, individually they comprise less than 1 percent of the total soil coverage and are not discussed in detail. The major soil series are described in detail below:

- The Diablo series (clay) is primarily found on mesas and ridges in the western portion of the property. Diablo soils are also located along the southern slope of the Otay River Valley. They primarily develop on the Otay Formation and to a lesser extent on the Sweetwater and San Diego formations. Due to the bentonite content of the Otay Formation, this soil has a high shrink-swell potential.

- The Escondido soil series exists on gently rolling to hilly uplands. This soil develops over weathered metamorphic sandstone and consists of very fine sandy loams.

- Friant soils are common in the mountainous eastern portions of the property in the Jamul Mountains, areas of Dulzura Creek, and Sycamore Canyon. Friant soils are composed of sandy loam.

- Huerhuero and Olivenhain soil series are found in drainages associated with the Otay River and along the northern slopes of the Otay River Valley. These two soil series are also present in a large portion of Proctor Valley and occur on fluvial terrace deposits. Mima mounds or broad-based, low hummocky topography are common in Olivenhain and Huerhuero soils. Generally, these



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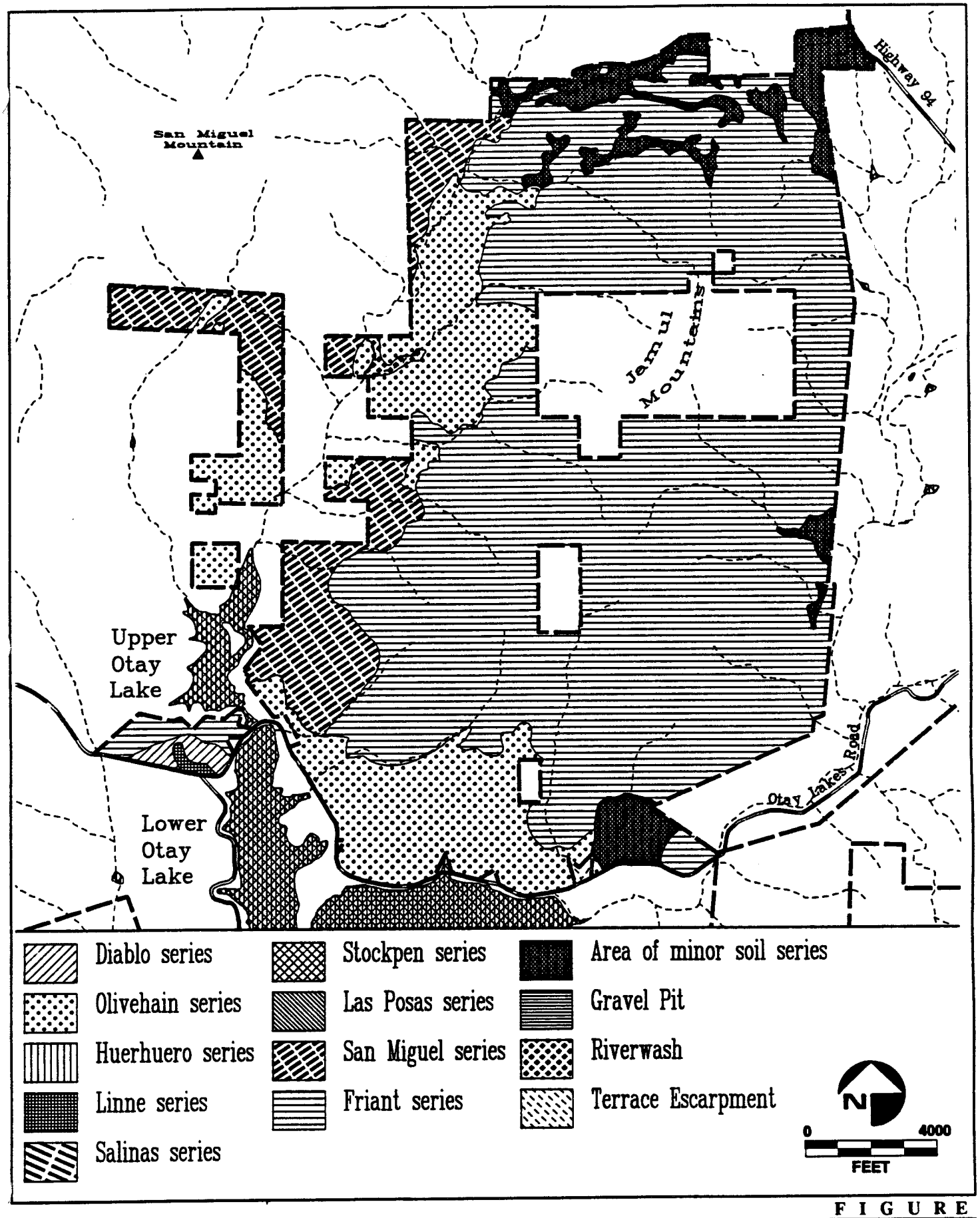
Soils within Otay River Parcel

FIGURE 3.5-3a



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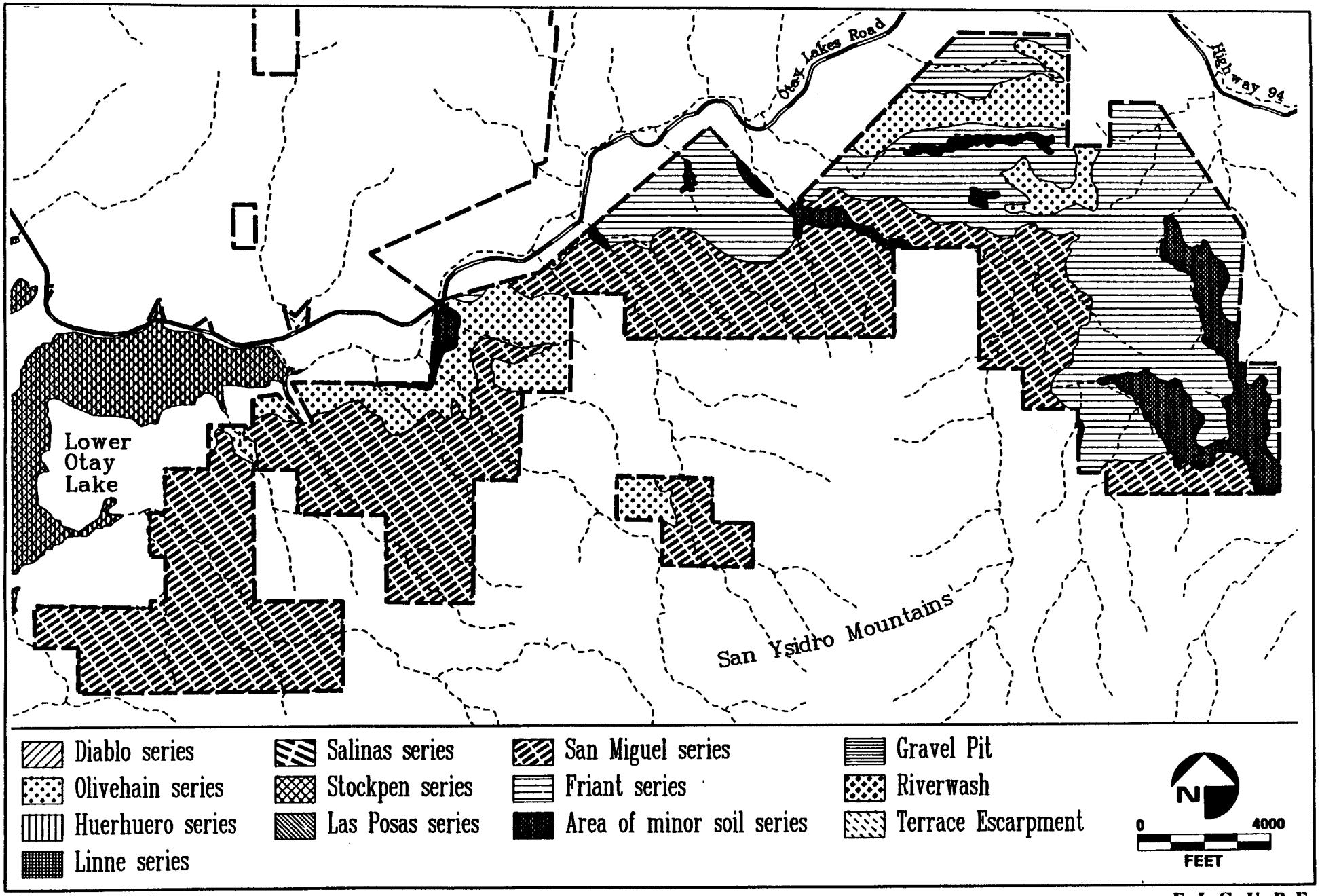
Soils within Proctor Valley Parcel

FIGURE 3.5-3b



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Soils within San Ysidro Parcel

FIGURE 3.5-3c

Table 3.5-4
SOIL ENGINEERING PROPERTIES

Soil Name	Natural Drainage	Sub-Soil Permeability	Runoff Potential	Erosion Susceptibility	Shrink-Swell Potential
Anderson very gravelly sand	Excessive	Moderately rapid to very rapid	Medium to rapid	Moderate to high	Low
Chino fine sandy loam	Well to moderately well	Moderately rapid to moderately slow	Slow to medium	Slight to moderate	Mod.
Cieneba coarse sandy	Moderately well to slow	Rapid to moderately slow	Slow to rapid	Slight to high	Low
Cieneba very rocky coarse sandy	Well to excessive	Moderate to rapid	Medium to very rapid	Moderate to very high	Low
Diablo clay 2–9% slope	Moderate to well	Slow	Slow to medium	Slight to moderate	High
Diablo clay 9–15% slope	Moderate to well	Slow	Slow to medium	Slight to moderate	High
Diablo Olivenhain complex	Moderate to well	Slow	Slow to medium	Slight to moderate	High
Escondido very fine sandy loam 9–15% slope	Moderately well to well	Moderate to moderately rapid	Medium	Moderate	Low
Escondido very fine sandy loam 15–30% slope	Well	Moderate to rapid	Medium to rapid	Moderate to high	Low
Fallbrook sandy loam	Moderately well to excessive	Rapid to moderately slow	Slow to rapid	Slight to high	Mod.
Friant fine sandy loam 30–50% slope	Well to excessive	Moderate to rapid	Medium to very rapid	Moderate to very high	Low
Friant fine sandy loam 9–30% slope	Well to excessive	Moderate to rapid	Medium to very rapid	Moderate to very high	Low

Table 3.5-4 (Continued)
SOIL ENGINEERING PROPERTIES

Soil Name	Natural Drainage	Sub-Soil Permeability	Runoff Potential	Erosion Susceptibility	Shrink-Swell Potential
Friant fine sandy loam 30–70% slope	Well to excessive	Moderate to rapid	Medium to very rapid	Moderate to very high	Low
Huerhuero loam 9–15% slope	Moderately well	Very slow	Slow to medium	Slight to moderate	High
Huerhuero loam 15–30% slope	Moderately well	Very slow	Slow to rapid	Slight to high	High
Las Poscas stony fine sandy loam	Moderately well	Very slow	Medium to very rapid	Moderate to very high	High
Linne clay loam 9–30% slope	Moderately well	Moderately slow	Medium to very rapid	Moderate to high	High
Linne clay loam 30–50% slope	Moderately well to excessive	Rapid to moderately slow	Slow to rapid	Slight to high	Mod.
Metamorphic rock land	—	—	Rapid	High	Low
Olivenhain cobbly loam 2–9% slope	Excessive to moderately well	Very slow to moderately rapid	Slow to rapid	Slight to high	Mod.
Olivenhain cobbly loam 9–30% slope	Excessive to moderately well	Very slow to moderately rapid	Slow to rapid	Slight to high	Mod.
Olivenhain cobbly loam 30–50% slope	Well	Very slow to moderately rapid	Medium to very rapid	Moderate to very high	Mod.
Placentia sandy loam	Moderately well to well	Very slow	Very slow	Slight	High

Table 3.5-4 (Continued)
SOIL ENGINEERING PROPERTIES

Soil Name	Natural Drainage	Sub-Soil Permeability	Runoff Potential	Erosion Susceptibility	Shrink-Swell Potential
Ramona sandy loam	Moderately well to well	—	Slow to medium	Slight to moderate	Mod.
Redding cobbly loam	Excessive to moderately rapid	Very slow to moderately rapid	Slow to rapid	Slight to high	High
Riverwash	—	—	—	—	
Salinas clay loam 0–2% slope	Well to moderate	Moderately rapid	—	Little	Mod.
Salinas clay loam 2–9% slope	Well to moderate	Rapid to moderately slow	Slow to medium	Slight to moderate	Mod.
San Miguel–Exchequer rocky silt	Well	Moderately rapid to slow	Medium to very rapid	Moderate to very high	High
Stockpen gravelly clay	Moderately well	Very slow	Very slow	Slight	High
Stockpen gravelly clay loam 2–5% slope	Moderately well	Very slow	Very slow	Slight	High
Terrace escarpments	—	—	Rapid	High	Var.
Visalia sandy loam 2–5% slope	Well to moderate	Rapid to moderately slow	Slow to medium	Slight to moderate	Low
Visalia sandy loam 5–9% slope	Well to moderate	Rapid to moderately slow	Slow to medium	Slight to moderate	Low
Visalia gravelly sandy loam 2–5% slope	Well to moderate	Rapid to moderately slow	Slow to medium	Slight to moderate	Low

Table 3.5-4 (Continued)
SOIL ENGINEERING PROPERTIES

Soil Name	Natural Drainage	Sub-Soil Permeability	Runoff Potential	Erosion Susceptibility	Shrink-Swell Potential
Visalia gravelly sandy loam 5–9% slope	Well to moderate	Rapid to moderately slow	Slow to medium	Slight to moderate	Low
Vista rocky coarse sandy loam	Well	Very slow to moderately rapid	Medium to very rapid	Moderate to very high	Low
Wyman loam	Well to moderate	Rapid to moderately slow	Slow to medium	Slight to moderate	Mod.

Source: SCS 1973.

soil series are associated with the Sweetwater Formation. The Huerhuero soils have a high shrink-swell potential.

- The Riverwash soil series occurs in intermittent stream channels. It consists of sand, gravel, and cobbles.

- The Salinas soil series occurs over alluvium and fluvial terrace deposits along canyon bottoms and portions of the Otay River Valley. This soil is also present on alluvial fans. It consists of well-drained clay loams.

- The San Miguel-Exchequer soil occurs in mountainous uplands at elevations of 400 to 3,300 feet above msl. It primarily occurs in the San Ysidro Mountains and the western slope of the Jamul Mountains. It consists of rocky, silty loams and has a high shrink-swell potential.

- The Stockpen soil series develops on the mesa surface south of the Otay River Valley. It is associated with the Lindavista Formation. Mima mounds are commonly found on this soil. Stockpen soil consists of deep, gravelly, clayey loams and has a high shrink-swell potential.

3.5.2 Impact Analysis

3.5.2.1 Geologic Impacts

Topography and Geomorphology

Potential topographic impacts include the instability of steeply inclined slopes in the mountain-valley areas. Slope instability is also possible in the coastal plain section where the San Diego and Otay formations comprise slopes with gradients of 15 percent or greater. An analysis relating slope gradient to potentially unstable geologic formations (Otay and San Diego) indicated that 1285 acres of the Otay River and Proctor Valley parcels proposed for development are underlain by slopes with gradients 15 percent or greater underlain by potentially unstable formational materials. Although most grading plans indicate minimum slope gradients of 33 percent (3:1, horizontal to vertical) for cut/fill slopes, a 15 percent slope gradient cutoff was chosen as a conservative measure. The areas underlain by potentially unstable slopes could cause a significant impact.

Lithology

The sedimentary formations comprising the coastal plain section of the project can typically be excavated with conventional grading equipment such as a Caterpillar D-9 dozer or equivalent. Excavation of these materials should not pose a significant impact. However, the Mountain-Valley section of the project is composed of metavolcanic bedrock complexes which may be difficult to excavate with conventional grading equipment and could cause a significant impact.

Seismically Related Hazards

Potential significant impacts related to faulting and seismicity are ground rupture, ground acceleration and associated ground shaking, liquefaction, and landslides.

Ground Rupture

Ground rupture may be possible on the fault which transects Telegraph Canyon in the western portion of the project area. This fault segment is likely part of the potentially active La Nacion fault zone, which could generate a maximum probable earthquake of 6.0 on the Richter scale. Although to date evidence of offset or displacement of Holocene materials is lacking, rupture along this fault segment could cause a significant impact.

Ground Acceleration/Ground Shaking

Ground acceleration and associated ground shaking caused by an earthquake could cause significant impacts to the Otay Ranch area. The most significant probable seismic event likely to impact the proposed development would be an earthquake of Richter magnitude 6.5 (M) on the active Rose Canyon fault located approximately 11 miles northwest of the site (Table 3.5-1). The corresponding Modified Mercalli Scale Earthquake Intensities are VIII to IX. The estimated repeatable high ground acceleration at the site produced by such an event would be 0.18g.

Liquefaction

Based on the relatively dense nature of the onsite formational units and the general absence of a near-surface ground-water table, liquefaction would probably not cause significant impacts to the majority of the Otay Ranch property. However, liquefaction of the unconsolidated alluvial deposits occupying the floors of major canyons could lead to significant impacts.

Tsunamis and Seiches

The potential for impacts due to tsunamis and seiches is not significant. The project area is located inland and is relatively high topographically; therefore, a tsunami is unlikely to affect the project area. A seiche could occur ~~on~~ in Otay Lakes, but the damage would be concentrated along the immediate lake shoreline which is not part of the Otay Ranch project area.

Landslides

Landslides could cause significant impacts within the study area. The bentonite clay of the San Diego and Otay formations represents weak zones which are susceptible to failure and subsequent landsliding. In addition, oversaturation of soil materials from water loading (due to lawn watering, etc.), basal slope erosion, and seismic ground shaking could add to the potential for landslide activation.

3.5.2.2 Soil Impacts

Expansive Soils

Soils with the potential for moderate to high expansion include: Chino fine sandy loam, the Diablo series, Fallbrook sandy loam, Huerhuero series, Linne series, Olivenhain series, Placatia sandy loam, Ramona sandy loam, Redding cobbly loam, Salinas series, Stockpen series, San Miguel-Exchequer, and Wyman loam. These soils comprise 49 percent of the project area under the New Town Plan and could cause a significant impact to foundations.

Erosion

Soils that may be highly susceptible to erosion include: Anderson gravelly sand, Cieneba coarse series, Escondido series, Las Poscas stony fine sandy loam, Linne series, Olivenhain series, Redding cobbly loam, San Miguel-Exchequer, Terrace escarpments, and Vista rocky coarse sand loam. These erosive soils comprise 53 percent of the New Town Plan. The erosive nature of these soils could have a significant impact.

3.5.3 Proposed Mitigation

Site-specific geotechnical studies are necessary prior to construction to specifically evaluate soil conditions and characteristics, areas of potential slope instability, landslides, faults, liquefaction potential, and rippability characteristics. The studies shall be conducted by a qualified geotechnical engineer for the project applicant and shall meet the engineering standards of the City of Chula Vista and the City and County of San Diego. Mitigation measures are discussed below.

3.5.3.1 Geologic Mitigation

Topography and Geomorphology

Impacts related to slope instability shall be mitigated by site-specific geotechnical static and pseudo-static slope stability analyses conducted prior to submittal of tentative maps that will provide input relative to appropriate slope design alternatives. These mitigation measures may include benching, adjusting heights and inclinations of proposed cut and fill slopes, retaining walls, slope protection, and erosion control devices (EIR Proposed).

Lithology

Site-specific geotechnical studies shall be performed prior to submittal of tentative maps to evaluate the rippability characteristics of the onsite earth materials. Such studies could involve seismic refraction surveys and/or drilling. Based on the results of the studies, areas that are not excavatable with conventional grading equipment may require blasting to achieve proposed grades.

Seismically Related Hazards

<u>Ground Rupture</u>

Significant impacts due to ground rupture shall be avoided by not building directly over the fault trace. A site-specific geotechnical study would be necessary at the tentative map level to identify specific fault locations and delineate fault setback zones (as necessary) in accordance with city and county guidelines (EIR Proposed).

<u>Ground Acceleration/Ground Shaking</u>

Potential damage from seismic ground shaking can be mitigated by adhering to the Uniform Building Code, state-of-the-art seismic design parameters of the Structural Engineering Association of California (SEAOC), and applicable local building codes. Such seismic design suggests assuming a design ground acceleration that is equal to two-thirds of the maximum anticipated bedrock acceleration. The design acceleration for the Otay Ranch area is 0.18g (Table 3.5-1). The seismic design parameters, provided as a result of a site-specific geotechnical study, shall be utilized by a qualified structural engineer in the design and construction of the project.

Liquefaction

A qualified geotechnical engineering consultant shall perform an investigation of the site to evaluate the liquefaction potential upon submittal of tentative maps. Where potential for liquefaction is determined to be moderate to high (such as in major tributary canyon bottoms), mitigation measures will include removal and recompaction of loose, unconsolidated soils, vibrofloatation, or dynamic compaction techniques (EIR Proposed).

Tsunamis and Seiches

Impacts from tsunamis and seiches are not considered significant; therefore, mitigation measures are not required.

Landslides

Landslide impacts shall be mitigated by site-specific geotechnical studies on all tentative maps submitted for the project to delineate the limits of slides (i.e., head and toe). Landslides may be completely removed or buttressed during site grading. Care shall be taken to avoid basal erosion of the slopes. Oversaturation and subsequent loading of the soils and sediments (from lawns, etc.) shall be avoided (EIR Proposed).

3.5.3.2 Soil Mitigation

Onsite soils shall be investigated by a qualified geotechnical consultant to evaluate the potential for significant impacts due to erosion and expansion at the tentative map level. Appropriate mitigation measures, such as those provided below, shall be incorporated into the final project design (EIR Proposed).

Erosion

Erosion can be minimized through erosion control measures. During the construction phase, interim measures such as covering exposed graded slopes with visqueen and sandbagging at slope toes shall be implemented. During the operational phase, measures including maintenance of drought tolerant vegetative cover and vegetated buffer zones and appropriate drainage control devices shall be employed (Applicant proposed).

Expansive Soils

Problems related to expansive (shrink-swell) soils shall be mitigated by selective grading and specially designed foundations in compliance with the Uniform Building Code (UBC) (EIR Proposed).

3.5.4 Analysis of Significance

The potential geologic and soils impacts identified above can be mitigated to below a level of significance with the incorporation of the site-specific mitigation measures into the design and construction of the project.

3.6 PALEONTOLOGICAL RESOURCES

3.6.1 Existing Conditions

3.6.1.1 Overview

Paleontological resources (i.e., fossils) are the remains or traces of prehistoric plant and animal life. Fossil remains such as bones, teeth, shells, leaves, etc. are found in the geologic deposits (rock formations) within which they were originally buried. For the purposes of this report, paleontological resources include not only actual fossil remains, but also the collecting localities and geologic formations containing those localities. Paleontological resources thus represent a limited, nonrenewable, and sensitive scientific and educational resource. In California, such resources are protected by CEQA regulations.

There is a direct relationship between fossils and the geologic formations within which they are entombed; therefore, based on the geology of a particular area and the proven fossil productivity of particular rock formations, it is possible to predict the locations of fossils. Thus, a general overview of the geologic setting of the Otay Ranch area provides a foundation for evaluating the paleontological resources within the study area.

The Otay Ranch area covers two distinct geomorphic and geologic provinces: the western foothills of the Peninsular Range Province as exposed east of Lower Otay Lake, and the Coastal Plain Province as exposed west of Lower Otay Lake. This geomorphic division reflects a basic geologic difference between the two regions with Mesozoic metavolcanic and plutonic rocks predominating to the east and Cenozoic sedimentary rocks predominating to the west (Figure 3.6-1). The irregular contact between these two geologic regions is a reflection of ancient topography wherein a mature landscape of hills and intervening valleys carved out of older volcanic rocks was buried beneath a thick cover of younger river and ocean-deposited sedimentary rocks (Kennedy 1975). Rock Mountain, the resistant peak located on the north side of the Otay River Valley, is actually "rooted" at depth to this subsurface ancient terrain and demonstrates the extensive topographic relief of this buried landscape (Figure 3.6-2).

The Coastal Plain Province is underlain by a "layer cake" sequence of sedimentary rock formations deposited under marine and/or nonmarine conditions. Portions of the last 4.5 billion years of the Earth's history are preserved in this sedimentary sequence in the form of both a physical and biological "record."

From oldest to youngest, this sedimentary sequence includes the Mission Valley Formation (approximately 45 million years old [myo]), the Sweetwater Formation (40–43 myo), the Otay Formation (27–28 myo), the San Diego Formation (2–3 myo), and the Lindavista Formation (0.5–1.5 myo).

Following deposition of this "layer cake" sequence, the coastal plain was uplifted to above sea level resulting in the carving of a series of east-west trending canyons and valleys (e.g., Poggi Canyon, Telegraph Canyon, and Otay River Valley) by westward-flowing streams. Subsequent changes in sea level during the Ice Age left a sequence of elevated river terrace deposits along the margins of some of the larger drainages.

3.6.1.2 Methodology

Determination of the paleontological resource potential of the Otay Ranch area was based upon a review of existing environmental documents (Gregg & Associates 1987; Wallace

Roberts & Todd 1988; and JBF & Associates 1989b), published geologic reports (Strand 1962; Weber 1963; Kennedy and Tan 1977; Kuper 1977; Kuper and Gastil 1977; and Scheidemann and Kuper 1979), published paleontological reports (Demere 1983, 1986a, 1988; and Domning and Demere 1984), and museum paleontological locality records (Museum of Paleontology, University of California, Berkeley; Department of Vertebrate Paleontology, Natural History Museum of Los Angeles County; Department of Paleontology, San Diego Natural History Museum).

A field survey of selected portions of the study area was also conducted to examine selected outcrops for fossil remains and to field check information contained in published geological reports. The paleontological resource assessment resulting from this work was then used in combination with the proposed development plans to determine the significance of possible adverse impacts to such resources.

3.6.1.3 Paleontology of Individual Formations

Quaternary Alluvium (Qal)

Introduction. Poorly consolidated stream sediments of relatively recent age are located on the floor of the major east-west drainages as well as the larger north–south tributaries. In general, these deposits were laid down by the streams which presently occupy these drainages.

Paleontology. No fossils from the Quaternary alluvial deposits were observed. None are likely to be found given their relative youthfulness.

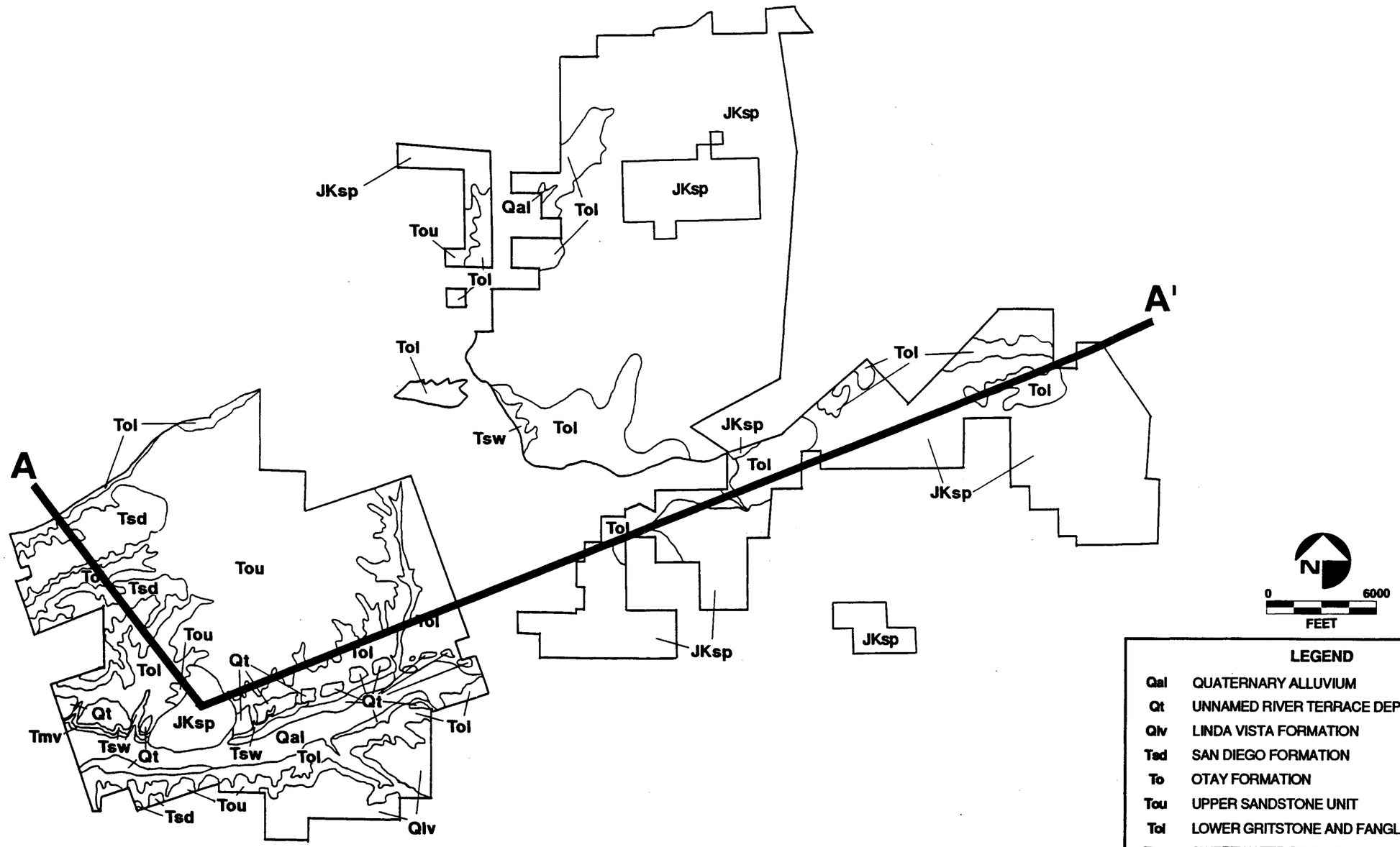
Distribution. Quaternary alluvial deposits occur extensively along the floor of the Otay River Valley, Proctor Valley, Salt Creek, Wolf Canyon, and Poggi Canyon. The thickness of these deposits varies from a few feet in the smaller tributaries, to approximately several hundred feet in the larger valleys.

Resource Sensitivity. The Quaternary alluvial deposits in the study area possess an unknown paleontological resource sensitivity. Fossil discoveries in Quaternary alluvium are rare. It is unlikely that fossils would be discovered within the alluvium; however, it is possible.

Unnamed River Terrace Deposits (Qt)

Introduction. Deposits of coarse-grained gravelly sandstones, pebble and cobble conglomerates, and claystones have been mapped in the Otay River Valley as unnamed river terrace deposits (Kennedy and Tan 1977). The exact age of these deposits is presently uncertain but they are clearly related to late Pleistocene (10,000 to 700,000 years old) climatic events (i.e., Ice Age). As mapped, these terrace deposits represent at least two different periods of deposition. They are grouped together because stratigraphic data are inadequate to differentiate the deposits.

Paleontology. No fossils were observed in these unnamed terrace deposits during the course of field investigations for this report. However, fossils have been collected from similar river terrace deposits exposed north of the study area near Bonita. The Bonita site has produced well preserved remains of pond turtle, passenger pigeon, hawk mole, gopher, squirrel, rabbit, and horse (Chandler 1982). These fossils were recovered from fine-grained sandstones and gravelly claystones representative of a pond setting within the ancestral Sweetwater River Valley (a geologic setting similar to that of the Otay River



LEGEND

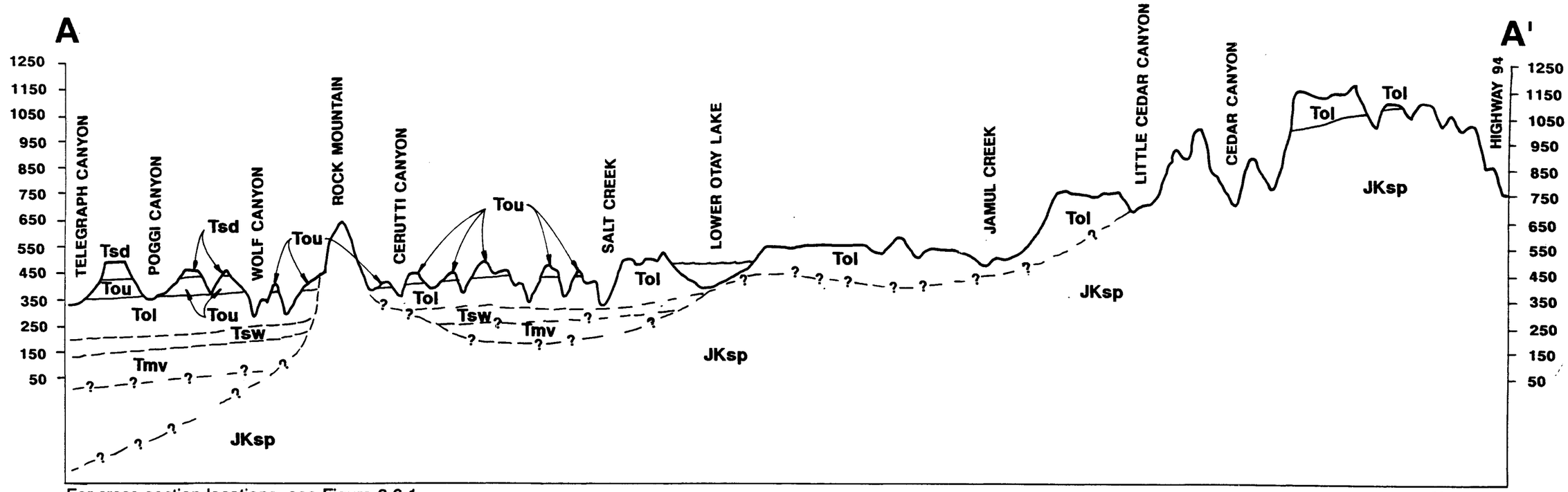
Qal	QUATERNARY ALLUVIUM
Qt	UNNAMED RIVER TERRACE DEPOSITS
Qlv	LINDA VISTA FORMATION
Tsd	SAN DIEGO FORMATION
To	OTAY FORMATION
Tou	UPPER SANDSTONE UNIT
Tol	LOWER GRITSTONE AND FANGLOMERATE UNIT
Tsw	SWEETWATER FORMATION
Tmv	MISSION VALLEY FORMATION
JKsp	SANTIAGO PEAK VOLCANICS

SOURCE: Demeré, 1989

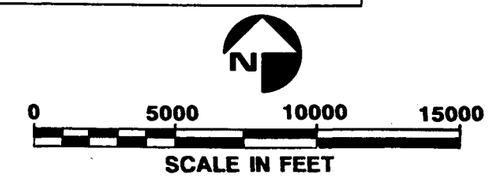
OGDEN

Generalized Site Geology

FIGURE 3.6-1



For cross-section locations, see Figure 3.6-1



LEGEND

Qal	QUATERNARY ALLUVIUM
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Tmv	MISSION VALLEY FORMATION
JKsp	SANTIAGO PEAK VOLCANICS

SOURCE: Demeré, 1989

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Geologic Cross Section

FIGURE 3.6-2

Valley). The Bonita site is the richest known locality in coastal San Diego County for Ice Age mammals (10,000–700,000 years old).

Distribution. Elevated river terrace surfaces are well exposed along both the northern and southern margins of the Otay River Valley. Two surfaces are recognized: an upper surface 300–400 feet above mean sea level (msl) and a lower surface 200–280 feet above msl. The upper surface is underlain by a thin veneer (approximately 15–30 feet) of terrace deposits, while the thickness of deposits forming the lower terrace surface is presently unknown.

Resource Sensitivity. The general coarse-grained nature of these deposits, coupled with the paucity of known fossil occurrences, might suggest a low paleontological resource sensitivity. However, the fact that important vertebrate remains have been collected from at least one site indicates that potentially significant sites may be encountered elsewhere, and thus a moderate resource sensitivity is assigned.

Lindavista Formation (Qlv)

Introduction. The Lindavista Formation (Kennedy 1975) represents a marine-nonmarine terrace deposit of early Pleistocene age (approximately 1–2 myo). Typical exposures of the formation consist of rust-red, coarse-grained, pebbly sandstones and pebble conglomerates. The Lindavista Formation has an average thickness of approximately 20–30 feet and is thought to have been deposited under fluvial and shallow nearshore marine conditions. These deposits accumulated on a flat emergent sea floor during a period of dropping sea levels. The geotechnical report of Gregg & Associates (1987) maps the Lindavista Formation in several portions of the study area north of the Otay River Valley; however, the majority of these reported occurrences represent deposits of the older San Diego Formation (Demere in Dames & Moore 1990c).

Paleontology. No fossils were observed in deposits of the Lindavista Formation within the study area. Outside the study area, fossils have only been recorded in this rock unit in a few locations (e.g., Tierrasanta and Mission Hills). These fossils consisted of poorly preserved remains of nearshore marine invertebrates including clams, scallops, snails, barnacles, and sand dollars (G.L. Kennedy 1973).

Distribution. As recognized in this report, the Lindavista Formation only occurs as a capping veneer on the high mesa surface (above 500 feet in elevation) located between O'Neal Canyon and Brown Field on the south side of the Otay River Valley. As previously mentioned, those areas around Poggi and Wolf canyons mapped by Gregg & Associates (1987) as Lindavista Formation actually represent nearshore deposits of the San Diego Formation.

Resource Sensitivity. The Lindavista Formation in the study area has a low paleontological resource sensitivity.

San Diego Formation (Tsd)

Introduction. The San Diego Formation (Demere 1983) is a marine sedimentary deposit of Pliocene age (approximately 2–3 myo). Typical exposures of this formation consist of yellowish-gray, fine-grained, friable sandstone.

Massive cemented sandstones, poorly-sorted gravels, thin pebble conglomerates, and laminated claystones also occur within this formation. Maximum thickness of the San Diego Formation in the South Bay is approximately 250 feet. Moving east from the vicinity of I-805, the formation is progressively uplifted along faults of the La Nacion fault

system resulting in a thinning of the formation to less than 80 feet on Otay Ranch. The formation is thought to have been deposited in an open marine embayment similar in size and shape to modern day Monterey Bay.

Paleontology. Fossils were observed in exposures of the San Diego Formation within the study area. These fossils were found in yellowish sandstone outcrops exposed in Poggi Canyon where the ranch road crosses the valley floor. Observed fossils consisted of poorly preserved remains of ship worms, clams, snails, and sand dollars. Gregg and Associates (1987) reported the occurrence of fossil clams in the San Diego Formation from the ridge separating Wolf and Poggi canyons. These fossils were encountered in a geotechnical borehole (SB-3) at a depth of 47 feet below ground level.

San Diego Formation fossils are generally rather poorly preserved when found in long established artificial or natural exposures. This is primarily due to the destructive processes of weathering. In contrast, beautifully preserved fossils have been collected from the San Diego Formation in areas where construction-related excavations have created fresh, unweathered exposures.

The San Diego Formation, as exposed in residential areas north of Telegraph Canyon, is well known for its rich fossil beds which, over the past nine years, have yielded extremely important fossil remains of many types of marine invertebrates (clams, scallops, snails, crabs, barnacles, and sand dollars) and marine vertebrates (sharks, rays, bony fishes, sea birds, walrus, fur seal, sea cow, dolphins, and baleen whales). Based primarily upon discoveries made in Chula Vista (Demere 1983; Domning and Demere 1984; Demere 1986a), the San Diego Formation is now considered to be the richest source of late Pliocene marine vertebrates in North America. In addition, rare remains of terrestrial mammals including sloth, cat, mastodon, camel, deer, peccary, and horse have also been recovered from the formation. Rounding out this fossil record is the occurrence of fossil trees and leaves including remains of pine, oak, laurel, cottonwood, and avocado (Axelrod and Demere 1984).

Distribution. The San Diego Formation underlies the numerous western ridges of the Mesa Region between Telegraph Canyon and the Otay River Valley. The formation thins to the east, "pinching out" in the vicinity of the main ranch buildings on the ridge separating Wolf and Poggi canyons.

Resource Sensitivity. Because of its fossil productivity, the San Diego Formation is considered to possess a high paleontological resource sensitivity.

Otay Formation (To)

Introduction. The Otay Formation is primarily a non-marine sedimentary rock unit of late Oligocene age (approximately 27 myo). Typical exposures consist of gray-white, medium-grained, tuffaceous sandstone. Brown and red-brown claystones also occur in the formation as do white to pink waxy bentonites (Schiedeman and Kuper 1979). Based upon recent paleontological and geological field work in the Chula Vista, Otay Ranch, and Otay Mesa areas, the Otay Formation is now considered to also include the tan gritstones and cobble to boulder fanglomerates formerly placed in the underlying Sweetwater Formation. This new arrangement is partly in keeping with the work of Kennedy and Tan (1977), but also reflects the recent discovery of "typical" Otay Formation fossils in the gritstones exposed in Telegraph Canyon. As recognized in this report, the Otay Formation consists of a basal cobble to boulder fanglomerate which grades upward and westward into the tan gritstone unit which in turn grades upward and westward into the "typical" Otay Formation white sandstone unit.

East of Rock Mountain, the formation is nonmarine, having been deposited in a river channel and floodplain setting. Isolated patches of the fanglomerate between Little Cedar Creek and Sycamore Canyon represent remnants of the ancient river channel.

To the west, the formation is predominantly sandstone and contains numerous bentonite deposits suggesting deposition under marginal marine conditions. The abandoned bentonite mines on the north side of the Otay River Valley west of Otay Ranch quarried these marine bentonites (Cleveland 1960).

Paleontology. No fossils were observed in the Otay Formation during the field investigations conducted for this report. This is not surprising considering that fossils were unknown from the Otay Formation prior to initial construction of the EastLake community development located between the Otay Mesa and Proctor Valley regions of the study area (Demere 1986b). During the mass excavation phase of this development, well preserved remains of a variety of terrestrial vertebrates were salvaged from the Otay Formation including remains of lizards, snakes, tortoises, birds, shrews, rodents, rabbits, dogs, foxes, rhinos, camels, mousedeer, and oreodonts (Demere 1988). Based on these recent discoveries, the Otay Formation is now considered to be the richest source of late Oligocene terrestrial vertebrates in California.

Distribution. The Otay Formation is exposed throughout the Otay Mesa and Proctor Valley regions of the study area. The lower fanglomerate portion of the formation is exposed extensively in the area around Lower Otay Lake, as well as in patches along the north side of the San Ysidro Mountains as far east as Sycamore Canyon.

Resource Sensitivity. The upper sandstone portion of the Otay Formation has produced extremely important vertebrate fossil remains and is considered to possess a high paleontological resource sensitivity. The lower gritstone and fanglomerate portions of the formation have produced vertebrate fossils from only a few localities and are assigned a moderate resource sensitivity.

Sweetwater Formation (Tsw)

Introduction. The Sweetwater Formation is a nonmarine rock unit of late Eocene age (approximately 40–43 myo). The Sweetwater Formation in the study area consists primarily of reddish-brown massive mudstones. In the Otay River Valley, these mudstones become sandy and take on a greenish mottled color. Scheidemann and Kuper (1979) include the tan gritstones and fanglomerates of the Otay Formation together with these red mudstones in their concept of the Sweetwater Formation. However, as previously mentioned, recent paleontological work in the Chula Vista area has shown that these gritstones contain the same vertebrate fossils as the overlying white sandstones of the "typical" Otay Formation. In addition, paleontological work in the Bonita Long Canyon area of eastern Chula Vista has documented the occurrence of late Eocene terrestrial mammals in the red mudstones of the Sweetwater Formation. The age difference between the two rock units is thus at least 12 million years. The Sweetwater Formation mudstones were most likely deposited in a river channel setting. Some exposures of the formation may represent ancient soils.

Paleontology. No fossils are currently known to exist in the Sweetwater Formation mudstones within the study area. However, as previously mentioned, vertebrate fossils have recently been recovered in the formation in Bonita Long Canyon. As is often the case, these fossils were collected during construction-related excavation operations.

Distribution. The Sweetwater Formation is exposed in only a few places within the study area. The best exposures are along the north side of the Otay River Valley at the mouth of Wolf Canyon and at the mouths of the various unnamed canyons between Rock Mountain and Salt Creek. The Sweetwater Formation mudstones are also exposed in low roadcuts along the section of Otay Lakes Road between the dam at Upper Otay Lake and the eastern arm of Lower Otay Lake. A few outcrops were also seen in the upper part of Proctor Valley.

Resource Sensitivity. The Sweetwater Formation can be considered to have a high paleontological resource sensitivity.

Mission Valley Formation (Tmv)

Introduction. The Mission Valley Formation in the Mission Valley area (Kennedy and Moore 1971) is a gray, fine-grained, marine sandstone of middle Eocene age (approximately 45 myo). In the Chula Vista area, Kuper (1977) and Kennedy and Tan (1977) have applied the name Mission Valley Formation to a primarily nonmarine sequence of interbedded coarse-grained sandstones, red-brown claystones, and dark brown bentonites. Based on more recent field work, the Mission Valley Formation in the study area is now considered to consist only of gray medium-grained sandstones which become red-stained near their upper contact with the red mudstones of the overlying Sweetwater Formation. Kennedy and Tan (1977) included the red mudstones of the Sweetwater Formation in their concept of the Mission Valley Formation. Nowhere in the study area is the base of the Mission Valley Formation exposed; therefore, its true thickness is unknown. However, along the north side of the Otay River Valley, the formation is at least 30 feet thick.

Paleontology. No fossils were observed in the limited exposures of the Mission Valley Formation in the study area. Kuper and Gastil (1977) reported the occurrence of poorly preserved molds and casts of marine mollusks from exposures in the lower portion of the formation in the South Bay. In contrast, exposures of the Mission Valley Formation in the San Diego area have produced well preserved marine invertebrate fossils (clams, snails, crabs, sharks, and bony fishes; Kern 1978). In the La Mesa area, important fossil remains of early land mammals (e.g., primates, shrews, rodents, and grazing mammals) have been recovered from the formation (Golz and Lillegraven 1977). The lack of fossil recovery from this formation in the study area is largely due to the lack of good unweathered exposures from which to collect specimens. It is predicted that fossils will be found when this formation is "opened up" by future mass excavation projects.

Distribution. Rocks mapped as the Mission Valley Formation occur only in the Otay River Valley area at the mouth of Wolf Canyon.

Resource Sensitivity. The Mission Valley Formation in the study area, although presently without known paleontological resources, has a potential for yielding remains of important Eocene land mammals. It is important to recall that prior to construction activities at EastLake, the Otay Formation was also considered to be unfossiliferous. It is now known that the Otay Formation contains extremely important land mammal fossils. If fossils are eventually discovered in the Mission Valley Formation, they would also be very important. Based on this review, the Mission Valley Formation is considered to have a moderate paleontological resource sensitivity.

Santiago Peak Volcanics (JKsp)

Introduction. The name "Santiago Peak Volcanics" has been applied in the San Diego area (Kennedy 1975) to a complex sequence of slightly metamorphosed volcanic and marine sedimentary rocks of presumed late Jurassic age (approximately 140 myo). Recent radiometric analysis of these rocks by researchers at San Diego State University suggests an early Cretaceous age (approximately 128 myo). Field reconnaissance for this report examined exposures of the Santiago Peak Volcanics at Rock Mountain in Proctor Valley, and in the San Ysidro Mountains adjacent to Lower Otay Lake. The exposures consist primarily of dark green volcanic breccias and greenstones with some dacitic flow rock. Metasediments were observed only in the Proctor Valley area, where silicified sandstones and argillites are exposed as localized "pockets" within an area dominated by outcrops of volcanic breccia. The discovery of these metasediments is important as they have not previously been reported south of Del Mar. The metavolcanics are thought to have been deposited as a thick pile of volcanic flow and pyroclastic rocks produced in an island arc setting similar to that of the modern-day Japanese Islands. The metasediments are thought to have been deposited under marine conditions around the margins of these ancient volcanic islands (Kennedy 1975). Metamorphism of the sedimentary and volcanic rocks began during the early Cretaceous period (approximately 110 myo) with intrusion of the granitic rocks of the Southern California Batholith.

Paleontology. Because of the "fiery" origin of volcanic rocks, no fossils are expected to be found in the metavolcanic portion of the Santiago Peak Volcanics. Exposures of the metasediments (in Los Peñasquitos Canyon and La Zanja Canyon, City of San Diego), however, have produced rare fossil remains of several types of marine invertebrates including belemnites (extinct squid-like animals) and clams (Jones and Miller 1982). A single, poorly preserved belemnite specimen was observed in the metasediments exposed in Proctor Valley.

Distribution. The Santiago Peak Volcanics are extensively exposed throughout the Jamul Mountains and San Ysidro Mountains areas. An isolated outlier of these ancient rocks also occurs at Rock Mountain on the north side of the Otay River Valley east of Wolf Canyon.

Resource Sensitivity. The metavolcanic portion of the Santiago Peak Volcanics is considered to have no paleontological resource sensitivity. The metasedimentary portion of the formation has a low resource sensitivity.

3.6.2 Impact Analysis

The paleontological sensitivity of a geologic formation is directly related to the significance of the fossils it contains. Therefore, formations containing highly significant paleontological resources are considered to be highly sensitive to adverse environmental impacts. Using the following guidelines (Grissold E. Petty, Acting Director of the Bureau of Land Management 1978), a paleontologic resource is of significant, scientific, and educational value if it:

- Provides important information on the evolutionary trends among organisms, relating living inhabitants of the earth to extinct organisms
- Provides important information regarding development of biological communities or interaction between botanical and zoological biotas
- Demonstrates unusual or spectacular circumstances in the history of life

- Is in short supply and in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and is not found in other geographic locations

- All vertebrate fossils have been categorized as being of significant scientific value

Levels of Sensitivity

The following levels of sensitivity are based in part upon the above criteria and in part on criteria developed by Engineering-Science (1988). These levels are rated for individual formations, since it is the formation that contains the fossil remains (Figure 3.6-3).

High Sensitivity. Formations with a large number of known fossil localities either within or outside the study area. Generally speaking, highly sensitive formations primarily produce vertebrate fossil remains or are considered to have the potential to produce such remains.

Moderate Sensitivity. Formations with a moderate number of known fossil localities from either within or outside the study area. Generally speaking, moderately sensitive formations primarily produce invertebrate fossil remains in high abundance or vertebrate fossil remains in low abundance.

Low Sensitivity. Formations with only a low number of known fossil localities from either within or outside the study area. Typically, low sensitivity formations primarily produce invertebrate fossil remains in low abundance.

Unknown Sensitivity. Formations in which there are presently no known paleontological resources, but which have the potential for producing such remains based on their sedimentary origin.

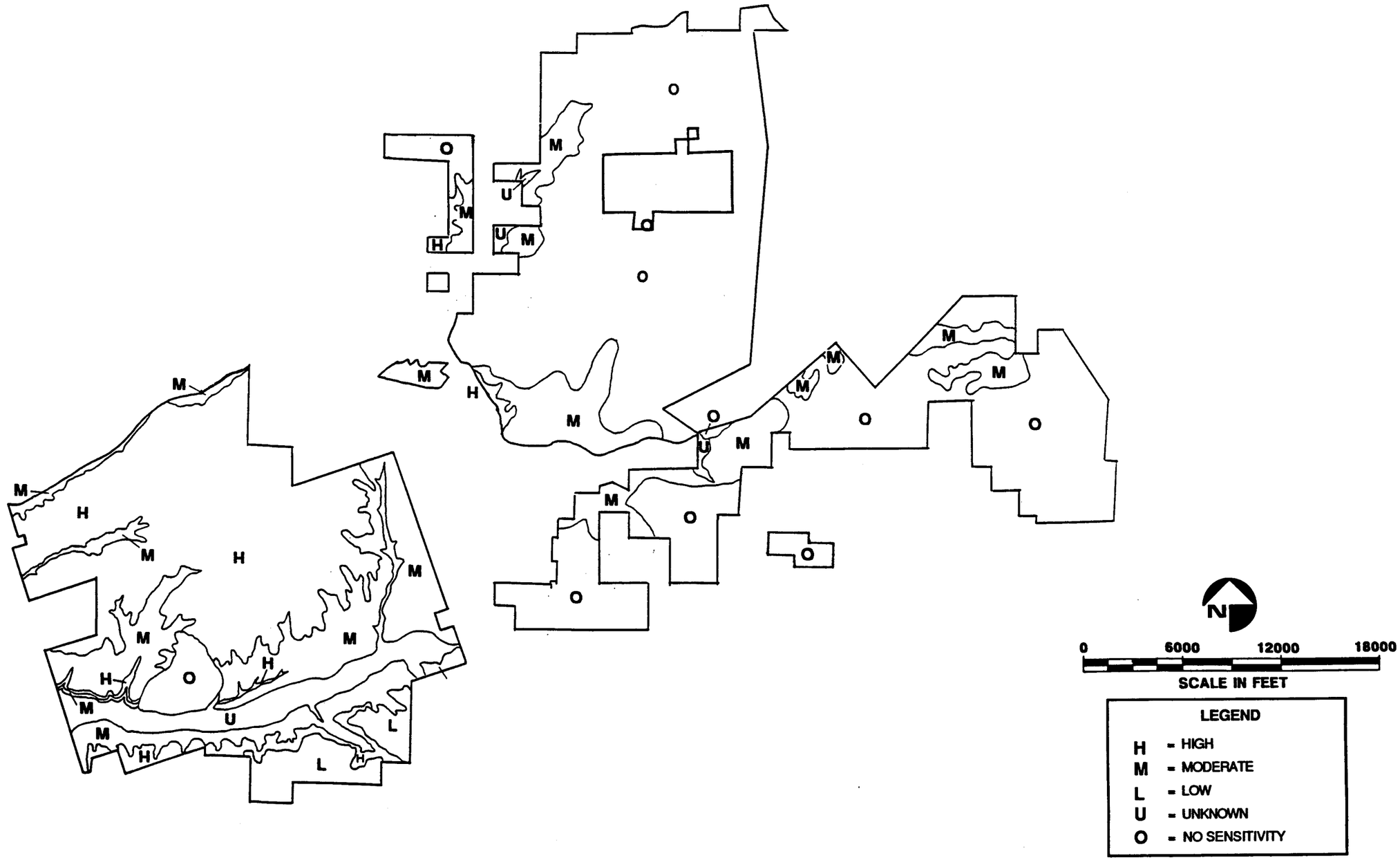
No Importance (Zero Sensitivity). Formations which are igneous in origin (i.e., volcanic or plutonic) and which therefore have no potential for ever producing fossil remains.

Significance Criteria

Impacts to paleontological resources can be rated from high to low depending upon the resource sensitivity of impacted formations.

- High significance – Impacts to highly sensitive formations
- Moderate significance – Impacts to moderately sensitive formations
- Low significance – Impacts to low sensitivity formations
- Unknown significance – Impacts to formations with unknown sensitivity
- No significance – Impacts to formations with no resource sensitivity

Impacts to paleontological resources most often occur when earthwork activities, such as mass excavation projects or pipeline trenching operations, cut into geological deposits (formations) within which fossils are buried. These impacts are generally in the form of physical destruction of fossil remains. Other impacts might include burial of a fossiliferous locality by fill operations, casual fossil collecting by amateur collectors, or heavy landscaping of park areas.



SOURCE: Demeré, 1989

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Paleontological Sensitivity

FIGURE 3.6-3

Otay River Parcel

Development proposed for this parcel would involve considerable construction. Such construction typically requires large-scale mass excavation work which, if done in areas with highly sensitive paleontological resources, would result in significant impacts. Since the majority of the Mesa Region is underlain by either the San Diego or Otay formations, significant impacts are anticipated. The few areas slated for inclusion in open space would preserve some portions of these formations (e.g., Salt Creek, Wolf Canyon, and Poggi Canyon).

Proctor Valley Parcel

Development proposed for this parcel would include open space with limited construction. The majority of this region (Jamul Mountains) is underlain by rocks with no resource sensitivity. Exceptions are areas immediately adjacent to Proctor Valley Road and areas along Otay Lake Road north of Lower Otay Lake. These areas are underlain by highly sensitive formations (e.g., Otay and Sweetwater formations). These are, however, the areas where extensive construction is planned. Significant impacts would result from this residential construction, while development of most of the Jamul Mountains would not result in significant impacts.

San Ysidro Parcel

Planned development of this parcel involves large areas of open space or parkland. The majority of these open space areas are underlain by rocks with no resource sensitivity; such development would thus have no significant impacts. Moderately sensitive formations underlie a limited portion of this region, and that portion is slated for construction. Impacts of moderate significance are expected there.

An analysis of the potential disturbance of the paleontologically sensitive rock formations found onsite was completed for the proposed project. The New Town Plan, as proposed, would result in the disturbance of approximately 737 acres of the highly sensitive San Diego Formation, approximately 3,201 acres of the highly sensitive Otay Formation, approximately 3,438 acres of the highly sensitive Sweetwater Formation, and approximately 14 acres of the moderately sensitive Mission Valley Formation. Total disturbance to high and moderate sensitivity formations would be approximately 7,390 acres. The majority of the disturbance would occur on the Otay River parcel.

3.6.3 Proposed Mitigation

Impacts to paleontological resources can be mitigated by the measures outlined below. As indicated in the Otay Ranch Resource Management Plan Polices, all mitigation work shall be done by a qualified professional paleontologist with a working knowledge of the Chula Vista/Otay Mesa area.

1. Prior to issuance of development permits, the applicant shall confirm to the City of Chula Vista or the County of San Diego that a qualified paleontologist has been retained to carry out an appropriate mitigation program. (A qualified paleontologist is defined as an individual with a M.S. or Ph.D. in paleontology or geology who is familiar with paleontological procedures and techniques.) The paleontologist shall attend pre-grade meetings to consult with grading and excavation contractors. (EIR proposed)

2. A paleontological monitor shall be onsite at all times during the original cutting of previously undisturbed sediments of highly sensitive geologic formations (i.e., San Diego, Otay, and Sweetwater formations) to inspect cuts for contained fossils. (A paleontological monitor is defined as an individual who has experience in the collection and salvage of fossil materials.) The paleontological monitor shall work under the direction of a qualified paleontologist. The monitor shall be onsite on at least a half-time basis during the original cutting of previously undisturbed sediments of moderately sensitive geologic formations (i.e., unnamed river terrace deposits and the Mission Valley Formation) to inspect cuts for contained fossils.

   The monitor shall be onsite on at least a quarter-time basis during the original cutting of previously undisturbed sediments of low sensitivity geologic formations (i.e., Lindavista Formation and Santiago Peak Volcanics [metasedimentary portion only]) to inspect cuts for contained fossils. He or she shall periodically (every several weeks) inspect original cuts in deposits with an unknown resource sensitivity (i.e., Quaternary alluvium).

   In the event that fossils are discovered in unknown, low, or moderately sensitive formations, it may be necessary to increase the per-day field monitoring time. Conversely, if fossils are not discovered, the monitoring should be reduced. A paleontological monitor is not needed during grading of rocks with no resource sensitivity (i.e., Santiago Peak Volcanics, metavolcanic portion). (EIR proposed)

3. When fossils are discovered, the paleontologist (or paleontological monitor) shall recover them. In most cases, this fossil salvage can be completed in a short period of time. However, some fossil specimens (such as a complete whale skeleton) may require an extended salvage time. In these instances, the paleontologist (or paleontological monitor) shall be allowed to temporarily direct, divert, or halt grading to allow recovery of fossil remains in a timely manner. Because of the potential for the recovery of small fossil remains such as isolated mammal teeth, it may be necessary in certain instances to set up a screen-washing operation on the site. (EIR proposed)

4. Prepared fossils along with copies of all pertinent field notes, photos, and maps shall be deposited (with the applicant's permission) in a scientific institution with paleontological collections such as the San Diego Natural History Museum. A final summary report shall be completed which outlines the results of the mitigation program. This report shall include discussions of the methods used, stratigraphy exposed, fossils collected, and significance of recovered fossils. (EIR proposed)

5. Impacts to areas not planned for mass excavation operations (i.e., open space and parklands) shall be mitigated by setting aside certain portions of these areas as paleontological/geological preserves. Such areas might include the small north–south canyon just east of Rock Mountain on the north side of the Otay River Valley, the mesa surface between Johnson and O'Neal canyons on the south side of the Otay River Valley, the small canyon just west of where the ranch road crosses Poggi Canyon, and the ridge top northeast of the mouth of Little Cedar Canyon. These areas shall serve as both educational and scientific resources for future generations. (EIR proposed)

3.6.4 Analysis of Significance

The significance of impacts to paleontological resources would depend upon the paleontological resource sensitivity of individual affected formations. Implementation of the proposed mitigation measures would reduce impacts to below a level of significance.

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3.7 AGRICULTURAL RESOURCES

3.7.1 Existing Conditions

3.7.1.1 Historical Agricultural Uses

Agricultural use of the site prior to the 1850s consisted of dry farming, as well as cattle and sheep grazing. Crop production was limited to hay and grains due to the limited availability of water in the vicinity. The Otay Dam was completed in 1898 to be later rebuilt following the flood of 1916 and renamed the "Savage Dam." The dam provided irrigation water which allowed for the continuous use of land for farming and grazing. Between 1950 and 1960, the agricultural products from the property were primarily grains and lima beans. Water was also provided to the property through the San Diego aqueduct, completed in the 1920s. The aqueduct traversed the northwest portion of the property, near Poggi Canyon (JBF Associates 1989).

Availability of water to the mesa and the introduction of truck farming in the 1960s enabled the cultivation of tomatoes. Portions of the site have historically produced some of the highest yields of tomatoes in the county's history. A review by JBF & Associates in 1989 of past agriculture reports for the Otay Mesa area indicates that the following crops were grown on the property from Otay River Valley north towards Telegraph Canyon Road (Sixtus 1991) during the 1960s.

1960s Agricultural Use of the Site

barley and oats	1,000 acres
tomatoes	3,000 acres
celery	850 acres
cucumbers	200 acres
lettuce	100 acres
bell peppers	50 acres

Barley was also grown near the Otay Lake and Dulzura Area. With the rising cost of water in the mid-1970s, irrigated cultivation of row crops ceased on the property. Non-irrigated barley production, as well as cattle grazing, has continued on the property since that time.

3.7.1.2 Existing Agricultural Uses

The entire Otay River parcel has historically been used, and is currently being used, for some form of agriculture. The upland areas of the western portion of the ~~site~~ parcel are currently used for small grain production (barley) and beef-cattle grazing, while portions of land near the northwest part of the Otay River parcel are used as rangeland for cattle. In 1989, wheat and barley cultivation and cattle grazing were restricted from certain areas of the project site to minimize impacts to cultural and biological resources. An agricultural management map was prepared by the project applicant delineating those areas within the Otay Ranch property restricted from agricultural use. Based on this map, the following agricultural uses are known to occur within the Otay River, Proctor Valley, and San Ysidro parcels.

Cattle grazing is currently allowed throughout the Otay River parcel, the Proctor Valley parcel, and the eastern portion of the San Ysidro parcel. Wheat and barley cultivation occurs along the Otay River and in areas north of the river within the Otay River parcel. No cultivation activity is allowed in the Proctor Valley and San Ysidro parcels (Agricultural Management Map 1990). The main headquarters for the operating ranch, referred to as the

Otay Ranch operations center, are located in the western portion of the site off Telegraph Canyon/Otay Lakes Road. Figure 3.7-1 shows the locations of existing agricultural activities occurring throughout the site, as determined by Baldwin's agricultural management map.

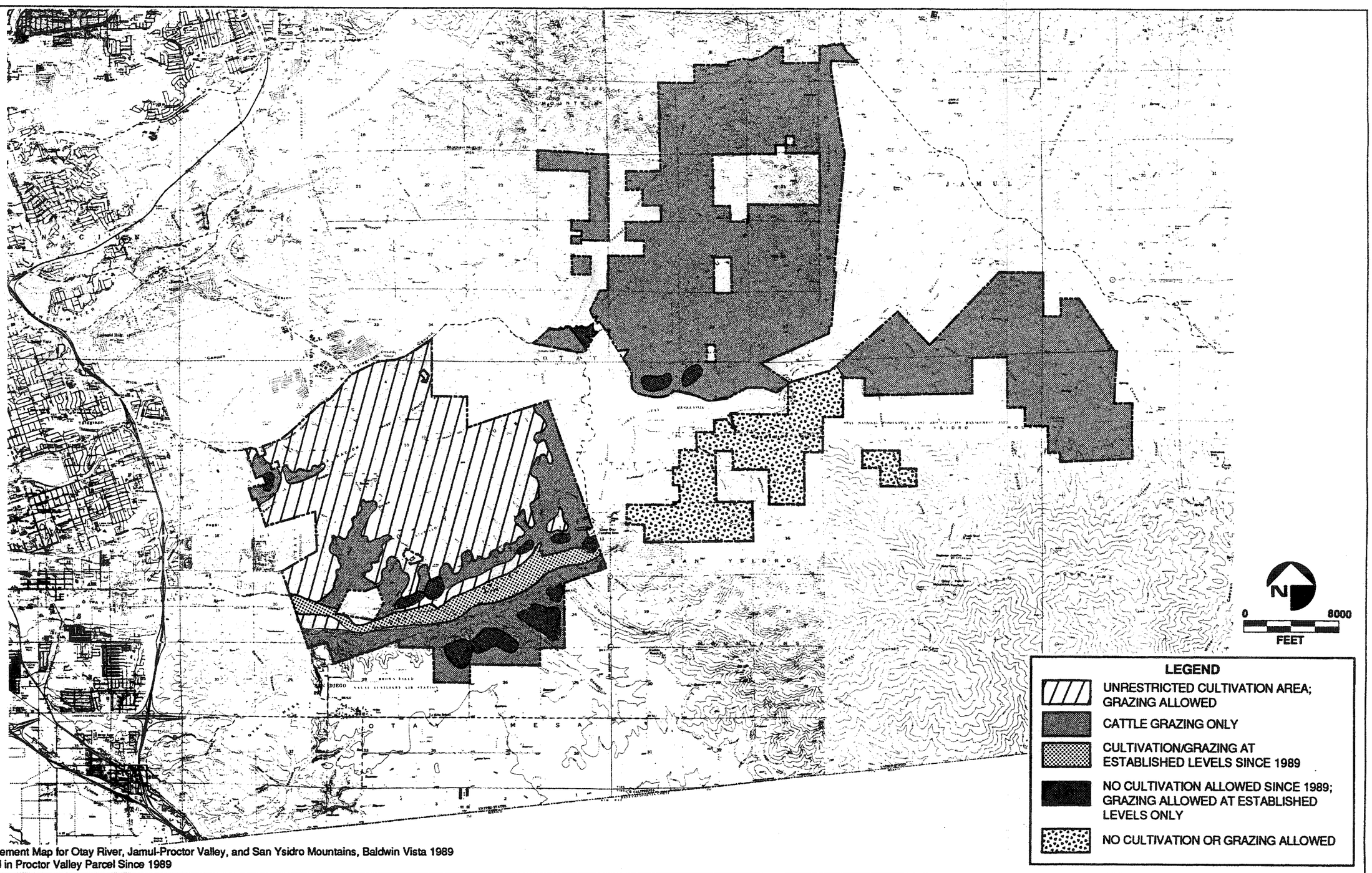
In recent years, agricultural use within the project area has greatly decreased due to various factors. One factor contributing to the conversion of farmland into urban uses is the increase of property taxes which often exceeds farm income. Another important factor that adds to rising farming costs is the high cost of importing water for irrigation from the Colorado River. Water costs in the project area have doubled in the past 10 years; water for agricultural uses in the southern region costs approximately $600/acre-foot (JBF Associates 1989) while in 1982, water for agricultural uses cost $300/acre-foot. A wide variety of agricultural activities previously located in San Diego County have shifted to areas south of the border where water, labor, and energy costs are lower. Coastal dependent crops such as tomatoes and cucumbers use approximately the same volume of water per acre as does residential development at a density of 5-6 du/acre. In addition to the high cost of importing water for agricultural uses, an adequate water storage supply is needed since agriculture is the first use to have its water cut off during severe drought conditions because it is considered an "interruptable user" (OWD 1992). Water for urban uses is perceived to be more economically viable given the present economic and taxation system, which encourages intensification of uses to create additional economic activity and thus provide higher employment levels (San Diego Coastal Regional Commission Report 1974).

Soil Suitability for Agriculture

The United States Department of Agriculture, Soil Conservation Service (SCS) has published a soil survey for the San Diego area which is used by the County of San Diego in determining the location and significance of Prime Farmland in the county. The SCS Important Farmlands Inventory designates three separate agricultural categories on the basis of soil properties: Prime Farmland, Statewide Important, and Local Important Farmland. These categories are based on the soils' physical and chemical characteristics as described further below. These classifications were adapted for California agriculture by the California Department of Food and Agriculture (CDFA) in 1981.

The California Department of Conservation (CDC) established the Farmland Mapping and Monitoring Program (FMMP) in 1982 to carry on the Important Farmland mapping efforts initiated in 1975 by the U.S. Department of Agriculture (USDA), Soil Conservation Service (SCS). The intent of the USDA was to map and categorize the nation's farmland. As part of this nationwide agricultural land use mapping effort, the USDA developed a series of definitions known as the Land Inventory and Monitoring (LIM) criteria.

These definitions evaluated the land's suitability for agricultural production, rather than solely reflecting the physical and chemical characteristics of soils or merely land use. Important Farmland maps are derived from SCS soil survey maps using LIM criteria. Since the County of San Diego uses the SCS method of soil survey to determine the location and significance of agricultural land in the county, the location of Prime, Statewide, and Local Important Farmland on the Otay Ranch site has been mapped according to SCS's criteria. Important Farmland Inventory designations are described below and illustrated in Figure 3.7-2a-c. Table 3.7-1 indicates the agricultural suitability of soil types (Prime, Statewide, or Local Importance) and the amount located onsite.

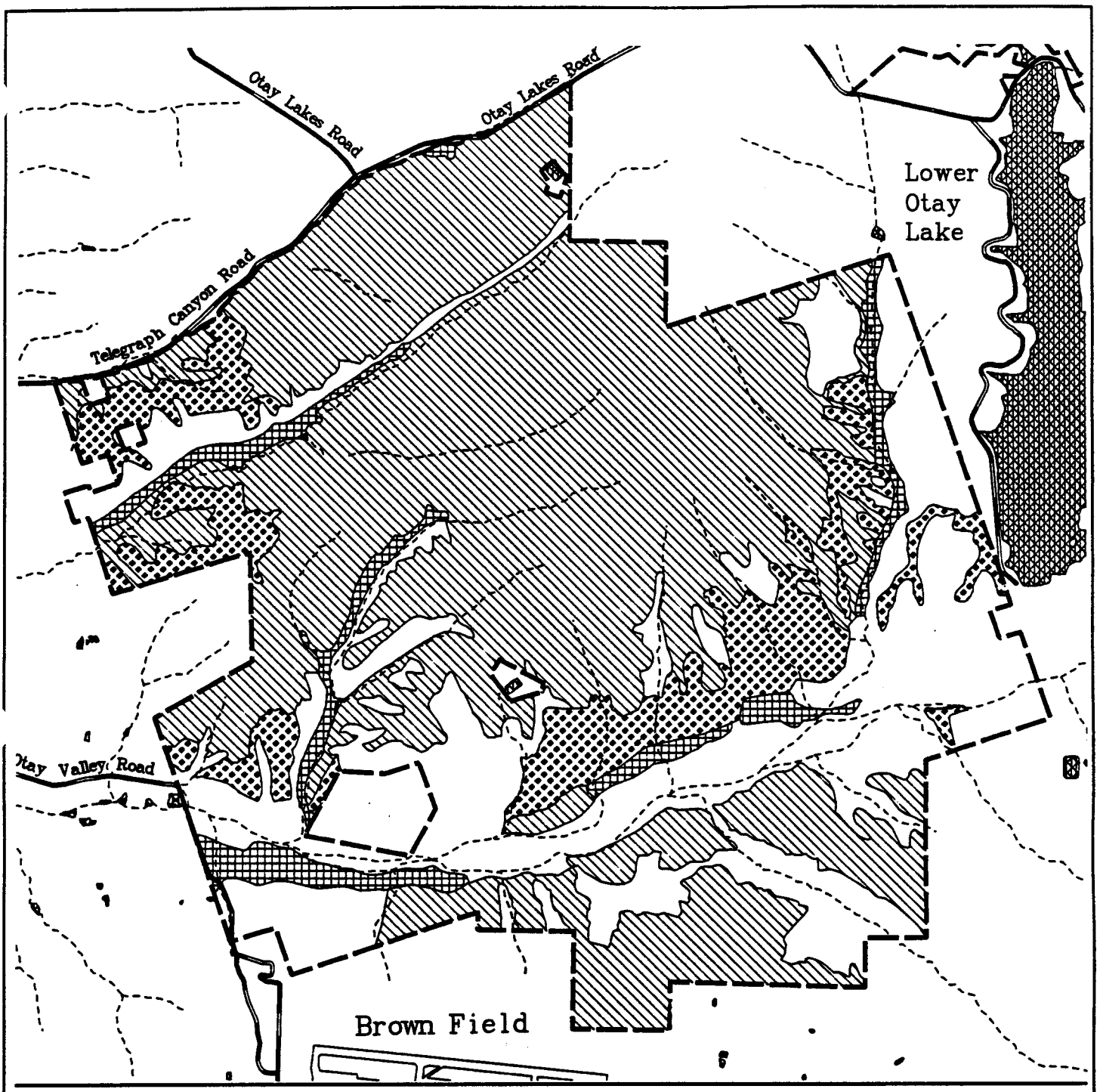


SOURCE: Agricultural Management Map for Otay River, Jamul-Proctor Valley, and San Ysidro Mountains, Baldwin Vista 1989
NOTE: No Cultivation Allowed in Proctor Valley Parcel Since 1989

OGDEN

Existing Agricultural Activity on Project Site

FIGURE 3.7-1



Prime Agricultural Soils

Statewide Farmland Importance

Local Farmland Importance

N

0 4000

FEET

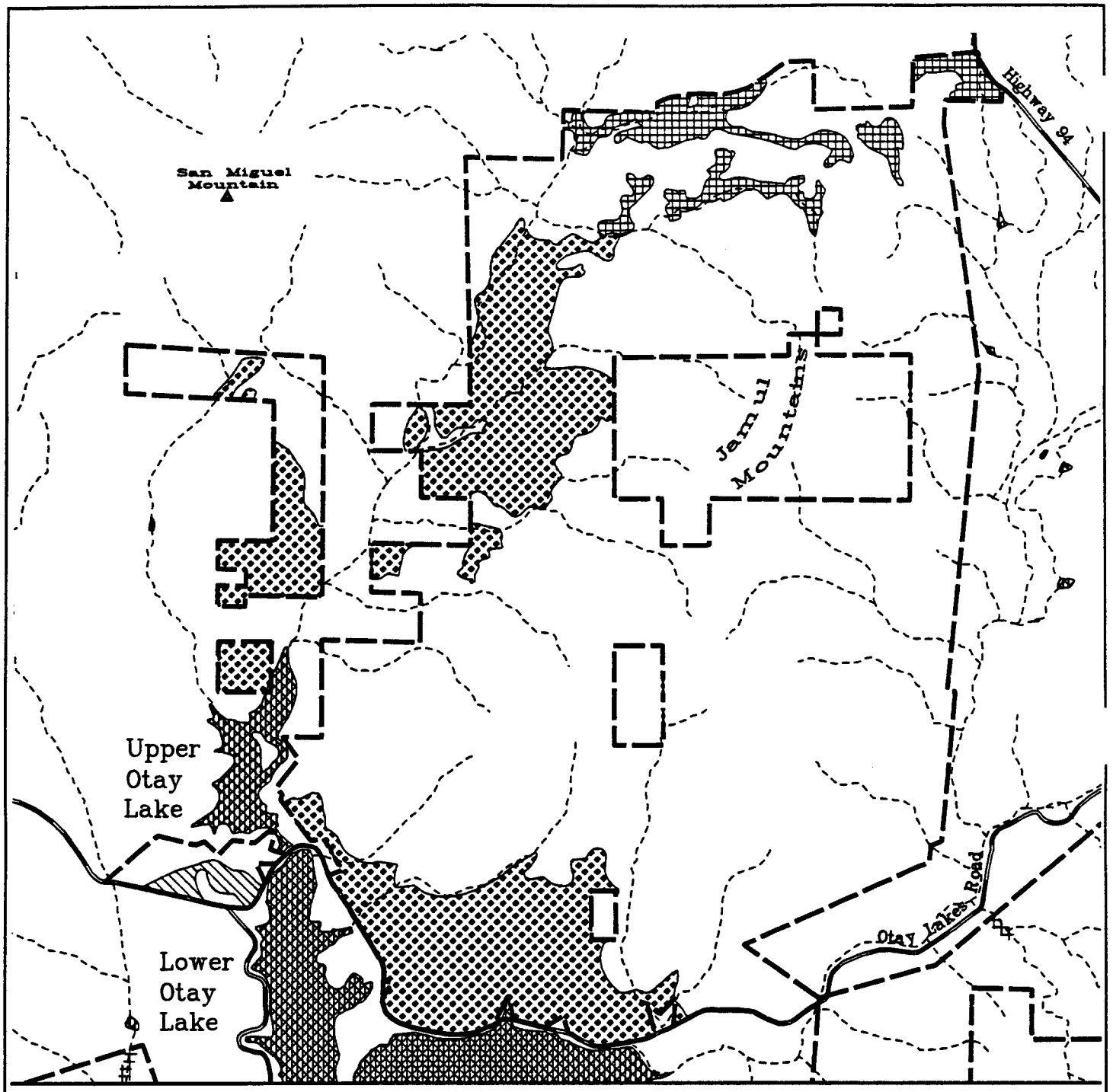
SOURCE: Soil Conservation Service 1973

OGDEN

Soil Types of Agricultural Importance
within Otay River Parcel

FIGURE

3.7-2a



Prime Agricultural Soils

Statewide Farmland Importance

Local Farmland Importance

N

0 4000

FEET

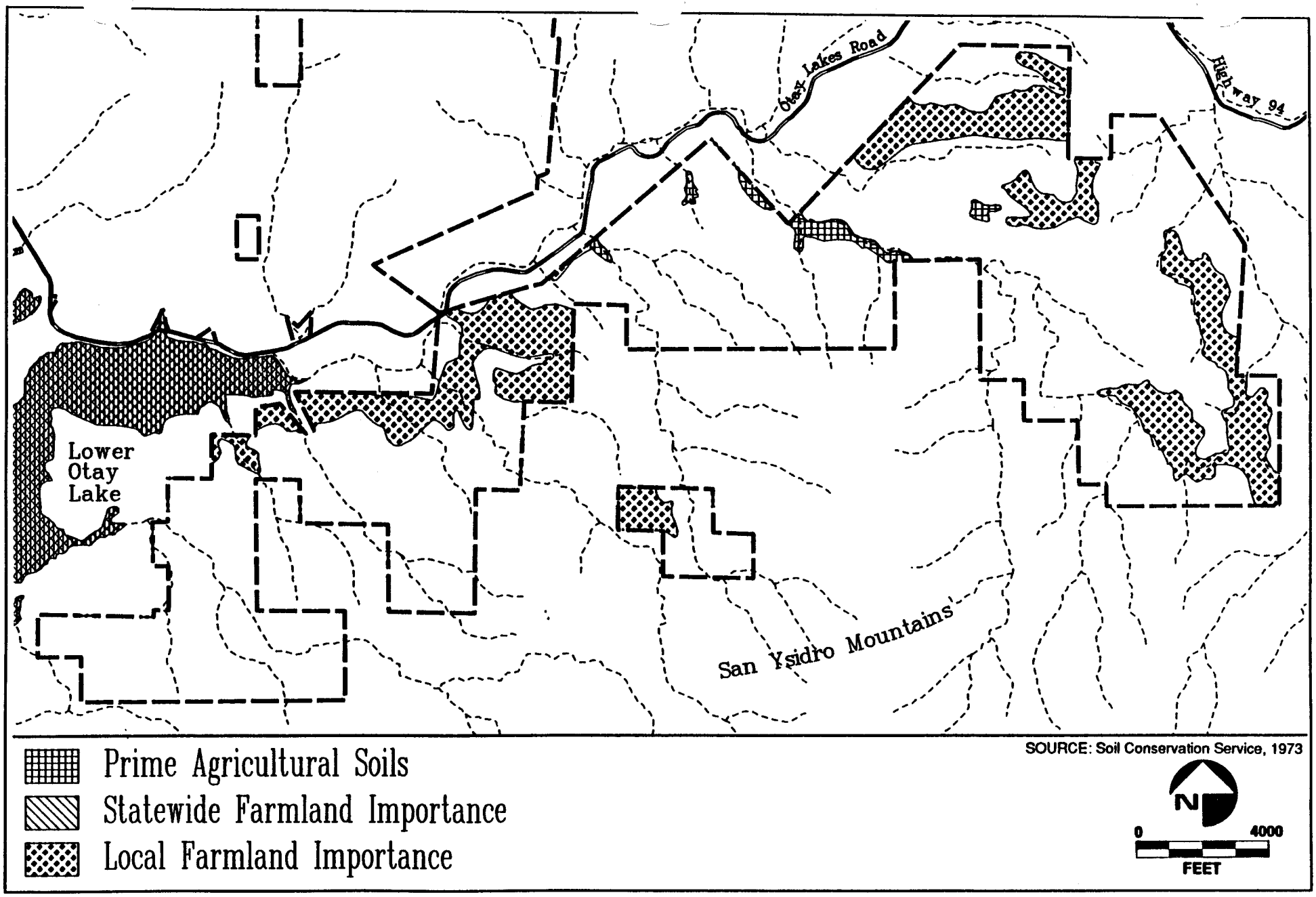
SOURCE: Soil Conservation Service, 1973

OGDEN

Soil Types of Agricultural Importance within Proctor Valley Parcel

FIGURE

3.7-2b



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Soil Types of Agricultural Importance within San Ysidro Parcel

FIGURE 3.7-2c

Table 3.7-1

OTAY RANCH
SOIL SUITABILITY FOR AGRICULTURE

Symbol	Soil Name	Acre / %	Storie Index	Grade	Significance of Soil	Crop Suitability If Irrigated G =- Good F = Fair N = Not Rated				
						Avocados	Citrus	Truck Crops	Tomatoes	Flowers
AuF	Anderson very gravelly sandy	8 / .03%	25	5	Local Importance	G	N	N	N	N
ChB	Chino fine sandy loam	28 / .12%	68	2	Prime Agricultural	N	G	F	F	G
ClE2	Cieneba course sandy loam	22 / .1%	15	5	Local Importance	F	N	N	N	N
DaC	Diablo Clay 2-9% slopes	1936 / 8%	42	3	Statewide Importance	N	N	N	G	N
DaD	Diablo Clay 9-15% slopes	2909 / 13%	37	4	Statewide Importance	N	N	N	F	N
DaE	Diablo Clay 15-30% slopes	718 / 3%	30	4	Local Importance	N	N	N	F	N
EsD2	Escondido very fine sandy loam 9-15% slopes	62 / .3%	43	5	Local Importance	N	F	N	F	F
EsE2	Escondido very fine sandy loam 15-30% slopes	199 / .9%	32	4	Local Importance	N	F	N	N	N
FaE2	Fallbrook sandy loam	3 / .01%	35	4	Local Importance	F	F	N	N	N
HrC	Huerhuero loam 9-15% slopes	112 / .5%	41	3	Statewide Importance	N	N	F	G	F
OhC	Olivenhein cobbly loam 2-9% slopes	1080 / 5%	29	4	Local Importance	N	F	N	N	N
OhE	Olivenhein cobbly loam 9-30% slopes	1328 / 6%	20	4	Local Importance	N	F	N	N	N
PeC2	Placentia sandy loam	139 / .6%	44	3	Statewide Importance	N	N	N	F	G
R[illegible]	Ramona sandy loam	18 / .1%	51	3	Statewide [illegible]tance	N	F	F	F	G

Table 3.7-1 (Continued)

OTAY RANCH
SOIL SUITABILITY FOR AGRICULTURE

Symbol	Soil Name	Acre / %	Storie Index	Grade	Significance of Soil	Crop Suitability If Irrigated G =- Good F = Fair N = Not Rated				
						Avocados	Citrus	Truck Crops	Tomatoes	Flowers
SbA	Salinas clay loam 0-2% slopes	32 / .1%	81	1	Prime Agricultural	N	F	F	G	F
SbC	Salinas clay loam 2-9% slopes	546 / 2%	73	2	Prime Agricultural	N	F	F	G	F
SuA	Stockpen gravelly clay loam 0-2% slopes	405 / 2%	36	4	Statewide Importance	N	N	F	G	F
SuB	Stockpen gravelly clay loam 2-5% slopes	30 / .1%	34	4	Statewide Importance	N	N	F	G	F
VaB	Visalia sandy loam 2-5% slopes	35 / .1%	81	1	Prime Agricultural	G	G	G	F	G
VaC	Visalia sandy loam 5-9% slopes	25 / 11%	73	2	Prime Importance	G	G	F	F	G
VbB	Visalia gravelly sandy loam 2-5% slopes	18 / .1%	49	3	Prime Agricultural	G	G	G	F	G
VbC	Visalia gravelly sandy loam 5-9% slopes	40 / .2%	44	3	Prime Agricultural	G	G	F	F	G
VvD	Vista rocky course sandy loam	8 / .03%	27	4	Local Importance	G	F	N	N	N
WmB	Wyman loam	13 / .06	81	1	Prime Agricultural	N	F	F	F	F
	Total	9,714								

Sources: JBF Report, Appendix A Existing Conditions 1989.
U.S. Department of Agriculture, SCS
Mapping units that meet the criteria for Prime Farmland, Statewide Important Farmlands and Local Important Farmlands. 4/10/80.
Soil Survey, Part II, pg. 80 (Table 21, Crop Suitability) SCS, 1973.

Prime Farmland

According to CDC and SCS criteria, Prime Farmland includes areas best suited (and available) for producing food, feed, forage, fiber, and oilseed crops. These areas have the soil quality, growing season, and moisture supply (soils with high water retention) necessary to economically produce sustained high yields when treated and managed (including water management) according to modern farming methods. The CDC definition of Prime Farmland includes detailed specifications related to soil moisture regimes, temperature, pH, ground-water levels, conductivity, sodium ion exchange, flooding potential, erodibility, permeability, texture, and rooting depth. In order for land to qualify as Prime Farmland under CDC's standards, it must currently be cropped and supported by a developed irrigation water supply that is dependable and of adequate quality during the growing season (1986-1988 Farmland Conversion Report). Although portions of Otay Ranch are underlain with soils that meet most of CDC's Prime Farmland criteria, no developed water infrastructure system exists within the project boundaries to maintain an adequate water supply for coastal crops. Because of this, the CDC does not show Prime Farmland designations within the Otay Ranch site on its 1988 Important Farmland Map.

Based on the SCS rating method, Otay Ranch contains Prime Farmland throughout the site. The SCS uses the following method of rating the suitability of soils for field crops; soils having a Class I or Class II Soil Conservation Service capability rating or a Storie Index rating of 80 through 100 (Grade 1) are considered to be Prime Farmland (Table 3.7-2 explains the capability classes). Class I and Class II soils are located in the southern portion of the Otay River parcel (408 acres) and the northern portions of the Proctor Valley parcel (264 acres). The San Ysidro parcel is overlain with few Class I and Class II soils (65 acres). The Storie Index expresses numerically the relative degree of suitability, or value, of a soil for general intensive agriculture. The rating is based on soil characteristics only and does not include other factors such as the cost or availability of water for irrigation, climate, or distance to market. The percentage of soils with Storie Index ratings of 80 to 100 on the Otay Ranch Site are shown on Table 3.7-1. Of the entire 23,088 acres that make up Otay Ranch, 737 acres (approximately 3 percent) are considered Prime Farmland, as defined by SCS.

Farmland of Statewide Importance

Farmland of Statewide Importance includes available areas (other than Prime Farmland) which exhibit a good combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops (CDC 1990). An additional criteria established by CDC states that land, "must have been used for the production of irrigated crops within the last three years." Since Otay Ranch does not have a developed irrigation supply, it does not meet CDC's designation for Statewide Important Farmland. Based on the SCS's rating method, approximately 5,549 acres (24 percent) of Otay Ranch soils are considered to have Statewide Importance. The Otay River parcel has approximately 5,505 acres of Statewide Important Farmland while the Proctor Valley parcel has approximately 44 acres.

The county considers the westernmost portion of Otay Ranch as having moderate-to-high agricultural potential from a physical resource point-of-view. This western portion (Otay River parcel) lies within the Coastal Climate Zone, which supports most vegetable crops and has soils that are suited to truck crops and tomatoes.

Local Important Farmland

Certain local areas (including San Diego County) have designated Additional Farmland of Local Importance for the production of food, feed, fiber, forage, and oilseed crops. These

Table 3.7-2

KEY TO CAPABILITY GROUPINGS

Capability Classes	Description
Class I	Soils have few limitations that restrict their use.
Class II	Soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.
Class III	Soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.
Class IV	Soils have very severe limitations that reduce the choice of plants, require very careful management, or both.
Class V	Soils are not likely to erode but have other limitations, impractical to remove, that limit their use largely to pasture or range, woodland, or wildlife habitat.
Class VI	Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat .
Class VII	Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland or wildlife habitat.
Class VIII	Soils and landforms have limitations that preclude their use for commercial crop production and restrict their use to recreation, wildlife, or water supply, or aesthetic purposes.

Source: JBF and Associates, Appendix A, Existing Conditions Report 1989.

designations are made by a local committee of concerned agencies chaired by the SCS county representative (California Association of Resource Conservation Districts). Additional Farmland of Local Importance is reviewed by the committee at minimum 5-year intervals (CDFA 1981). The designation of Additional Farmland of Local Importance often overlaps with soils classified by the SCS under the Important Farmlands Inventory. In such instances, the local designations take priority in terms of inventory and mapping effects. The county's definition of Local Important Farmland is land that meets all the characteristics of Prime and Statewide Important Farmland, with the exception of not having a developed irrigation system. The site contains approximately 3,428 (14 percent) acres of soils designated as having "Local Farmland Importance." Approximately 1,032 acres are located in the Otay River parcel, 1,430 acres in the Proctor Valley parcel, and 966 acres in the San Ysidro parcel. On the California Department of Conservation Maps, land within Otay Ranch is shown primarily as Local Important Farmland.

Based on the three agricultural categories discussed above, the Otay Ranch property has approximately 9,714 acres (42 percent) of land with soils suitable for agricultural production. To get a better understanding of the agricultural potential of these soils, the soil survey rating developed by SCS was used since the ratings take into account the kinds of production which typically occur on these soil types. The system rates soils as "good" or "fair" for five principal crops grown in San Diego County. Those soils which do not meet the "fair" criteria are not rated (SCS 1973).

Table 3.7-3 shows the amount of acreage on the property with soils which rated "good" or "fair" for the production of five principal crops. Of the 9,714 acres of suitable agricultural soil, only 179 acres rated "good" or "fair" for avocado production; 3,435 acres were suitable for citrus production; 1,302 acres were suitable for truck crops; 7,066 acres were suitable for tomato production; and 1,503 acres were suitable for the production of flowers.

Crop Values

Within San Diego County, there are approximately 168,317 acres of land in agricultural production (nursery, field crops, honey and bees wax, livestock, poultry, and specialty crops). Additional agricultural information was obtained from the County of San Diego Annual Crop Report 1990, produced annually by the County Agricultural Commissioner's office. The figures in the report indicate the gross value of the crop and do not consider the cost of production or the net income of the producer.

Approximately 20,000 acres of the Otay Ranch property are used for cattle grazing of which approximately 4,000 to 5,000 acres of that area are used for the cultivation of barley. The amount of Otay Ranch land currently in agricultural production represents 12 percent of the county's total agricultural land. The countywide average gross value of cattle for 1990 was estimated at $10,968,250. This figure was based on the overall number of cattle head reported in the county, which was 20,000. Based on the total amount of cattle in the county, the total live weight for cattle and calves was estimated at 150,250 cwt; "cwt" is an abbreviation for hundred weight which represents every 100 pounds (Melano 1991). The market value for cattle and calves in 1990 was $73 for every 100 pounds, or 1 cwt.

According to the 1990 Agricultural Crop Report, barley was valued at $96.00/ton and yielded approximately 0.25 tons/acres (Tulley, personal communication, July 1991). The overall gross value of barley in San Diego was estimated to be $2,400 in 1990. This was significantly low compared to the gross value of barley from previous years. In 1989, barley yielded 0.60 tons per acre for a total average gross value of $31,395, while in 1988 barley yielded 0.70 tons per acre for a total gross value of $99,061. As indicated by these

Table 3.7-3

SUMMARY OF CROP SUITABILITY BY SOIL TYPE

Soils	Acres Rated Good	Acres Rated Fair	Total Acreage	Total Acreage As % of Site
Prime, Statewide, and Local Important Farmland	—	—	9,714	42%
Rated for Avocados	154	25	179	0.8%
Rated for Citrus	146	3,289	3,435	15%
Rated for Truck Crops	53	1,249	1,302	6%
Rated for Tomatoes	3,061	4,005	7,066	30%
Rated for Flowers	303	1,200	1,503	7%
Not rated for any agricultural crop	—	—	0	0

Source: Table 21 - Crop Suitability, Soil Survey Part II, SCS 1973.

figures, the volume of barley has been declining incrementally. Current drought conditions have been a major factor for this decline (Sixtus 1991).

Barley, the major crop produced on the Otay Ranch site, is a low cost, low yield, low return crop (Annual Crop Report 1990). Field crops as a whole are not significant in terms of countywide agricultural value. Revenues generated by barley cultivation is primarily used to offset property taxes which are approximately $100 per acre (see Impact Analysis). Consequently, the project site does not contribute significantly to the agricultural production or economy of San Diego County.

More important is the production of coastal-dependent crops. San Diego is able to produce off-season or winter vegetables, tomatoes, and nursery and floral crops due to the mild climatic conditions in the maritime and coastal zones. Because the county's climate allows the local harvest to reach markets in the off-season, high prices per unit volume contribute a high value of production per acre. The Otay River parcel is within the coastal area climate zone, and most of the site contains agriculturally suitable soils (i.e., soils designated to have Prime, State, or Local farmland importance).

Applicable Agricultural Policies

San Diego County

The Williamson Act (California Land Conservation Act, California Administrative Code 51200, et seq.) allows lands in agricultural use to be placed under contract (agricultural preserve) between a land owner and a land regulating agency, with certain provisions. The owner must agree not to develop the property for 10 years in exchange for property tax reductions based on the property's value as open space or agricultural (rather than as developable) land.

Although agriculture and grazing activities occur on the Otay Ranch property, the property does not lie within an "agricultural preserve," as designated by the county. Three agricultural preserves are located in the vicinity or adjacent to the property. A 235-acre agricultural preserve, known as the Ecke preserve, is located immediately southeast of the westernmost portion of the Otay Ranch property. The Daley agricultural preserve is located east of the Jamul Mountains, and the Clark Ranch agricultural preserve is located east of and adjacent to the property.

The project site, with the exception of approximately 390 acres in the southern portion of the property that is in the City of San Diego, lies within unincorporated areas of the County of San Diego. Applicable agricultural policies are contained in the County of San Diego Regional Land Use Element (Part II of the San Diego County General Plan 1995) and the Otay and Jamul-Dulzura Subregional plans (Parts XXIII and XXIV of the San Diego County General Plan 1995, respectively).

The County of San Diego has designated the majority of the Otay River parcel for intensive agriculture. Two small parcels of land adjacent to Upper Otay Lake have also been assigned this designation (see Section 3.1 for further discussion on land use designations throughout the property). Zoning for the northwest portion and south central portion of the Otay River parcel is A-70 (Limited Agriculture); the northeastern portion of the Proctor Valley and San Ysidro parcels are zoned as A-72 (General Agriculture). Agricultural designations are intended to promote agricultural use as the prominent and dominant use and to protect moderate to high quality agricultural lands. Uses that are supportive of agriculture or compatible with agricultural uses are also permitted. Uses that would have a serious adverse effect on agricultural production (food, fiber production, horticulture,

floriculture, or animal husbandry) are discouraged (Policy 2.5, County of San Diego 1990).

In the absence of an Agricultural Element, the County of San Diego has developed the following policies and ordinances which include: the Right-to-Farm Ordinance No. 74088; Policy 1-72, which is an interim policy to encourage the leasing of agricultural lands; and Policy I-38, related to Agricultural Preserves. This policy (I-38) does not apply to the Otay Ranch property since the land is not under an Agricultural Preserve contract.

The Right-to-Farm Ordinance states that, ". . . the commercial agricultural industry in the County of San Diego is a significant element of the County's economy and a valuable open space/green belt resource for San Diego County residents." It is the objective of the ordinance to "establish a system that will enable prospective purchasers and occupants of property adjacent to or near agricultural land or operation within one mile of an agricultural enterprise, to be notified of the inherent potential conditions associated with such purchase or occupancy, including, but not limited to, noise, odors, dust, insects, rodents and chemicals that may accompany agricultural enterprises."

Jamul-Dulzura Subregional Plan

Land use policies which relate to agriculture uses applicable to the northeastern corner of the Proctor Valley parcel and the most easterly portion of the San Ysidro parcel, are contained in the Jamul-Dulzura Subregional Plan and include the following:

- Land Use Policy #8 - Agricultural activities are essential in maintaining the existing rural life of the community. Therefore, all agricultural activities, large or small, which provide a local or regional source of food/fibre/fuel will be encouraged where water and land resources are available ~~(Policy 8)~~.

- Land Use Policy #10 - Keeping animals and other agricultural land uses on residential parcels of one acre or larger is desirable. As land holdings increase in size, the number of animals permitted should also be increased. Land use regulations permissive enough to allow such agricultural uses are appropriate throughout the community.

- Land Use Policy #11 - Agricultural preserves and land conservation contracts in the Jamul-Dulzura Subregion should be encouraged unless the land is unsuitable for any type of agricultural use.

- Land Use Policy #12 - The cooperation of federal and state agencies, along with the local government, should be encouraged to promote agricultural development through the use of soil and water conservation projects.

Otay Mesa Subregional Plan

Agricultural activities are encouraged as an interim use by the Otay Mesa Subregional Plan which contains the following goals and policies:

- Land Use Policy A.5 - The County presently has a policy (I-72) that specifically encourages interim agriculture on lands designated for other uses that will not prejudice the development potential of that land.

  - The long-term development of Otay Mesa will provide opportunities for continued agricultural production as an interim use.

City of Chula Vista

The Open Space Element and Conservation Element of the City of Chula Vista address the preservation of agricultural land in the absence of an agricultural element. The following goals and objectives for agricultural land include:

- Goal #2 - Permanent agriculture is an integral part of the conservation and open space plan. The goal is to maintain agriculture as a viable land use in the planning area.

- Objective #5 - Preserve highly productive agricultural lands for the production of food and fiber.

The City of Chula Vista Open Space Element recognizes Otay Ranch as an important undeveloped agricultural land due to its coastal area climate and the suitability of its soil for the production of coastal dependent crops such as tomatoes, vegetables, strawberries, flowers, and container grown nursery stock. However, the general plan states that rising land values, water costs, and increasing taxes make it difficult to maintain existing agricultural activity. Therefore, the remaining agricultural activities in the project area are viewed as interim uses, prior to development. The City of Chula Vista Land Use Element contains no agricultural designation which prevents conversion of the Otay River parcel from agricultural land uses to urban uses. The EIR prepared for the City of Chula Vista General Plan Update (1989a) states that "the conversion of agricultural land represents a significant impact in terms of the loss of potential production of coastal-dependent crops."

Future land uses for the Otay River parcel are included within the city's Eastern Territories Community Plan area. As such, land uses within the the project site (including adjacent lands) are designated primarily for a variety of residential densities and commercial and office uses, with the southern portion of the Otay River parcel ~~is~~ designated as open space.

LAFCO

Part of the Otay River parcel is currently considered a Special Study Area of LAFCO to study the future jurisdiction of the area. LAFCO approval will be needed prior to any action to incorporate all or a portion of Otay Ranch or to annex it to either the City of San Diego or the City of Chula Vista. The Otay Ranch property is currently not within any city's sphere of influence.

LAFCO is required by law (Cortese-Knox Act, Government Code Section 56841(e)) to determine whether agricultural preserves, prime agricultural land, or other open space lands would be adversely affected if annexation were approved. LAFCO uses a definition of Prime Agricultural land which includes any one of the five Williamson Act criteria. Since the Otay Ranch property contains land which qualifies as Class I or Class II in the Soil Conservation Service land use capability classification, it would be considered as Prime Farmland by LAFCO.

~~LAFCO has an~~ The following Agricultural Lands Preservation Policy ~~which it uses~~ is used by LAFCO in reviewing annexation proposals that may lead to the conversion of agricultural land to urban uses:

> "Annexation or incorporation proposals which would allow or likely lead to the conversion of prime agricultural land or other open space land (as defined in Sections 56064 and 56059) to other than open space uses shall

be discouraged by the Commission unless such an action would not promote the planned, orderly, efficient development of the area, or the affected land use jurisdiction (either city or county) has accomplished the following:

"(a) Identified within its sphere of influence all 'prime agricultural lands' as defined under Government Code Section 56064;

"(b) Demonstrated to LAFCO that effective measures have been adopted to preserve for agricultural use those prime agricultural lands identified in (a). Such measures may include, but not be limited to, establishing agricultural preserves pursuant to the California Land Conservation Act; designating land for agricultural or open space uses on that jurisdiction's general plan, adopted growth management plan, or applicable specific plan; adopting an agricultural element to its general plan; and undertaking public acquisition of prime agricultural lands for the purpose of leasing back such lands for agricultural use; and

"(c) Prezoned (city only), pursuant to Government Code Section 56375(a)2), both territory within the agency's general planning area to be maintained for agricultural use, and also territory within the annexation area to indicate the anticipated level of development."

~~This policy~~ LAFCO also outlines certain criteria for determining whether the proposal will adversely affect agriculture, or promote inefficient "leapfrog" growth. These criteria include:

- The agricultural significance of the proposal area relative to other agricultural lands in the region (soil, climate, and water factors)
- The use value of the proposed area and surrounding parcels
- Determination as to whether any of the proposal area is designated for agricultural preservation by adopted local plans, including local Coastal Plans.
- Determination of:
  - Whether public facilities would be extended through or adjacent to any other agricultural lands to provide services to the development anticipated on the proposal property.
  - Whether the proposal area is adjacent to or surrounded by existing urban or residential development.
  - Whether surrounding parcels may be expected to develop to urban uses within the next five years.
  - Whether natural or man-made barriers would serve to buffer the proposal area from existing urban uses.

The following policies and priorities are also considered by LAFCO:

(a) Development of use of land for other than open spaces uses shall be guided away from existing prime agricultural lands in open space use toward areas containing nonprime agricultural lands, unless such an action would not promote the planned, orderly, efficient development of an area.

(b) Development of existing vacant or nonprime agricultural lands for urban uses within an agency's existing jurisdiction or within an agency's sphere of influence should be encouraged before any proposal is approved which would allow for or lead to the development of existing open space lands for non-open space uses which are outside of the agency's existing jurisdiction or outside of an agency's existing sphere of influence.

City of San Diego

Approximately 390 acres of the southernmost portion of Otay Ranch are located within the jurisdictional boundaries of the City of San Diego's Otay Mesa Community Planning area. No agricultural designations are applied within the 390 acres which are primarily designated for industrial use. The City of San Diego recognizes an agricultural preserve located east of Brown Field consisting of approximately 245 acres.

3.7.2 Impact Analysis

3.7.2.1 Agricultural Soils

Based on a comparison of the site's soil types and the SCS's list of soil candidates which qualify as Prime, Statewide, and Local Important Farmland it was determined that implementation of the New Town Plan would permanently convert approximately 9,714 acres of agricultural land with suitable agricultural soils to non-agricultural uses.

According to CEQA Guidelines Appendix G (y),"a project will normally have a significant effect on the environment if it will: convert Prime Agricultural land to non-agricultural use or impair the agricultural productivity of prime agricultural land." Prime agricultural land is defined by the county as land with Class I or II soils or a Storie Index rating of 80 to 100, according to SCS criteria. Per the California Department of Conservation's definition, no prime agricultural land exists on the Otay Ranch site.

The Otay Ranch property contains approximately 737 acres of Prime Farmland. Project development would either impair agricultural productivity or convert these soils to non-agricultural uses. Approximately 408 acres of Prime Farmland located in the southern portion of the Otay River parcel would be developed for residential uses or retained as open space for park uses. Small areas (approximately 265 acres) of Prime Farmland in the northern portion of the Proctor Valley parcel would be developed for residential uses or retained as open space, while 64 acres of Prime Farmland in the San Ysidro parcel would be developed or retained as open space. According to CEQA (Appendix G (y)), this loss of a prime agricultural resource constitutes a significant impact.

The remaining 8,977 acres of land with soil suitable for the agricultural production of coastal dependent crops are located throughout the site (designated to have Statewide and Local Farmland Importance). Approximately 5,505 acres of Statewide Important Farmland are located in the central portion of the Otay River parcel. This portion of the site would be developed with residential uses of varying densities (low to medium densities), pockets of open space, and the Eastern Urban Center. Approximately 5,506 acres of Statewide

Important Farmland and 1,031 acres of Local Important Farmland would be affected by the project. Conversion of this land to urban uses would preclude the potential production of coastal-dependent crops in the Otay River parcel.

Development of the Proctor Valley parcel would affect 43 acres of Statewide Important Farmland and 1,430 acre of Local Important Farmland. Residential development and the retention of open space in the San Ysidro parcel would convert or impair the use of approximately 967 acres of Local Important Farmland.

Continued conversion of agricultural lands to urban development in the maritime and coastal area climates will eventually result in the loss of ability to produce and market off-season fresh tomatoes, vegetables, and field grown floral crops, most of which have state and national importance. Of equal or more concern, is the fact that the maritime and coastal area climates constitute one of the few areas in California and the United States where such off-season products are grown. San Diego vegetables are grown and marketed at a time of year when they are not likely to be supplied in appreciable volumes from other areas in the nation. Only maritime and coastal climate zones have the conditions needed for this "off-season" production (Buckner 1980).

One of the advantages of growing row crops in coastal locations is that certain crops, such as tomatoes, can produce a higher gross yield per acre. Table 3.7-4 shows a comparison between the quantity of three crops (tomatoes, fruit, vegetables) produced in a coastal area (San Diego County) in relation to the same types of crops grown within an inland area (Imperial County). In San Diego County, tomatoes yield 48.10 tons per acre, while in the Imperial County (a non-coastal area), the yield is significantly lower at 15.1 tons per acre.

As indicated in the county's Annual Crop Report, San Diego county has approximately 168,317 acres of land in agricultural production. The county's acreage does not include Otay Ranch land currently used for barley cultivation. Assuming the 4,000 to 5,000 acres of Otay Ranch agricultural land is added to the countywide figure of 168,317 acres, the total agricultural land for the county would be 173,317 acres. Development of Otay Ranch would represent a 3 percent loss or impairment of countywide agricultural land. Of the site's 23,088 acres, 9,714 acres are suitable for the cultivation of five principal crops (avocados, citrus, truck crops, tomatoes, flowers). According to the CDC, approximately 4,285 acres of suitable agricultural land were committed to non-agricultural uses. Assuming the 4,285 acres are added to the countywide figure of 168,317 acres, the figure for countywide agricultural land would be 172,602 acres. Consequently, project development would result in the loss of ~~5~~ 6 percent of the county's agricultural land suitable for the potential production of coastal-dependent crops. The loss of countywide agricultural land and land suitable for the potential production of coastal-dependent crops would result in a significant impact due to the incremental and irreversible loss or impairment of a limited agricultural resource (land).

To make a realistic prediction on the feasibility of cultivating coastal crops on the Otay Ranch site, several factors must be considered including water availability and its cost, tax structure and land values, and future market for various coastal crop types. With an adequate water supply, the potential benefit associated with agricultural use of Otay Ranch for coastal crop production would be: 1) early availability of year round fresh produce since coastal crops can be marketed approximately 1 month before other production areas can market their produce; 2) proximity to local markets which reduces transportation costs and keeps produce prices from rising; and 3) ability to regulate use of pesticides based on states' stringent pesticide use regulations versus no control for produce imported from foreign countries.

Table 3.7-4

CROPS PRODUCED IN COASTAL AREAS VERSUS INLAND AREAS

Location	Crop	Year	Acres Harvested	Tons/ Acre	Tons Produced	US $/ Ton	Total Gross Value
Coastal Area:							
San Diego County	oranges	1989	7,687	14.80	113,768	-	$39,903,986
	(Valencia's)	1990	7,687	16.18	124,376	-	46,028,372
	grapefruit	1989	2,605	14.40	37,512	-	$10,670,080
		1990	2,605	16.10	41,941	-	15,813,653
	tomatoes	1989	2,568	36.0	92,448	$360	$33,281,280
	(fresh market)	1990	3,310	34.35	113,699	$349	39,680,777
Inland Area:							
Imperial County	oranges	1989	632	7.62	4,816	$552.03	$2,658,000
	(Valencia's)	1990	491	11.42	5,607	$455.48	2,554,000
	grapefruit	1989	537	6.25	3,356	$330	$1,107,000
		1990	315	9.9	3,118	$476	1,483,000
	tomatoes	1989	648	15.1	9,804	$457	$4,479,000
	(fresh market)	1990	1,196	13.3	15,961	$400	6,384,000

Source: County of San Diego, Department of Weights and Measures (12/91) 1989-1990 Annual Crop Report for San Diego County
S. Jenkins. 1991. California Department of Food and Agriculture. Personal communication 12/19.
Imperial County, Department of Agriculture. Imperial County 1990 Agricultural Crop and Livestock Report.

A major obstacle to future production of coastal-dependent agriculture on the project site is the need for water. Water, which is essential for the production of coastal-dependent crops, could be available to the site for agricultural use through the Otay Water District (OWD). However, the cost of water from the OWD is relatively high, costing approximately $600/acre-foot. The cost of providing water lines for agricultural use is almost twice the amount charged for residential uses. Water lines for residential uses, which range in size from 5/8 of an inch to 2 inches, cost $8.50 a month to $45.00 a month, while the same size of water lines for agricultural purposes start at $16.50 a month. Water line sizes for agriculture range up to 10 inches in size and cost approximately $315.00 a month (Mumford 1992). In addition to the high price, there is competition for water between domestic and agricultural use. During severe drought conditions, water for agriculture is typically the first to be cut off since agriculture is considered an "interruptable user" (Kost 1992). This requires that additional water storage facilities be built to maintain an adequate water supply. A 135.8 mg water tank would be required to provide a one week water supply if the 9,700 acres of suitable agricultural land on Otay Ranch were cultivated. Based on current costs prepared by Wilson Engineering maintaining a one week water supply could cost approximately $67.9 million dollars. Coastal dependent crops require approximately 2,000 gallons of water per day for every acre that is farmed; the average residential consumption rate is estimated at 600 gallons per day for every dwelling unit (Wilson Engineering 1989). This means coastal-dependent crops require approximately the same amount of water per acre as 3 to 4 dwelling units per acre. Because of the high cost of importing and storing water, the future use of the property for agricultural production may be precluded whether or not development occurs on Otay Ranch.

3.7.2.2 Crop Production

An estimate of the average gross/net value of barley and cattle for the Otay Ranch property was made based on information from the 1989-1990 Annual Crop Report and correspondence with Otay Ranch farming operation personnel. Barley production figures for the Otay Ranch property were not reported to the County's Department of Agriculture, Weights and Measures in preparation of the Annual Crop Report. Therefore, a comparison between the average gross value of barley produced on the property to the countywide average gross value cannot be made accurately.

Assuming 4,000 to 5,000 acres of the Otay Ranch property were planted for barley and the average yield was 0.60 tons per acre (1989 figure), total barley production would have been approximately 2,400 to 3,000 tons. The market price for barley in 1990 was $96.00 per ton. Using this figure, and assuming that all of the barley grown was sold, the Otay Ranch site would have generated an annual average gross income of approximately $230,000 to $288,000 in 1990.

The value of cattle can be estimated by multiplying the cattle weight with the market value for cattle/calves, reported in the Annual Crop Report to be $73 per cwt. An estimate of the average cattle weight was made using the overall number of cattle and calves reported in the County's Annual Crop Report and their total weight. With the total live weight of 20,000 cattle/calves at 150,250 cwt (or 15,025,000 pounds), the average cattle weight is estimated to be 7.5 cwt (750 pounds). Since this number also includes the weight of calves, a more accurate representation of a full grown cow's weight can be estimated by adding an additional 2.5 cwt (250 pounds), for an average weight of 10 cwt (1000 pounds) per cow (Melano 1991). The Otay Ranch property currently has 600 cattle. Assuming 10-30 percent of the cattle are sold at the market price of $73 per cwt, the average annual gross revenue from the cattle would range from approximately $43,800 to $131,400 (see Table 3.7-5).

Table 3.7-5

ANNUAL GROSS REVENUE FROM CATTLE PRODUCTION

Percent of Cows Sold Annually	Number of Cows Sold(1)	Cattle Weight (cwt)(2)	Approximate Annual Revenue ($73 per cwt)
10%	60	600	$ 43,800
20%	120	1200	$ 87,600
30%	180	1800	$ 131,400

Notes: 1. Based on 600 cattle within Otay Ranch.
2. Based on average cattle weight estimate of 10 cwt (1000 pounds).

The annual loss of approximately 60 to 180 cattle as a result of project development represents a minimal loss of the county's overall number of cattle. This would have an incremental, but not significant impact to the overall production and value of cattle/calves in San Diego County.

The cost of production (planting/harvesting) and the amount of property taxes paid on the property, including land on the site which cannot be farmed, exceeds the average gross income for both barley and cattle production. The property is currently taxed at an average of $100 per acre and the cost of planting and harvesting exceeds $28 per acre. Any net income from barley or cattle production is used towards the payment of property taxes, property security, and maintenance. According to the property's farming operations personnel, there has been no net income from farm operations.

The loss of jobs associated with agricultural production on the property would be minimal since approximately two people are involved full-time in both barley and cattle production. Seasonal workers are employed for the dry farming operations. It is unknown how many seasonal workers are employed. Project development would result in the elimination of jobs for these seasonal workers.

The actual loss of barley production is not considered to be significant because barley is a low cost, low yield, low return crop which is not highly valued in terms of the crop itself or in terms of countywide agricultural value. Production of barley is not dependent on or confined to coastal and near-coastal lands. More important is the loss of resources for the potential production of coastal-dependent crops such as vegetables. The majority of the site, with an adequate water supply, would be well suited for the production of coastal-dependent vegetables due to its location in the coastal area climate and the suitability of the soils. As previously mentioned, the high cost of water for agriculture production and property taxes would not make this feasible.

3.7.2.3 Applicable Agricultural Policies

County of San Diego

The project site is not restricted by agricultural preserve contracts. Therefore, conversion of the land to non-agricultural uses would have no legal constraints. Most of the Otay River parcel is designated as Intensive Agriculture, which allows 1 dwelling unit per 2-4-8 acres. The Proctor Valley and San Ysidro parcels are designated for Multiple Rural Use, allowing 1 dwelling unit per 4-8-20 acres. The New Town plan is not consistent with the project site's existing County of San Diego zoning and land use designations. The proposed rezones and General Plan Amendment to the County's general plan would allow the conversion of suitable agricultural land to urban uses, resulting in a significant and unavoidable impact due to the loss of a limited agricultural resource. The New Town Plan would develop the Otay River parcel with residential uses, open space, and the Eastern Urban Center. The change in land use designation would also allow more residential development to occur in the Proctor Valley and San Ysidro parcels than currently allowed by the County's designations. The proposed residential uses would be located adjacent to existing offsite agriculture activities associated with Daley Ranch to the east. Potential interface land use impacts related to noise, dust, odors, and use of pesticides could occur between the proposed residences located on the eastern portion of the San Ysidro parcel, and residences along the northeast section of the Proctor Valley parcel. No land use interface impacts related to agriculture would occur with the proposed land uses in the Otay River parcel since they are surrounded by existing and developing urban land uses to the north, south, east, and west.

Changes in the land use designation for the Otay Ranch property would also have a potential indirect impact on area agriculture, particularly in the rural areas to the east (Jamul-Dulzura region). No indirect impacts would occur to the areas surrounding the Otay River parcel and areas to the west and south of the Proctor Valley parcel which are planned for, or have been developed with, urban uses (see Section 6.0 for a discussion on proposed and approved projects in the Otay Ranch vicinity).

Three agricultural preserves to the south and east of the Otay Ranch property are currently under contract with the County and City of San Diego. An agricultural preserve contract restricts conversion of agricultural land for a period of ten years. However, it does not necessarily preclude the urban development of agricultural land, since owners are allowed to remove their land from an agricultural preserve contract through a Notice of Non-renewal.

A study prepared by the Coastal Commission in 1974 states that agricultural preserves, as allowed through the Williamson Act of 1965, are not "effective in protecting open space or agricultural uses in urban or high intensity areas" (San Diego Coast Regional Commission 1974). Land under agricultural preserve contracts are, therefore, subject to early conversion to urban uses due to pressures from surrounding development. These urbanizing pressures include the appreciation of land values and the extension of public services. Because the Otay Ranch project could result in the extension of public infrastructure, as well as roadways next to or near agricultural lands, the Otay Ranch project would have a significant indirect growth-inducing effect on surrounding agricultural lands, whether under contract as an agricultural preserve or not. The overall conversion of surrounding agricultural land is a result of not only the Otay Ranch project, but of the overall cumulative growth occurring in the east Otay Mesa and Jamul area.

The county's policy and ordinances pertaining to agricultural land do not directly prevent the conversion of agricultural land to urban uses. They do allow the county to identify and evaluate the potential conflicts between a land use proposal and an agricultural enterprise (such as cattle ranching and cultivation of crops) when the land use proposal is adjacent to or in proximity to an agricultural enterprise (Right-to-Farm). Policy I-72 establishes criteria for the county to identify which properties with existing agricultural uses are subject to review for their "agricultural significance" when such lands are planned for development. Since the Proctor Valley and San Ysidro parcels are adjacent to Daley Ranch, future Otay Ranch homeowners must be notified of existing adjacent agricultural uses. Buffering measures such as the use of setbacks and landscaping may be developed at the SPA level to mitigate potential interface impacts.

Jamul-Dulzura Subregional Plan

The Jamul-Dulzura Subregional Plan designates the upper portion of the Proctor Valley parcel as a "Rural Development Area" and the central and southern portions as an "Estate Development Area." These land use designations are consistent with the subregional plan's Policy #8, which encourages agricultural activity to maintain the existing rural life of the community. These areas are zoned as Rural Residential (RR), which allows 1 dwelling unit per 1 to 4 acres, and as General Agriculture (A-72) which allows development of 1 dwelling unit on 2, 8, and 20 acres. The zoning designations provide large lots for the keeping of animals and other agricultural land uses (Policy #10).

The New Town Plan proposes open space and low residential uses along the upper portion of the Proctor Valley parcel. The low density designation would allow 0.50 to 3.0 dwelling units per acre which allows more residential development per acre than the Jamul-Dulzura Subregional Land Use Plan. Although the New Town Plan would increase

the density along the upper portion of the Proctor Valley parcel, the low-density lots would be adequate in size to support agricultural activity. By allowing agricultural land uses on low density residential parcels, the New Town Plan would be consistent with the goals and policies of the subregional plan.

Otay Subregional Plan

The Otay River parcel and most of the San Ysidro parcel are within the Otay Subregional Planning Area. The plan encourages agricultural activities as an interim use on lands planned for future urban development. Currently, cattle grazing and crop cultivation are allowed within the Otay River parcel except for the area immediately surrounding the Otay River. No cultivation or grazing is allowed on the San Ysidro parcel except for the eastern half of the parcel where cattle grazing currently occurs (refer to Figure 3.7-1).

The New Town Plan would allow agricultural activity as an interim use along the undeveloped areas of the Otay Ranch property. As discussed under proposed mitigation measures (3.7.3), an Agricultural Plan would be developed to effectively maintain existing agricultural activity on the undeveloped areas of the property and to mitigate any potential internal/external land use interface impacts that could occur between interim agricultural uses and new or offsite development. The Agricultural Plan would tie into the project's phasing plan when it is developed. This would partially mitigate the incremental loss of agricultural land; however, ultimate development of the Otay Ranch site would result in the permanent loss of agricultural land.

By allowing agricultural uses on undeveloped portions of the Otay Ranch property, the New Town Plan would be consistent with the goals of the Otay Subregional Plan as they pertain to agriculture.

City of Chula Vista

The New Town Plan is not consistent with Goal 2 - Objective 5, Open Space and Conservation Element of the Chula Vista General Plan which calls for the maintenance of agriculture as a viable land use and the preservation of land which has the potential to be highly productive. The proposed development plan would result in the conversion of approximately 20,000 acres of land currently used for cattle grazing, of which 4,000 to 5,000 are used for dry crops, into urban uses. Additionally, the site has 9,714 acres of potentially highly productive agricultural land which would also be lost or impaired by the proposed project. This is a significant open space and conservation policy inconsistency of the project. It should be noted that, contrary to the open space element's goals and objectives to preserve agricultural land, the City of Chula Vista General Plan map for the Eastern Territories does not include any agricultural designations within the Otay River parcel which would preserve agriculture as a viable land use.

LAFCO

~~The annexation of the Otay River parcel to the City of San Diego or the City of Chula Vista is not being evaluated at this time. Therefore, a review of the project's consistency with LAFCO's agricultural lands and open space preservation policy is not provided as part of this EIR.~~

~~When the annexation of the Otay River parcel is proposed, LAFCO is expected to use this EIR to decide whether or not the proposed annexation is consistent with LAFCO's agricultural lands and open space preservation policy. At that time, LAFCO is expected to~~

~~make the determination as to whether the proposed annexation will adversely affect agriculture.~~

When the annexation process for part of the Otay River parcel begins, LAFCO will review the proposed development plans prior to its approval to incorporate or annex the land to either the City of San Diego or the City of Chula Vista. LAFCO will make a determination of whether this project complies with its Agricultural Lands preservation policy when it considers the annexation proposal. The annexation proposal is not part of this EIR analysis; however, review of the project's consistency with LAFCO's agricultural policy is provided, since part of the Otay River parcel is designated a special study area of LAFCO. Based on LAFCO's criteria:

1. The Otay River parcel is considered a significant agricultural resource in relation to other agricultural lands in the region due to its location within the Coastal Climate Zone, which supports most vegetable crops, and the suitable soil conditions located onsite for the production of coastal-dependent crops. The potential value for the production of coastal-dependent crops is limited by the cost of importing water and current drought conditions.

2. The Otay Ranch property is not under an agricultural preserve contract and is outside the Coastal Zone boundary.

3. The project has a potential growth-inducing effect on surrounding agricultural lands, as public facilities would be extended adjacent to other agricultural lands to provide services to the Otay Ranch development.

According to LAFCO's policy, the Otay Ranch project would adversely affect agriculture since it would convert a significant agricultural resource to urban uses.

City of San Diego

No zoning or land use designations to maintain land in agricultural use exist within the portion of the Otay River parcel located in the City of San Diego. Therefore, the conversion of existing agricultural uses to research/industrial land uses, supporting public/quasi-public land uses and open spaces proposed for this portion of the Otay River parcel would be allowed by the Otay Mesa Community Plan. No policy inconsistency impacts with the Otay Mesa Community Plan would occur in the lower Otay River parcel.

3.7.3 Proposed Mitigation

1. An Agricultural Plan shall be prepared by the project applicant prior to approval of any SPA Plans affecting onsite agricultural resources and will be required for each subsequent development proposal (i.e., villages, Town Center, the Eastern Town Center, the University and the Rural Estate Planned Community). The plan shall indicate the type of agricultural activity allowed as an interim use. Specifications shall include buffering guidelines designed to prevent potential land use interface impacts related to noise, odors, dust, insects, rodents, and chemicals that may accompany agricultural activities and operations. Adequate buffering shall be provided between the proposed development area and the interim agricultural use. Buffering measures may include: 1) a 200-foot distance between property boundaries and agricultural operations; 2) if permitted interim agricultural uses require the use of pesticide, then limits shall be set as to the time of day and the type of pesticide application that may occur; 3) use of vegetation along the field edges adjacent to development that can be

used for shielding (i.e., corn); and 4) notification of adjacent property owners of potential pesticide applications and use of fencing. The plan shall be reviewed by the city or county planning department that has jurisdiction over these areas to verify that proposed guidelines are adequate to prevent significant interface impacts from occurring. This measure would partially mitigate the incremental loss of agricultural land. (EIR proposed.)

2. Landscaping and buffering guidelines shall be included in the development plans at the SPA plan level for the areas planned adjacent to existing agricultural uses. These areas include the eastern edges of the Proctor Valley parcel and the northern edges of the San Ysidro parcel where estate residential uses would be developed near the Daley Ranch agricultural activities (i.e., crop cultivation and cattle ranging). (EIR proposed.)

3. The loss of prime agricultural land is an unmitigable impact. However, a portion of the Otay River parcel where prime soils are located should be set aside for a demonstration agricultural area ~~community garden~~. Schools proposed within the Otay Ranch property could promote educational activities in regard to agriculture through the use of the demonstration area ~~community garden~~. A possible location for the demonstration agricultural area ~~community garden~~ would be in the southwest portion of the Otay River parcel. This area is considered suitable since it contains prime agricultural soils and is designated as a regional park by the New Town Plan. Development of this ~~garden~~ area will depend on the feasibility of maintaining it within the proposed park. If the ~~community garden~~ demonstration agricultural area is deemed feasible its size and exact location will be determined at the SPA level. The criteria to establish the demonstration agricultural activities include the following: 1) the demonstration area must be located within an area of the park containing prime farmland soils, and 2) its location should not conflict with sensitive biological or cultural resources (EIR proposed.)

4. Agricultural activity and the keeping of animals shall be allowed within the large, low density lots planned along the northern edge of the Proctor Valley parcel, as allowed within the Jamul-Dulzura subregional plan. Development plans for this area shall contain landscaping and buffering guidelines designed to prevent nuisance impacts related to noise and odor, from occurring between adjacent internal residential uses. (EIR proposed.)

3.7.4 Analysis of Significance

According to state, county, LAFCO, and City of Chula Vista policies and goals, the loss of an agricultural resource for the potential production of coastal dependent crops and the loss of prime agricultural soils, is considered to be a significant, unmitigable impact, regardless of the feasibility of maintaining the land in agricultural production (i.e., lack of water resources). Preparation of an Agricultural Plan would partially mitigate the loss of resources onsite.

It should be noted that utilization of specific areas for agriculture may result in significant impacts to sensitive biological or cultural resources. This conflict would require resolution by the decision-makers.

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3.8 MINERAL RESOURCES

3.8.1 Existing Conditions

3.8.1.1 Background

Mineral resources of economic value on the Otay Ranch property include sand, gravel, crushed rock (known collectively as construction aggregate), and bentonitic clay. Sand, gravel, and crushed rock materials are important to the local construction industry for such uses as concrete (especially Portland Cement Concrete, also known as PCC), fill, road base, and building materials. Mineral materials used in construction need to be available nearby in large quantities and at reasonable costs. However, the depletion or loss to competing land uses of suitable building material resources often occurs as an area urbanizes, resulting in the use of more distant sources of material to supply the area's need and a corresponding increase in cost.

Sand and gravel resources are generally found in economic amounts in river and stream channels. On the project site, the Otay River Valley contains significant sand and gravel resources, while many of the other canyons onsite contain lesser amounts of these resources. Sand and gravel can also be produced by artificial means through the crushing of larger sized rocks. Rock and crushed rock resources can be provided by rocks of the Santiago Peak Volcanics Formation, which is the predominant rock unit on the Proctor Valley and San Ysidro parcels.

Bentonite is a highly expansive clay derived from the alteration of volcanic ash. It is composed principally of the mineral montmorillonite and is generally cream or pale pink in color. It is used as a plasticizer, an absorbant, a reservoir sealer, a cleaning compound, a well drilling mud, and in filtration and clarification processes. Potentially feasible extraction sites for bentonite on the project site include portions of the Otay River Valley, and Poggi, Wolf, and Telegraph canyons.

3.8.1.2 Mineral Resource Studies

Several studies have been conducted in the general project area to determine the presence and significance of mineral resources. The following is a short description of the conclusions of the major mineral resource reports.

In 1963, the California Division of Mines and Geology (CDMG) published "Geology and Mineral Resources of San Diego County California - County Report No. 3" (F.H. Weber Jr.), which identified the mines and mineral deposits known to exist in the San Diego area. Figure 3.8-1 shows the identified mines and mineral resources in the vicinity of the Otay Ranch project area. These include: 1) the Jamul Ranch limestone-dolomite deposit located less than 1 mile east of the Proctor Valley parcel, 2) two Otay Mine operations for sand and gravel in the Otay River, one on the Otay River parcel and one just to the west, 3) Cedar Creek (Lost Spanish) lead mine located in Cedar Canyon less than 1 mile southeast of the San Ysidro parcel, 4) General Petroleum Company Mine for bentonite clay located just south of the Otay River near the southwestern boundary of the Otay River parcel, and 5) Standard Oil (Filtrol) Company bentonite mine, located just west of the Otay River parcel.

No mineral resources were noted for the project site or immediate vicinity in a study published by the U.S. Geological Survey (USGS) in 1974. This study, "Reported Occurrences of Selected Minerals in the Southern Third of California" included most metals and non-metals but did not include petroleum and natural gas. However, lead deposits

were noted a few miles east of the project area, and unknown mineral prospects were noted a few miles south of the project site.

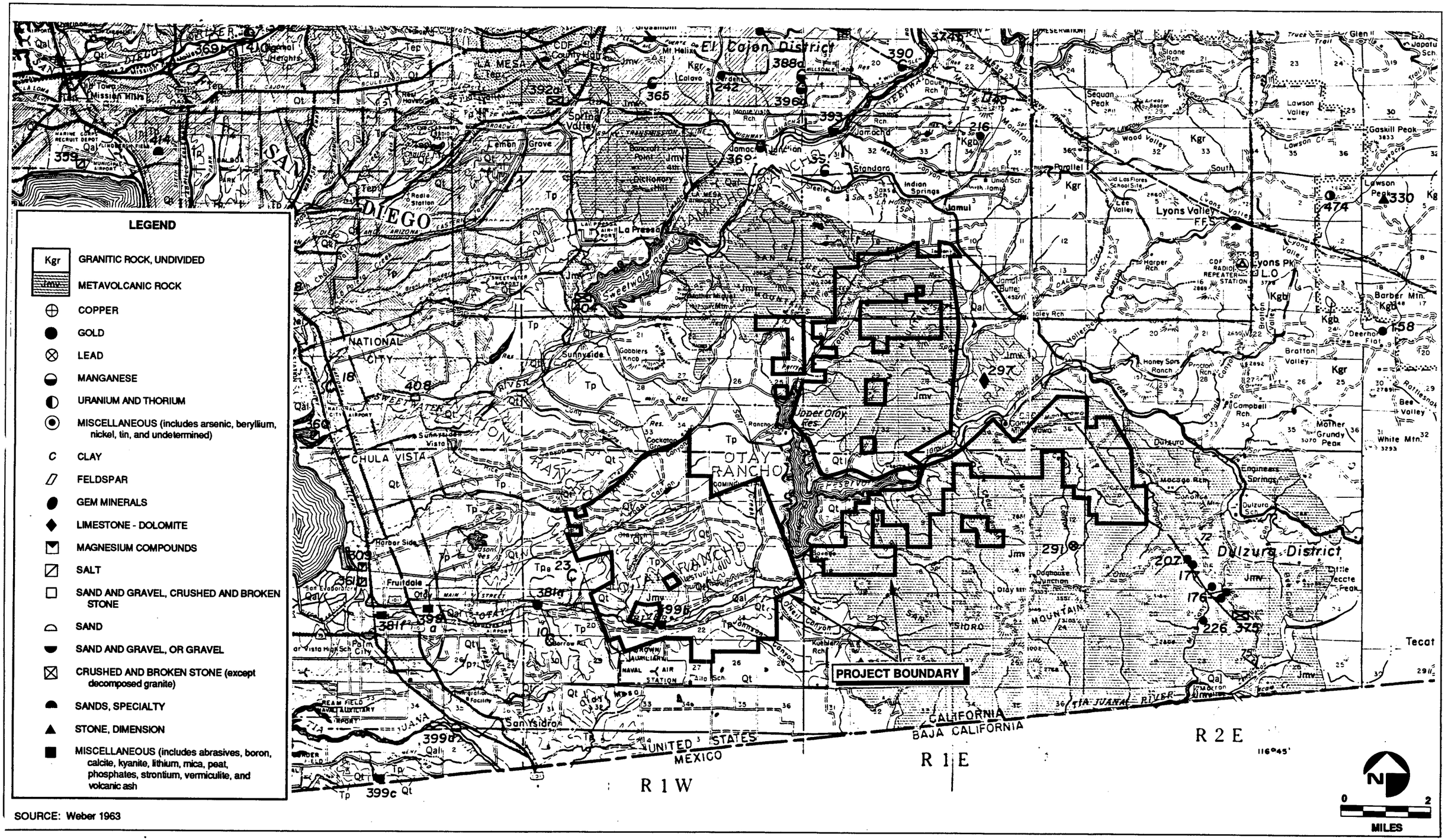
The USGS conducted a mineral resource survey of the Southern and Western Otay Mountain Wilderness Study areas, located just to the southeast of the San Ysidro parcel in 1988 (USGS Bulletin 1711). Several mines, prospects, and claims were noted, but none were being actively mined. No mineral resources were identified within the USGS study area. The study also concluded that the study areas had low potential for undiscovered gold and lead resources, and no potential for oil, gas, coal, or geothermal resources.

The CDMG published "Geology of the Otay Bentonite-CDMG Special Report 64" in 1960 (G.B. Cleveland) which described the geologic occurrence and economic significance of the bentonitic clay deposit in the lower Otay River Valley area. Approximately 83,000 tons of high-grade bentonite were obtained from the two principal mines, the General Petroleum and Standard Oil mines, from 1917 until active mining ceased in 1957. These mines and the majority of the bentonite deposit are located about 1 mile west of the Otay Ranch property. The Otay bentonite deposit is considered one of the principal deposits of high-grade bentonitic clay in California.

Bentonitic clay is commonly found within the Otay Formation, and has been reported to occur as relatively thin, discontinuous deposits within Poggi, Telegraph, and Wolf canyons on the Otay River parcel. However, the potential for extraction of the clay is limited by the presence of overburden, and it is expected that economically feasible mining of this resource could only take place where the bentonite was exposed or very close to the surface. A geologic cross-section of the project site is shown in Figure 3.6-2. This cross-section shows the approximate elevation and trend of the Otay formation which contains the bentonite. The cross-section also shows the approximate thickness of the overburden above the formation. San Diego County has determined that due to the limited extent and surficial exposure of the bentonite deposits onsite, the general absence of extensive deposits, the greater potential for bentonite extraction elsewhere in the region, and the unknown quality of the bentonite, the resource onsite is not considered to be of regional significance (Gibson 1992).

To meet the requirements of the Surface Mining and Reclamation Act (SMARA) of 1975, the state geologist is responsible for preparing an inventory of select mineral commodities within a defined study region. The first phase of this program is classification, where the market area of a mineral commodity is identified, the future (50-year) need of the commodity within the region is projected, and geologic classifications of the lands within the area are completed regarding the presence or absence of the commodity. The second phase of the program is the designation of those deposits that are of regional or statewide significance. In contrast to classification, which inventories mineral deposits without regard to land use, the purpose of designation is to identify those deposits that are available from a land use perspective and are of prime importance in meeting the future needs of the region.

A mineral land classification for aggregate minerals was completed for the western portion of San Diego County by the CDMG in 1980. Of the entire project site, only the Otay River parcel was included within the boundaries of this study entitled "Mineral Land Classification: Aggregate Minerals in the Western San Diego County Production-Consumption Region." In addition to the mineral land classification, the projected aggregate needs for 50 years and estimates of the aggregate resource tonnage were evaluated for the production-consumption (P-C) region. As mentioned previously, since aggregate resources are generally utilized close to their source, areas containing significant aggregate mineral resources and users of the resource are generally referred to as PC



SOURCE: Weber 1963

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Mines and Mineral Resources in the Project Area

FIGURE 3.8-1

regions. The San Diego P-C region was determined to be the western third of the county, which contained the metropolitan area and the areas where urbanization was expected to occur within 10 to 30 years. Also included in the P-C region were areas that currently provide or are expected to provided mineral materials to the urban or urbanizing areas of the county.

It was determined that the western San Diego P-C region had total aggregate reserves of approximately 430 million tons, which should supply the area until the year 2012 (32 years from the date the study was published) at present expected consumption and population rates.

The CDMG has generated a series of mineral resource zone (MRZ) classifications to identify mineral potentials. For the mineral land classification of San Diego, MRZ designations were made throughout the P-C region. The MRZ designations are outlined below:

- MRZ-1. Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. This zone shall be applied where well-developed lines of reasoning, based upon economic geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is slight or non-existent.

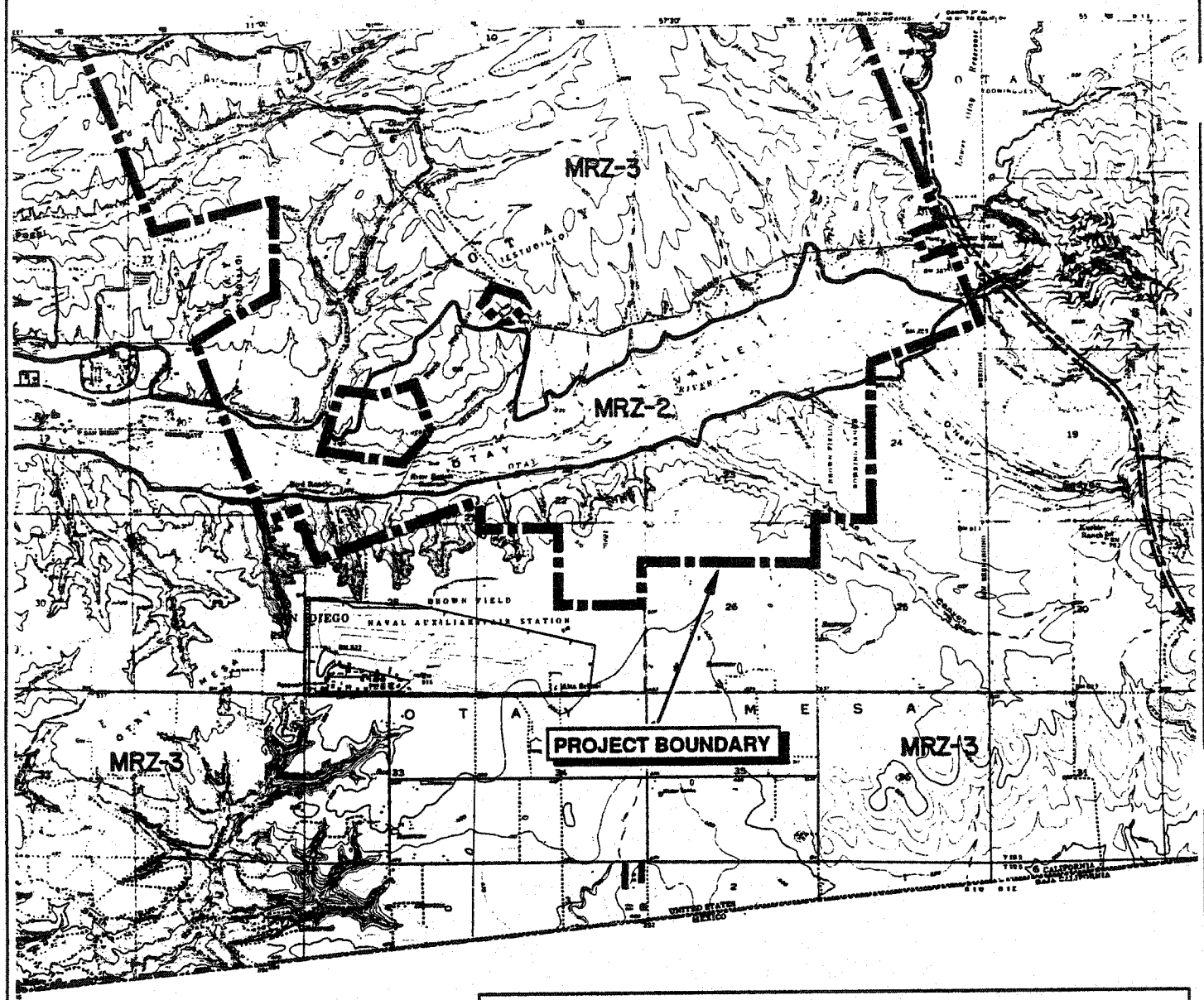
- MRZ-2. Areas where adequate information indicates that significant mineral deposits are present or where it is judged that there is a high likelihood for their presence. This zone shall be applied to known mineral deposits or where well-developed lines of reasoning, based on economic geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is high.

- MRZ-3. Areas containing mineral deposits, the significance of which cannot be evaluated from available data.

- MRZ-4. Areas where available information is inadequate for assignment to any other MRZ classification.

Within the Otay River parcel (neither of the other parcels was included within the P-C region study area in the mineral land classification report), the Otay River Valley and most of Rock Mountain were classified as MRZ-2 (high potential for mineral resources) as shown in Figure 3.8-2.

In April 1985, the California Department of Conservation, under the direction of the State Mining and Geology Board, published SMARA Designation Report No. 4, "Designation of Regionally Significant Construction Aggregate Resource Areas in the Western San Diego County Production-Consumption Region." The purpose of the report was to designate aggregate deposits within the San Diego County P-C region that were determined to be of regional significance by the State Mining and Geology Board. The basis for this report was the mineral land classification study described above. Like the classification report, only the Otay River parcel was included in the study area of the designation report. The Otay River Valley, from the City of Chula Vista boundary east to Lower Otay Lake and the Rock Mountain area (predominantly outside the project area) were designated as containing regionally significant mineral resources (Figure 3.8-3). The management goal of the State Mining and Geology Board is to "protect from preclusive and incompatible land uses the areas classified MRZ-2 or designated as being regionally significant, so that the



LEGEND

MRZ-1 Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.

MRZ-2 Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.

MRZ-3 Areas containing mineral deposits the significance of which cannot be evaluated from available data.

MRZ-4 Areas where available information is inadequate for assignment to any other MRZ zone.

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SOURCE: CDMG SR 153 1983

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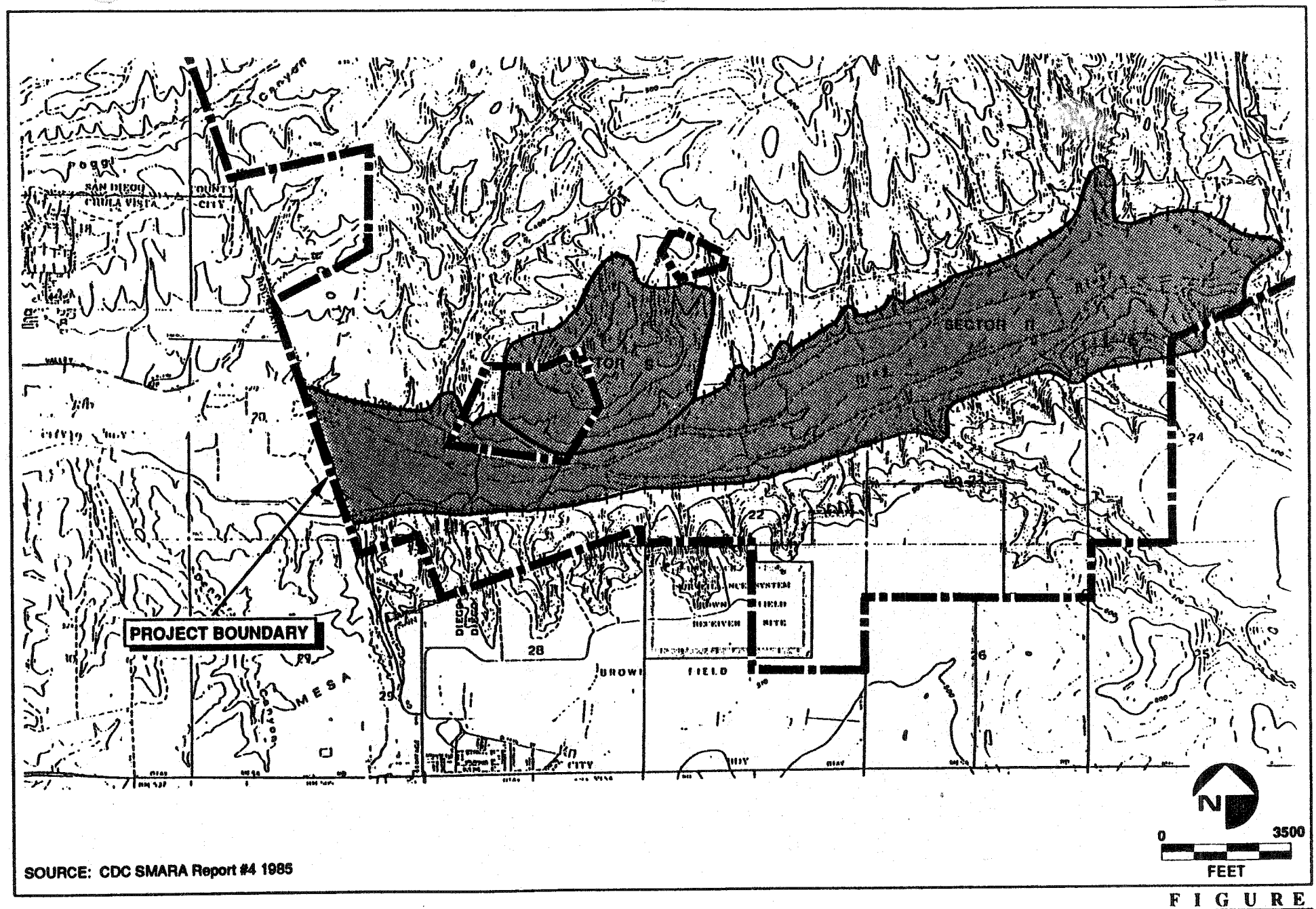
Mineral Resource Zones in the Project Area

FIGUR

3.8-2



SOURCE: CDC SMARA Report #4 1985

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Designated Regionally Significant Mineral Resources

FIGURE

3.8-3

mineral resources within these lands and areas are available when needed." However, as discussed below, recent information provided by the Nelson-Sloan Company indicates that mining of the Otay River Valley is no longer economically feasible.

3.8.1.3 Mining Activity in the Project Vicinity

The Nelson-Sloan Company currently operates a rock quarry and crushing operation (approximately 150 acres in size) as a separate ownership within the Otay River parcel at the southwestern base of Rock Mountain. The quarry operation contains an 82-acre borrow pit for the extraction of sand and gravel resources. The quarry site and the right to mine approximately 2,200 acres within the Otay River Valley have been granted to the Nelson-Sloan Company under a 50-year lease with the previous owners of the Otay Ranch property. Therefore, additional mining in the Otay River Valley is allowable assuming proper permits are obtained. However, based on information from the Nelson-Sloan Company, mining of the Otay River Valley segment within the project site is essentially no longer economically feasible (Monson 1992). According to Nelson-Sloan, the future potential for aggregate mining in the valley is questionable. The County of San Diego concurs with this finding (Gibson 1992). The valley bottom is currently lined with clay deposits up to 6 feet in thickness, and the quantity of potential aggregate resources beneath the clay overburden is unknown. There are currently no plans to reinstate mining activities.

The Daley Corporation has a rock quarry located just east of Lower Otay Lake, to the north of the San Ysidro parcel. The quarry occupies approximately 27 acres and is currently inactive, although a permit is being sought at this time to allow for the reinstatement of mining operations.

3.8.1.4 Plans and Policies

County of San Diego

The purpose of the mineral land classification and resource designation reports mandated by SMARA is to provide lead agencies with information for the preparation of mineral resource management policies to be included in their general plans. The lead agencies are supposed to "recognize the mineral information classified by the state geologist and transmitted by the board, assist in the management of land use that affects areas of regional significance, and emphasize the conservation and development of the identified mineral deposits." Responsibilities of the lead agency include general plan recognition of mineral resources, development of goals and policies for mineral resources, and development of land use categories to be used as a guide to preservation of areas designated as containing regionally significant mineral deposits. SMARA also requires that a lead agency's land use decisions involving designated areas be in accordance with its mineral resource management policies. San Diego County has prepared a Mineral Resource Management Plan which consists of proposed revisions to the Land Use Element and Conservation Element. This plan is scheduled to be completed for adoption as a 1991 General Plan Amendment and is currently being reviewed.

The Conservation Element of the county General Plan (1990b) contains several general policies for the management of mineral resources. These policies provide for the conservation of resources and programs to implement their management. In general, few of the policies or programs have been implemented. These policies will be superseded by the Mineral Resource Management Plan when it is adopted.

In 1979, the County of San Diego adopted a Resource Conservation Area (RCA) Map for Aggregate Minerals. The Proctor Valley and San Ysidro parcels and surrounding areas

were placed within the San Ysidro Mountains RCA for aggregate minerals, as shown in Figure 3.8-4. These parcels are primarily underlain by metavolcanic rocks of the Santiago Peak Volcanics Formation, which can be used as a source of building stone, crushed rock, or artificially-produced sand and gravel. The RCA is an overlay designation which identifies lands "requiring special attention in order to conserve resources in a manner best satisfying public and private objectives. Within resource conservation areas, county departments and other public agencies shall give careful consideration and special environmental analysis to all projects which they intend to carry out, propose, or approve, and shall select those conservation actions most appropriate to the project and consistent with the intent of this overlay designation." However, this area was not considered to be of significance by the CDMG, state geologist, or State Mining and Geology Board in their mineral land classifications and resource designation studies conducted in 1980 and 1985. It is expected that the significance of the San Ysidro Mountain area will be downgraded with the adoption of the proposed Mineral Resource Management Plan (Fink 1991).

A Resource Management Plan for the Otay Ranch project is in preparation. In this plan, permanent Management Preserve Area (MPA) has been proposed for the protection, enhancement, restoration, and recovery of sensitive natural resources, including biological, cultural, and paleontological resources. The Otay River Valley has been included within the preserve. Permitted uses within the preserve would be limited to open space; habitat and resource enhancement, protection, and research; and passive and compatible active recreational uses. The preserve would not allow for the extraction of mineral resources, with the exception of existing leases. Permits for mineral extraction would be required from the County.

City of Chula Vista

The City of Chula Vista's Conservation and Open Space Element of the General Plan contains several goals and policies for the management of mineral resources. These include:

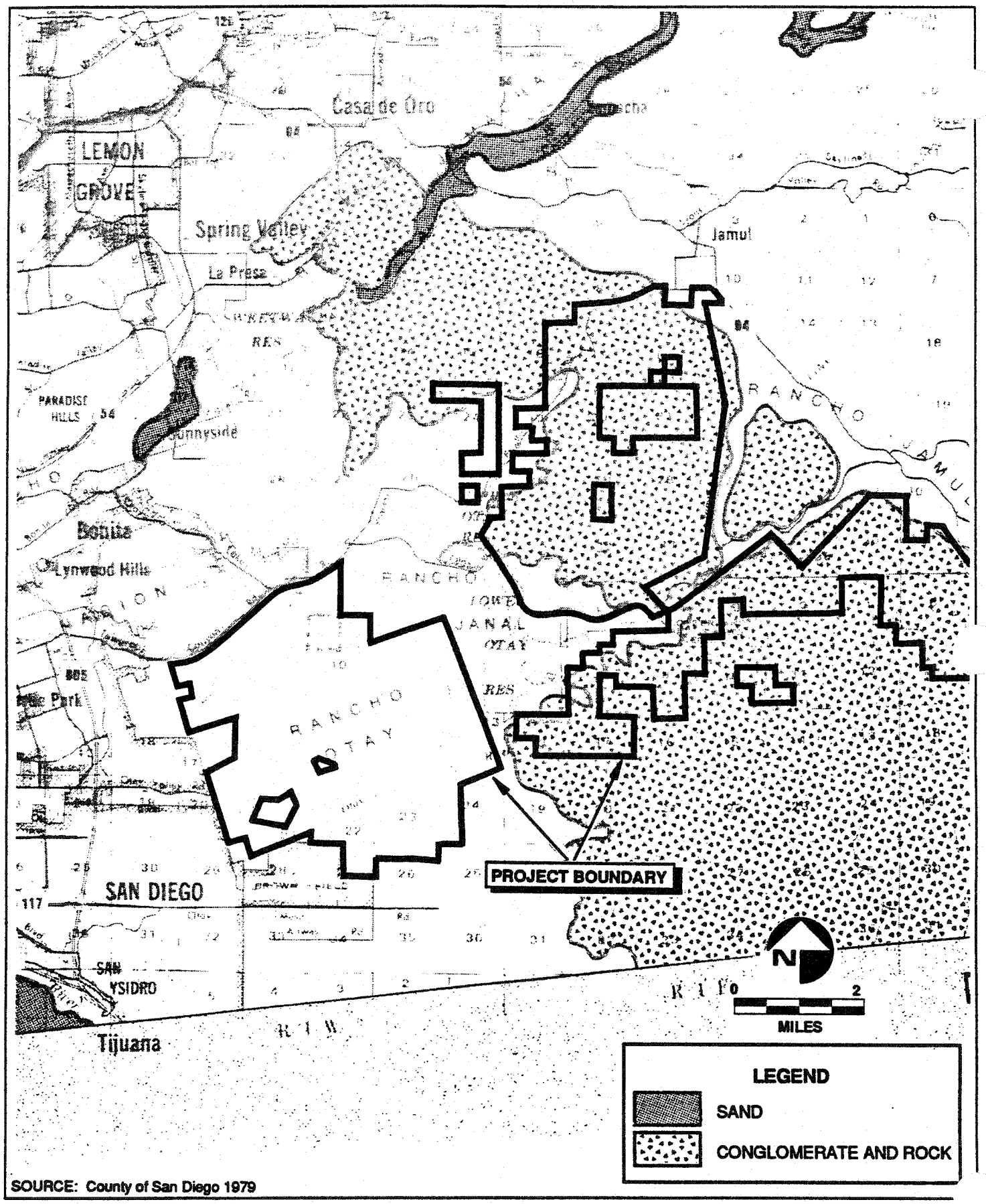
- Objective 1. Provide for the judicious management of Chula Vista's natural resources.
- Objective 2. Promote land use policies and practices which will minimize the impact of development on natural resources.
- Objective 4. Protect and manage sand and gravel resources for the benefit of the general public.

City of San Diego

There are no identified significant mineral resources within the City of San Diego's 390-acre portion of Otay Ranch.

3.8.2 Impact Analysis

An adequate supply of quality aggregate materials is a factor in the vitality of the region's economy; therefore, any loss of identified significant resources through land use conflict, destruction of resources, or preclusion of extraction is considered a significant impact. Land uses proposed on or adjacent to significant mineral resource areas should be compatible with mining activities.



SOURCE: County of San Diego 1979

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Resource Conservation Areas Specific to Aggregate Minerals

FIGURE 3.8-4

The western San Diego County P-C region is expected to face a shortfall of aggregate mineral resources by the year 2012 (CDMG 1982). This could have a significant effect on the local construction industry.

The Otay River Valley is proposed to be used for park and recreational uses (see Figure 2.3-1). Based on recent conversations with a representative of the Nelson-Sloan Company, the Otay River Valley segment within the Otay Ranch project is essentially depleted of readily accessible aggregate mineral resources and is no longer economically feasible to mine. Nelson-Sloan has no future plans to pursue mining activities in the Otay River Valley (Monson 1992), and these resources are no longer considered a valuable source of aggregate by the county (Gibson 1992). Based on this information, the proposed land uses for the Otay River Valley within the project site would not conflict with mining activities (since they no longer occur), and would therefore not represent a significant impact on resource extraction.

The proposed project has planned low-medium residential development on portions of Rock Mountain, which has been designated as containing significant mineral resources (Figure 3.8-2). Residential development would be a conflicting land use with potential future mineral extraction activities and would preclude mineral extraction after structures are built. This would result in a significant impact. However, this impact would not occur if mineral extraction activities take place before the structures are built.

Bentonite clay may be present in portions of the Otay River Valley, and in portions of Poggi, Wolf, and Telegraph canyons, but feasible extraction would be limited to locations where overburden is minimal or absent (Figure 3.8-2). Wolf Canyon is proposed for open space uses, while Poggi and Telegraph canyons are proposed to be developed for major road rights-of way. San Diego County does not consider the regional importance of the onsite bentonite to be significant due to the presence of substantial overburden, the general apparent absence of extensive deposits, the greater potential for extraction elsewhere in the vicinity, and the limited extent and surficial exposure of the bentonite deposit onsite.

A variety of development is proposed for the San Ysidro and Proctor Valley parcels which have been placed within a RCA for aggregate minerals. The RCA designation is a tool for development planning; it does not have any regulatory significance. However, according to the County of San Diego Conservation Element, "These deposits should be protected as reserves of aggregate by application of resource conservation areas, extractive land use designation, appropriate land use regulations (generally S82), or other appropriate action." Therefore, development on these parcels is considered to have potentially significant impacts on mineral resources until a mineral resource management plan for the area is completed and adopted, and the significance of the resources is defined.

3.8.3 Proposed Mitigation

Although the Otay River Valley is designated as a significant mineral resource area, recent information (as described in Section 3.8.2), indicates that the valley is no longer considered to be a significant source of aggregate mineral resources by San Diego County. Therefore, no significant impacts would result from the proposed land uses, and no mitigation measures are necessary.

Rock Mountain should be placed in a mineral extractive overlay designation or an RCA in accordance with the policies of the Mineral Resource Management Plan, and mineral extraction should be designated as the primary land use. Where possible, compatible land uses should be developed near the locations of future mineral extraction activities (EIR proposed). Project phasing should allow for the extraction of mineral resources before

conflicting development occurs. Should this not be possible, the impact to mineral resources would be significant and unmitigable.

Development of the Proctor Valley and San Ysidro parcels should be phased, if possible, to allow for mineral extraction if the county's Mineral Resources Element determines that significant mineral resources are present on these parcels.

The bentonite deposits onsite are not considered to be of regional significance by San Diego County. Therefore, no significant impact would result from implementation of the proposed land uses and no mitigation measures are necessary.

3.8.4 Analysis of Significance

The phasing of development on Rock Mountain and on the San Ysidro and Proctor Valley parcels to allow for the extraction of mineral resources before construction would effectively mitigate impacts to mineral resources. However, should this not be feasible, the impact to mineral resources would be significant and unmitigable. Actions that preclude the extraction of significant mineral resources would result in unmitigable adverse impacts. It should be noted that the extraction of mineral resources could adversely affect other resources, e.g., biological, cultural, or agricultural resources. These potential conflicts will require resolution by the decision makers.

3.9 WATER RESOURCES AND WATER QUALITY

3.9.1 Existing Conditions

The following description of ground-water and surface water conditions in the project area is based on several information sources. The Comprehensive Water Quality Control Plan Report for the San Diego Basin, developed by the Regional Water Quality Control Board (RWQCB 1975), assigned ground-water and surface water basins/sub-basins, as well as ground-water and surface water use designations, and described the water systems. Gregg and Associates (1987) conducted a geotechnical investigation of Otay Ranch. The hydrogeologic portion of this study included the investigation of 9 existing ground-water wells on Otay Ranch, installation of 13 ground-water monitoring wells, collection of ground-water and surface water samples for chemical analysis, and *in situ* soil testing for permeability analysis. An Urban Runoff/Reservoir Protection Study by Wilson Engineering (1989) also addressed the quality of surface and ground water. The Drainage and Flood Control Plan for the Development of Otay Ranch, designed by VTN Southwest, Inc. (1989), addressed the issues of flood control and drainage modifications. The Otay Ranch Master Drainage Plan developed by Church Engineering, Inc. (1990) identifies a drainage infrastructure.

3.9.1.1 Regional Hydrology

Otay Ranch is located in the southwestern portion of the San Diego Planning Basin. The San Diego Basin has been divided into 11 hydrographic units and 54 hydrographic subunits (RWQCB 1975). The hydrographic divisions are based primarily on surface water drainage basins.

Most of the Otay Ranch property is located within the Otay Hydrographic Unit; however, the portion of Otay Ranch along Telegraph Canyon is within the Sweetwater Hydrographic Unit. The Otay Hydrographic Unit is divided into the Otay Hydrographic Subunit to the west and the Dulzura Hydrographic Subunit to the east. The dividing boundary between the two subunits is a north–south line that corresponds with Savage Dam below Lower Otay Lake. The Dulzura Hydrographic Subunit is further divided into seven smaller hydrographic areas (RWQCB 1975).

3.9.1.2 Ground Water

~~Hydrology~~Hydrogeology

Gregg and Associates (1987) concluded that ground water occurs in all the sedimentary units (including Mission Valley, Sweetwater, Otay, San Diego, and Lindavista formations and the various surficial deposits present on Otay Ranch). The quantity and quality of ground water varies according to formation permeabilities and topographic location. The most productive aquifer lies within the surficial deposits of the Otay River Valley. Gregg and Associates (1987) also concluded that ground water exists locally in the older crystalline rocks of the Jamul and San Ysidro Mountains. The amount of ground water within the crystalline rocks is controlled by secondary permeability, which is a result of jointing and/or fracturing. Regional ground-water flow direction is from east to west; however, local ground-water flow direction is controlled by the orientation of the drainage basins and topography. In the Otay River Valley, the ground-water flow is from east to west. In the drainages leading to the Otay River Valley, the ground-water flow is believed to mimic topography. Ground-water recharge occurs in upland areas, and numerous springs (discharge areas) are present in creek headland areas. Springs are most common in the mountainous regions.

Ground-water depths at various locations on Otay Ranch were obtained from 9 existing wells and 13 ground-water monitoring wells which were installed on the property. Most of the wells are located in valleys or canyons which are in close proximity to the ground water. The depth to ground water in the upland areas is likely to be much greater. The wells in the Otay River Valley were completed primarily in the Mission Valley Formation. Those wells completed in the shallow unconfined aquifer of the Mission Valley Formation show a depth to ground water of approximately 6 to 8 feet (Gregg and Associates 1987). In wells completed in the deeper confined aquifer of the Mission Valley Formation, ground water is found approximately 50 to 130 feet below ground surface (bgs). In Telegraph Canyon and upper Proctor Valley, ground water is found in surficial alluvium at approximately 10 and 3 feet bgs, respectively. Shallow ground water is encountered at 10 and 32 feet bgs in Miocene sediment in Salt Creek and Poggi Canyon, respectively (Gregg and Associates 1987).

Aquifer permeability has been assessed in various parts of Otay Ranch. Well drawdown data on two wells have shown low specific capacities, suggesting low aquifer permeability. *In situ* field permeability tests of surface soils found moderate to high permeabilities ranging from 1×10^{-4} to 1×10^{-3} centimeters per second (cm/s) for various valley areas on the Otay Ranch property.

Laboratory testing of subsurface formational units including the Otay formation, Lindavista formation, Sweetwater formation, and alluvium yielded lower permeabilities than surficial soil. The laboratory permeabilities ranged from 3.9×10^{-6} to 2.1×10^{-8} cm/s. Subsurface field infiltration tests were conducted in the drainage basins of the Otay River Valley, Poggi Canyon, and Salt Creek in rock material indicative of the Sweetwater and Mission Valley formations. The permeability rates varied from 2.1×10^{-6} cm/s in the upper Otay River Valley to 1.0×10^{-3} in Poggi Canyon (Gregg and Associates 1987).

Water Quality

The ground-water quality varies between the coastal plain and the eastern mountain–valley regions. This difference is demonstrated between the Otay and Dulzura Hydrographic Subunits. The Otay Subunit in the western coastal plain has fair to poor ground-water quality due to migration of connate brines (RWQCB 1975). Connate water is ground water that has been trapped within sedimentary rock since the deposition of the rock. Connate water is typically of poor quality. The Dulzura Subunit in the eastern mountain–valley region is composed of crystalline rock, and ground-water quality in this subunit is fair to good.

Otay Subunit

The ground water under the western portion of Otay Ranch is generally poor to very poor due to high levels of total dissolved solids (TDS). Project-specific ground-water samples were obtained from 11 installed monitor wells and 4 existing wells (Gregg and Associates 1987). Ground-water samples were analyzed for pH, electrical conductivity, TDS, and various inorganic constituents including bicarbonate, sulfate, chloride, nitrate, calcium, magnesium, and sodium. Values of TDS in the Otay Subunit ranged from 890 milligrams per liter (mg/l) to as high as 9,720 mg/l. The ground water within this subunit is of a sodium-calcium chloride nature. Connate water, dissolved salts contained within sedimentary units at the site, and imported water used for irrigation (with higher salt concentrations) are believed to be partially responsible for poor ground-water quality (RWQCB 1975). The ground water of the Otay Subunit is characterized by the RWQCB

(1979) as existing beneficial water for industrial use. This subunit is also listed as having existing beneficial municipal and agricultural uses, although the ground water does not meet standard criteria for these uses.

Ground water obtained from wells in the Otay River Valley had TDS values ranging from 890 to 2,280 mg/l depending on the interval sampled. Values of TDS, magnesium, pH, chloride, and sulfate exceeded Federal Secondary Drinking Water Standards in numerous samples (Table 3.9-1).

Ground water obtained from two wells in Poggi Canyon ranged in TDS from 3,900 to 5,860 mg/l. Values of TDS, chloride, and nitrates exceeded Federal Secondary Drinking Water Standards in both wells (Table 3.9-1). Nitrate values were notably elevated, ranging from 40.7 to 54.2 mg/l (Gregg and Associates 1987).

Ground-water samples collected in one well in Telegraph Canyon contained a TDS concentration of 5,960 mg/l. Values obtained for sulfates, chlorides, and nitrates exceeded Federal Secondary Drinking Water Standards, though nitrate was only slightly elevated at 15.8 mg/l (Table 3.9-1) (Gregg and Associates 1987).

Ground-water samples were collected from two wells in Salt Creek. These samples contained TDS values ranging from 6,330 to 9,720 mg/l. Values obtained for TDS, chlorides, and nitrates exceeded the Federal Secondary Drinking Water Standard (Table 3.9-1) (Gregg and Associates 1987).

Dulzura Subunit

The Dulzura Subunit, in the eastern mountain–valley region, has fair to good ground-water quality. Although TDS and chloride concentrations are locally higher than federal standard criteria, there are no serious ground-water quality problems. Concentrations of TDS ranged from 323 to 1,161 mg/l, and nitrate levels as high as 32 mg/l have been reported (RWQCB 1975). The ground water is commonly used for rural household, domestic, and agricultural needs. The RWQCB (1979) states that the Dulzura Subunit has existing beneficial ground-water use for industry. Municipal and agricultural uses also exist though water quality does not meet state criteria.

Ground water collected within Dulzura Creek Basin contained concentrations of TDS ranging from 343 to 560 mg/l and nitrate levels of 8 mg/l.

3.9.1.3 Surface Water

Hydrology

As previously stated, the major hydrographic units associated with the project area are the Otay and Sweetwater Hydrographic Units. Major drainages for surface water within the Otay Hydrographic Subunit include: the Otay River (below Savage Dam), Poggi Canyon, Wolf Canyon, Johnson Canyon, O'Neal Canyon, and Salt Creek. Major drainages within the Dulzura Hydrographic Subunit include: Proctor Valley (above Otay Lakes), Jamul Creek, Dulzura Creek, and Sycamore Canyon. The small northwest portion of the property included within the Sweetwater Hydrologic Unit is drained by Telegraph Canyon. The 15 drainage basins affected by the proposed project have been delineated and are shown in Figure 3.9-1. Table 3.9-2 lists the drainage basin area and channel lengths.

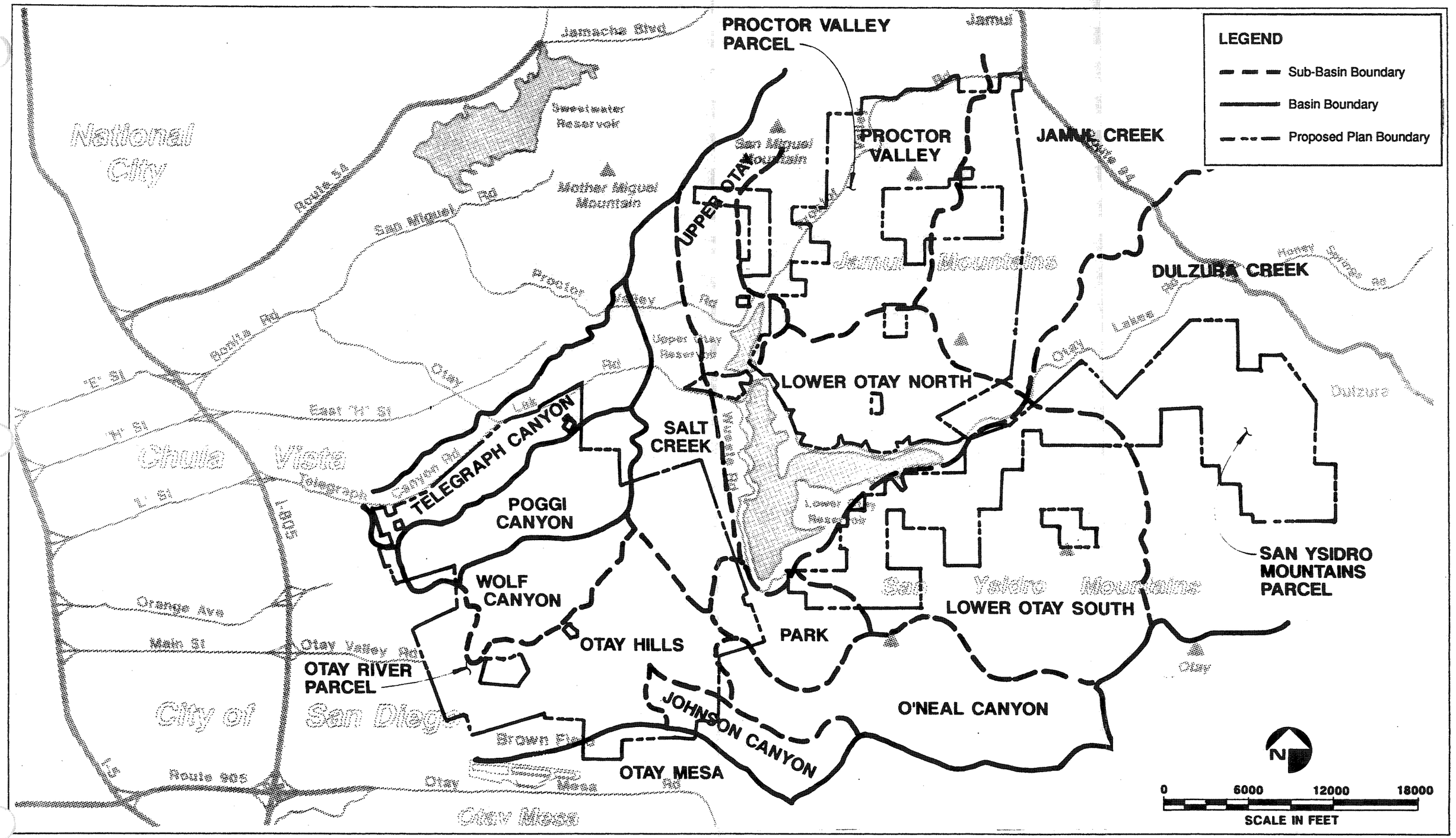
Table 3.9-1

GROUND-WATER QUALITY ANALYSIS

Well Number	Location	Perforation Interval (feet)	Source*	pH (unitless)	EC (µmhos/cm)	TDS (mg/l)	HCO_3 (mg/l)	SO_4 (mg/l)	CL (mg/l)	NO_3-N (mg/l)	Ca (mg/l)	Mg (mg/l)	Na (mg/l)
20J1	Otay Valley	115-95	B	8.8	1650	890	106	86	384	0.06	25	9	341
20J2	Otay Valley	64-54	B	8.1	2170	1480	111	240	652	2.50	103	22	441
20J3	Otay Valley	38-18	B	7.3	3640	2280	217	280	951	1.00	226	105	387
22L1	Otay Valley	160-140	B	7.8	2040	1670	191	136	389	0.67	35	15	390
22L2	Otay Valley	95-80	B	8.2	2920	2030	–	340	576	0.85	20	8	490
22L3	Otay Valley	30-20	B	7.7	3850	1930	–	360	879	1.95	85	30	660
SB-9MW	Poggi Canyon	44-29	B	7.2	6920	3900	353	–	2080	40.70	157	–	1190
SB-11MW	Poggi Canyon	50-35	B	7.2	10500	5860	210	–	3600	54.20	304	–	1460
SB-14MW	Salt Creek	25-10	B	7.2	14500	9720	215	–	5710	0.76	1060	–	1630
MW-1	Telegraph Canyon	30-5	A	7.3	8980	5960	530	340	2440	15.80	462	–	1300
MW-2	Salt Creek	30-25	B	7.4	11300	6330	308	220	3400	23.50	569	–	1360
9M01	Proctor Valley	13**	A	6.8	3090	1810	293	–	661	6.70	169	–	322
18S-2W-22J1	Otay Valley	ND	ND	7.8	2100	1360	–	–	495	6.20	132	–	206
18S/2W-23H2	Otay Valley	ND	ND	7.5	428	308	–	–	37.5	3.40	20	–	54
20R02	Otay Valley	337-400	B	8.9	3250	1750	19.1	–	1100	<0.05	90	–	510
Federal Standards Maximum Contaminant Levels				6.5-8.5	NA	500	NA	250	250	10	NA	0.05	250

* B = bedrock
A = alluvium
** Concrete tank set in alluvium to a depth of 13 feet
ND = Not Determined
-- = Not Analyzed
NA = Not Applicable

Source: Gregg and Associates 1987.



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Drainage Basins Affected by the Project Site

FIGURE 3.9-1

Table 3.9-2

DRAINAGE BASIN AREAS AND LENGTHS

Drainage Basin	Area (square miles)	Length (miles)
Dulzura Creek	37.35	11.36
Jamul Creek	18.13	9.79
Johnson Canyon	2.30	3.98
Lower Otay North	4.14	1.89
Lower Otay South	11.91	4.92
O'Neal Canyon	6.02	6.06
Park	2.21	1.89
Poggi Canyon	3.45	3.98
Proctor Valley	9.75	4.55
Salt Creek	6.67	6.25
Telegraph Canyon	3.69	4.75
Upper Otay	3.01	3.03
Wolf Canyon	2.24	3.03

Source: Drainage and Flood Control Plan for the Development of Otay Ranch by the Baldwin Company 1991, Appendix D, Figures 5 and 6.

Note: These drainage areas and channel lengths represent portions of each basin that are within and/or upstream of Otay Ranch.

The majority of the project area is within the Otay River Basin, of which the major tributaries are Dulzura Creek, Proctor Valley, and Jamul Creek. There are many other smaller tributaries that discharge into the Otay River. Both Upper and Lower Otay Lakes are part of the Otay River drainage system. The Otay River flows from east to west and discharges into San Diego Bay. Telegraph Canyon, located within the Sweetwater Hydrographic Unit, drains to the west through the City of Chula Vista and eventually discharges into San Diego Bay.

Floodway and floodplain widths are shown in Figure 3.9-2 (VTN Southwest 1989). Floodplains are defined by the Federal Emergency Management Agency (FEMA) as areas of special flood hazard where there is a 1 percent (or 1 out of 100) chance of flooding in any given year; this is defined as the 100-year floodplain. Certain portions of 100-year floodplains may be built upon under special provisions. Within the floodplain, FEMA further defines a floodways. A floodway is the active channel and adjacent area that must not be built upon in order to discharge the 100-year flood without cumulatively increasing the water surface elevation more than a designated height, typically 1 foot. However, in the case of the Otay River, the designated height of the water is not to exceed 0.2 feet according to City and County of San Diego protection ordinances (Church 1990).

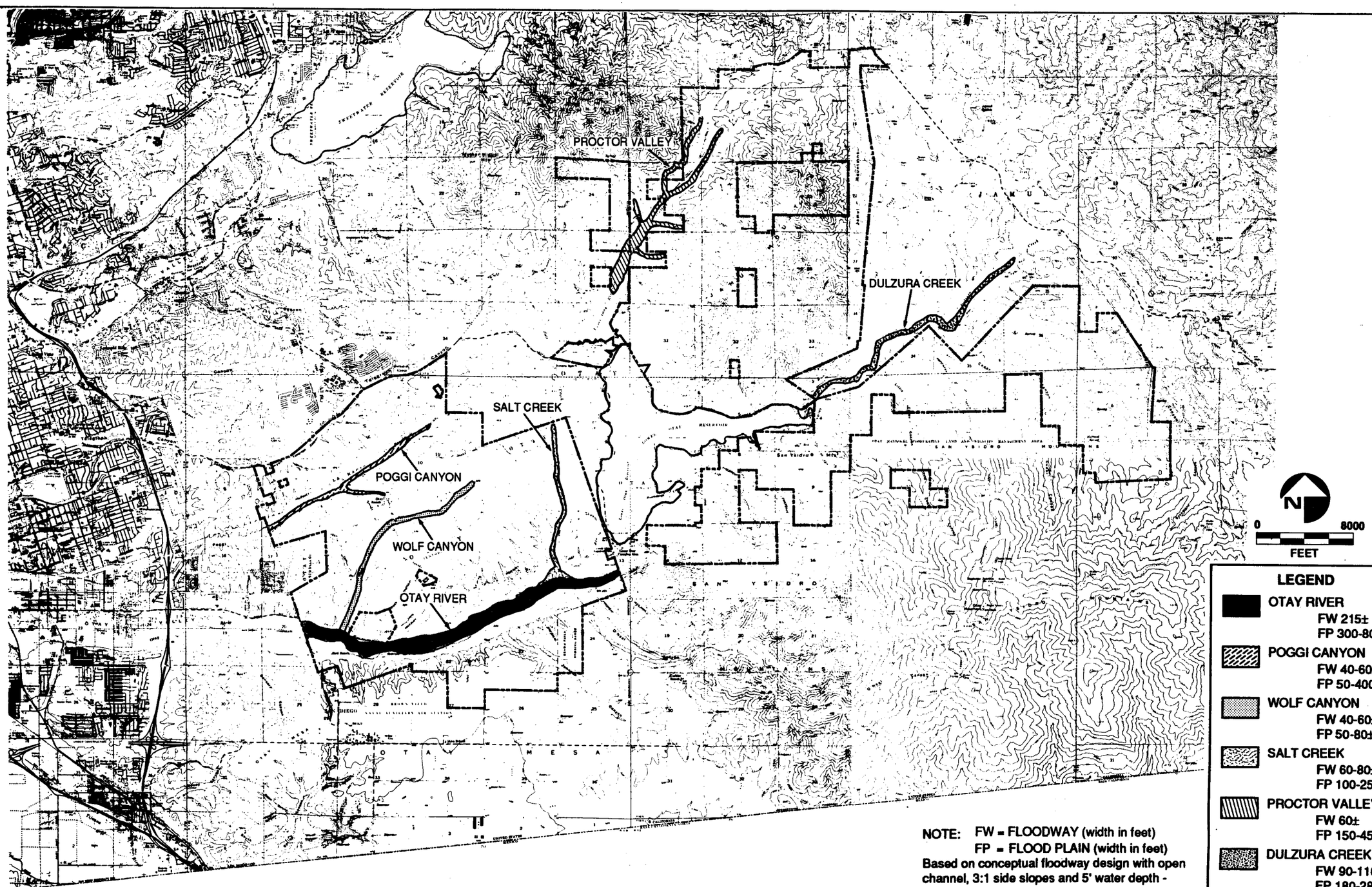
In the Otay River Basin, Lower Otay Lake is formed by Savage Dam, and Upper Otay Lake is impounded by a smaller dam. The drainage area above Lower Otay Lake is 99 square miles (Wilson Engineering 1989). These reservoirs are a municipal water supply for the City of San Diego. Lower Otay Lake receives local natural runoff, releases from Barrett and Morena Lakes, and imported water from the Colorado River and northern California. The maximum volume of the reservoirs is 56,519 acre-feet. Presently, 15 million gallons per day (mgd) (45 acre-feet per day) are withdrawn and used by the City of San Diego.

Water Quality

Otay Subunit

In the Otay Subunit, to the west and downstream of Otay Lakes, surface water is ephemeral and primarily occurs in man-made ponds created from sand and gravel mining. Precipitation is the primary contributor to surface water flow. The RWQCB (1979) rates the surface water in the Otay Subunit as having beneficial uses for agriculture, noncontact recreational sports, wildlife, and rare and endangered species. This subunit is also listed as having potential beneficial uses for industry.

Two surface water samples collected from storm runoff in the Otay River Valley and Johnson Canyon contained TDS ranging from 988 to 10,400 mg/l. These high levels could be due to land use practices. Concentrations of TDS, sulfate, chloride, nitrate, and magnesium were, in some cases, greater than Federal Secondary Drinking Water Standards (Table 3.9-3) (Gregg and Associates 1987). One surface water sample collected in Telegraph Canyon during storm runoff contained TDS concentrations of 650 mg/l (Gregg and Associates 1987).



NOTE: FW = FLOODWAY (width in feet)
FP = FLOOD PLAIN (width in feet)
Based on conceptual floodway design with open channel, 3:1 side slopes and 5' water depth - ultimate design may differ.

SOURCE: Baldwin Vista, 1989.

OGDEN

Floodway/Floodplain Boundaries

FIGURE 3.9-2

Table 3.9-3

RESULTS OF SURFACE-WATER ANALYSIS

Sample Number	Date	Location	Discharge (cu ft/sec)	pH (unitless)	EC (µmhos/cm)	TDS (mg/l)	Solids (mg/l)	HCO_3 (mg/l)	SO_4 (mg/l)	CL (mg/l)	NO_3-N (mg/l)	Ca (mg/l)	Mg (mg/l)	Na (mg/l)
UE-1	01/09/87	Johnson Canyon	.05	7.8	11600	10400	80	247	748	3750	34	778	371	1420
UE-2	01/09/87	Otay Valley	.2	8.3	1390	988	<16	114	238	283	<0.05	90	35	164
JC-2	02/24/87	Johnson Canyon	.07	8.0	13400	9770	100	147	702	4010	68	865	–	1790
TC-1	02/24/87	Telegraph Canyon	.01	7.9	1080	650	80	56	40	185	1	66	–	119
PUS-1	02/25/87	Proctor Valley	.04	7.8	2080	1200	100	167	112	436	<0.05	87	–	242
DC-1	02/25/87	Dulzura Canyon	14.7	8.3	582	304	53	121	30	53	<0.05	36	–	61
JD-1	02/24/87	Jamul/Dulzura Creek	17.9	7.5	657	376	40	111	39	79	0.5	38	–	70
OR-1	02/27/87	Otay Valley	–	7.3	611	320	–	138	50	86	0.07	15	–	120
Maximum Contaminant Limits (Federal Standards)				6.5-8.5	NA	500	NA	NA	250	250	10	NA	0.05	250

– Not Analyzed
NA Not Applicable

Source: Gregg and Associates 1987.

Dulzura Subunit

In the Dulzura Subunit, to the east and upstream of Otay Lakes, the surface water is ephemeral with the exception of Dulzura Creek and a few mountain springs. The RWQCB (1979) rates the surface water of the Dulzura Subunit as being beneficial for municipal, agricultural, industrial, and wildlife uses. One surface water sample collected in Proctor Valley contained TDS concentrations of 1,200 mg/l and chloride concentrations above the federal standards (Table 3.9-3) (Gregg and Associates 1987).

Upper and Lower Otay Lakes are the recipients of runoff from the Dulzura Subunit. Hence the quantity and quality of storm runoff entering the reservoirs are of concern. Existing water quality (pre-development) has been modeled by Wilson Engineering (1989). Wilson Engineering modeled salt concentrations as a general indication of water quality. As salt concentration increases, so does the concentration of TDS. The predominant existing land uses within the reservoir drainage basin are rural/agricultural with little developed land. Table 3.9-4 shows a summary of the existing salt concentrations. The modeling was based on salt concentrations in storm water. The present salt content of runoff in the Dulzura Subunit is estimated to be 250 mg/l (Wilson Engineering 1989).

3.9.2 Impact Analysis

Potential hydrologic impacts include inundation of project features, changes in surface water flow rates, surface water quality, and ground-water quantity and quality.

3.9.2.1~~2~~ Ground Water

The increased exposure to urban pollutants could affect the quality of the water ~~quality in the~~ recharging ground-water. ~~and surface water systems.~~ However, the impact to ground water would be minimal due to the filtering of pollutants during percolation and the poor ground-water quality under existing conditions.

Quantity

The overall increase in impermeable surfaces would cause more precipitation to run off than to infiltrate into the aquifers. The increase of the impermeable surface by 57 percent would likely significantly decrease the aquifer recharge in the upland areas. However, ~~although~~ the principal aquifer, ~~is~~ the Otay River Valley, ~~it~~ would not be significantly urbanized. Therefore, recharge to the aquifer beneath the river would be unaffected ~~or increased; thus,~~ and impacts would not be significant.

3.9.2.2~~1~~ Surface Water

Inundation

The prevention of flooding is an important consideration in the planning of a new development. When a vegetated area such as Otay Ranch is developed, vegetation is removed, the impermeable surface is increased, and the quantity of surface water discharge increases. It is estimated that the New Town Plan could increase the impermeable surface by 57 percent. This value was obtained by dividing the projected developed land area by the total project area. This percentage is based on the assumption that all developed areas would become impermeable surfaces, resulting in a conservative assessment of impacts. Hydrology modeling by VTN Southwest, Inc. (1989) indicated that the peak surface water discharge into the Otay River channel would not significantly increase due to development of the New Town Plan. However the peak discharge into several minor tributaries would

Table 3.9-4

EXISTING SALT CONCENTRATIONS IN SURFACE WATER

Description	Concentration (mg/l)
Initial Concentration in Lower Otay Lake	399
Final Concentration in Lower Otay Lake for an Average Rainfall Year	393
Final Concentration in Lower Otay Lake for a Typical Wet Year	364
Final Concentration in Lower Otay Lake for a Typical Dry Year	422

Source: Wilson Engineering 1989.

increase. These conclusions were based on the site-specific soils, in which the clayey, steep, rocky slopes, which allow for naturally rapid runoff. Hence, the difference in peak discharge between existing and developed conditions would be slight. The total discharge would increase due to the increase in impervious surfaces and could cause impacts related to the total volume of water.

In general, development should either not be allowed within the 100-year floodplain, or structures should be raised above the depth of flow of the 100-year flood. The floodway should be kept free of encroachment. Portions of the New Town Plan may encroach upon the floodplain, including various road crossings. Encroachment on floodplains and floodways could create a potentially significant impact. When a large project such as Otay Ranch is being developed, and a single owner owns the adjacent upstream and downstream areas of a floodplain, there is more flexibility in establishing a floodway than in a case where even minor changes can materially harm or benefit one or more individual owners.

Inundation of downstream drainage facilities could result in significant impacts. The facilities of concern are described in the mitigation section (3.9.3) with the appropriate recommendations for improvement.

Change in Surface Water Flow Rates

The increase in impermeable area (57 percent) could significantly increase the velocities of surface water runoff in specific areas. Overall, the velocities of the Otay River would not increase, however, in specific locations increased velocities of storm runoff could occur. The ability of flowing water to cause damage and endanger the public varies with velocity and depth. Water that is more than 3 feet deep and flowing at 3 feet per second (fps) or more could create the danger of injury or drowning. Rapidly rising and fast flowing waters may trap persons in homes that are ultimately destroyed or in vehicles that are submerged. Water flowing at 5 to 8 fps is capable of eroding stream banks and transporting large rocks or other debris (Corps of Engineers 1971). Extremely high velocities such as 20 fps give water considerable power to undermine unlined embankments, scour bridge supports in unlined channels, erode unprotected stream banks, and carry debris. Water flowing at about 2 fps or less would deposit debris and silt (Corps of Engineers 1971). Materials carried by floodwaters can clog downstream undercrossings, causing backwater effects and inundating surrounding areas that would otherwise be above the flood elevation.

In its existing state flood flows along the Otay River could be as much as 20,000 cubic feet/second (cfs). Consequently, velocities in places could be significantly high (above 5 fps). Salt Creek may have velocities as high as 10 fps (VTN Southwest, Inc. 1989). These velocities are high enough to cause personal injury and erode unlined embankments.

Based on the drainage infrastructure designed by Church Engineering (1990) for this project, drainage facilities would be aligned with creek bottoms and would be open channels, where possible. Upper and Lower Otay Lakes would be the recipients of the storm flow within the Dulzura Subunit. The Otay River Valley would be the primary storm flow recipient below the reservoir. Telegraph and Poggi canyons would also carry storm flows. The primary impacts related to the drainage system would be erosion and siltation.

Erosion is due to the increased velocity of flow in channelized segments and the impact of this increased flow on natural stream segments. Siltation occurs where velocities significantly decrease to the point of the stream flow, releasing the sediment load.

Water Quality

The impact on surface water quality would potentially be significant. Types of possible pollutants from developed urban areas include heavy metals, herbicides, pesticides, oil, grease, fuel, and surfactants. Salt modeling, used as an indication of total dissolved solids (Wilson Engineering 1990), indicated that, without mitigation, the salt balance as a result of urbanization would increase significantly (Table 3.9-5).

Surface Water Quantity

In general, the total surface water runoff will increase due to the increased impermeable surfaces. The specific percentage increase is related to specific land use, soil type, and types of flow routing. The total volume increase could be between 15 and 20 percent.

Around Otay Lakes, 25 percent at each storm will be diverted as urbanized first flush. This will account for 25 percent less surface water reaching the lakes. This is a potentially significant impact.

3.9.3 Proposed Mitigation

The impacts identified to ground water and surface water may be mitigated to below a level of significance by implementing the measures listed below:

1. It is the responsibility of the first developer to provide a comprehensive drainage and drainage infrastructure plan. The master drainage plans for each drainage basin should be developed with the first SPA within each drainage basin. The specific master drainage plans shall include drainage infrastructure, staging/development detail, timing, financing, and responsibility for drainage impacts. The master drainage plans shall comply with Title 44 Code of Federal Regulations in regards to development on floodplains. In addition, the master drainage plans shall comply with San Diego County protection ordinances regarding the floodway and floodplain fringe wetlands. Any channel improvements on a watershed greater than 1 square mile shall comply with Section 404 of the Clean Water Act.

2. The impacts associated with inundation shall be addressed by the preparation of accurate detailed hydrologic and hydraulic studies by a qualified hydrologist for the project applicant at the SPA Plan level when a detailed development plan is available. The hydraulic studies shall demonstrate that the project design meets Title 44 of Federal Regulations and the County of San Diego and City of Chula Vista floodplain encroachment and engineering standards contained in the appropriate ordinances of each jurisdiction. The recommendations of these studies shall be implemented in order to mitigate impacts. The studies shall consider:

   - A detailed site-specific floodplain/floodway width study shall be conducted for the final development plans to ensure that encroachment of the floodway is avoided. The floodplain fringe may be developed in certain areas if a retaining structure (e.g., dike, etc.) is built at the floodway boundary. The applicant shall conduct a detailed design study for each bridge and culvert (EIR proposed).

   - The Otay Ranch development shall not significantly increase existing 100-year flood flows above natural conditions unless downstream structures can accommodate the increase in total discharge, peak discharge, and increased

Table 3.9-5

SALT CONCENTRATION IMPACTS

Description	Concentration (mg/l) After Urbanization with No Mitigation	Concentration (mg/l) After Urbanization with Dry Weather Diversion System
Initial Concentration in Lower Otay Lake	399	399
Final Concentration in Lower Otay Lake for an Average Rainfall Year	434	402
Final Concentration in Lower Otay Lake for a Typical Wet Year	393	367
Final Concentration in Lower Otay Lake for a Typical Dry Year	472	425

Source: Wilson Engineering 1989.

velocities, or the applicant constructs required detention basins to prevent adverse impacts (EIR proposed).

- All proposed bridges and culverts shall be designed and constructed to pass the 100-year flood without causing backwater effects or hydraulic conditions that would lead to scour or erosion of embankments (EIR proposed).

3. The impacts associated with change in water velocities shall be addressed by detailed hydrologic and hydraulic studies prepared by a qualified hydrologist for the project applicant at the SPA Plan level when a detailed development plan is available. These studies shall ~~demonstrate that~~ discuss erosion and sedimentation associated with project development ~~would~~ and specifically how these impacts shall be avoided through design features in accordance with Title 44 Federal Regulations and City of Chula Vista and County of San Diego erosion control standards. The recommendations of these studies shall be implemented in order to mitigate impacts (EIR proposed).

   - The applicant shall protect all embankments and slopes within the floodplain to prevent erosion (EIR proposed).

   - Energy dissipation devices shall be necessary at the confluences of the storm drainage system and the natural channels to prevent erosion (Applicant proposed).

   - Siltation basins shall be necessary at locations where the runoff velocity drastically decreases (Applicant proposed).

4. Potential water quality problems shall be mitigated by implementing the plans provided in the Urban Runoff/Reservoir Study (Baldwin Vista 1991). These plans include a dry weather system to collect all dry weather urban runoff, spills, and approximately 25 percent of rain runoff (the first flush). The first flush would contain a large majority of the urban pollutants. The project plans also include a water monitoring program to check the effectiveness of the system. As indicated in Table 3.9-5, the salt modeling by Wilson Engineering shows that this procedure would be effective in reducing urban pollution to a level similar to existing conditions prior to urbanization (Table 3.9-4). This level shall meet the Primary Drinking Water standards, which would in turn maintain quality for the beneficial uses of the lake, including recreation and fisheries. All systems shall be designed so that in the case of pipe failure the effluent is adequately captured. The applicant shall create buffer zones around the lakes (Applicant proposed).

5. ~~In addition,~~ The applicant must comply with all applicable regulations established by the United States Environmental Protection Agency as set forth in the National Pollutant Discharge Elimination System (NPDES) permit requirements for urban runoff and stormwater discharge and any regulations adopted by the City of Chula Vista pursuant thereto. The City of Chula Vista and County of San Diego have a Municipal Permit from the State Regional Water Quality Control Board (RWQCB) for stormwater discharge. In order to be covered under Municipal Permit, Order No. 90-42, NPDES No. CA0108758, the proposed developed area will be required to mitigate impacts to stormwater quality. ~~The applicant shall also be required to obtain NPDES permits from the State Water Resources Control Board and to submit pollutant control and monitoring plans to the Regional Water Quality Control Board for approval prior to the issuance of grading permits.~~

In addition, RWQCB has issued one general permit that applies to construction activity. In order to be covered under the Construction General Permit, a Notice of Intent (NOI) must be filed with RWQCB. Compliance with the Permit requires that a stormwater pollution prevention plan be prepared and implemented for the project.

Best management practices, design, treatment, and monitoring for stormwater quality must be addressed with respect to Muncipal and Construction Permits.

Detailed stormwater quality studies shall be conducted by a qualified hydrologic engineer at the SPA Plan level to develop appropriate mitigations that protect the quality of both the Otay Reservoirs and the remaining waterways. The stormwater quality studies shall demonstrate that no degradation of water quality will occur. ~~in the existing reservoir system at the point of outfall near the Otay Water Filtration Plant.~~

6. Potential significant decreases in recharge to the aquifer system shall be partially mitigated by utilizing unlined natural channels and unlined siltation basins whenever possible. Prior to SPA plan approval, a study shall be prepared by a qualified hydrogeologic engineer for the project applicant addressing the issues of manmade recharge systems. The study shall identify the appropriate recommendations to be implemented during project buildout in order to mitigate possible aquifer recharge impacts. The study will demonstrate that City of Chula Vista and/or County of San Diego standards on aquifer recharge shall be achieved as to the appropriate jurisdiction (EIR proposed).

7. An Urban Runoff Master Plan for Otay Lakes shall be prepared by a qualified hydrologic engineer for the project applicant prior to or concurrent with the first SPA Plan in a drainage basin affecting Lower Otay Lake. The Master Plan shall determine that the existing water quality at the outflow of the water filtration plant will, at a minimum, be maintained.

The Master Plan shall address and/or include the following issues:

a. Existing Water Quality

- Water in Lower Otay Lake
- Outflow from Lower Otay Lake
- Inflow to Lower Otay Lake

b. Drainage Basin Characteristics (Otay Ranch)

- Existing
- Proposed

c. Water Quality/Quantity

- Establishment of water quality needs for potable supply, fisheries, and recreation
- Runoff quality goals
- Runoff quantity goals
- Mitigation of runoff quality and quantity

d. Evaluation of Alternative Urban Runoff System

- Alternative Systems
- Recommended System
- Phasing of Recommended System
- Non-structural Controls and Watershed Protection Programs
- Spill Management (Spill management is to include the location of all sewer mains, sewer force mains, and sewer pump stations upgradient of the urban run-off interceptor trenches.)

c. Capital Financing Plan

- Estimated Cost by Phase
- Financing Methods
- Recommended Financing Mechanism
- Agreement and financing plan for operations and maintenance of a water management program

Note: The content of the Master Plan is addressed in the Urban Runoff Facilities Implementation Plan (Baldwin Vista 1991).

The Master Plan may allow for development of sub-plans within each basin if the following conditions are met:

a. The basins are identified in the Master Plan.

b. All sub-plans conform to the Master Plan and are ~~be~~ prepared and adopted concurrently with the first SPA Plan in any given basin.

8. In addition, urban runoff and surface water quality shall be specifically addressed in each SPA Plan. At the SPA Plan level, detailed water quality analysis will be performed and appropriate mitigation measures developed. Amounts of urban runoff loading will be estimated for metals, herbicides, pesticides, fuels, and surfactants.

9. Best management practices (BMPs) shall be designated and implemented at the SPA Plan level in order to reduce the quantity and improve the potential quality of surface water runoff. EIRs at the SPA level shall include specific BMPs in the categories of reduced pollutant generation, reduced pollutant transport, and treatment of polluted runoff. Some specific BMPs that should be considered at the SPA level include:

   a. Mitigations to reduce impervious surfaces such as grassed swales, filter strips, constructed wetlands, detention ponds, infiltration trenches/basins, replacement of concrete with permeable surface, and use of natural channels where possible.

   b. Mitigations to reduce or prevent pesticide contamination impacts such as Integrated Pest Management, non-use of pesticides along roadways, use of only EPA-approved chemicals, and plan of pesticide use around upcoming precipitation events.

10. With the first SPA Plan in any given basin, a Watershed Impact and Protection Report shall be developed and implemented for each drainage basin.

The impact of 25 percent of the runoff being diverted from the Otay Lakes shall be mitigated by a series of possible scenarios.

a. The increased runoff due to increased impermeable surfaces will offset some of the lost surface water.

b. If more water is needed to offset surface water losses, the routing of incrementally more water from the County Water Authority is a possibility.

3.9.4 Analysis of Significance

At this level of analysis, impacts to ground-water and surface water resources and quality are considered significant. Ground-water and surface water impacts would be mitigated to a level below significance with implementation of the proposed mitigation measures at the SPA and project design levels of review.

3.10 TRANSPORTATION, CIRCULATION, AND ACCESS

This section presents the results of the transportation, circulation, and access analysis conducted for the New Town Plan. It is important to note that while discussion of existing conditions in the Otay Ranch study area is contained only in this section, it is applicable to all of the project alternatives evaluated in this document. The analysis of impacts for the various project alternatives (Section 4) is, therefore, confined to a discussion of *future* traffic and circulation conditions.

3.10.1 Existing Conditions

This section describes the existing transportation network in the area surrounding Otay Ranch. The study area for this project is the area south of SR-54 to the United States-Mexico border, and east of I-805 to Jamul. Figure 3.10-1 illustrates the study area established for the analysis of the transportation and circulation impacts of the New Town Plan and development alternatives. The study area boundary was determined based on a detailed review of the buildout traffic conditions with the Otay Ranch project, as predicted by the San Diego Association of Governments' (SANDAG) Combined Southbay Transportation Model. This evaluation revealed that the distribution of traffic to and from the Otay Ranch property, under all development scenarios, would be limited primarily to this study area region. Impacts to intersections between the project area and transportation facilities beyond the study area boundary were relatively minimal compared to those in the area within the study area boundary. The Otay Ranch Transportation Technical Report contains a detailed discussion of the process used to determine the study area boundaries for this analysis.

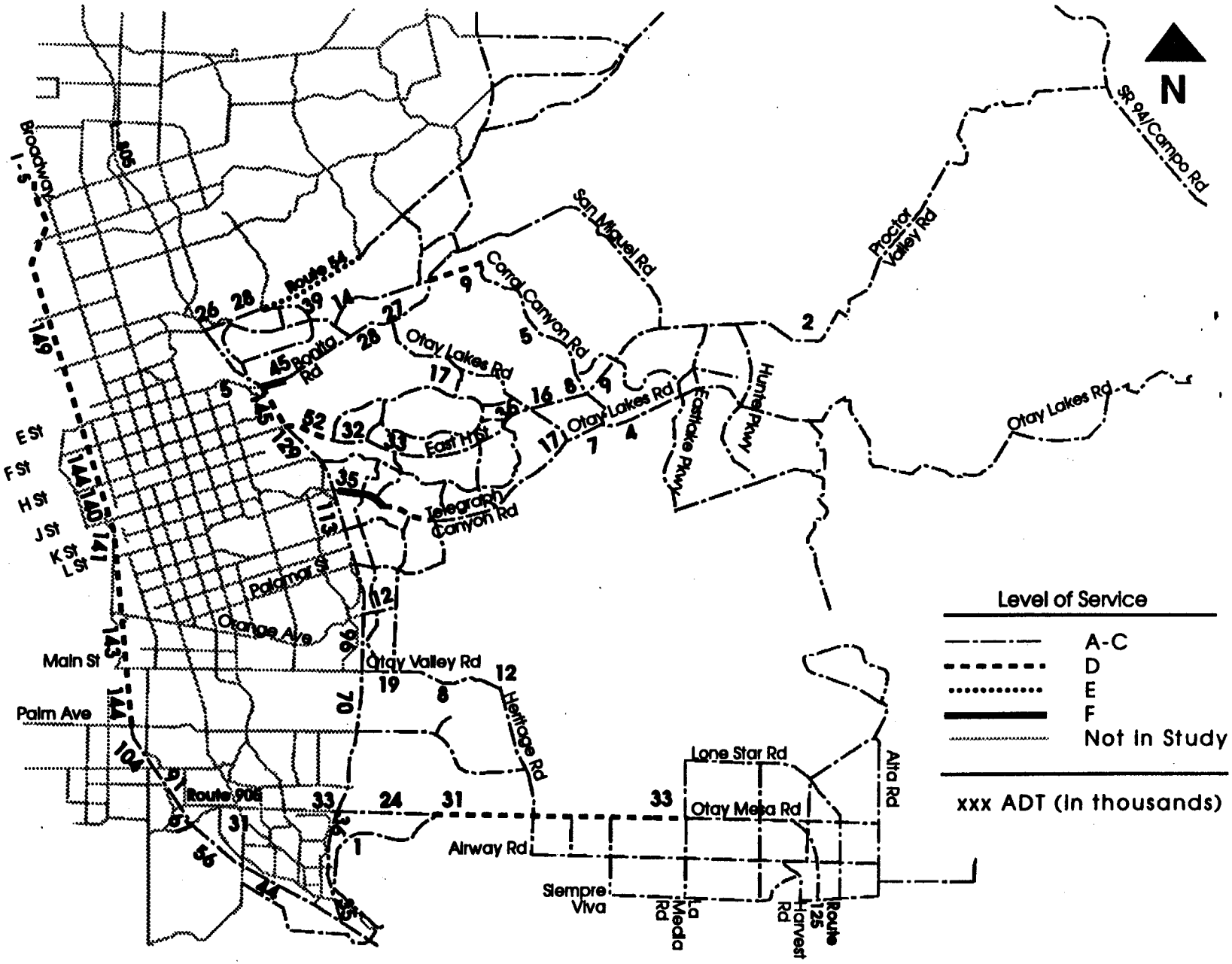
The City of Chula Vista General Plan Circulation Element was used as a guideline to identify existing congestion at major roadway crossings based on total entering volumes, based on direction from the Otay Ranch Interjurisdictional Task Force. Levels of service (LOS) A through C are considered acceptable according to Chula Vista standards.

Table 3.10-1 shows the current (1989) traffic volumes and levels of service on study area roadway segments. The majority of streets in the study area currently operate at acceptable levels of service. The following roadway segments currently operate above the maximum recommended Average Daily Traffic volumes (ADT) for their facility class (i.e., LOS D or worse for arterials, LOS F for freeways), thus operating at unacceptable levels:

Jurisdiction	Roadway	From-To Segment	LOS
City of Chula Vista	Bonita Road	E Street - I-805	D
	East H Street	Hilltop Drive - Terra Nova	F, D
	Telegraph Canyon Road	L Street - Paseo Ladera	F
	Orange Avenue	Melrose Avenue - I-805	D
City of San Diego	Otay Mesa Road	SR-905 - SR-125	D
	Southbay Parkway	Woodman Street - Reo Drive	E
County of San Diego	Bonita Road	I-805 - Plaza Bonita Road	F

Figure 3.10-1 shows existing areas roads and a graphic representation of existing levels of service within the study area.

An analysis of the major signalized intersection operating conditions concluded that no existing intersections were found to be operating in excess of the maximum recommended average daily entering volume criteria, based on the adopted Chula Vista standards. For a



OTAY RANCH

Tra[illegible]tation, Circulation
an[illegible]ess Technical Analysis

Figure 3.10-1

EXIST[illegible]NG CIRCULATION[illegible]
NET[illegible]K CONDITIONS
SOU[illegible]AY STUDY AREA

jhk & Associates

Table 3.10-1

OTAY RANCH STUDY AREA CIRCULATION NETWORK EXISTING AVERAGE DAILY TRAFFIC VOLUMES AND ARTERIAL LEVELS OF SERVICE (1989)

Primary Street	Class	Lanes	Maximum Desirable ADT Volume LOS C*	ADT	LOS
City of Chula Vista					
Interstate 5					
24th St./E St.	Freeway	(8LN)	160,000 (LOS E)	148,500	D
E St/H St.	Freeway	(8LN)	160,000 (LOS E)	144,300	D
H St./J St.	Freeway	(8LN)	160,000 (LOS E)	140,000	D
J St./Palomar St.	Freeway	(8LN)	160,000 (LOS E)	141,000	D
Palomar St./Main St.	Freeway	(8LN)	160,000 (LOS E)	143,000	D
Interstate 805					
Bonita Rd./East H St.	Freeway	(8LN)	160,000 (LOS E)	143,600	D
East H St./ Telegraph Cyn Rd.	Freeway	(8LN)	160,000 (LOS E)	128,700	C
Telegraph Cyn Rd./ Orange Ave.	Freeway	(8LN)	160,000 (LOS E)	112,500	C
Orange Ave./Otay Valley Rd.	Freeway	(8LN)	160,000 (LOS E)	96,200	B
Bonita Road					
1st Ave./E St.	Major	(4LN)	30,000	4,500	A
E St./I-805	Major	(4LN)	30,000	30,100	D
Willow St./Otay Lakes Rd.	Major	(4LN)	30,000	28,300	C
Otay Lakes Rd./Palm Dr.	Major	(4LN)	30,000	26,700	C
Sweetwater Road					
Willow St./Mesa Vista Way	Class I Collector	(4LN)	22,000	13,900	A
Corral Canyon Road					
Country Vistas Ln./ Port Renwick	Class II Collector	(3LN)	12,000	4,900	A
Port Renwick/East H St.	Class II Collector	(3LN)	12,000	7,500	A
Otay Lakes Road					
Bonita Rd./East H St.	Major	(4LN)	30,000	17,400	A
East H St./Telegraph Cyn Rd.	Major	(4LN)	30,000	16,500	A
Telegraph Cyn Rd./ Rutgers Ave.	Major	(4LN)	30,000	6,800	A
Rutgers Ave./Wueste Rd.	Class II Collector	(3LN)	12,000	3,500	A

City of Chula Vista

Table 3.10-1 (Continued)

OTAY RANCH STUDY AREA CIRCULATION NETWORK EXISTING AVERAGE DAILY TRAFFIC VOLUMES AND ARTERIAL LEVELS OF SERVICE (1989)

Primary Street	Class	Lanes	Maximum Desirable ADT Volume LOS C*	ADT	LOS
(Continued)					
East H Street					
Hilltop Dr./I-805	Major	(4LN)	30,000	38,900	F
I-805/Ridgeback Rd.	Prime	(6LN)	50,000	51,800	D
Terra Nova Rd./Paseo Del Rey	Prime	(6LN)	50,000	31,800	A
Paseo Del Rey/ Buena Vista Way	Prime	(6LN)	50,000	32,600	A
Buena Vista Way/ Otay Lakes Rd.	Prime	(6LN)	50,000	35,800	A
Otay Lakes Rd./ Rutgers Ave.	Major	(4LN)	30,000	16,200	A
Rutgers Ave./EastLake Dr.	Major	(4LN)	30,000	9,400	A
Telegraph Canyon Road					
Hilltop Dr./L St.	Class II Collector	(3LN)	12,000	3,900	A
L St./I-805	Major	(4LN)	30,000	39,500	F
I-805/Oleander Ave.	Prime	(6LN)	50,000	34,500	A
Oleander Ave./Paseo Del Rey	Prime	(6LN)	50,000	25,100	A
Paseo Del Rey/Paseo Ladera	Prime	(6LN)	50,000	23,600	A
Paseo Ladera/Buena Vista Way	Prime	(6LN)	50,000	19,500	A
Buena Vista Way/ Otay Lakes Rd.	Prime	(6LN)	50,000	16,700	A
Orange Avenue					
Hilltop Dr./Melrose Ave.	Class I Collector	(4LN)	22,000	17,100	B
Melrose Ave./I-805	Class I Collector	(4LN)	22,000	24,600	D
I-805/Oleander Ave.	Major	(4LN)	30,000	12,200	A
Otay Valley Road					
Melrose Ave./I-805	Major	(4LN)	30,000	22,500	C
I-805/Oleander Ave.	Prime	(6LN)	50,000	18,900	A
Oleander Ave./City Limits	Prime	(6LN)	50,000	7,700	A
City of San Diego					
Interstate Route 5					
Main St./Palm Ave.	Freeway	(8LN)	160,000 (LOS E)	144,000	D
Palm Ave./Coronado Ave.	Freeway	(8LN)	160,000 (LOS E)	103,900	C

Table 3.10-1 (Continued)

OTAY RANCH STUDY AREA CIRCULATION NETWORK EXISTING AVERAGE DAILY TRAFFIC VOLUMES AND ARTERIAL LEVELS OF SERVICE (1989)

Primary Street	Class	Lanes	Maximum Desirable ADT Volume LOS C*	ADT	LOS
City of San Diego					
Interstate Route 5					
Main St./Palm Ave.	Freeway	(8LN)	160,000 (LOS E)	144,000	D
Palm Ave./Coronado Ave.	Freeway	(8LN)	160,000 (LOS E)	103,900	C
Coronado Ave./I-905	Freeway	(8LN)	160,000 (LOS E)	90,600	B
I-805/Dairy Mart Rd.	Freeway	(8LN)	160,000 (LOS E)	67,400	B
Dairy Mart Rd./ Via De San Ysidro	Freeway	(8LN)	160,000 (LOS E)	55,500	A
Via De San Ysidro/I-905	Freeway	(8LN)	160,000 (LOS E)	44,200	A
I-805/Beyer Blvd.	Freeway	(8LN)	160,000 (LOS E)	61,500	A
Beyer Blvd./U.S. - Mexico Border	Freeway	(8LN)	160,000 (LOS E)	75,400	B
Otay Valley Rd./Palm Ave.	Freeway	(8LN)	160,000 (LOS E)	88,100	B
Palm Ave./I-905	Freeway	(8LN)	160,000 (LOS E)	70,000	B
I-905/San Ysidro Blvd.	Freeway	(8LN)	160,000 (LOS E)	36,200	A
San Ysidro Blvd./I-5	Freeway	(8LN)	160,000 (LOS E)	35,300	A
Otay Valley Road					
E. Chula Vista City Limits/ Heritage Rd.	Major	(4LN)	30,000	12,000	A
Otay Mesa Road					
Beyer Blvd./SR-905	Major	(4LN)	30,000	1,400	A
SR-905/Heritage Rd.	Major	(4LN)	30,000	31,200	D
Heritage Rd./SR-905	Major	(4LN)	30,000	33,200	D
State Route 905					
I-5/Beyer Blvd.	Freeway	(4LN)	80,000 (LOS E)	31,000	A
Beyer Blvd./I-805	Freeway	(4LN)	80,000 (LOS E)	33,200	B
I-805/Otay Mesa Rd.	Freeway	(4LN)	80,000 (LOS E)	24,000	A
County of San Diego					
Bonita Road					
I-805/Plaza Bonita Rd.	Major	(4LN)	30,000	44,600	F
Southbay Parkway					
Paradise Valley Rd./ Sweetwater Rd.	Prime	(4LN)	33,333	26,300	B
Sweetwater Rd./Woodman St.	Prime	(4LN)	33,333	28,300	B
Woodman St./Reo Dr.	Prime	(4LN)	33,333	39,400	E

Table 3.10-1 (Continued)

OTAY RANCH STUDY AREA CIRCULATION NETWORK EXISTING AVERAGE DAILY TRAFFIC VOLUMES AND ARTERIAL LEVELS OF SERVICE (1989)

Primary Street	Class	Lanes	Maximum Desirable ADT Volume LOS C*	ADT	LOS
County of San Diego (Continued)					
Sweetwater Road					
Jamacha Blvd./ Paradise Valley Rd.	Major	(4LN)	30,000	34,300	E
Southbay Pkwy./ Bonita Rd.	Class I Collector	(4LN)	22,000	10,900	A
Central Avenue					
Sweetwater Rd./ Bonita Rd.	Class I Collector	(4LN)	22,000	8,200	A
Bonita Rd./ Corral Canyon Rd.	Class II Collector	(3LN)	12,000	8,700	A
Proctor Valley Road San Miguel Rd./SR-94	Interim Road	(2LN)	7,500	1,500	A

Note: The Otay Ranch Interjurisdictional Task Force selected the City of Chula Vista standards as the planning guideline values for this Otay Ranch Project. Level of Service C is the acceptable standard for roadway operations.

more detailed discussion of arterial and intersection analysis methodology, see Appendix B1.

3.10.2 Impact Analysis

This section documents the results of the impact analysis for the New Town Plan. The following topics will be discussed in this section: trip generation, proposed circulation network, arterial segment and freeway impacts, and intersection impacts.

Appendix B of this document contains a detailed discussion of the impact analysis methodologies and threshold standards used to identify impacts of the proposed project and the alternatives for the Otay Ranch Project. In addition, Appendix B explains differences in specific land uses in the trip generation tables and the corresponding acreage and dwelling unit estimates of land uses shown in the alternatives descriptions in Section 4 of this document. Finally, Appendix B contains criteria background information regarding local and regional transportation planning topics related to project impacts and mitigation. These topics include the following:

- Trip Reduction Strategies
- Development Strategies to Influence Trip Reduction
- Transit Goals, Objectives, and Policies in the Southbay Region
- Regional Population Growth Policies/Impacts
- Development and Transportation System Phasing
- Otay Valley Crossing Peak Hour Travel Demand Analysis

The following discussion briefly summarizes the detailed information provided in Appendix B for two of the most critical items listed above (Trip Reduction Strategies and Development of Transportation System Phasing). Trip Reduction Strategies include the promotion of travel by public transit, promotion of ridesharing, careful land use planning in order to reduce the need for auto trips, and the encouragement of bicycle and pedestrian travel. Within communities the use of golf carts for short trips is also proposed. Other development strategies to reduce or control trips include appropriate parking standards, road design standards, and incentives along with design guidelines and design review procedures. Transit is strongly encouraged by providing transit corridors and facilities in each village core, the provision of light rail transit and bus facilities as appropriate. Development of Transportation System Phasing is one of the most important tools to control project traffic impacts and assure that appropriate and adequate facilities are available concurrent with need. Phasing along with this General Development Plan and subsequent Specific Plans, Tentative Subdivision Maps, Final Subdivision Maps, Building Permits, and ultimately Occupancy permits assure absolute control over the type, location, and timing of transportation facilities.

3.10.2.1 Transportation Planning Concepts

The proposed conceptual circulation plan for the Otay Ranch Project provides a regional highway network linking key areas in the region. The system also provides many new roadway facilities both onsite and offsite, thus increasing the carrying capacity of the arterial system in the Southbay area east of I-805.

In an attempt to aid in the review of the proposed plan, the Otay Ranch Project Team (RBF & Associates and JHK & Associates) prepared guideline documents entitled *Goals and Objectives* (revised November 27, 1990) and *Policies* (November 27, 1990). The

following sections are excerpts from these documents and focused the analysis of potential impacts conducted during the development of the Program EIR.

Goals and Objectives

The following goals and objectives were developed by the Project Team as recommendations to enhance the planning process:

Goal 1: Transportation System

The overall goals of the circulation element are to provide a safe and efficient transportation system within the project area, while providing convenient linkages to the region. The conceptual goal of the circulation system is to be sensitive to the unique land forms in the undeveloped areas and responsive to proposed land use patterns.

- Objective 1: Support the design and construction of a regional circulation system that will have the capacity to carry the forecasted regional demand volumes through the area.
- Objective 2: Plan and implement a circulation system such that the operational goal of LOS C for streets and intersections can be achieved and maintained.
- Objective 3: Provide an efficient circulation system that minimizes impacts on residential neighborhoods and environmentally sensitive areas.
- Objective 4: Develop patterns of land use which will allow for the elimination of certain automobile trips and the reduction of overall trip lengths.

Goal 2: Alternative Modes of Transportation

Achieve a balanced transportation system which emphasizes alternatives to automobile use and is responsive to the needs of residents.

- Objective 1: Study, identify, and designate corridors, if appropriate, for facilities for light rail ~~and~~ transit ~~facilities~~ and fixed-route buses.
- Objective 2: Alternative forms of transportation, such as bicycle lanes, riding and hiking trails, and pedestrian walkways shall be an integral part of the circulation system.
- Objective 3: Provide a thorough and comprehensive bicycle circulation system, emphasizing bicycle paths, segregated from vehicular traffic, between major destinations within and adjacent to the Otay Ranch project area.

Policies

The following policies were developed by the Project Team as recommendations to enhance the planning process.

- Implement a transportation facility phasing capital improvement program based on anticipated land development traffic impacts.
- Develop and adopt a plan and routing system for a light rail service to connect the Urban Center/University/Olympic Training Center area to the existing San

Diego Trolley line~~, and ultimately north and south along the 125 freeway corridor, connecting Otay Mesa and communities to the north~~ The connection of the Otay Ranch property to the regional light rail system would be accomplished via a north/south line along the SR 125 corridor, connecting with an east/west line along SR 905. This east/west line would connect San Ysidro to SR 125 on the Otay Mesa.

- Roads shall be designed to follow natural contours and minimize height of cut and fill slopes, minimize cubic yardage of cut and fill, and utilize alternative routes where significant environmental impacts would result from development adjacent to environmentally sensitive areas.

- Utilize landscaping, berming, increased building setbacks and other measures as necessary to minimize the noise and visual impacts of roads.

- Road alignments and widths shall take into account the routing of large trucks to adjacent and onsite extraction operations.

- Ensure the development of well planned "villages" which will tend to be self-supportive and thus reduce the length of the vehicular trip, reduce dependency on automobiles, and encourage the use of other modes of travel.

- Limit size of roads within "village centers" to maximum of four lanes.

- Bicycle paths should be separated from vehicular traffic on high volume roadways.

- Provide bicycle paths separated from vehicular traffic at intersections with high volume roadways which connect the following locations:

  - Otay Lakes
  - Jamul Country town
  - Highway 94 at east end of property
  - University Site
  - Urban Center
  - Otay River Valley

- Provide bicycle path connections to existing and proposed bicycle routes adjacent to the project, to the following locations:

  - Otay Mesa
  - Southwestern College
  - Central Chula Vista
  - Olympic Training Facility

3.10.2.2 Trip Generation

Table 3.10-2 summarizes the proposed uses and daily trips for Otay Ranch under the New Town Plan. Table 3.10-2 indicates that, based on SANDAG trip generation standards, the New Town Plan land uses would generate approximately 901,025 trips daily.

Table 3.10-2

LAND USE AND TRIP GENERATION SUMMARY
NEW TOWN PLAN

Land Use	Land Use Density	Trip Rate	Daily Trips
Single-family Residential	25,225 du	10/du	252,250
Multifamily Residential	21,917 du	7/du	153,419
Mobile Homes	587 du	5/du	2,935
Total Dwelling Units	46,190 du	5/du	2,935
TOTAL RESIDENTIAL TRIPS			408,604
Office/Commercial			
Business Park	832 AC	150/AC	124,800
Regional Shopping Center (300,000 - 600,000 sq. ft. each)	2,527,600 sq. ft.	50/1000 sq. ft	126,380
Neighborhood Shopping Center (10 - 30 acres each)	74.2 AC	800/AC	59,360
General Commercial	100 AC	250/AC	25,000
Public/Quasi Public			
University	160 AC	80/AC	12,800
Eastern Urban Center (EUC)			
Multifamily Residential	1,539* du		
General Office (less than 100,000 sq. ft. each)	4,573,800 sq. ft.	20/1000 sq. ft.	91,476
Regional Shopping Center (300,000 - 600,000 sq. ft. each)	980,100 sq. ft.	50/1000 sq. ft.	49,005
Golf Course	1 course	600/course	600
Hotel	300 rooms	10/room	3,000
TOTAL NON-RESIDENTIAL TRIPS			492,421
TOTAL DAILY TRIPS			901,025

* The 10,773 trips that are generated by the multifamily dwelling units in the EUC are reflected in the total residential dwelling unit count and trip generation figures.

3.10.2.3 Proposed Circulation Network

The New Town Plan identifies a roadway network that is similar to the Adopted Chula Vista General Plan Circulation Element network. The most notable exception is that the proposed project includes South Dam Road connecting the southern portion of the Otay River parcel with the San Ysidro parcel south of Lower Otay Lake. Other notable proposed changes in the adopted roadway network include the realignment of Orange Avenue and Palomar Street on the Otay River parcel and the provision of an additional freeway interchange at SR-125/Palomar Street. Two additional linkages which have been added to the General Plan network are Otay Valley Parkway and the Airport Connector roadway, which provide east-west connections in and immediately south of the Otay River Valley with interchanges at the SR-125 facility. The New Town Plan thus identifies a roadway network including the following:

- Telegraph Canyon Road
- SR-125 in the Caltrans S1 alignment
- Paseo Ranchero, curving into Otay Valley Road
- Orange Avenue providing east-west connection, extending beyond the eastern property line on the Otay River parcel
- Hunte Parkway connecting with Otay Valley Road in the river valley
- Palomar Street extending to the eastern boundary
- Numerous north-south loop roads

This plan does not include the Alta Road and La Media Road crossings of the Otay River Valley as shown on the County of San Diego Circulation Plan. However, the omission of these roadways is consistent with the Adopted Chula Vista General Plan Circulation Element.

Figure 3.10-2 provides a graphic description of the proposed onsite and offsite circulation network for the study area under the New Town Plan. The proposed circulation network for this alternative does not include the village design concept.

3.10.2.4 Arterial Segment and Freeway Impacts

Figure 3.10-3 shows the projected network levels of service for the study area as provided by SANDAG.

A review of the SANDAG modeling results for this alternative network identified that of the 290 roadway miles that make up the total study area circulation network for the New Town Plan, 54 miles of roadway (approximately 19 percent) within the study area (east of I-805) circulation are predicted to operate above the maximum recommended ADT volume, i.e., at LOS D or worse for arterials and LOS F for freeways.

A review of the freeway impacts (excluding arterial segments) revealed that of the 31 freeway miles in the study area, 17 miles (approximately 54 percent) are forecasted to experience ADT volumes in excess of the recommended ADT volume, i.e., at LOS F.

Of the total 259 arterial roadway miles that make up the arterial circulation network for the New Town Plan, 37 miles of roadway (approximately 14 percent) are predicted to operate above the maximum recommended ADT volume, i.e., at LOS D or worse, under the proposed land use scenario and circulation network.

Table 3.10-3 summarizes the impacted roadway miles by level of service and facility class.

3.10.2.5 Intersection Impacts

Figure 3.10-4 shows the location of critical intersections that experience high total entering volumes in excess of 65,000 vehicles per day (vpd), the level above which special treatment is typically necessary to provide acceptable peak hour operations. Table 3.10-4 summarizes these critical intersection locations and entering volumes. Additionally, this table defines the level of potential impact based on the type of design solution needed to facilitate the forecasted demand volumes entering the intersection. Table 3.10-4 shows that a total of 18 intersections are predicted to experience entering volumes in excess of 65,000 vpd.

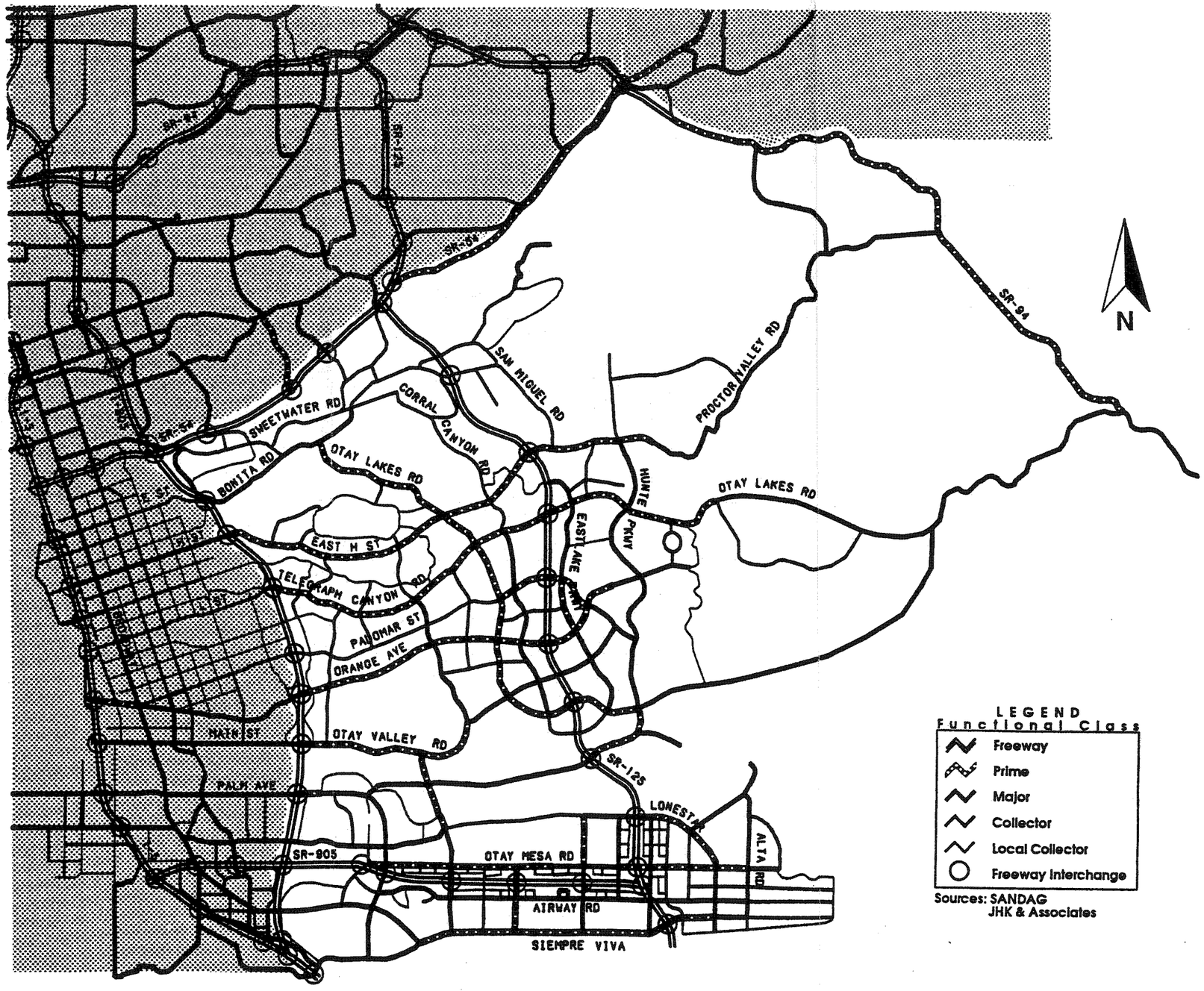
The majority of these intersections (14 of 18) are located off the project site. Twelve of the 18 impacted intersections may require special at-grade intersection enhancements to allow the intersection to operate at acceptable conditions under the proposed project. Three of the 18 impacted intersections may either require at-grade intersection enhancement or grade separated design to accommodate the expected demand. The remaining three impacted intersections may require grade separation under the proposed New Town Plan, based on the City of Chula Vista guidelines presented in Appendix B. Detailed study of peak hour turn movement volumes is required prior to SPA plan approval to determine the specific mitigation measures needed at these impacted intersections.

3.10.2.6 Comparative Analysis of Impacts

It is important to note that the impacts to the Otay Ranch study area circulation network under any development alternative must be mitigated to achieve acceptable levels of service and conform to the adopted performance standards. For review purposes, the proposed project and all development alternative impacts will be compared to those impacts occurring under the Composite General Plans Alternative. As discussed in Section 4.5.11, the Composite General Plans Alternative is a combination of the adopted general plans for each of the jurisdictions in the study area. As the Adopted Chula Vista General Plan contains the most detailed land use and circulation network information for the area of eastern Chula Vista on and adjacent to the project site, this general plan was used as the primary plan for analysis purposes. This direction was provided by the Interjurisdictional Task Force during the early states of the review process. This comparative analysis will enable the reviewer to clearly understand project and cumulative impacts resulting from a particular alternative. However, at this program level review, the definition of project-only impacts is not provided, and specific measures are recommended in the mitigation section of each alternative to define precisely the process to be followed during the development process of the project, which will result in the accurate definition of project-only impacts associated with each phase of development.

Project-level impacts are impossible to fully identify and address at this stage of development because of uncertainty relating to the ultimate street system to be approved for the area. For example, will SR-125 be a freeway or a toll facility? Will there be two, three, or four river crossings? These major circulation issues significantly impact trips through the project area; consequently, project-level impacts cannot be adequately identified at this time. During the subsequent planning efforts and preparation of SPA plans, these issues can be quantified and mitigated.

Table 3.10-5 provides a summary comparison of the circulation network impacts under the proposed project and Composite General Plans alternative. This table shows that approximately 9 miles of the onsite roadway network, and 45 miles of the offsite roadway network would be impacted under the proposed project. This table also shows that under the Composite General Plans alternative 3 miles of the onsite roadway network and



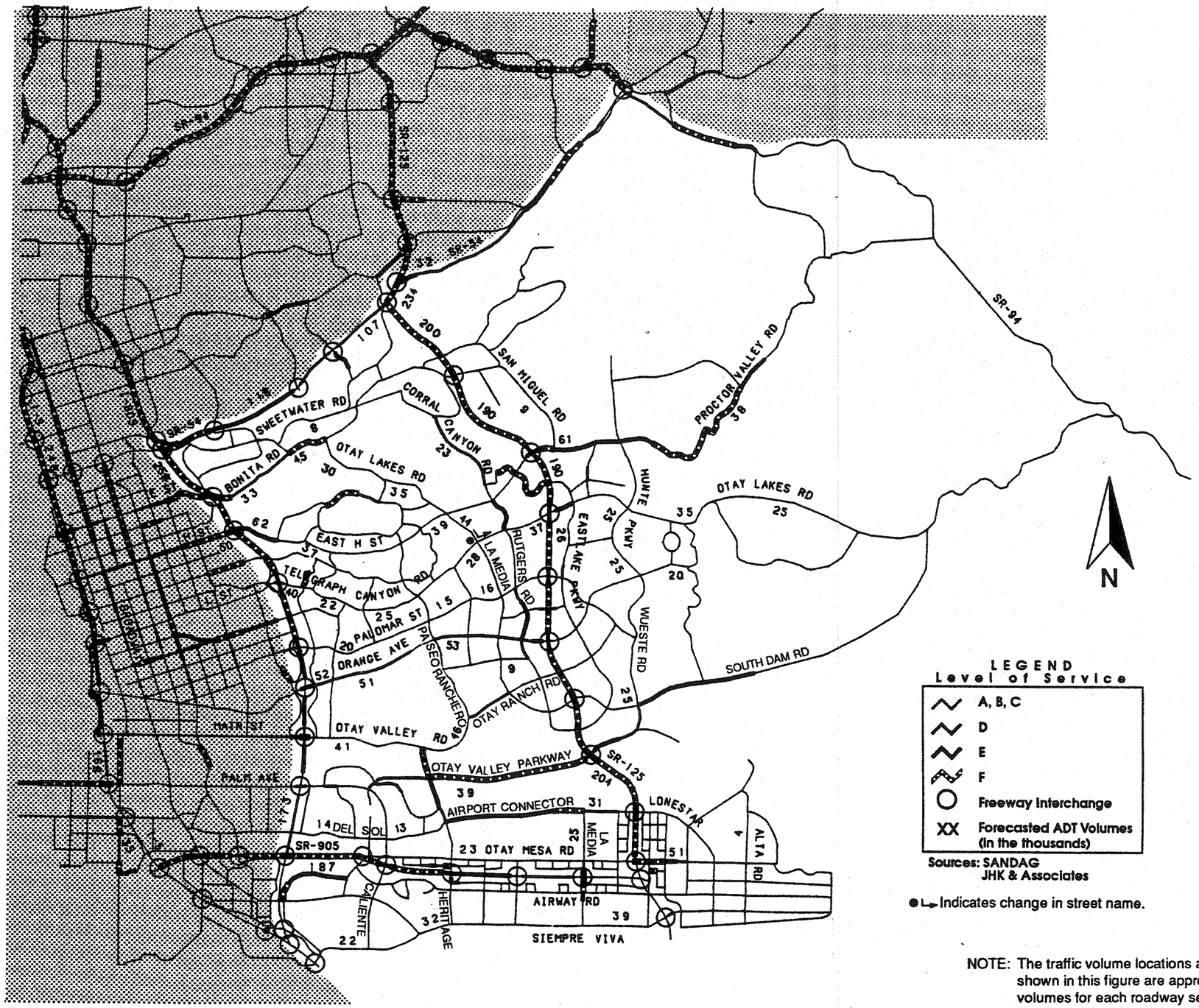
NOTE: Refer to Figure 2.3-4 for an illustration of project area boundaries.

OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 3.10-2

BALDWIN NEW TOWN PLAN CIRCULATION NETWORK



NOTE: The traffic volume locations and numbers shown in this figure are approximate; actua volumes for each roadway segment are provided in Tables 3.12-8 and 3.12-9.

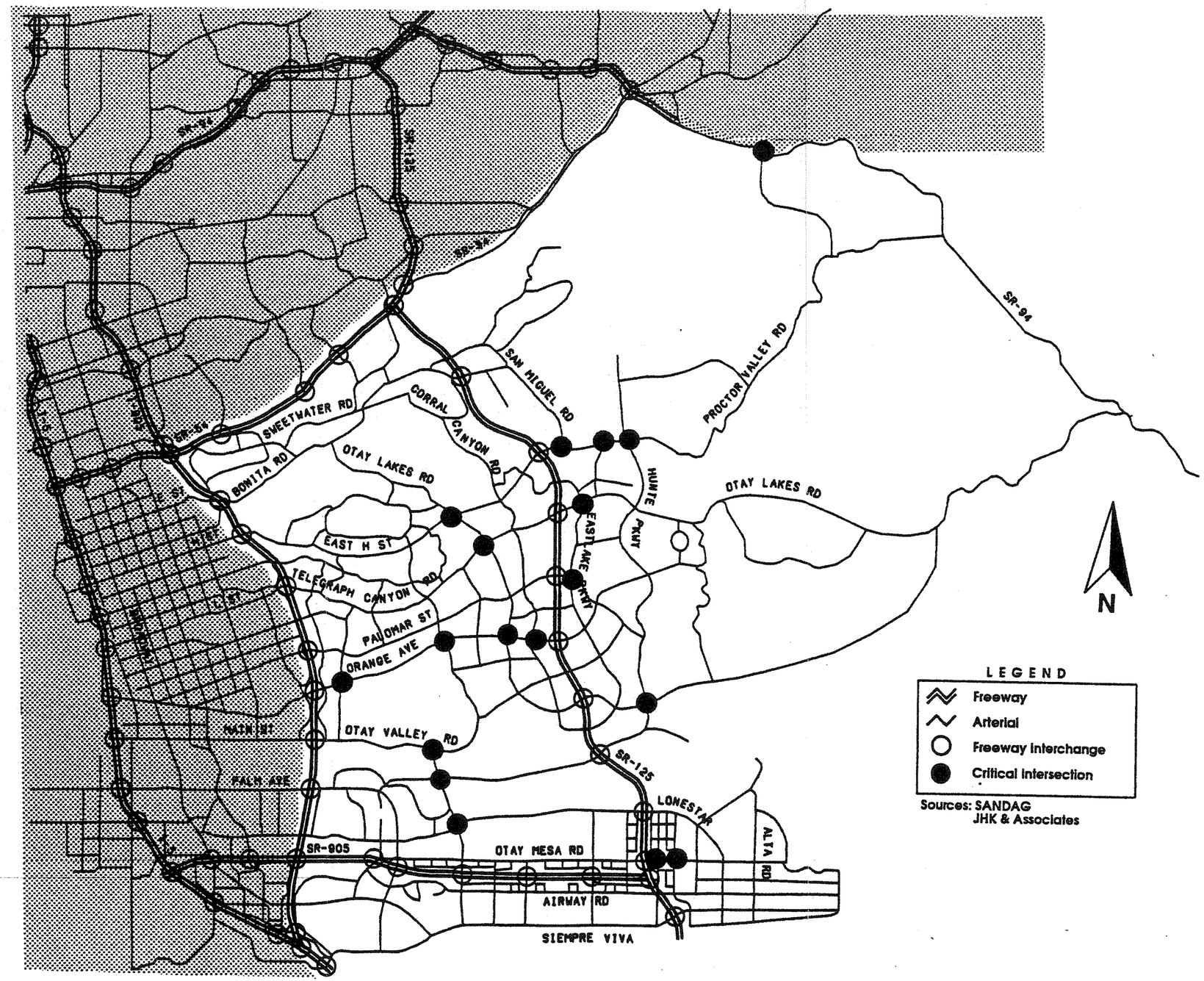
OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 3.10-3

BALDWIN NEW TOWN PLAN CIRCULATION NETWORK LEVEL OF SERVICE (Prior to Mitigation)

jhk & associates



OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 3.10-4

BALDWIN NEW TOWN PLAN CRITICAL INTERSECTION LOCATIONS (Prior to Mitigation)

jhk & associates

Table 3.10-3

IMPACTED ROADWAY MILES BY LEVEL OF SERVICE
NEW TOWN PLAN (Prior to Mitigation)

Facility Class (# of lanes)	LOS D	LOS E	LOS F	Total Miles Impacted
Onsite Impacts				
Collector (4)	0.27	0.00	0.00	0.27
Major (4)	1.43	2.78	2.43	6.64
Prime (6)	1.36	1.06	0.00	2.42
TOTAL	3.06	3.84	2.43	9.33
Offsite Impacts				
Local Collector (2)	0.00	0.00	2.86	2.86
Collector (4)	4.96	1.09	2.11	8.16
Major (4)	2.48	0.00	6.73	9.21
Prime (6)	1.98	3.85	1.79	7.62
Freeway	0.00	0.00	17.00	17.00
TOTAL	9.42	4.94	30.49	44.85
Combined Offsite/Onsite Impacts				
Local Collector (2)	0.00	0.00	2.86	2.86
Collector (4)	5.24	1.09	2.11	8.43
Major (4)	3.91	2.78	9.16	15.85
Prime (6)	3.34	4.91	1.79	10.04
Freeway	0.00	0.00	17.00	17.00
TOTAL	12.49	8.78	32.92	54.18

	Total Roadway Miles	Total Impacted Roadway Miles	Percent Impacted Roadway Miles
Combined Offsite/Onsite Network			
Local Collector (2)	39.07	2.86	7%
Collector (4)	69.00	4.44	6%
Major (4)	87.50	15.85	18%
Prime (6)	63.17	10.04	16%
Freeway	31.32	17.00	54%
TOTAL	290.06	54.18	19%

Table 3.10-4

SUMMARY OF HIGH VOLUME INTERSECTION LOCATIONS NEW TOWN PLAN (Prior to Mitigation)

Intersection	Total Entering Volume	Special At-grade Design Required		Special Grade Separated Design Required
<u>Onsite Impacts</u>				
La Media Road/Orange Avenue	72,550	Yes		No
Rutgers Avenue/Orange Avenue	86,550	N/A		Yes
South Dam Road/Hunte Parkway	67,500	Yes		No
EastLake Parkway/Palomar Street	70,700	Yes		No
Paseo Ranchero/Orange Avenue	70,750	Yes		No
<u>Offsite Impacts</u>				
Heritage Road/Airport Connector	67,900	Yes		No
Paseo Ranchero/Otay Valley Parkway	98,850	N/A		Yes
Harvest Avenue/Otay Mesa Road	90,050	N/A		Yes
Sanyo Road/Otay Mesa Road	71,800	Yes		No
Medical Center Road/Orange Avenue	68,200	Yes		No
Otay Lakes Road/East H Street	75,250	Yes	or	Yes
EastLake Parkway/Otay Lakes Road	78,250	Yes	or	Yes
Hunte Parkway/Proctor Valley Road	74,600	Yes		No
Lane Avenue/Proctor Valley Road	69,550	Yes		No
San Miguel Road/Proctor Valley Road	72,850	Yes		No
SR-94/Campo Road	71,800	Yes		No
Otay Lakes Road/Telegraph Canyon Road	69,850	Yes		No
Paseo Ranchero/Palm Avenue	78,800	Yes	or	Yes

Table 3.10-5

COMPARATIVE ANALYSIS OF IMPACTS
NEW TOWN PLAN VERSUS COMPOSITE GENERAL PLANS ALTERNATIVE
(Prior to Mitigation)

Impacted Roadway Miles by Facility Class and Level of Service

	New Town Plan				Composite General Plans Alternative			
Facility Class	LOS D	LOS E	LOS F	Total	LOS D	LOS E	LOS F	Total
Onsite Impacts								
Collector (4LN)	0.27	0.00	0.00	0.27	0.00	0.58	0.00	0.58
Major (4LN)	1.43	2.78	2.43	6.64	0.55	0.00	1.25	1.80
Major (6LN)	0.39	0.00	0.00	0.39	0.00	0.00	0.00	0.39
Prime (6LN)	1.36	1.06	0.00	2.10	0.00	0.36	0.00	0.36
TOTAL	3.06	3.84	2.43	9.33	0.55	0.94	1.25	2.74
Offsite Impacts								
Local Collector (2LN)	0.00	0.00	2.86	2.86	0.00	1.63	3.79	5.42
Collector (4LN)	4.96	1.09	2.11	8.16	0.00	0.77	0.05	0.82
Major (4LN)	2.48	0.00	6.73	9.21	0.76	0.62	4.27	5.65
Prime (6LN)	1.98	3.85	1.79	7.62	3.69	1.92	0.00	5.61
Freeway	0.00	0.00	17.00	17.00	0.00	0.00	6.00	6.00
TOTAL	9.42	4.94	30.49	44.85	4.45	4.94	14.11	23.50
TOTAL IMPACTS	12.48	8.46	32.92	54.18	5.00	5.88	15.36	26.24

Impacted Major Signalized Intersections by Stage of Required Mitigation

	New Town Plan	Composite General Plans Alternative
Onsite Intersections		
Stage 1	4	0
Stage 2	0	0
Stage 3	1	2
TOTAL	5	2
Offsite Intersections		
Stage 1	8	4
Stage 2	3	0
Stage 3	2	2
TOTAL	13	6
TOTAL IMPACTED INTERSECTIONS	18	8

24 miles of the offsite roadway network would impacted. Thus, 6 additional miles of onsite roadway impacts and 21 additional miles of offsite roadway impacts would occur under the proposed project. Table 3.10-5 also compares the number of impacted major signalized intersections. As shown, three additional onsite intersections and seven additional offsite intersections would be impacted under the proposed project.

3.10.2.7 Bicycle Circulation Impacts

The City of Chula Vista Adopted General Plan has a bicycle plan within the Circulation Element. This adopted bicycle plan is based on the configuration and sizing of roadway facilities as recommended by the Circulation Element. Various changes to the Adopted General Plan Circulation Element are recommended by the circulation plans for each project alternative; these changes in the roadway circulation network would necessarily require mitigation to the bicycle plan to provide adequate bicycle facilities.

It is important to recognize that no detailed studies have been conducted at this program-level of analysis to determine specific bicycle impacts. None of the development and circulation network alternatives analyzed in subsequent sections of this EIR have been reviewed in detail to determine bicycle impacts. Thus mitigation measures presented in the following section include general recommendations to address this critical issue in a satisfactory manner for the project alternatives.

3.10.3 Proposed Mitigation

This section provides a detailed discussion of the proposed mitigation measures required for the New Town Plan. These mitigation measures include specific geometric improvements for study area arterial roadways and major intersections. The applicable mitigation measures have been divided into two separate categories: those which are required mitigation measures for the project, and those in which the project proponent shall participate, as a major developer in the Southbay region. Appendix B of this document contains a detailed discussion of the various forms of circulation system mitigation measures required for the Otay Ranch study area under all of the development alternatives proposed for the site. A separate section of Appendix B contains a detailed discussion of general policy-related mitigation measures applicable to the Otay Ranch study area and the Southbay region.

3.10.3.1 General Mitigation Measures

This section identifies the applicable measures from Appendix B which shall be applied to the New Town Plan as required mitigation. The following table summarizes the specific and general mitigation measures from Appendix B which are specifically applied to this alternative.

Required Mitigation Measures

General Mitigation Measures

	Participatory	Required
• Develop Transportation Demand Management Mitigation Strategies	X	
• Update General Plans	X	X
• Prepare Transportation Phasing Plans	X	X
• Provide Parallel Arterial System	X	
• Improve Mode Split	X	

- Increase Local/Regional Trip Capture X

Regional Freeway System Mitigation

- Increase Freeway Capacities X

Arterial Segment Mitigation

- Increase Segment Capacities X

Arterial Intersection Mitigation

- Increase Intersection Capacities X

Other Mitigation Strategies

- Implement Transportation System Management Strategies X
- Implement Traffic Control Strategies X

Potential Transportation Demand Management Benefits

This section summarizes the potential benefits to circulation system operations with the successful implementation of Transportation Demand Management (TDM) strategies proposed by SANDAG and the Air Pollution Control District. Both of these plans would increase average vehicle occupancy (passengers per vehicle) during commute trips from the current level of less than 1.1 to at least 1.5 in the future.

SANDAG estimates that through TDM, commuting trips region-wide could be reduced by 17 percent. As a regional program, implementation of an aggressive TDM program clearly has a significant positive impact on peak hour operating LOS on the regional circulation system, when roads are usually operating at or near capacity.

Based on the modeled results using the Phase I-Progress Plan Alternative, with TDM benefits included in the model, it can be expected that the TDM policies would decrease total vehicle miles traveled (VMT) by approximately 8 percent. This reduction in traffic activity could potentially reduce both arterial and intersection impacts by one third. A peak hour analysis will be conducted on the conceptually approved plan under TDM and non-TDM conditions prior to each SPA Plan approval. This analysis will more precisely define the extent and location of impacts and identify specific mitigation measures that will be required under the selected development scenario for the Otay Ranch.

Summary

It is critical to note that the plans for Otay Ranch provide a comprehensive, efficient, and safe system for a variety of transportation modes. Automobile-oriented improvements do not entirely define the scope of these improvements. Rather, they are just one element of an integrated mobility system which includes bus, fixed guideway transit, carts, bicycles, pedestrian ways, and trails all linked to minimize or avoid automobile travel.

Transit System Mitigation

The proposed rail lines for the Southbay area are not included in MTDB's Long Range Rail Plan and, therefore, these lines and the supporting bus services are not funded at the

present time. Otay Ranch shall contribute to the capital and operating costs associated with the new transit system. This shall be done through provisions in facility financing plans at the SPA level. Further, benefit assessment districts shall be established to fund new transit routes under MTDB Board Policy No. 40, Non Transit Funding of New Transit Services.

The next section details the project-specific mitigation measures to individual impacted segments and intersections identified in the impact analysis conducted for this alternative. These specific mitigation measures are defined in Appendix B and detailed below.

3.10.3.2 Project-specific Mitigation Measures

Introduction

This traffic analysis is oriented toward future traffic conditions at the full buildout of the project. However, buildout will occur over a number of years, and it will be necessary to provide an adequate transportation system for interim periods of development. The following paragraphs describe the recommendations to deal with the phasing of development and transportation improvements.

Primary regional transportation facilities which impact the project area are SR-125 and regional transit service (light rail or express bus). With these regional transportation facilities in place, it will be feasible to implement any major portion of development. If some of the development is proposed to occur before regional transportation facilities are implemented, project phasing will require that a local transportation traffic phasing analysis be conducted to identify alternative transportation mitigation measures which may be necessary.

Additional traffic analyses will be conducted to determine appropriate phasing of transportation improvements as interim phases of project development occur. As documented by the Transportation Phasing Plan (TPP) developed by Chula Vista for the Eastern Territories area, trip patterns and traffic impacts may change significantly in the course of project development. Thus, it will be important to adequately assess the impacts of the Otay Ranch Project at various phases of development. This will require the development of a comprehensive transportation phasing program which will be coordinated with each phase of land use development. This Otay Ranch Transportation Phasing Program will be coordinated with the TPP conducted by the City of Chula Vista. The development and implementation of each SPA or village will receive a site-specific traffic impact evaluation to identify the potential impacts to the current transportation network and recommend appropriate mitigation to maintain high quality service to the local system.

This section identifies specific measures to mitigate significant impacts associated with the New Town Plan. Table 3.10-6 summarizes the required mitigation measures for network arterial segments to accommodate expected demand. Table 3.10-7 summarizes the required arterial intersection mitigation and Figure 3.10-5 shows the location of all arterial impacts. Impacted arterial segments are coded with letters that correspond to those in Table 3.10-6. Impacted intersections are coded with numbers that correspond with those found in Table 3.10-7.

Based on the information shown in the mitigation tables and figure for this alternative, the following facilities will require special attention during final review:

Critical East/West Roadway Facilities

- Bonita Road - I-805 to Otay Lakes Road

Table 3.10-6

NEW TOWN PLAN
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED ARTERIAL SEGMENTS

SEGMENT MITIGATION			DESCRIPTION OF SEGMENT MITIGATION					
No.	Segment	From - To	Increase Segment Capacity *	Require Enhanced Intersection Capacity**	Increase Regional/ Local Trip Capture	Improve Mode Split	Level of Significance***	Comments
On-Site Network								
A.	Orange Avenue	Paseo Ranchero - La Media Road		X (Stage 1)	X	X	2	Maximum Segment Classification
B.	Orange Avenue	La Media Road - Rutgers Ave.	X	X (Stage 1,3)			1	(1) Prime (6LN) - Expressway (6LN)
C.	Otay Ranch Road	Paseo Ranchero - La Media Road	X				1	(1) Major (4LN) - Major (6LN)
D.	Otay Valley Parkway	Paseo Ranchero - State Route 125	X	X (Stage 3)			1	(1) Major (4LN) - Prime (6LN)
E.	Hunte Parkway	State Route 125 - South Dam Road		X (Stage 1)	X	X	2	Maximum Segment Classification
F.	Rutgers Ave.	Palomar Street - Orange Avenue	X	X (Stage 3)			1	(1) Major (4LN) - Major (6LN)
G.	Rutgers Ave.	Orange Avenue - Otay Ranch Road	X	X (Stage 3)			1	(1) Major (4LN) - Major (6LN)
H.	Unknown Otay	Rutgers Avenue - Eastlake Parkway	X				1	(1) Collector (4LN) - Major (4LN)
I.	South Dam Road	Hunte Parkway - Wueste Road	X	X (Stage 1)			1	(1) Major (4LN) - Major (6LN)
AX.	Orange Avenue	Rutgers Ave. - State Route 125		X (Stage 3)			1	Provide Grade Seperation
Off-Site Network								
J.	Paseo Ranchero	Otay Valley Road - Otay Valley Pkwy.	X	X (Stage 1,3)	X	X	2	(1) Prime (6LN) - Expressway (6LN)
K.	Lone Star Road	La Media Road - Piper Ranch Rd.	X		X	X	2	(1) Major (4LN) - Major (6LN)
L.	Palm Avenue	I-805 - Del Sol Road	X				1	(1) Major (4LN) - Prime (6LN)
M.	Proctor Valley Road	W/O BMF Rd 3	X				1	(1) Collector (4LN) - Major (6LN)
N.	Paseo Ranchero	Otay Valley Pkwy. - Airport Connector	X	X (Stage 1,3)	X	X	1	(1) Major (4LN) - Major (6LN)
O.	Airport Connector	Paseo Ranchero - La Media Road	X	X (Stage 1)			1	(1) Collector (4LN) - Major (4LN)
P.	Bonita Road	I-805 - Willow Street	X		X	X	3	(1) Major (4LN) - Prime (6LN)
Q.	Bonita Road	Willow Street - Otay Lakes Road	X		X	X	2	(1) Major (4LN) - Prime (6LN)
R.	Briarwood Road	SR 54 - Sweetwater Road	X		X	X	2	(1) Collector (4LN) - Major (4LN)
S.	Crest Drive	East J Street - Telegraph Canyon Rd.	X		X	X	1	(1) +
T	Port Renwick	Corral Canyon Road - East H Street	X		X	X	1	(1) +
U.	Eastlake Drive	East H Street - SR 125	X		X	X	1	(1) +
V.	Eastlake Parkway	Otay Lakes Road - N/O Palomar Street	X				1	(1) Major (4LN) - Major (6LN)
W.	East H Street	I-805 - Terra Nova Road	X				1	(1) Prime (6LN) - Prime (8LN)
X.	Proctor Valley Road	SR 125 - San Miguel Rd.	X				1	(1) Prime (6LN) - Prime (8LN)
Y.	Proctor Valley Road	San Miguel Road - Lane Avenue	X				1	(1) Prime (6LN) - Prime (8LN)
Z.	Proctor Valley Road	Lane Avenue - Hunte Parkway	X				1	(1) Prime (6LN) - Prime (8LN)
AA.	Proctor Valley Road	Hunte Parkway - Salt Creek Ranch	X				1	(1) Collector (4LN) - Major (6LN)

Table 3.10-6 (Continued)

NEW TOWN PLAN
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED ARTERIAL SEGMENTS

SEGMENT MITIGATION			DESCRIPTION OF SEGMENT MITIGATION					
No.	Segment	From - To	Increase Segment Capacity *	Require Enhanced Intersection Capacity**	Increase Regional/ Local Trip Capture	Improve Mode Split	Level of Significance***	Comments
Off-Site Network (Continued)								
AB.	Proctor Valley Road	E/O Salt Creek Ranch	X		X	X	1	(1) Collector (4LN) - Major (6LN)
AC.	Heritage Road	SR 905 - Waterville Road			X	X	3	Maximum Segment Classification
AD.	La Media Road	Otay Mesa Road - SR 905	X				1	(1) Major (4LN) - Major (6LN)
AE.	La Media Road	SR 905 - Airway Road	X				1	(1) Major (4LN - Major (6LN)
AF.	Lane Avenue	Proctor Valley Road - Otay Lakes Rd.	X				1	(1) Collector (4LN) - Major (4LN)
AG.	Orange Avenue	I-805 - Oleander Avenue	X		X	X	3	(1) Prime (6LN) - Prime (8LN)
AH.	Orange Avenue	Oleander Ave. - Medical Center Ave.	X		X	X	2	(1) Prime (6LN) - Prime (8LN)
AI.	Orange Avenue	Medical Center Ave. - Paseo Ranchero			X	X	2	Maximum Segment Classification
AJ.	Rutgers Avenue	East H Street - Otay Lakes Road	X		X	X	2	(1) Collector (2LN) - Major (4LN)
AK.	Sweetwater Road	SR 54 - Plaza Bonita Road	X		X	X	2	(1) Major (4LN) - Major (6LN)
AL.	Sweetwater Road	Bonita Mesa Road - Willow Street	X				1	(1) Collector (4LN) - Major (4LN)
AM.	Otay Lakes Road	SR 125 - Eastlake Parkway	X	X (Stage 2)	X	X	2	(1) Prime (6LN) - Prime (8LN)
AN.	Waterville Road	E/O Heritage Road	X				1	(1) Local Collector (2LN) - Collector (4LN)
AO.	Otay Mesa Road	SR 125 - Harvest Road	X	X (Stage 3)	X	X	3	(1) Major (4LN) - Prime (6LN)
AP.	Corral Canyon Road	Blacksmith Road - Eastlake Drive	X		X	X	2	(1) Collector (4LN) - Major (4LN)
AQ.	Ranchero Del Rey Pkwy.	E/O Terra Nova Road	X				1	(1) Local Collector (2LN) - Collector (3LN)
AR.	Otay Valley Parkway	Paseo Ranchero - Del Sol Road	X	X (Stage 3)			1	(1) Major (4LN) - Major (6LN)
AS.	Del Sol Road	S/O Otay Valley Parkway	X				1	(1) Local Collector (2LN) - Collector (3LN)
AT.	Otay Mesa Road	Harvest Road - Sanyo Road	X		X	X	3	(1) Major (4LN) - Prime (6LN)
AU.	Otay Mesa Road	Sanyo Road - Enrico Fermi	X		X	X	3	(1) Major (4LN) - Prime (6LN)
AV.	Siempre Viva Road	SR 125 - Paseo Del Las Americas	X		X	X	2	(1) Major (4LN) - Prime (6LN)
AW.	Siempre Viva Road	Paseo De Las Americas - Enrico Fermi	X				1	(1) Major (4LN) - Prime (6LN)
AX.	Millar Ranch Road	SR 94 - Proctor Valley Road	X		X	X	3	(1) Collector (4LN) - Major (4LN)

Notes:

* See Comment (1) - The description under this column details the required change in roadway capacity and facility classification which is necessary to achieve acceptable performance on the referenced arterial segment.

+ The City of Chula Vista considers that the identification of this segment as impacted represents an anomaly in the model; a significant and mitigable impact is defined for this segment. B for more information

**Stages of Intersection Mitigation

Stage 1 - Special At-Grade Intersection Design Required
Stage 2 - Special At-Grade or Grade Separated Intersection Design Required
Stage 3 - Grade Separated Intersection Design Required

***Level of Significance

1 - Significant and Mitigable
2 - Significant and Not Mitigable at the GDP Level Due to Lack of Design Information
3 - Significant and Not Mitigable

Table 3.10-7

NEW TOWN PLAN
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED SIGNALIZED INTERSECTIONS

INTERSECTION MITIGATION			DESCRIPTION OF INTERSECTION MITIGATION			
No.	Location	Special At-Grade Design Required	Special At-Grade or Grade Seperated Design Design	Special Grade Separated Design Required	Increase Regional/ Local Trip Capture	Level of Significance*
On-Site Intersections						
1.	Paseo Ranchero/Orange Avenue	X				1
2.	La Media Road/Orange Avenue	X				1
3.	Rutgers Avenue/Orange Avenue			X	X	1
4.	Hunte Parkway/South Dam Road	X				1
5.	Eastlake Parkway/Palomar Street	X				1
Off-Site Intersections						
6.	Paseo Ranchero/Airport Connector	X				1
7.	Harvest Avenue/Otay Mesa Road			X	X	1
8.	Sanyo Road/Otay Mesa Road	X				1
9.	Medical Center Road/Orange Avenue	X				1
10.	Otay Lakes Road/East H Street		X		X	2
11.	Eastlake Parkway/Otay Lakes Road		X		X	2
12.	Hunte Parkway/Proctor Valley Road	X				1
13.	Lane Avenues/Proctor Valley Road	X				1
14.	San Miguel Road/Proctor Valley Road	X				1
15.	SR 94/Campo Road	X				1
16.	Otay Lakes Road/Telegraph Canyon Road	X				1
17.	Paseo Ranchero/Otay Valley Parkway			X	X	1
18.	Paseo Ranchero/Otay Valley Road		X			1

Note:

* Level of Significance
1 - Significant and Mitigable
2 - Significant and Not Mitigable at the GDP Level Due to Lack of Design Information
3 - Significant and Not Mitigable

See Appendix B for more information

- Proctor Valley Road - SR-125 to Salt Creek Ranch Road
- Orange Avenue - I-805 to Paseo Ranchero
- Otay Valley Parkway - Paseo Ranchero - SR 125
- South Dam Road - Hunte Parkway to Wueste Road
- Airport Connector Road - Paseo Ranchero to Lone Star Road
- Otay Mesa Road - SR-125 to Enrico Fermi

Critical North/South Roadway Facilities

- Corral Canyon Road - Blacksmith Road to East H Street
- EastLake Parkway - Otay Lakes Road to Palomar Street
- Rutgers Avenue - East H Street to Otay Lakes Road

These critical arterial facilities are heavily impacted by the anticipated traffic operations at the major signalized intersections located along their lengths (Figure 3.10-5). As shown in Figure 3.10-5, both segment and intersection mitigation measures are required to achieve acceptable levels of service where possible.

The Otay Ranch Transportation Subcommittee has spent considerable time reviewing the New Town Plan circulation system. This review focused on network configuration and performance levels resulting in a series of network modifications to optimize the system's operating performance. The most significant modifications in the optimal New Town Plan network are the elimination of South Dam Road, due to environmental concerns, and the inclusion of two additional crossings (Alta Road and La Media Road) of the Otay River Valley. These modifications to the original submittal were considered mitigation measures and resulted in improved network performance. Furthermore, this analysis provided input to the Otay Ranch Project Team in the development of land use and network alternatives which are presented and analyzed in this EIR.

Mitigation Implementation Review

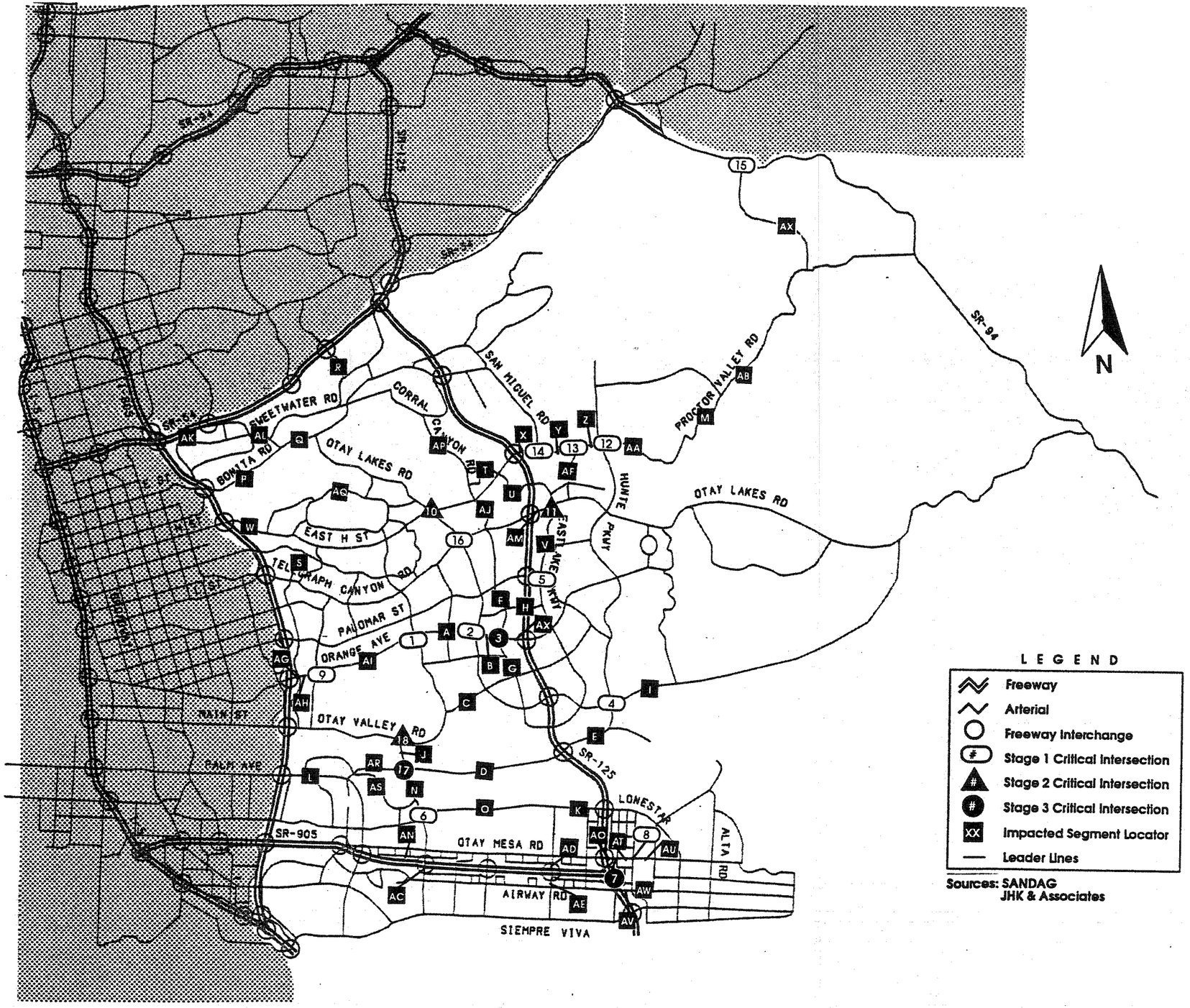
In order to clearly identify potential difficulties in implementing the required mitigation measures for critical offsite segment and intersections, additional research has been conducted to identify existing constraints. These existing circulation system constraints may consist of the following factors:

- Existing residential or commercial development
- Previous general plan roadway classification
- Limited ability to acquire additional right-of-way
- Non-conformance with existing community character

Utilizing data compiled by the County of San Diego and City of Chula Vista Public Works Departments relating to the existence of constraints on existing or planned offsite circulation facilities, JHK has prepared Table 3.10-8 which summarizes the anticipated difficulties which may occur if required mitigation measures are implemented for a given alternative. This preliminary review of potential constraints is intended to provide insight towards the feasibility of implementing a particular mitigation measure. The information provided at this General Plan level project review is also intended to provide citizens, staff, and decision-makers with adequate data on which to base project findings.

3.10.4 Analysis of Significance

Table 3.10-8 indicates that certain offsite roadway segments would require upgrading of their classification and a change in the Circulation Element in order to mitigate significant



OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 3.10-5

BALDWIN NEW TOWN PLAN REQUIRED MITIGATION MEASURES

jhk & associates

Table 3.10-8

MITIGATION IMPLEMENTATION REVIEW
NEW TOWN PLAN

Segment	From - To	Jurisdiction	Adopted Circulation Plan Class (1)	Recommended Circulation Plan Class Mitigation	Difficulty of Implementation (2)	Level of Significance (3)	Comments (4)
Off-Site Network							
Paseo Ranchero	Otay Valley Road - Otay Valley Pkwy.	City of Chula Vista/ County of San Diego	Prime (6LN)	Expressway (6LN)	2	2	GPA, B
Lone Star Road	La Media Road - Piper Ranch Road	City of San Diego	Major (4LN)	Major (6LN)	2	2	GPA
Bonita Road	I-805 - Willow Street	County of San Diego/ City of Chula Vista/ Caltrans	Major (4LN)	Prime (6LN)	3	3	GPA, C, B
Bonita Road	Willow Street - Otay Lakes Road	City of Chula Vista	Major (4LN)	Prime (6LN)	2	2	GPA
Briarwood Road	SR 54 - Sweetwater Road	County of San Diego	Collector (4LN)	Major (4LN)	2	2	GPA, C, A
Heritage Road	SR 905 - Waterville Road	City of San Diego	Prime (6LN)	Prime (6LN)	*	3	
Orange Avenue	I-805 - Oleander Avenue	City of Chula Vista	Prime (6LN)	Prime (8LN)	3	3	GPA
Orange Avenue	Oleander Ave. - Medical Center Ave.	City of Chula Vista/ County of San Diego	Prime (6LN)	Prime (6LN)	2	2	
Orange Avenue	Medical Center Ave. - Paseo Ranchero	City of Chula Vista	Prime (6LN)	Prime (6LN)	2	2	
Rutgers Avenue	East H Street - Otay Lakes Road	City of Chula Vista	Class 1 Collector	Major (4LN)	2	2	GPA
Sweetwater Road	SR 54 - Plaza Bonita Road	City of National City	Major (4LN)	Major (6LN)	2	2	GPA, C, A
Otay Lakes Road	SR 125 - Eastlake Parkway	City of Chula Vista	Prime (6LN)	Prime (8LN)	2	2	GPA
Otay Mesa Road	SR 125 - Harvest Road	City of Chula Vista	Major (4LN)	Prime (6LN)	**	3	GPA
Corral Canyon Road	Blacksmith Road - Eastlake Drive	City of Chula Vista/ County of San Diego	N/C	Major (4LN)	2	2	GPA, C, A
Otay Mesa Road	Harvest Road - Sanyo Road	City of Chula Vista/ County of San Diego	Major (4LN)	Prime (6LN)	**,***	**,*** 3	GPA
Otay Mesa Road	Sanyo Road - Enrico Fermi	County of San Diego	Major (4LN)	Prime (6LN)		2	GPA
Siempre Viva Road	SR 125 - Paseo Del Las Americas	County of San Diego	Prime (6LN)	Prime (6LN)		2	GPA
Millar Ranch Road	SR 94 - Proctor Valley Road	County of San Diego	Class I Collector	Major (4LN)	3	3	GPA,C,B

Notes:

1. Adopted Circulation Plan Classification
   - N/C - Not Classified as a Circulation Element Facility
   - N/A - Not Included in Circulation Element Plans

2. Difficulty of Implementation
   - 1 - Achievable
   - 2 - Moderate Level of Difficulty
   - 3 - High Level of Difficulty

3. Level of Significance
   - 1 - Significant and Mitigable
   - 2 - Significant and Not Mitigable at the GDP Level Due to Lack of Design Information

4. Comments
   - GPA - General Plan Amendment Required
   - A - Right of Way Acquisition and Removal of Existing Structures Required
   - B - Right of Way Acquisition Required
   - C - Facility Constructed to Adopted Classification

* Not analyzed by the City of San Diego
** Not analyzed by the City of Chula Vista
*** Not analyzed by the County of San Diego

traffic impacts of the New Town Plan; these offiste road segments would require a General Plan Amendment as indicated in Table 3.10-8.

Indirect Impacts of Offsite Roadway Improvements

Since the road improvements discussed above involve the widening of several segments of local roads beyond what has been previously approved and planned, additional impacts to the environment may occur. These impacts have been summarized in Table 3.10-9 and include impacts to biological resources, existing and planned land uses, landforms and visual resources. (Based on a literature and record search, no known cultural resources would be impacted. However, surveys may be required once the actual road alignments are known.)

Overall, the majority of the roads are through either developed areas or disturbed or non-native grassland habitat. None of these habitat types are sensitive from a biological perspective and thus biological impacts would be less than significant. However, segments of Bonita and Sweetwater roads proposed to be widened would impact wetland habitat, either southern willow scrub or freshwater marsh. Major wetland impacts along the Sweetwater Regional Park and Sweetwater River would require U.S. Army Corps of Engineers permits.

Land use and landform alteration/visual resource impacts would be potentially significant along several of the segments due to the presence of existing development that would be displaced and due to steep slopes that abut many of the roadways. Other potential impacts include geological impacts along Millar Ranch Road and onsite and offsite noise impacts as discussed in Section 3.12 of this report due to the increase in average daily traffic along the segments. In all cases, actual impacts and mitigation for the impacts would need to be determined through site-specific analysis on a segment-by-segment basis as the actual widening is proposed and the specific alignments are known.

This section provides a discussion of the analysis of significance of unmitigable impacts under the New Town Plan. The methodology used to define the significance of these impacts is defined in Appendix B of this document. Based on the level of significance column shown on the mitigation tables and the review of mitigation implementation tables, those impacts which have a Level 2 (significant and not mitigable at the GDP level due to a lack of design information), or a Level 3 (significant and not mitigable) are summarized in this section.

Table 3.10-10 shows the remaining impacts to the Otay Ranch Study Area Region circulation network after the implementation of the required mitigation measures for the New Town Plan. This table shows that, of the 68 roadway miles that make up the onsite circulation network and the 9.33 roadway miles (approximately 14 percent) that would be impacted by the New Town Plan before mitigation, only 0.74 miles (approximately 1 percent) remain unmitigable.

Of the 222 offsite roadway miles in this alternative circulation network, 45 miles (approximately 20 percent) were impacted by the project. After mitigation, only 28.58 miles (approximately 13 percent) remain impacted.

Of the 290 total roadway miles that make up the circulation network in the Southbay Region under this alternative, 54 miles (approximately 19 percent) would be impacted by the New Town Plan. Only 29.32 miles (approximately 10 percent) were determined to be unmitigable.

Table 3.10-9

IMPACTS OF THE NEW TOWN PLAN OFFSITE ROADWAY IMPROVEMENTS

	IMPACT SIGNIFICANCE				
Road Segment	Biological Resources	Cultural Resources	Land Use	Landform Alteration/Visual Resources	Other
<u>Bonita Road</u>					
I-805 to Willow Street	Significant - Southern willow scrub habitat in Sweetwater Regional Park could be impacted.	Not Significant - Based on a literature and record search. A survey may be required when an actual alignment is known.	Significant - Displacement of existing commercial, residential, or recreational land uses may be necessary.	Significant - Extensive grading and construction of retaining walls may be necessary in several locations along this segment.	
Willow Street to Otay Lakes Road	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - This area is already disturbed and developed with urban uses.	Significant - Displacement of existing commercial and office buildings and/or recreational land uses may be necessary.	Not Significant (although existing landscaping along the street frontage would need to be replaced.)	
<u>East H Street</u>					
I-805 to Terra Nova Road	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant	Significant - Extensive grading and construction of retaining walls may be necessary. Landscaping along the street frontage would be removed.	

Table 3.10-9 (Continued)

IMPACTS OF THE NEW TOWN PLAN OFFSITE ROADWAY IMPROVEMENTS

	IMPACT SIGNIFICANCE				
Road Segment	Biological Resources	Cultural Resources	Land Use	Landform Alteration/Visual Resources	Other
Lane Avenue					
Proctor Valley Road to Otay Lakes Road	Not Significant - Development has already been approved along this segment as part of Salt Creek Ranch.	Not Significant - Development has already been approved along this segment as part of Salt Creek Ranch.	Significant - Widening could adversely affect Salt Creek Ranch's planned residential land uses along this segment.	Significant - Retaining walls may be necessary along portions of this segment.	
Orange Avenue					
I-805 to Oleander Avenue	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - This area is already disturbed and developed with urban uses.	Significant - Displacement of existing single-family houses that front along the street may be necessary.	Not Significant	
Oleander Avenue to Medical Center Drive	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - This area is already disturbed and developed with urban uses.	Significant - Additional widening may displace existing multi-family residential units.	Significant - Extensive grading and/or construction of a retaining wall may be necessary.	

Table 3.10-9 (Continued)

IMPACTS OF THE NEW TOWN PLAN OFFSITE ROADWAY IMPROVEMENTS

	IMPACT SIGNIFICANCE				
Road Segment	Biological Resources	Cultural Resources	Land Use	Landform Alteration/Visual Resources	Other
<u>Otay Lakes Road</u>					
SR 125 to East-Lake Parkway	Not Significant - This area is already graded for urban development.	Not Significant - This area is already graded for urban development.	Significant - Planned commercial development of EastLake Green's could be adversely affected.	Not Significant	
<u>Proctor Valley Road</u>					
SR 125 to San Miguel Road	Not Significant - Development has already been approved along this segment as part of Salt Creek Ranch.	Not Significant - Development has already been approved along this segment as part of Salt Creek Ranch.	Significant - Widening could adversely affect Salt Creek Ranch's planned residential land uses along this segment.	Significant - Extensive grading and the construction of retaining walls may be necessary along portions of this segment.	
San Miguel Road to Lane Avenue	Not Significant - Development has already been approved along this segment as part of Salt Creek Ranch.	Not Significant - Development has already been approved along this segment as part of Salt Creek Ranch.	Significant - Widening could adversely affect Salt Creek Ranch's planned residential land uses along this segment.	Significant - Extensive grading and the construction of retaining walls may be necessary along portions of this segment.	

Table 3.10-9 (Continued)

IMPACTS OF THE NEW TOWN PLAN OFFSITE ROADWAY IMPROVEMENTS

	IMPACT SIGNIFICANCE				
Road Segment	Biological Resources	Cultural Resources	Land Use	Landform Alteration/Visual Resources	Other
Lane Avenue to Hunte Parkway	Not Significant - Development has already been approved along this segment as part of Salt Creek Ranch.	Not Significant - Development has already been approved along this segment as part of Salt Creek Ranch.	Significant - Widening could adversely affect Salt Creek Ranch's planned residential land uses along this segment.	Significant - Extensive grading and the construction of retaining walls may be necessary along portions of this segment.	
Hunte Parkway to Salt Creek Ranch Road	Not Significant - Development has already been approved along this segment as part of Salt Creek Ranch.	Not Significant - Development has already been approved along this segment as part of Salt Creek Ranch.	Significant - Widening could adversely affect Salt Creek Ranch's planned residential and recreational land uses along this segment.	Significant - Extensive grading and the construction of retaining walls may be necessary along portions of this segment.	

Table 3.10-9 (Continued)

IMPACTS OF THE NEW TOWN PLAN OFFSITE ROADWAY IMPROVEMENTS

	IMPACT SIGNIFICANCE				
Road Segment	Biological Resources	Cultural Resources	Land Use	Landform Alteration/Visual Resources	Other
<u>Millar Ranch Road</u>					
SR 94 to Proctor Valley Road	Not Significant - Development has already been approved along this segment as part of Hidden Valley Estates.	Not Significant - Development has already been approved along this segment as part of Hidden Valley Estates.	Significant - Widening could adversely affect Hidden Valley Estate's planned residential land uses along this segment.	Significant - Extensive grading and the construction of retaining walls may be necessary, especially if the road is constructed prior to the development of Hidden Valley Estates.	Significant geological impacts could occur due to the presence of rock outcroppings and oversized materials as well as the potential for landslides.
<u>Sweetwater Road</u>					
SR 54 to Plaza Bonita Road	Significant - Disturbed southern willow scrub could be impacted.	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - Widening would only affect landscaping and manufactured slopes.	Significant - Extensive grading and/or construction of retaining walls may be necessary.	

Table 3.10-9 (Continued)

IMPACTS OF THE NEW TOWN PLAN OFFSITE ROADWAY IMPROVEMENTS

	IMPACT SIGNIFICANCE				
Road Segment	Biological Resources	Cultural Resources	Land Use	Landform Alteration/Visual Resources	Other
Plaza Bonita Road to Willow Street	Significant - Small areas of freshwater marsh could be impacted.	Not Significant - Based on a literature and record search. A survey may be required when an actual alignment is known.	Significant - Displacement of existing single-family houses may be necessary.	Significant - Extensive grading, construction of retaining walls, and the removal of eucalyptus and other mature trees that line the road may be necessary.	

Table 3.10-10

SIGNIFICANT IMPACTS AFTER MITIGATION
OTAY RANCH STUDY AREA CIRCULATION NETWORK
NEW TOWN PLAN

Onsite Impacted Roadway Miles

Arterial Segment	From	To	Distance
Hunte Parkway	SR-125	South Dam Road	0.74 miles
Total Residual Impacts - Onsite Roadway Miles			0.74 miles

Offsite Impacted Roadway Miles

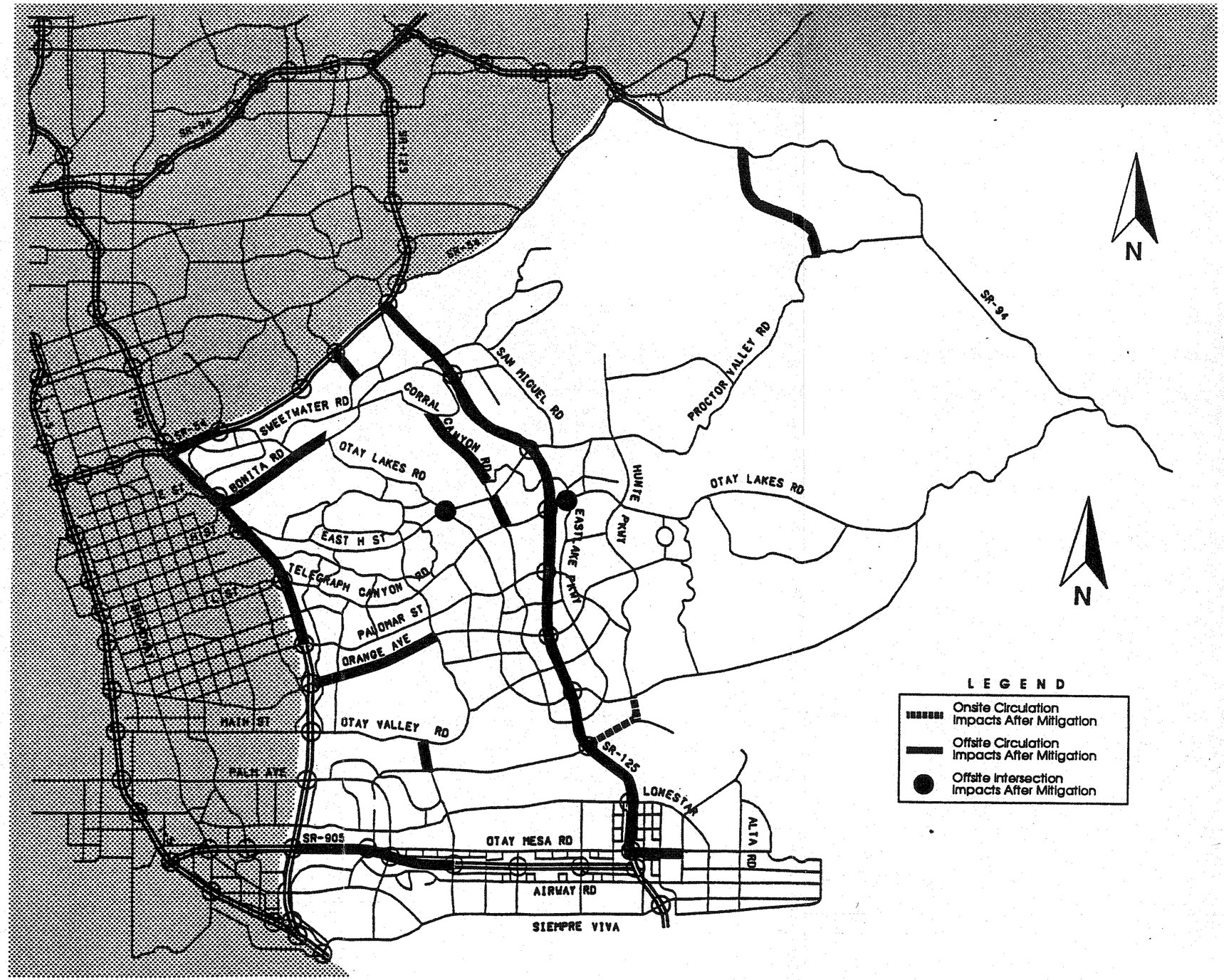
Arterial Segment	From	To	Distance
Paseo Ranchero	Otay Valley Road	Otay Valley Parkway	0.51 miles
Lone Star Road	La Media Road	Piper Ranch Road	0.76 miles
Bonita Road	I-805	Otay Lakes Road	1.99 miles
Briarwood Road	SR-54	Sweetwater Road	0.54 miles
Heritage Road	SR-905	Waterville Road	0.09 miles
Orange Avenue	I-805	Paseo Ranchero	2.09 miles
Rutgers Avenue	East H Street	Otay Lakes Road	0.55 miles
Sweetwater Road	SR-54	Plaza Bonita Road	0.09 miles
Otay Lakes Road	SR-125	EastLake Parkway	0.30 miles
Otay Mesa Road	SR-125	Enrico Fermi	1.20 miles
Corral Canyon Road	Blacksmith Road	EastLake Drive	1.14 miles
Millar Ranch Road	SR-94	Proctor Valley Road	2.32 miles
Total Significant Impacts - Offsite Arterial Roadway Miles			11.58 miles
- Offsite Freeway Miles			17.00 miles
Total Significant Impacts - Otay Ranch Study Area Circulation Network			29.32 miles

Offsite Impacted Intersections

Intersection	Stage of Mitigation Required
Otay Lakes Road/East H Street	2
EastLake Parkway/Otay Lakes Road	2

In addition, of the 18 critically impacted intersections, two offsite intersections (Otay Lakes Road/East H Street, and Otay Lakes Road/EastLake Parkway) were found to be unmitigable at the General Plan level.

Figure 3.10-6 shows the location of the remaining significant circulation network impacts after mitigation.



OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 3.10-6

BALDWIN NEW TOWN PLAN LOCATION OF SIGNIFICANT IMPACTS AFTER MITIGATION

jhk & associates

3.11 AIR QUALITY

3.11.1 Existing Conditions

3.11.1.1 Applicable Regulations, Plans, and Policies

Ambient Air Quality Standards (AAQS) represent the maximum levels of background pollution considered safe, with an adequate margin of safety, to protect the public health and welfare. The five primary pollutants of concern for which standards have been established are ozone (O_3), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), and particulate matter smaller than 10 microns in diameter (PM_{10}). National Ambient Air Quality Standards (NAAQS) were set by the Federal Clean Air Act of 1970 (which was amended in 1977 and 1990), with states retaining the option to develop different (i.e., more stringent) standards. Because of unique air quality problems in California, the California Air Resources Board (CARB) has developed additional AAQS. Table 3.11-1 lists the applicable state and federal standards. The federal standards are not to be exceeded more than once per year. The CARB policy for determining violations of a state standard is a "not to be exceeded" policy for O_3, CO, SO_2 (1-hour), NO_2, and PM_{10}. The remaining standards are not to be equalled or exceeded.

In 1979, the U.S. Environmental Protection Agency (EPA) required each state to prepare a State Implementation Plan (SIP). A SIP is a compilation of goals, strategies, schedules, and enforcement actions designed to lead the state (including the San Diego Air Basin) into compliance with all federal air quality standards. Every change in a compliance schedule or plan must be incorporated into the SIP. The SIP outlines the measures by which the state will attain the NAAQS for O_3, CO, NO_2, SO_2, and PM_{10}. The NAAQS originally were targeted to be achieved in each air basin by 1982; however, extensions to 1987 were granted to many air basins (including the San Diego Air Basin) that had incorporated available emission control strategies but nevertheless could not attain some standards by 1982.

In order to meet federal air quality standards in California, the CARB required each air basin to develop its own strategy for achieving the NAAQS. The original Regional Air Quality Strategy (RAQS) for San Diego County was developed for inclusion in the SIP in the early 1970s and was updated in 1979 and 1982. Responsibility for preparation of the county's RAQS and its revisions has been delegated to the San Diego Air Pollution Control District (SDAPCD), which is also responsible for pollution control from stationary sources, air pollution monitoring, emissions inventories, meteorological and air quality analyses, implementation of abatement plans in the event of severe smog problems, and smog episode forecasts. No further revisions to the 1982 RAQS were made by the SDAPCD until recently, as Congress failed to enact new amendments until 1990. Because of this delay, the California Clean Air Act (CCAA) was adopted in 1988. This Act calls for each district in the state to comply with state air quality standards by the earliest practicable date. It further requires each district to develop an air quality management plan. The 1991 management plan (called the 1991 Regional Air Quality Strategy) for San Diego County was issued in draft form in July 1991, with formal adoption expected in 1992. While it is anticipated that the provisions contained in the Final RAQS will generally meet federal requirements (in addition to those of the CCAA), it will be necessary to make further revisions in subsequent years to address future unique federal mandates.

The goal of the RAQS is to reduce local pollutant emissions such that state air quality standards are achieved as expeditiously as possible. The CCAA's main requirement is a 5 percent per year reduction in emissions. However, in San Diego County, where significant emissions reduction programs are already in place, it is not anticipated that this

Table 3.11-1

CALIFORNIA AND FEDERAL AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGING TIME	CALIFORNIA STANDARDS (1)		NATIONAL STANDARDS (2)		
		Concentration	Method	Primary	Secondary	Method
Ozone	1 Hour	0.09 ppm (180 ug/m³)	Ultraviolet Photometry	0.12 ppm (235 ug/m³)	Same as Primary Standards	Ethylene Chemiluminescence
Carbon Monoxide	8 Hour	9.0 ppm (10 mg/m³)	Nondispersive Infrared Spectroscopy	9.0 ppm (10 mg/m³)	Same as Primary Standards	Nondispersive Infrared Spectroscopy
	1 Hour	20 ppm (23 mg/m³)		35 ppm (45 mg/m³)		
Nitrogen Dioxide	Annual Average	—	Gas Phase Chemiluminescence	0.053 ppm (100 ug/m³)	Same as Primary Standards	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 ug/m³)		—		
Sulfur Dioxide	Annual Average	—	Ultraviolet Fluorescence	0.03 ppm (80 ug/m³)	—	Pararosaniline
	24 Hour	0.04 ppm (131 ug/m³)		0.14 ppm	—	
	3 Hour	—		—	0.5 ppm (1300 ug/m³)	
	1 Hour	0.25 ppm (655 ug/m³)		—		
Suspended Particulate Matter	Annual Geometric Mean	PM_{10} 30 ug/m³	Size Selective High Volume Sampler and Gravimetric Analysis	PM_{10} (3) 50 ug/m³	Same as Primary Standards	Inertial Separation and Gravimetric Analysis
	24 Hour	PM_{10} 50 ug/m³		PM_{10} (3) 150 ug/m³		
Sulfates	24 Hour	25 ug/m³	Turbidimetric Barium Sulfate	—	—	—
Lead	30 Day Average	1.5 ug/m³	Atomic Absorption	—	—	Atomic Absorption
	Calendar Quarter	—		15 ug/m³	Same as Primary Standards	
Hydrogen Sulfide	1 Hour	0.03 ppm (42 ug/m³)	Cadmium Hydroxide Stractan	—	—	—
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 ug/m³)	Tedlar Bag Collection, Gas Chromatography	—	—	—
Visibility Reducing Particles	1 Observation	Insufficient amount to reduce the prevailing visibility to less than 10 miles when the relative humidity is less than 70%		—	—	—

ppm – parts per million
ug/m³ – micrograms per cubic meter
mg/m³ – milligrams per cubic meter

(1) CO, SO_2 (1 Hour), NO_2, O_3, and PM_{10} Standards are not to be exceeded. All other Standards are not to be equaled or exceeded.
(2) Not to be exceeded more than once a year.
(3) Annual arithmetic mean.

level of annual emissions reductions can be achieved. Consequently, the CCAA requires that all feasible measures be implemented on a practical, expeditious schedule. These measures, identified in the RAQS, include the following:

- Clean Fuel Vehicles: This measure is designed to increase the use of low emission motor vehicles in fleets.

- Stationary and Areawide Control Measures: These emission control measures will affect a wide variety of sources, ranging from specific industries such as electrical power generation, fiberglass manufacturing, and bakeries to consumer products such as barbecue lighter fluid and deodorants. These measures will likely affect some of the industries locating in the proposed Otay Ranch project area. Such individual sources will be subject to specific industry requirements established in the RAQS and the APCD rules and regulations.

- Transportation Control Measures: These measures include trip reduction programs, alternative transportation mode capacity expansion, transportation system management, indirect source review, and land use. The SDAPCD is primarily responsible for trip reduction and indirect source review programs. A variety of other agencies take the lead in developing additional measures in accordance with their area of responsibility. The indirect source review program (which will directly affect residential and commercial development projects, including Otay Ranch) is currently being developed, and land use policy options are being researched to identify those which will reduce dependence on automobiles and improve energy efficiency. The program is expected to be sent to the Air Pollution Control Board in late 1992. The adopted program will be implemented, as required.

It should be noted that the RAQS does not estimate when or if attainment of the state standards will be achieved; research is currently being conducted to provide data for this attainment demonstration. However, it is not anticipated that San Diego County will meet the standards by 1997. The failure of earlier versions of the RAQS to meet federal or state standards can be attributed to several factors, the principal one being population growth (and with it, growth in vehicular travel) higher than that predicted by SANDAG's growth forecasts. The current forecast (Series 7) projects a county population of 2,585,134 in 1995. However, by the end of 1990, the actual population was already very close (2,498,016) to the 1995 projection. Estimates of emission trends and control technique effectiveness contained in the RAQS will be incorrect if the Series 7 forecasts on which they are based underestimated population growth in the county. Nonetheless, since the RAQS is based on the Series 7 forecast, significance of impacts is defined by the SDAPCD in terms of whether or not the growth induced by a particular development project has been accounted for in the Series 7 forecast, regardless of location. If the growth is consistent with the forecast, the impacts are not considered significant, as the RAQS has incorporated growth assumptions in the development of measures to reduce air pollutants to acceptable levels. The CCAA requires that the RAQS be revised every 3 years in order to reflect, among other things, changes in regional growth patterns. It should be noted that Series 7 population forecasts are currently being updated. The subsequent forecasts, Series 8, should be completed by Fall 1992. It is anticipated that the Otay Ranch planning area will be included in the Series 8 forecasts. Accordingly, subsequent revisions to the RAQS will reflect Series 8 forecasts and its treatment of Otay Ranch.

3.11.1.2 Meteorology/Climate

The climate of San Diego County is characterized by warm, dry summers and mild, wet winters and is dominated by a semi-permanent high-pressure cell located over the Pacific Ocean. This high pressure cell maintains clear skies for much of the year. It also drives the dominant onshore circulation and helps to create two types of temperature inversions, subsidence and radiation, that contribute to local air quality degradation.

Subsidence inversions occur during the warmer months, as descending air associated with the Pacific high-pressure cell comes into contact with cool marine air. The boundary between the two layers of air represents a temperature inversion which traps pollutants below it. Radiation inversions typically develop on winter nights, when air near the ground cools by radiation, and the air aloft remains warm. A shallow inversion layer which can trap pollutants is formed between the two layers.

The closest and most representative weather monitoring station to the project site is located in Chula Vista approximately 5 miles west of the proposed project site. The mean temperature is 60.4°F; the mean maximum and mean minimum temperatures are 67.3°F and 53.4°F, respectively. Precipitation in the study area averages 8.67 inches annually, 90 percent of which falls between November and March. The prevailing wind direction is from the west-northwest, with an annual mean speed of 7.0 miles per hour (NOAA 1982).

3.11.1.3 Ambient Air Quality

Air quality at a given location is a function of several factors, including the amounts and types of pollutants being emitted, both locally and regionally, and the dispersion rates of pollutants within the region. The major factors affecting pollutant dispersion are wind speed and direction, atmospheric stability, temperature, the presence or absence of inversions, and the topographic and geographic features of the region.

San Diego County meets the federal and state standards for all pollutants except the California PM_{10} and 1-hour NO_2 air quality standards and the federal and state O_3 standards. The SDAPCD Chula Vista air quality monitoring station monitors O_3, CO, NO_2, SO_2, total suspended particulates (TSP), and PM_{10}. Table 3.11-2 presents a summary of the highest pollutant values recorded at this station in the last 5 years. It should be noted that elevated smog concentrations are not caused only by locally-generated pollution. Approximately 40 percent of the state ozone standard violations, 75 percent of the federal standard violations, and all of the highest alert level concentrations are the result of pollutants that are transported out of the Los Angeles area over the ocean and then come back onshore in San Diego County with the sea breeze.

In addition to regional air pollutants in the Otay Ranch area, there are currently three sources of fugitive particulate matter: the Otay Landfill, the Daley quarry, and the Nelson and Sloan quarry. Fugitive dust emissions from these sources result from landfill covering operations, quarrying operations, and vehicular travel on dirt roads and surfaces. Additional fugitive dust emissions are associated with farming operations in the project area.

3.11.2 Impact Analysis

The standard technique for assessing air quality impacts is pollution dispersion modelling. There are a variety of models available depending on the location and configuration of the pollutant sources. For example, some models are appropriate for urban locations, while others are designed for rural sites. Techniques are also available to simulate emissions

Table 3.11-2

CHULA VISTA MONITORING STATION AMBIENT AIR QUALITY SUMMARY

Pollutant	Averaging Time	California Air Quality Standards	Federal Primary Standards	Maximum Concentrations (a)					Number of Days Exceeding Federal Standard (b)					Number of Days Exceeding State Standard (b)				
				1986	1987	1988	1989	1990	1986	1987	1988	1989	1990	1986	1987	1988	1989	1990
Oxidants (Ozone) (c)	1 hr	0.09 ppm	0.12 ppm	0.14	0.16	0.22	0.16	0.15	2	2	4	7	3	20	15	17	21	24
Carbon Monoxide	1 hr	20 ppm	35 ppm	7.0	7.0	7.0	8.0	7.0	0	0	0	0	0	0	0	0	0	0
	8 hrs	9 ppm	9 ppm	5.10	3.40	3.60	4.70	(f)	0	0	0	0	0	0	0	0	0	0
Nitrogen Dioxide	1 hr	0.25 ppm	N/A	0.14	0.15	0.21	0.16	0.13	N/A	N/A	N/A	N/A	N/A		0	0	0	0
	Annual	N/A	0.053 ppm	0.025	0.023	0.026	0.028	(f)	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
Sulfur Dioxide	1 hr	0.25 ppm	N/A	0.06	0.04	0.09	0.08	0.06	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0
	24 hrs	0.05 ppm	0.14 ppm	0.013	0.011	0.019	0.018	(f)	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
	Annual	N/A	0.03 ppm	0.002	0.001	0.003	0.003	(f)	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
Total Suspended Particulates (TSP) (d)	24 hrs	N/A	260 $\mu g/m^3$	119	100	N/A	N/A	N/A	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Annual	N/A	75 $\mu g/m^3$	49.5	51	N/A	N/A	N/A	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM_{10} (e)	24 hrs	50 $\mu g/m^3$	150 $\mu g/m^3$	N/A	N/A	58	69	67	N/A	N/A	0	0	0	N/A	N/A	3	7	7
	Annual	30 $\mu g/m^3$	50 $\mu g/m^3$	N/A	N/A	30.4	34.5	(f)	N/A	N/A	0	0	0	N/A	N/A	1	1	(f)

Source: California Air Resources Board, 1985, 1986, 1987, 1988, 1989, 1990

Notes:

(a) Concentration units for ozone, carbon monoxide, nitrogen dioxide, and sulfur dioxide are in parts per million (ppm). Concentration units for total suspended particulates (TSP) and PM_{10} are in micrograms per cubic meter ($\mu g/m^3$).

(b) For annual standards, a value of 1 indicates that the standard has been exceeded.

(c) California standard for ozone was 0.10 ppm for the years 1985-1988. The standard was changed to 0.09 ppm in 1989.

(d) In July 1987, the federal standards for TSP were replaced by standards for fine particulate matter less than 10 microns (PM_{10}).

(e) PM_{10} monitoring equipment was installed sometime during 1988; monitoring started in 1989.

(f) Data not available.

from point sources, line sources, and/or area sources. Some models can be used for assessing regional air quality, while others are best used to examine impacts on a local scale. The purpose of these techniques is to estimate the impacts of specific air pollutants at given locations for comparison with state and federal ambient air quality standards to determine the significance of the predicted impacts.

Point sources are typically regulated by permit requirements of the SDAPCD (i.e., turbines, generators, manufacturing processes, etc.). Line sources include roads, railroads, and conveyer belts. Area sources are generally spread out over a larger site than point sources or line sources. Development projects are typical of area sources, where the pollutant emissions emanate from such individual sources as the water heaters, pool heaters, furnaces, etc. associated with each dwelling and commercial/industrial facility. Both development projects and industrial complexes are frequently represented by a combination of point, line, and area sources in modeling. However, the emissions for development sources are generally less well known than the emissions for industrial facilities, as details regarding the specific pollutant emission sources are generally not available at the time of EIR preparation.

Air quality models require detailed source emission data that are often not available at the preliminary design phase. Such is the case with the Otay Ranch project. The only information available for air quality analysis at this stage is that related to land use (e.g., number of residential units, square footage of commercial development, etc.). The information required for air quality modeling (the kinds of pollutant sources, location and peak hour traffic volume at key intersections, the types of furnaces and water heaters used, etc.) has not yet been developed.

As an alternative to using air quality models, gross pollutant emissions can be calculated, either by hand or by means of emissions models (such as URBEMIS3). It should be noted, however, that using this technique provides considerably less information than modeling. The results of the emissions calculations are compared to emissions threshold criteria, if any exist, to determine significance. In the case of San Diego County, no such criteria exist, and the significance of impacts from development projects such as Otay Ranch is determined in relation to assumptions contained in the RAQS (see Section 3.11.1.1).

3.11.2.1 Construction Impacts

The project design is still in the preliminary stages of development; therefore, it is not possible to quantify construction impacts. These impacts will be in the form of fugitive dust generated during grading activities and by vehicular traffic on unpaved surfaces, and tailpipe pollutant emissions produced by construction equipment and workers' vehicles. Emissions will be quantified in future SPA Plan or Specific Plan EIRs.

3.11.2.2 Vehicular Impacts

The URBEMIS3 model is a tool provided by the California Air Resources Board (CARB) for use in estimating carbon monoxide, total hydrocarbon, and nitrogen oxide emissions from motor vehicles associated with new or modified land uses (such as residential developments, commercial strips, shopping centers, etc.). The EMFAC7D vehicle emission factor program is included in the URBEMIS3 model. EMFAC7D was also developed by CARB to estimate the amount of pollutant emitted per mile driven for various types of vehicles. URBEMIS3 was used for the analysis of the Otay Ranch project.

The URBEMIS3 model was updated in 1990 to calculate particulate matter from exhaust and tire wear and to account for the sulfur content of fuel (expressed as oxides of sulfur). However, it appears that errors in the calculation of these two pollutants occur for analyses conducted for later years (2010 and beyond). Calculations of these pollutants were performed by hand (see Appendix C-1). At the current time, the URBEMIS3 model is undergoing substantial revisions. It is presumed that these revisions will include corrections to the PM10 and $S0_2$ calculations that resulted in unrealistic numbers predicted for this project. The new model version is expected in late 1992.

Methodology

The California Air Resources Board's URBEMIS3 Model and the EMFAC7D version of the San Diego County vehicle burden mix were used to estimate emission rates of the five main vehicular pollutants from traffic associated with the Otay Ranch development in the years 2000, 2010, and 2020. Project phasing assumptions are that 18 percent of the project would be built by 2000, 54 percent by 2010, and 90 percent by 2020. No analysis was conducted beyond 2020, as the URBEMIS3 model is not set up to provide data beyond 2020. The county vehicle burden mixes for the years 2000 and 2010 were used to provide both "Percent of Trips" and "Percent of Fuel" for each vehicle type. CARB does not provide forecasts beyond 2010; therefore, the 2010 burden mix was used for the 2020 analysis. The trip rates assumed for each land use designation (i.e., residential, commercial, industrial, schools, etc.) were based on SANDAG's *San Diego Traffic Generators* (January 1990). The average temperature used for each year was 70°F. The URBEMIS3 default inputs for cold start percentages by trip type, trip speed (35 mph), trip length by trip type, and the percentages for the PM_{10} and sulfur emissions were used. Emissions were calculated for total organic gases (TOG), CO, NO_x, SO_x, and PM_{10}. For the purpose of estimating O_3 precursor emissions, TOG was converted to Reactive Organic Compounds (ROC) by multiplying the TOG emissions by a conversion rate of 0.91 (a reasonably conservative estimate of the ROC/TOG ratio).

Results

Output data from the URBEMIS3 model are provided in Appendix C-1. The results reported in Table 3.11-3 show that the proposed project would incrementally increase the pollution to the regional airshed. Any increase in PM_{10} emissions and O_3 precursor emissions (ROC and NO_x) constitutes a significant adverse impact because San Diego County is already a non-attainment area for O_3 and PM_{10}.

3.11.2.3 Stationary Source Impacts

Source Information

Pollutant emissions from stationary sources in the New Town Plan would include emissions from residences, commercial establishments, and community facilities, and would primarily result from the burning of natural gas. Residential and commercial water heaters and gas-fired furnaces emit mainly NO_x, although smaller quantities of other pollutants such as reactive organic gases (ROG), CO, SO_2, and PM are also produced. Water heaters for swimming pools and spas emit similar pollutants. Considering that emissions from swimming pools are small in comparison to furnaces and water heaters, and because the water volumes heated for spas are much smaller than swimming pools, the emissions from spas were assumed to be negligible. Electrical furnaces and air conditioners have no direct emissions of air pollutants. However, these units do increase energy demand from power generating facilities, which contribute to the regional air pollution background. For the purposes of this analysis, all units were assumed to be

Table 3.11-3

VEHICULAR POLLUTANT EMISSIONS, NEW TOWN PLAN (TONS/YEAR)

Year	ROC	CO	NO_x	PM_{10}[a]	SO_x[b]
2000	283.6	3,429.9	381.5	158.2	27.7
2010	752.4	9,367.3	1,092.3	752.6	77.6
2020	1,814.1	22,313.0	2,670.9	1,389.0	189.4

(a) The URBEMIS3 model predicted a PM_{10} value of 12,627 T/yr in year 2020. There is no apparent reason for a 130% increase in PM_{10} emissions in this year when the number of units only increased by a factor of 2.3. All of the other pollutant emissions (except for SO_2--see note (b)) increased in proportion to fuel use (as estimated by the model), as would reasonably be expected. Therefore, the PM_{10} result reported in the table for year 2020 was obtained by multiplying the year 2010 value by the factor increase in fuel useage between the two years (in this case, a factor of 2.3).

(b) Similar to the 2020 PM_{10} results, the URBEMIS3 model predicted anomalously high SO_2 values in the years 2010 and 2020. The SO_2 model prediction for 2010 was a factor of 466 greater than in 2000; the result for 2020 was 1,075 times higher than the 2000 predicted value. Rather than report these values, SO_2 emissions for 2010 and 2020 were scaled from the year 2000 result using a factor equal to the increase in fuel use for the two time periods (i.e., 2.8 for year 2010 and 2.3 for year 2020).

equipped with natural gas-fired furnaces and water heaters. The potential emissions from stationary sources assumed to be associated with the proposed residences, commercial/ industrial properties, and community facilities are described below:

- Residential Sources: Each new housing unit was assumed to be equipped with water heating and space heating systems. Swimming pools, water heating, and space heating systems were assumed to be natural gas-fired, based on information provided by San Diego Gas and Electric Co. (Personal Communication 1991) that indicated the abundance of natural gas in this area would likely make it the preferred energy source. The Air Quality Handbook (SCAQMD 1987) presents natural gas consumption rates for three categories of residences: single family (6,665 cubic feet/mo/unit), multifamily with 4 or less units (4,105 cubic feet/mo/unit), and multi-family with 5 or more units (3,918 cubic feet/mo/unit). For the purposes of this EIR air quality analysis, duplexes and patio homes were assumed to be equivalent to the multi-family category with 4 or less units; townhomes, condos, and condo midrises equivalent to the multi-family category with 5 or more units; and estates, semi-custom homes, large lots, tract/small, and tract/patio equivalent to the single-family designation. The average fuel consumption for a swimming pool is 65 cubic feet per day per unit (SCAQMD 1987). Assumptions made for swimming pools were that 80 percent of the estates and semi-custom homes, 30 percent of the large lot homes, and 2 percent of the other dwelling units would have swimming pools. Swimming pool heaters were considered to be used approximately 60 days per year.

- Commercial Sources: The space and water heating facilities for industrial buildings, offices, resorts, hotels, retail units, and shopping malls in the New Town Plan were also assumed to utilize natural gas burning as a thermal source. The average monthly usages by offices, retail stores/malls, and hotels are 2.0, 2.9, and 4.8 cubic feet per month per square foot, respectively (SCAQMD 1987). Industrial buildings were considered equivalent to offices, and resorts equivalent to hotels with natural gas consumption rates of 2.0 and 4.8 cubic feet per month per square foot, respectively.

- Community Sources: Space and water heating for schools and community facilities were estimated to employ commercial boilers (less than 5 million (MM) Btu/hr) which would be natural gas-fired, with a consumption of 2,250 cubic feet of natural gas per day per unit (SCAQMD 1989). Assumptions of 180 and 260 working days per year were made for schools and community facilities, respectively.

Calculations of natural gas consumption rates for each source type, by analysis year, for each alternative are presented in Appendix C-2.

Methodology

Emission rates for regulated pollutants from proposed sources were determined by using the emission factor approach in the EPA's *Compilation of Air Pollution Emission Factors (AP-42)* (1985). An emission factor is an average amount of a specific pollutant released from a particular source. Emission factors are usually expressed as the weight of the pollutant divided by a unit volume or area of the source that emits the pollutant (e.g., pounds of the pollutant emitted per million cubic foot of natural gas combusted). The emission factors from natural gas-burning domestic and commercial boilers (less than

10MM Btu) for NO_x, PM_{10}, SO_2, CO, and ROG are 100, 3, 0.6, 20, and 5.3 $lb/10^6ft^3$, respectively (EPA 1985, Table 1.4-1).

The annual emission rate of a pollutant (i.e., NO_x, PM_{10}, SO_2, CO, and ROG) emitted from natural gas burning can be expressed as the product of the appropriate emission factor for the pollutant under consideration and the annual natural gas consumption rate:

$$\text{Emission Rate (T/yr)} = \text{Emission Factor } (lb/10^6ft^3) \times \text{Annual Consumption } (10^6ft^3/yr) \times 1/2000 \text{ T/lb} \quad (1)$$

If the volume consumption rate of natural gas in a unit time (i.e., day or month) per unit of the activity is given, the annual consumption is determined by the following equation:

$$\text{NG Consumption } (10^6ft^3/yr) = \text{Daily (or Monthly) Consumption [(cf/day (mo)/unit] x Number of Units x Number of Days (Months)/year x } 1/10^6 \quad (2)$$

When the consumption rate is presented as a volume of natural gas combusted per month per unit area (square footage), the calculation is expressed as:

$$\text{NG Consumption } (10^6ft^3/yr) = \text{Consumption Rate (cf/mo/sf) x Area (sf) x Number of Months/year x } 1/10^6 \quad (3)$$

Calculations of pollutant emissions for each source type by analysis year for each alternative are presented in Appendix C-2.

Predicted Emissions from Stationary Sources (Year 2000)

The housing construction for the New Town Plan would include 720 semi-custom homes, 1,080 large lot homes, 2,070 tract/small homes, 2,520 tract/patio homes, 1,080 duplex/patio homes, 900 townhomes, and 450 condos (Baldwin Vista 1991). Approximately 1,040 swimming pools were assumed to be located in the residential areas. The areas used for industrial buildings, offices, resorts, and retail space would be 808,038; 76,230; 428,000; and 87,120 square feet, respectively. In the community areas, 4 elementary schools, 2 junior high schools, and 19 community facilities would be proposed. The annual natural gas consumption for all of the facilities was computed by equations (2) and (3) and is presented in Table 3.11-4. Table 3.11-4 also summarizes the annual emission rates of pollutants calculated by equation (1) for the year 2000. A total of 695 x 10^6 cubic feet of natural gas per year is estimated to be consumed by the stationary sources of the proposed New Town Plan in 2000, and emissions of NO_x, PM_{10}, SO_2, CO, and ROG are estimated to be 34.9, 1.0, 0.2, 6.9, and 1.8 tons per year, respectively.

Table 3.11-4

STATIONARY SOURCE EMISSIONS, NEW TOWN PLAN

Year	Natural Gas Combusted (Cu ft/yr)	Emissions NO_x (T/yr)	PM_{10} (T/yr)	SO_x (T/yr)	CO (T/yr)	ROG (T/yr)
2000	695×10^6	34.9	1.0	0.2	6.9	1.8
2010	$2,084 \times 10^6$	104.1	2.9	0.5	20.8	5.6
2020	$4,097 \times 10^6$	204.9	6.1	1.2	41.0	10.9

Predicted Emissions from Stationary Sources (Year 2010)

For the year 2010, a total of 216 estates, 2160 semi-custom homes, 3,096 large lot homes, 5,934 tract/small homes, 7,224 tract/patio homes, 3,296 duplex/patio homes, 2,580 townhomes, and 1,990 condos would be developed under this alternative (Baldwin Vista 1991). The residential areas were assumed to have 3,250 swimming pools. The areas occupied by industrial buildings, offices, hotels, and retail stores would increase to 2,759,526; 686,070; 407,000; and 969,210 square feet, respectively. The resorts' areas would remain at 428,000 square feet. Twelve elementary schools, 4 junior high schools, and 55 community facilities would be built by the year 2010. Annual natural gas consumption was determined by equations (2) and (3) and is illustrated in Table 3.11-4, along with the results of annual emission rates of pollutants calculated by equation (1). The total annual natural gas consumption would be $2,084 \times 10^6$ cubic feet, and NO_x, PM_{10}, SO_2, CO, and ROG emissions would be 104.1, 2.9, 0.5, 20.8, and 5.6 tons per year, respectively.

Predicted Emissions from Stationary Sources (Year 2020)

By the year 2020, the housing units would increase to 947 estates, 5,387 semi-custom homes, 7,309 large lot homes, 14,011 tract/small homes, 10,773 tract/patio homes, 5,171 duplex/patio homes, 4,094 townhomes, and 3,014 condos (Baldwin Vista 1991). Associated with this development would be 8,023 swimming pools. The commercial land uses would expand to 3,262,644 square feet of industrial buildings, 1,866,110 square feet of offices, 856,000 square feet of resorts, 814,000 square feet of hotels, 1,000,000 square feet of regional malls, 522,720 square feet of auto malls, and 1,840,410 square feet of other retail units. There would be 20 elementary schools, 7 junior high schools, and 93 community facilities. The annual natural gas consumption rates and emission rates were calculated by using equations (1), (2), and (3) and the results are shown in Table 3.11-4. The natural gas consumption for the year 2020 would increase to $4,097 \times 10^6$ cubic feet per year, and NO_x, PM_{10}, SO_2, CO, and ROG emission rates would increase to 204.9, 6.1, 112.0, 41.0, and 10.9 tons per year, respectively.

It is important to note that the Otay Ranch project would be developed in phases over a 30- to 50-year period; therefore, the year 2020 represents 90 percent of complete buildout of the development.

Emissions from Existing Sources

The Otay Landfill generates fugitive dust emissions associated with waste hauling and disposal and waste covering operations, but is expected to close by 1999. The Nelson and Sloan quarry and Daley quarry (if reactivated) operations emit fugitive dust which may impact adjacent land uses. Site-specific analyses of fugitive dust emissions from these sources are necessary, prior to development of adjacent lands, to determine the potential air quality impacts and any health hazards of these operations. Since the proposed development would remove agricultural lands from production, fugitive dust emissions from farming operations would decrease., as would dust emissions from the landfill once it is closed.

Power Plant Emissions

Section 3.11.2.4 provides estimated energy consumption figures for the proposed Otay Ranch development at buildout, including projected residential, commercial, and industrial electricity and natural gas usage and fuel combustion for transportation. Because the proposed project would represent a sizable percentage increase in the population and energy usage of San Diego County, it is necessary to consider the pollutant emissions that would be generated locally to provide the increased energy.

Emissions associated with future vehicular activities and natural gas combustion within the project area are addressed elsewhere in this section. The quantity of pollutants generated to produce electrical energy for the proposed development can be estimated by the following procedures:

- Estimate the electrical usage (kw-hour per year) for each year of interest (2000, 2010, and 2020).
- Assume that 60 percent of the additional power to support the project will be supplied by San Diego Gas and Electric Company (SDG&E) by means of gas-fired steam boilers at various power plants within the county.
- Calculate the emissions of CO, NO_x, ROG, PM_{10}, and SO_x based on accepted emission factors for gas-fired boilers.

Table 3.11-5 shows the results of this analysis for the proposed project. By the year 2020, the estimated project demand would be equivalent to the generating capacity of a 42 MW power plant. The total emissions listed in this table represent a potential regional, rather than local, air quality impact, since the location of the power plant(s) that would provide the incremental electric demand is not known. According to SDG&E, electrical demand for San Diego County is increasing at a rate of about 100 MW/year. Thus, a 42 MW increase over 30 years represents a very small increment on a systemwide basis. SDG&E is responding to the increase in demand by installation of very efficient modern gas turbines which utilize less natural gas and produce lower air pollution emissions. It is unlikely that a project of the scale envisioned for Otay Ranch would require any serious departure from the present policy.

In general, the expected power plant emissions associated with the required electric demand of the project are small. However, NO_x emissions are anticipated to grow to over 200 tons/year, which must be considered significant in light of the regional ozone nonattainment problem. Obviously, the accuracy of the predicted emissions estimates

Table 3.11-5

ESTIMATED POLLUTANT EMISSIONS FROM LOCAL POWER PLANTS TO PROVIDE ELECTRIC POWER FOR THE NEW TOWN PLAN

Year	Estimated Electricity Demand for Proposed Otay Ranch Development (10^6 kw-hr/year)	Natural Gas Burned at Local Power Plants to Produce Required Electricity (10^6 cu ft/year)[1]	Pollutant Emissions for Power Generation (tons/year)[2]				
			CO	NO_x	ROG	PM_{10}	SO_x
2000	71.69	430	8.6	37.6	0.3	1.1	0.1
2010	235.47	1,413	28.3	123.6	1.0	3.5	0.4
2020	401.02	2,406	48.1	210.4	1.6	6.0	0.7

1 Assume 60 percent of incremental electricity demand is generated locally; assume 10,500 Btu of fuel input per kw-hr generated and 1,050 Btu/cu ft for natural gas.

2 Emission factors taken from U.S. EPA document AP-42, except for NO_x. Since the San Diego APCD's regulations disallow NO_x emissions above 175 lb/10^6 ft^3, this maximum figure was used.

depends strongly on the validity of the assumptions used. For example, if the power to support the Otay Ranch development was generated by non-fossil fuel fired units, the estimated emissions would not occur. Alternatively, the incremental project power demand may be met with imported power generated by fossil fuel plants outside the county.

3.11.2.4 Energy Analysis

Methodology

A detailed analysis of energy consumption associated with the Otay Ranch project is dependent on development of more complete information on component projects and should be addressed in future project-specific EIRs. In this Program EIR, overall energy use estimates for the entire proposed project at buildout were developed from total projected residential, commercial, and industrial units, total vehicle trips, etc. The results of this analysis can be used to compare the energy consumption of the proposed project with those for alternative development scenarios.

For purposes of this analysis, five categories of energy consumption are considered:

- residential
- commercial
- industrial
- transportation
- street lighting

Data developed for the project description in this EIR include the expected numbers of dwelling units, the acreage to be developed for commercial establishments and industrial facilities, and projected vehicle miles traveled. Energy consumption factors (e.g., kilowatt hours per dwelling, therms per commercial establishment, gallons per vehicle mile) were constructed from current rate data for San Diego County. Unit electrical and natural gas usage rates for residential, commercial, and industrial developments were obtained from the most recent Federal Energy Regulatory Commission (FERC) Forms 1 and 2 submitted by SDG&E to FERC. The data contained in these forms represent energy sales by the utility during calendar year 1990. Data on total therms and kilowatt hours sold per year and the total numbers of customers in each category provide a basis for estimating unit consumption factors.

Inherent in the technical approach used in this energy analysis is the assumption that the energy to be supplied to the Otay Ranch development will be in essentially the same forms and utilized with essentially the same efficiency as in present-day San Diego County communities. Given the long-term development schedule foreseen for the proposed project, it is reasonable to assume that some technological advances may occur during this period to reduce fossil fuel usage and/or to increase the energy efficiency of appliances, heating equipment, and vehicles. This view is supported by a number of regulatory developments that will directly or indirectly lead to increased energy efficiency in the future. These include: (1) anticipated new San Diego Air Pollution Control District rules that will require replacement of older, less efficient generation units with more efficient and better controlled modern units; (2) Clean Air Act Amendments of 1990 which mandate improved fuel efficiency for vehicles; and (3) State Code Titles 22 and 24 which require new building standards, such as R-level insulation and double-paned windows, as well as improved energy consumption characteristics for electrical equipment.

Table 3.11-6 shows the unit energy factors by usage category that have been developed for estimation of New Town Plan energy consumption. These factors are used with

Table 3.11-6

ENERGY CONSUMPTION FACTORS BY DEVELOPMENT CATEGORIES, NEW TOWN PLAN

Project Development Category	Energy Usage Type	Estimated Unit Energy Consumption Factor	
		Magnitude	Units
Residential	Electricity[1]	5,580	kw-hr/dwelling/year
	Natural Gas[1]	522	therms/dwelling/year
Commercial	Electricity[1]	51,066	kw-hr/establishment/year
	Natural Gas[1]	4,281	therms/establishment/year
Industrial	Electricity[1]	4,900,000	kw-hr/establishment/year
	Natural Gas[1]	950,000	therms/establishment/year
Street Lighting	Electricity[2]	70	kw-hr/residential/year
Transportation	Vehicular Fuel[3]	6,034	Btu/vehicle mile

1 SDG&E Annual Report to Federal Energy Regulatory Commission for year ending December 31, 1990.
2 Data from SDG&E reference were used to obtain a factor based on the premise that street lighting energy demand is proportional to total dwelling units for a given area.
3 Transportation energy factors were obtained as a weighted average of published vehicle factors and the year 2010 projected vehicle mix for San Diego County.

development intensity parameters for the proposed project to provide estimates for total project energy consumption at buildout.

Because detailed construction plans are not available, it was necessary to develop a set of reasonable assumptions in order to obtain values for the energy consumption factors presented in Table 3.11-6. These assumptions are listed below.

- To obtain average kw-hour per dwelling per year and average therms per dwelling per year for residential electricity and natural gas usage, the 1990 quantities of electricity and gas sold by SDG&E to residential customers in San Diego County were divided by the total number of customers.

- To obtain kw-hour or therms per facility per year for industrial facilities, the 1990 electrical and natural gas energy sold to industries in San Diego County were divided by the number of industrial customers. Because heavy industry is unlikely to be included in the Otay Ranch development, facilities in the county with electric power demand greater than 4,500 kw-hour were excluded from this calculation.

- It was assumed that the electric energy expended for street lighting within the Otay Ranch development would track linearly with the number of residential units. Based on SDG&E's 1990 total sales of electricity generation for streetlighting and the number of residential customers for the same year, a factor was developed in the units of kw-hour per dwelling per year.

- For energy consumption due to transportation, published data on average energy usage per vehicle mile traveled were obtained for light duty automobiles; light, medium, and heavy duty trucks; and motorcycles. This information was used with the expected vehicle mix in San Diego County for the year 2010 to obtain a weighted average unit consumption factor.

Results

Total estimated annual energy usage rates for the proposed New Town Plan at buildout are presented in Table 3.11-7. The calculated energy consumption values are considered very approximate and do not include construction impacts, since many factors needed to address the latter issue have yet to be determined (e.g., numbers and types of construction equipment and scheduling of the various construction activities). Data in Table 3.11-7 are presented for each project development category and totaled to provide an overall annual energy consumption rate that may be compared with similar data for alternative development scenarios.

In order to obtain the energy usage estimates presented in Table 3.11-7, it was necessary to develop several assumptions to obtain approximate numbers of residential, commercial, and industrial units, and vehicle miles traveled in each energy usage category, as described below.

- The number of residential units at buildout was provided in the project description.

- About 1,100 acres of commercial development are planned. An average acreage of 1.1 acres per establishment was assumed, resulting in a projection of 1,000 new commercial establishments at buildout.

Table 3-11-7

ESTIMATED ANNUAL ENERGY CONSUMPTION FOR NEW TOWN PLAN AT BUILDOUT

Project Development Category	Energy Usage Type	Unit Consumption Factor	Projected Units at Buildout	Total Energy Consumption	Total Energy Consumption in 10^{11} Btu/year
Residential	Electricity	5,580 kw-hr/dwelling/year	50,733 dwellings	283.1 million kw-hr//year	9.7
	Nat. Gas	522 therms/dwelling/year		26.5 million therms/year	26.5
Commercial	Electricity	51,066 kw-hr/ establishment/year	1,000 establishments	51.0 million kw-hr/year	1.7
	Nat. Gas	4,281 therms/establishment/year		4.3 million therms/year	4.3
Industrial	Electricity	4.9 million kw-hr/ establishment/year	40 establishments	196 million kw-hr/year	6.7
	Nat. Gas	0.95 million therms/ establishment/year		38 million therms	38.0
Street Lighting	Electricity	70 kw-hr/residential unit/year	50,733 dwellings	3.6 million kw hr/year	0.12
Transportation	Vehicular Fuel	6,034 Btu/vehicle mile	837.31 million miles per year	50.5 x 10^{11} Btu/year	50.5
TOTAL					137.5

- The 823 acres of planned industrial development were assumed to be divided among 40 new establishments, based on an average plot size of about 20 acres per facility.

- For transportation facilities, the projected vehicle miles traveled (VMT) in the study area for the No Project Alternative were subtracted from the VMT expected for the proposed project at buildout to yield a VMT associated with the New Town Plan.

The results in Table 3.11-7 show that transportation is the largest energy usage category, representing about 37 percent of the total. Note that the projection for transportation is based on VMT levels calculated for a vehicle mix that does not specifically include mass transit, such as light rail transit (LRT). As noted in the project description, plans do exist to include such transportation systems in the long term. Previous studies (Kornblatt 1989, ERCE 1990a, ERCE 1991c) for various LRT projects in San Diego have shown that substantial energy savings can be realized by mass transit systems; thus, actual project energy consumption could be lessened significantly if LRT is included in the project.

The energy projections for industrial development of Otay Ranch are based on factors for average per-facility consumption in the county, excluding the very large power users. Actual power demand for industries in Otay Ranch may be very different, depending on the specific mix of businesses locating within the project. Natural gas consumption appears to be the most important component for industry.

Residential gas usage is also projected to be high among the categories considered. This estimate assumes that natural gas will be the primary method for home space heating within Otay Ranch and that residential gas use efficiencies will be comparable to those historically achieved. Obviously, the energy consumption for this project component can be decreased by the use of modern, high efficiency water heaters and appliances.

3.11.2.5 Summary of Impacts

As indicated earlier, construction impacts will be quantified at the Specific Plan or SPA Plan level. Because construction activities add air pollutants to the regional pollution background, they are considered significant, temporary impacts and require mitigation measures, as specified in Section 3.11.4.

Table 3.11-8 summarizes the pollutant emissions calculated from the three main sources identified: vehicular emissions associated with residential and commercial development; stationary source emissions from water heaters, furnaces, etc.; and estimated emissions resulting from an increased demand in power generation. In the last year analyzed (2020), NO_x emissions from these sources are predicted to total about 2,800 T/yr, with ROG emissions of about 1,520 T/yr. These two pollutants are important as they are precursors in the O_3 formation problem. As O_3 is the most serious pollutant problem in the region, the addition of these precursor emissions into the air basin is likely to make compliance with state and federal air quality standards more difficult to achieve. Similarly, the addition of fine particulate matter by the proposed project (1,386 T/yr in 2020) will affect the county's ability to attain the state standard for this pollutant. However, exceedances of this standard are partly due to natural causes, and the CCAA does not require a particulate control strategy as part of the 1991 RAQS. Emissions of CO from project sources will increase to 12,938 T in 2020. Certain areas in the county currently exceed the CO standard, but these are primarily localized spots near heavily traveled intersections. The potential for local CO standard exceedances will be evaluated at the Specific Plan EIR level, where more detailed traffic data will be available.

Table 3.11-8

SUMMARY OF POLLUTANT EMISSIONS, NEW TOWN PLAN

Source	Year	Emissions				
		NOx (T/yr)	PM_{10} (a) (T/yr)	SO_x (b) (T/yr)	CO (T/yr)	ROG (T/yr)
Vehicles	2000	381.5	158.2	27.7	3429.9	283.6
Stationary Sources	2000	34.9	1.0	0.2	6.9	1.8
Power Plants	2000	37.6	1.1	0.1	8.6	0.3
Year 2000 Total		454.0	160.3	28.0	3445.4	285.7
Vehicles	2010	1092.3	752.6	77.6	9367.3	752.4
Stationary Sources	2010	104.1	2.9	0.5	20.8	5.6
Power Plants	2010	123.6	3.5	0.4	28.3	1.0
Year 2010 Total		1320.0	759.0	78.5	9416.4	759.0
Vehicles	2020	2670.9	1389.0	189.4	22313.0	1814.1
Stationary Sources	2020	204.9	6.1	1.2	41.0	10.9
Power Plants	2020	210.4	6.0	0.7	48.1	1.6
Year 2020 Total		3086.2	1401.1	191.3	22402.1	1826.6

(a) The URBEMIS3 model predicted a PM_{10} value of 12,627 T/yr in year 2020. There is no apparent reason for a 130% increase in PM_{10} emissions in this year when the number of units only increased by a factor of 2.3. All of the other pollutant emissions (except for SO_2--see note (b)) increased in proportion to fuel use (as estimated by the model), as would reasonably be expected. Therefore, the PM_{10} result reported in the table for year 2020 was obtained by multiplying the year 2010 value by the factor increase in fuel usage between the two years (in this case, a factor of 2.3).

(b) Similar to the 2020 PM_{10} results, the URBEMIS3 model predicted anomalously high SO_2 values in the years 2010 and 2020. The SO_2 model prediction for 2010 was a factor of 466 greater than in 2000; the result for 2020 was 1,075 times higher than the 2000 predicted value. Rather than report these values, SO_2 emissions for 2010 and 2020 were scaled from the year 2000 result using a factor equal to the increase in fuel use for the two time periods (i.e., 2.8 for year 2010 and 2.3 for year 2020).

San Diego County does not currently meet ambient air quality standards, and the projected growth under this plan exceeds the assumptions in the RAQS; therefore, the level of air pollutant emissions, as shown in Table 3.11-8, from sources in the New Town Plan represents a significant adverse impact.

3.11.3 Proposed Mitigation

The applicant proposes the following techniques to reduce construction emissions:

- minimize simultaneous operation of multiple construction equipment units (i.e., phase construction to minimize impacts)
- use low pollutant-emitting construction equipment
- use electrical construction equipment as practical
- use catalytic reduction for gasoline-powered equipment
- use injection timing retard for diesel-powered equipment
- water the construction area to minimize fugitive dust
- stabilize (for example, hydroseed) graded areas as quickly as possible to minimize fugitive dust
- pave permanent roads as quickly as possible to minimize dust

When the region's Indirect Source Control Program has been established (expected to be proposed in late 1992 and implemented in 1994), specific mitigation measures required for new development projects are likely to be detailed. In the absence of these guidelines for the county, there are three main categories of mitigation measures appropriate for the New Town Plan: Land Use Policies, Siting/Design Policies, and Transportation-related Management Actions. Specific mitigation measures under each category are listed below. The goal of the mitigation measures identified below is to reduce air pollutant emissions, primarily by reducing vehicular trip starts and trip lengths. Such a goal requires an integrated approach in project design. For example, mitigating air quality impacts by installing pedestrian routes will only be effective if commercial, employment, and recreational facilities are located within a reasonable walking distance of residential developments. The overall objective of the mitigation measures is the creation of as self-sufficient a community as possible. Therefore, the mitigation measures should be viewed as interdependent, and not as a menu from which certain measures can be chosen.

It should also be pointed out that, because of project phasing, a large part of the proposed development would be built 20 or more years in the future. It is unknown at this time what technological developments may take place that may affect the implementation of mitigation measures; however, preliminary information is available on the direction these developments appear to be taking. Project designs developed today should be able to integrate the new technologies. For example, there is some evidence that electric cars may be used in future years for local trips. It may be sensible at this point in the design phase to set aside enough right-of-way on bicycle or pedestrian routes to accommodate these vehicles in the future. Similarly, the use of solar technology and photovoltaics is becoming more cost-effective. The potential application of mitigation measures such as these and others should be studied as early in the design process as possible.

Land Use Policies

- Provide neighborhood shopping and personal services adjacent to residential areas to minimize auto trips and reduce mileage traveled to service areas.

- Provide open space and recreational facilities within or adjacent to the residential areas. (Signifies the measure is feasible in areas with relatively high residential densities.)
- Provide employee services within walking distance (i.e., banking, childcare, restaurants, etc.)
- Provide a balanced mix of housing and employment possibilities to reduce trips and vehicle miles traveled.

Siting/Design Policies

- ~~Review siting plans to eliminate~~ Site-specific analysis for potentially incompatible projects (for example, a residential development near one of the quarries or the landfill) shall be reviewed in the SPA Plan.
- Provide dedicated bike lanes to encourage use of bicycles.
- Provide bicycle storage facilities at employment and retail centers.
- Provide shower and locker facilities at offices to encourage bicycle use.
- Design project to encourage pedestrian use by focusing on the convenience of walking as a transportation alternative. Provide direct access to major arterials and project area destinations (i.e., commercial and recreational facilities) and provide amenities for pedestrians at appropriate locations (i.e., benches, trash cans, waiting shelters, etc.)
- Provide sidewalks and curbs to ensure safe pedestrian travel within residential areas and to commercial centers. (Signifies the measure is feasible in areas with relatively high residential densities.)
- Provide street designs that promote pedestrian safety (i.e., safe islands in center of major arterials, "Walk" signals, night lighting, etc.). (Signifies the measure is feasible in areas with relatively high residential densities.)
- Orient shopping centers to promote use by mass transit (i.e., provide bus turnouts, locate shopping facilities close to the street for easy pedestrian access, provide amenities for transit passengers such as waiting shelters, benches, trash cans, etc.), pedestrians, and bicyclists.
- Design parking lots to promote use of mass transit and car pools.
- Control emissions of NO_x by installing heat transfer modules on gas-fired furnaces.
- Utilize solar heating technology as practical. Generally, solar panels can be cost-effectively used to heat water for domestic use and for swimming pools. Advances in solar technology in the future may make other applications appropriate.
- Utilize low-NO_x residential and commercial water heaters.
- Enhance energy efficiency in building designs and landscaping plans.
- Minimize "drive-through" establishments to reduce emissions from idling vehicles. (Signifies the measure is infeasible because: 1) few of these land use combinations are proposed or 2) it conflicts with village design concept.)
- Minimize on-street parking to reduce congestion and avoid back-up and idling of vehicles. (Signifies the measure is infeasible because: 1) few of these land use combinations are proposed or 2) it conflicts with village design concept.)
- Identify an environmental coordinator to be responsible for education and disseminating information on ridesharing and/or mass transit opportunities, recycling, energy conservation programs, etc.

Transportation-related Management Actions

- Provide land for transit support facilities such as bus stops, park-n-ride lots, etc. (Signifies the measure is feasible in areas with relatively high residential densities.)
- Provide amenities to increase convenience and attractiveness of transit stops (i.e., passenger staging areas, waiting shelters, etc.). (Signifies the measure is feasible in areas with relatively high residential densities.)
- Provide public transportation services internal and external to the project, with developer support, related to the demand caused by the proposed project.
- Provide demand-responsive traffic signals.
- Achieve transit agency agreement to institute new routes or express bus service, or to expand existing service, related to the demand caused by the proposed project.

It should be noted that the New Town Plan already incorporates some project design features that have been listed above as mitigation measures. The combination of the Eastern Urban Center and the proposed village centers would provide access within walking distance to commercial establishments and parks. Additionally, the urban villages are designed to be oriented to mass transit opportunities. However, the New Town Plan has the highest percentage of roads with Level of Service D-F, implying congestion will be a problem (see Figures 3.10-3 and 3.10-4).

Estimating the reduction in emissions that can be achieved with any or all of the above mitigation measures is very difficult. Heat transfer modules on furnaces are estimated to provide a 70 percent reduction in NO_x emissions (SCAQMD 1988). On a yearly basis, solar energy could provide about 50 percent of the energy needed for a given water heating system (SCAQMD 1989), and could consequently reduce annual pollutant emissions from this source by the same amount. Low-NO_x water heaters reduce NO_x emissions by about 30 percent for residential units and 85 percent for commercial heaters (SBAPCD 1989). The Environmental Protection Agency is currently developing its guidance on transportation control measures and will attempt to quantify reductions associated with various strategies. Estimates at this time range from about 5 percent to 20 percent reductions, depending on the measures implemented and their success.

The mitigation measures identified above will vary in the emission reductions that can be achieved. Similarly, some measures will be more cost effective than others. The CCAA requires that San Diego County develop a strategy that contains all feasible emission reduction measures. Therefore, in order to be consistent with the RAQS, the proposed project should also incorporate all feasible measures, as they are developed.

3.11.4 Analysis of Significance

San Diego County currently exceeds ambient air quality standards. Additionally, population growth in the county is expected to continue (and may even exceed current Series 7 projections); therefore, the mitigation measures described in the previous section will not reduce emissions to a point where there is no net increase in the regional pollution background. Air quality impacts would be significant following implementation of mitigation measures.

3.12 NOISE

Noise is generally defined as unwanted sound. Airborne sound is a small scale fluctuation of instantaneous air pressure above and below the local barometric pressure. Sound levels are usually measured and expressed in decibels (dB). Most of the sounds which we hear in the environment do not consist of a single frequency, but rather of a mixture of frequencies, each frequency differing in sound level. The intensities of each frequency add together to generate sound. The method commonly used to quantify environmental sounds consists of evaluating all of the frequencies of a sound in accordance with a weighting system that reflects the decreased sensitivity of human hearing at low frequencies and at extremely high frequencies relative to the mid-range frequencies. This is called "A" weighting, and the decibel level measured is called the A-weighted sound level (dBA). In practice, the level of a sound is measured using a sound level meter that includes a filter corresponding to the dBA curve.

Although the A-weighted sound level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of noises from distant sources which create a relatively steady background noise in which no particular source is identifiable. To describe the time-varying character of environmental noise, the statistical noise descriptors L_{10}, L_{50}, and L_{90}, are commonly used. They are the noise levels equaled or exceeded during 10 percent, 50 percent, and 90 percent of a given period of time. A single descriptor called the L_{eq} (equivalent sound level) is also used. L_{eq} is the energy mean A-weighted sound level during a given time interval.

The Community Noise Equivalent Level (CNEL) is the A-weighted average sound level for a 24-hour day. It is calculated by adding a 5 decibel penalty to sound levels in the evening (7:00 p.m. to 10:00 p.m.), and a 10 decibel penalty to sound levels in the night (10:00 p.m. to 7:00 a.m.) to compensate for the increased sensitivity to noise during the quieter evening and nighttime hours. L_{dn} (Day - Night Average Sound Level) is the A-weighted average sound level similar to CNEL, but the L_{dn} does not penalize evening hour sound levels and only adds a 10 decibel penalty to sound levels at night (10:00 p.m. to 7:00 a.m.). CNEL is approximately 1 dB higher than L_{dn}. Table 3.12-1 defines acoustical terminology.

3.12.1 Existing Conditions

Otay Ranch is primarily undeveloped with very few existing onsite land uses. The primary source of noise throughout the project area emanates from the four roadways passing through or adjacent to the property. Onsite noise sources include a private gun range, a public gun range, a rock quarry, a small recycling center, and agricultural activity. There are many offsite noise sources adjacent to the property. The offsite noise sources include a landfill, many industrial sites, a small aircraft landing strip, and a municipal airport.

3.12.1.1 Onsite Noise Sources

Roadways

The onsite roadways are Telegraph Canyon Road, Otay Lakes Road, Proctor Valley Road, and Otay Valley Road. Telegraph Canyon Road is a four-lane major roadway that borders the Otay River parcel. Otay Lakes Road is a four-lane major roadway where it crosses the north end of the Otay River parcel and a two-lane collector roadway when it passes through the Proctor Valley and San Ysidro parcels. Proctor Valley Road is an unpaved roadway

Table 3.12-1
ACOUSTICAL TERMS

Term	Definition
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
A-Weighted Sound Level, dB(A)	The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter network. The A-weighting filter deemphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. A11 sound levels in this report are A-weighted.
Community Noise Equivalent Level, CNEL	CNEL is the average sound level during a 24-hour day and it is calculated by adding 5 decibels (dB) to sound levels in the evening (7 p.m. to 10 p.m.) and adding 10 dB to sound levels in the night (10 p.m. to 7 a.m.).
Ldn	Similar to CNEL, however, there is no penalty for sound levels in the evening (7:00 p.m. to 10:00 p.m.). There is approximately a 1 decibel difference between Ldn and CNEL.
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Equivalent Noise Level, Leq	The energy mean "A" weighted sound level during the measured time interval
L_{10}	The L_{10} is the sound level exceeded 10 percent of the time and corresponds to the peaks of noise.

Table 3.12-1 (Continued)
ACOUSTICAL TERMS

Term	Definition
L_{50}	L_{50} is the sound level exceeded 50 percent of the time and corresponds to the average noise.
L_{90}	L_{90} is the sound level exceeded 90 percent of the time and corresponds to the residual noise.
L_{min}	The lowest A-weighted sound level measured during a designated time.
L_{max}	The greatest A-weighted sound level measured during a designated time.

that transects the north end of the Proctor Valley parcel. Otay Valley Road is a two-lane collector road that runs adjacent to the southwest corner of the Otay River parcel.

Sound levels were measured at 50 feet from the roadway centerline using a calibrated Larson-Davis Model 800B integrating sound level meter which meets the American National Standards Institute (ANSI) requirements for a Type 1 meter. Measurements were taken for one hour during the peak traffic hour. The peak traffic hour sound level correlates well with the CNEL. Table 3.12-2 summarizes the results of the sound level measurements. The sound levels along Telegraph Canyon Road and Otay Lakes Road currently exceed the County of San Diego's 60 CNEL residential exterior noise standard.

Gun Ranges

A private gun range operates in the Otay River Valley. Shooting is allowed on this property only with the permission and invitation of the owner. Shooting frequency is unpredictable, but generally greater on weekends. Noise levels from the gun range are variable and depend on such factors as types of weapons and ammunition used. Noise measurement data for the private gun range are not available.

"Target Tossers" is a public gun range that operates in the Otay River Valley adjacent to Otay Valley Road. The hours of operation are 12:00 p.m. to 10:00 p.m. on Wednesday and Thursday; 5:00 p.m. to 10:00 p.m. on Friday; and 9:00 a.m. to 5:00 p.m. on Saturday and Sunday. The facility is closed on Monday and Tuesday. Noise generated by gun range activities is variable and depends on the type of ammunition used. Sound level data are not available for this site. There have been some complaints in the past to the county Noise Abatement Office by residents west of Otay Valley Road regarding noise from the gun range operations (Sacco 1991); these residences have since been replaced by graded pads for a future industrial park.

Rock Quarries

Noise levels associated with blasting activities are highly variable and depend on many factors. The airblast pressure wave is the primary source of noise during blasting. The rapid pressure disturbance in the atmosphere and the abrupt ground movement caused by the detonation of explosives creates an airblast pressure wave that can be perceived as noise if the frequency components of the wave are within the range of human hearing. In addition, the subsonic frequency components of the airblast pressure waves can be perceived as they rattle and shake windows and the loose parts of building structures. The noise levels associated with blasting activities are also dependent on atmospheric conditions at the time of the blast, the depth at which the charges are placed, the timing and delay of the charges, the sound absorbing or reflecting effects of intervening topography, and the sound transmission quality of the ground and subsurface geology.

There are two quarries within the project vicinity, the Daley Quarry and the Nelson and Sloan Mining Operation. Only the latter is currently in operation. It is located in the Otay River Valley and operates from approximately 6:00 a.m. to 2:00 p.m. Monday through Friday. There are three general operations that occur on the site, including rock crushing which occurs during most hours of the day; rock drilling which occurs intermittently but can occur for extended periods of time; and blasting which only occurs roughly once every one or two weeks (Monday 1991). Equipment used to mine and process rock create a substantial amount of noise. Loaders and trucks used to haul rock also create significant noise levels. Typical noise levels of rock crushing and drilling operations are summarized in Table 3.12-3.

Table 3.12-2

MEASURED EXISTING ROADWAY NOISE LEVELS

Roadway	Average Speed (mph)	ADT+	Leq	Measured Noise Level (dBA)*				
				L_{10}	L_{50}	L_{90}	L_{min}	L_{max}
Telegraph Canyon Road	50	16,740	70	73	67	58	47	86
Otay Lakes Road	50	2,570	62	65	47	40	39	81
Proctor Valley Road	35	1,523	51	54	44	38	36	67
Otay Valley Road	40	3,255	59	62	49	66	44	78

* Monitoring locations are depicted in Figure 3.12-1. Measurements were taken for one hour 7:00 a.m. - 8:00 a.m. or 4:00 p.m. to 5:00 p.m.

\+ Average Daily Traffic; Source: City of Chula Vista and San Diego County Traffic Engineering Departments.

Table 3.12-3

TYPICAL NOISE LEVELS FROM QUARRY ACTIVITIES

Activity	Noise Level (dBA) at 50 feet
Rock Crushing	87
Screen Station	85
Screen Tower	85
Sizing Screen Station	85
Batch Plant - A.C.	74
Batch Plant - Concrete	74
Rock Drilling	88-90
Bulldozers	80-92

Source: San Diego Acoustics, Inc. 1991; ERCE 1991a.

Recycling Center

A small wood recycling center, a temporary operation, is in operation at the west end of the Otay River parcel on Otay Valley Road. Onsite activities include the use of motorized wood chipping machines and organic composting (Whitehurst 1991). The typical average hourly noise level of a wood chipping machine is approximately 75 dBA L_{eq} at 100 feet from the operation (ERCE 1990d). The wood recycling center operates Monday through Saturday from 7:00 a.m. to 5:00 p.m. The wood chipping machine typically runs intermittently throughout the day, but may run constantly for up to 4 hours at a time.

Agricultural Activities

Agricultural activities occur in many areas throughout the project site. Noise associated with these agricultural operations is primarily confined to the occasional use of trucks, tractors, and various other farm related vehicles.

3.12.1.2 Offsite Noise Sources

Landfill

The Otay Landfill is a Class II-2 landfill operated by the County of San Diego. The hours of operation are Monday through Friday from 7:00 a.m. to 4:30 p.m. and Saturday and Sunday from 7:30 a.m. to 4:00 p.m. Activity on the site frequently occurs until 6:30 p.m. while the daily cover material is spread across the active working face. The equipment used on the site consists of compactors, bulldozers, scrapers, water trucks, graders, and loaders. Measured hourly noise levels produced during the most intense period of typical daily landfill activity at a similar landfill was as high as 72 dBA L_{eq} at 100 feet from the active working face (ERCE 1991b).

Industrial Activities

There are various industrial land uses adjacent to the Otay River parcel along Otay Valley Road. Numerous auto wrecking yards are located in this area, along with other types of industrial activities. Noise associated with the industrial areas is variable and depends on the type and intensity of activity at each industrial site. Industrial noise generators must comply with applicable local property line noise ordinance requirements.

Air Fields

The San Diego Air Sports Center is a small recreational landing strip located east of Lower Otay Lake adjacent to Otay Lakes Road between the Proctor Valley and San Ysidro parcels. The Sports Center is generally open from 7:00 a.m. to sunset, Wednesday through Sunday. It owns two Cessna 206 aircraft which it uses for skydiving activities from Thursday through Sunday. Actual operations vary, but usually range between 12 and 24 daily. The center is also subleased by an ultra-light club. Ultra-light aircraft generally fly at altitudes between 1,500 and 3,000 feet in the vicinity of the center, while the Cessna aircraft circle the area at altitudes from 3,000 to 12,000 feet. Noise contours for the center are not available at this time. Noise associated with the center is variable and depends on such parameters as the aircraft mix, frequency of operations, flight pattern, and altitude.

Brown Field Municipal Airport is a general aviation airport that accommodates propeller and jet-powered aircraft. It is located immediately south of the Otay River parcel. Its current rated capacity is 36,875 operations per month and, although the predominant flow of air traffic is in the north-south direction along the coast, the air traffic moves parallel to the runway in an east-west direction for takeoffs and landings. The existing CNEL noise contours are depicted in the Brown Field Municipal Airport Master Plan, adopted in 1978 (Figure 3.1-12). More current CNEL contours are available in the updated Brown Field Master Plan which is currently in draft form. The project site lies outside of the 60 dBA CNEL noise contour for Brown Field as depicted in both the adopted and updated draft Master Plan. Therefore, all noise impacting the project site from Brown Field will be below 60 dBA CNEL.

The Brown Field/Otay Mesa area is one of at least three areas currently being evaluated to determine the feasibility of accommodating San Diego's increasing need for expanded commercial airport facilities. Airport expansion or relocation is expected to be designed to accommodate the future commercial aircraft traffic into the San Diego region that is currently serviced by Lindbergh Field. Several runway and operating alternatives are being evaluated by SANDAG for the Brown Field/Otay Mesa area. The twinports concept is undergoing detailed feasibility analysis and is not a certainty at this time; noise contours for the airport are not available.

3.12.2 Impact Analysis

3.12.2.1 Applicable Noise Standards

The noise impacts of Otay Ranch were evaluated with respect to the noise standards of the County and City of San Diego, the City of Chula Vista, and the State of California.

County of San Diego

The County of San Diego guidelines for residential development are summarized as follows:

1. Whenever possible, development in San Diego County should be planned and constructed so that noise sensitive areas are not subject to noise levels in excess of 55 CNEL.

2. Whenever it appears that new development will result in any (existing or future) noise sensitive area being subjected to noise levels of 60 CNEL or greater, an acoustical study should be required.

3. If the acoustical study shows that noise levels at any noise sensitive areas will exceed 60 CNEL, the development should not be approved unless the following findings are made:

   a. Modifications to the development have been or will be made which reduce the exterior noise level below 60 CNEL; or
   b. If, with current noise abatement technology, it is infeasible to reduce exterior CNEL to 60 decibels, then modifications to the development will be made which reduce interior noise below CNEL equal to 45 decibels. Particular attention shall be given to noise sensitive interior spaces such as bedrooms; and

   c. If finding "B" above is made, a further finding will be made that there are specifically identified overriding social or economic considerations which warrant approval of the development without modifications as described in "A" above.

4. If the acoustical study shows that noise levels at any noise sensitive areas will exceed 75 CNEL, the development should not be approved.

5. Interior noise levels should not exceed 45 CNEL within any habitable living space of any residential unit.

The County of San Diego noise ordinance (Section 36.404) regulates noise generated by a person or business at the boundary of the property on which the noise is produced. The applicable sound level is a function of the time of day and the land use zone. Table 3.12-4 summarizes those requirements. The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts provided, however, that the one-hour average sound level applicable to extractive industries is 75 dBA at the property line regardless of the zone where the extractive industry is located.

City of San Diego

The City of San Diego, through its Transportation Element of the General Plan, has identified acceptable exterior noise levels for various land uses; Figure 3.12-1 depicts the standards. The maximum acceptable sound level for a residential development is 65 CNEL.

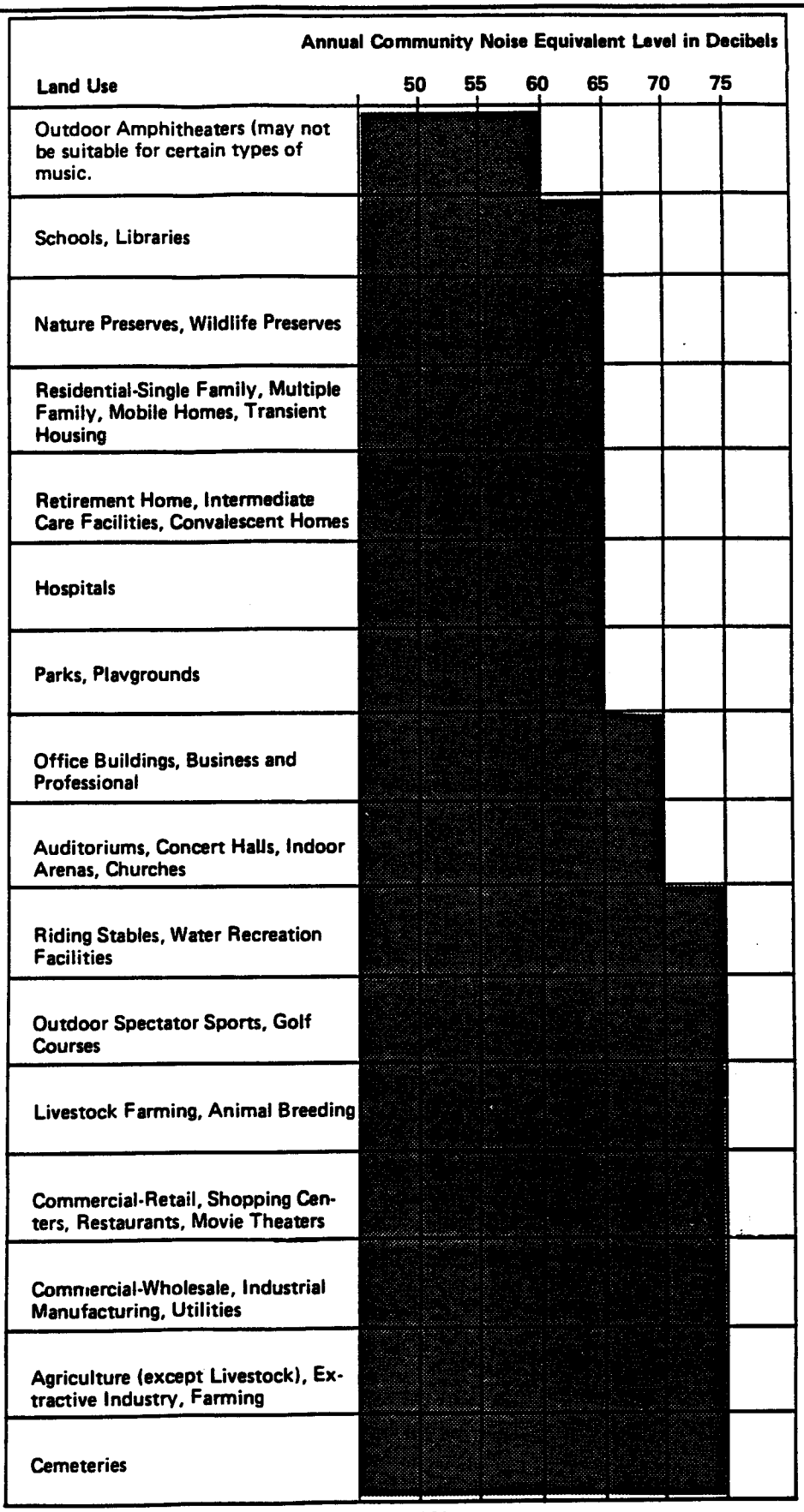
The City of San Diego noise ordinance (Section 59.5.0401) regulates noise generated by a person or business at the boundary of the property on which the noise is produced. The applicable sound level is a function of the time of day and the land use zone. Table 3.12-5 summarizes those requirements. The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts.

Table 3.12-4

COUNTY OF SAN DIEGO PROPERTY LINE NOISE STANDARDS

Zone	Time	Applicable Limit One-Hour Average Sound Level Decibels
R-S, R-D, R-R, R-MH, A-70, A-72, S-80, S-81, S-87, S-88, S-90, S-92, R-V, and R-U Use regulations with a density of less than 11 dwelling units per acre.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	50 45
R-RO, R-C, R-M, C-30, S-86, R-V and R-U Use regulations with a density of less than 11 or more dwelling units per acre.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	55 50
S-94 and all other commercial zones	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	60 55
M-50, M-52, M-54	any time	70
S-82, M-58, and all other industrial zones	any time	70

Source: San Diego County Noise Ordinance Section 36.404.



COMPATIBLE
The average noise level is such that indoor and outdoor activities associated with the land use may be carried out with essentially no interference from noise.

INCOMPATIBLE
The average noise level is so severe that construction costs to make the indoor environment acceptable for performance of activities would probably be prohibitive. The outdoor environment would be intolerable for outdoor activities associated with the land use.

SOURCE: Progress Guide and General Plan, City of San Diego 1979

OGDEN

Land Use Compatibility with Annual Community Noise Equivalent Levels

FIGURE 3.12-1

Table 3.12-5

CITY OF SAN DIEGO PROPERTY LINE NOISE STANDARDS

Land Use Zone	Time of Day	One-Hour Average Sound Level Decibels
1. Residential:		
All R-1	7 a.m. to 7 p.m.	50
	7 p.m. to 10 p.m.	45
	10 p.m. to 7 a.m.	40
2. All R-1	7 a.m. to 7 p.m.	55
	7 p.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
3. R-3, R-4 and all other residential	7 a.m. to 7 p.m.	60
	7 p.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
4. All commercial	7 a.m. to 7 p.m.	65
	7 p.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	60
5. Manufacturing and all other Industrial, including Agricultural and Extractive Industry	any time	75

Source: City of San Diego Noise Ordinance Section 59.5.0401.

City of Chula Vista

The City of Chula Vista has adopted the national goals for noise reduction set forth by the U.S. Environmental Protection Agency for their noise regulatory criteria as stated in the noise control ordinance (Chula Vista Municipal Code, Chapter 19.68.010). These criteria establish a maximum noise exposure level of 65 Ldn for residential land uses.

The City of Chula Vista through its noise ordinance has also adopted sound level limits for various land uses. The maximum permitted sound level is a function of the time of day and land use. The sound level is measured at the boundary or at any point within the area of the receiving land use. The city's standards are summarized in Table 3.12-6. The City has in its noise ordinance a list of noise considered to be acceptable "environmental noise" with a list of noises considered to be unwanted "nuisance noise" (Table 3.12-7). Nuisance noises may not exceed the designated exterior noise limit at any time.

State of California

California Code of Regulation, Title 24, Noise Insulation Standards, requires that multi-family dwellings, hotels, and motels located where the CNEL exceeds 60 dBA require an acoustical analysis to ensure that the proposed building design will limit interior noise to 45 CNEL or below. Worst-case noise levels, either existing or future, must be used. Future noise levels must be predicted at least ten years from the time of building permit application.

The County of San Diego noise criteria are generally the most restrictive; therefore, potential noise impacts from Otay Ranch were compared to the county's noise criteria.

3.12.2.2 Noise Impacts

The noise impacts associated with the following land uses have been estimated based on available information. A site-specific noise analysis will be required to quantify noise levels for sources that would potentially impact adjacent sensitive receptors (see Section 3.12.3).

Roadways

The primary noise source throughout the project area at full buildout would be vehicular traffic. The degree of the impact would depend on the location of the noise sensitive receptors in relation to those roadways as well as the project design.

The future noise environment along proposed roadways in the project area, as well as along offsite roadways that access the project area, was estimated using the Federal Highway Administration's Stamina 2.0 Vehicle Noise Prediction Model with California noise emission factors. The model assessed a finite length roadway under hard site conditions (e.g., 3 dBA attenuation per doubling of distance). In some cases, roadway noise in the far field was estimated at soft site conditions (e.g., 4.5 dBA attenuation per doubling of distance). The roadways were modeled at grade with the surrounding area; the effects of intervening topography were not considered. The receiver elevation was placed at 5 feet to estimate the average height of a human ear. The traffic volumes were provided by JHK and Associates. The vehicle mix was estimated based on the roadway type and surrounding land uses. The vehicle speed was based on roadway classification design speed. The model was designed to depict a worst-case scenario. It should be noted that the accuracy of noise exposure predictions is generally no better than +/-3 dBA. In the

Table 3.12-6

CITY OF CHULA VISTA EXTERIOR NOISE LIMITS*

Receiving Land Use Category	Noise Level (dBA)	
	10 p.m. to 7 a.m.	7 a.m. to 10 p.m.
All residential (except multiple dwelling)	45	55
Multiple dwelling residential	50	60
Commercial	60	65
Light Industry – I-R and I-L Zone	70	70
Heavy Industry – I Zone	80	80

Source: City of Chula Vista (Ord. 2101 § 3 (part), 1985.)

* Environmental noise may not exceed the designated noise level during any hourly L_{eq}. Nuisance noise may not exceed the designated noise level at any time. See Table 3.12-7 for classifications of environmental vs. nuisance noise.

Table 3.12-7

CLASSIFICATION OF NOISE SOURCES

Environmental Noise	Nuisance Noise
Air-conditioning units (fixed)	Air-conditioning units (improperly maintained)
Animal shelters	Animal, pets
Auto and vehicle repair in conjunction with permitted commercial or industrial activity	Auto and vehicle repairs on residential sites
	Carbide ignitors and similar devices producing impactive noise
Commercial activities normally found in connection with a permitted activity	Commercial activities, other than those permitted which are causing a nuisance. Also, outdoor commercial sales activities
	Construction/demolition activities (of a temporary nature)
Industrial activities normally found in conjunction with a permitted activity	Industrial activities, other than environmental and causing a nuisance
Loading and unloading in conjunction with permitted uses	Loading and unloading, other than environmental, and causing a nuisance
Loose shutters, squeaky gates, clattering drain covers, and other conditions resulting from inadequate property maintenance	
Machinery and compressors (fixed or maintained in conjunction with a permitted activity)	Machinery and compressors other than environmental
	Off-road vehicles
	Outcrying, shouting, screaming, whistling, singing
	Powered model toys, devices, vehicles and equipment

Table 3.12-7 (Continued)

CLASSIFICATION OF NOISE SOURCES

Environmental Noise	Nuisance Noise
Power tools normally found in conjunction with permitted uses	Power tools, other than environmental. Also, hobby activities
Lawn mowers	
Pumps – Same as machinery and compressors	Pumps – Same as machinery and compressors
	Private parties, gatherings, assemblages of limited duration
Public address and public assembly, indoor and outdoor, as permitted use	Public address and public assembly, indoor and outdoor, as "temporary use" or as an assembly other than environmental
	Radios, stereos, T.V's sound amplifiers, musical instruments, drums
Signaling devices (non-emergency) stationary Outside phone bells School bells	Signaling devices (non-emergency) mobile utility truck radio speakers
	Emergency: Burglar alarms Auto theft alarms Sound trucks

Source: City of Chula Vista (Ord. 2101 § 3 (part), 1985.)

near vicinity of the roadway the accuracy may be within +/-1 dBA, but as the distance from the roadway increases the accuracy may be within +/-5 dBA.

The modeling results and roadway parameters used in the analysis of onsite and offsite vehicular noise impacts are summarized in Table 3.12-8 and Table 3.12-9, respectively. Onsite noise impacts would occur as development is completed on Otay Ranch, whereas off-site impacts would be realized as regional traffic volumes increase due to area growth and roadway segments are widened to accommodate the increased traffic. Additional noise impacts are anticipated when existing roadways are re-aligned in accordance with planned or proposed circulation element improvements. The tables identify the approximate distance in feet from the centerline to the 60, 65, 70, 75, and 80 contours. Review of the tables shows that the sound level within 100 feet of the centerline of all roadways exceeds 60 CNEL. The 60 CNEL contours along many of the roadways are significantly farther than 100 feet from the centerline. Residential land uses located within the 60 CNEL contour would be significantly impacted by vehicular traffic noise. Some of the residential land uses along Heritage Road, Orange Avenue, Otay Valley Road, Paseo Ranchero and SR-125 may be impacted by sound levels greater than 75 CNEL. Sound levels greater than 75 CNEL are incompatible with residential development.

Noise generated by project-related traffic is expected to increase the noise levels at the existing sensitive receptors located along the offsite access roadways. Based on the transportation analysis in Section 3.10, the project-generated traffic would impact approximately 20 percent (or 45 miles) of the offsite roadway miles. In comparison to buildout under the Composite General Plan, the New Town Plan traffic contributes an additional 21 miles to impacted roadway mileage offsite (refer to Table 3.10-5 for details on impacted roadway miles). Although there is not a direct correspondence between impacted mileage and noise impacts, comparison with the Composite General Plans Alternative should provide a general degree of vehicular noise impacts. The amount of the noise increase associated with the New Town Plan is dependent on such factors as roadway design, ADT, distance from the roadway, the orientation of the usable outdoor living areas to the roadway, and intervening topography. In general, a doubling of the traffic volume would be expected to increase the sound level by 3 dBA. This is considered significant if usable outdoor living areas such as balconies, patios, children's playing areas, and swimming pools are affected. Major roadways which may impact existing residences include East H Street, Otay Valley Road, East Orange Avenue, Palomar Street, and Telegraph Canyon Road. There may be other smaller roadways which may cause a noise impact. Table 3.10-9 provides a summary of roadways that could potentially impact adjacent offsite sensitive receptors.

At this level of analysis, noise from onsite and offsite roadways is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during the SPA Plan review and for all major roadway improvements associated with Otay Ranch development. The study shall provide a description of the proposed project, the existing noise environment, the future noise environment, noise impacts, and the required mitigation measures.

Riparian vegetation is a potential habitat for the federally endangered least Bell's vireo. Elevated noise levels can potentially mask the song of the least Bell's vireo which is used to attract mates and defend territories. The San Diego Association of Governments (SANDAG) in a 1989 study (SANDAG 1989), theoretically estimated that noise levels above 60 dBA L_{eq} in vireo breeding areas may impact the reproductive success of this species during their breeding season which occurs from March 15 to September 15. At this level of analysis, noise from roadways and construction is considered to be a significant and unmitigated impact (see Section 3.3, Biological Resources).

Table 3.12-8

NEW TOWN PLAN
ONSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
EastLake Parkway												
Otay Lakes-Palomar	Major	4	28,264	96	2	2	45	–	–	110	230	730
Palomar-Orange	Major	4	32,330	96	2	2	45	–	–	130	270	340
Orange-Otay Ranch	Major	4	18,270	96	2	2	45	–	–	50	150	470
Otay Ranch-La Media	Major	4	12,674	96	2	2	45	–	–	–	105	330
Hunte Parkway												
Orange-South Dam	Major	4	25,000	96	2	2	45	–	–	100	210	650
South Dam-SR 125	Prime	6	60,217	96	2	2	55	–	70	240	490	1570
La Media												
Otay Lakes-Palomar	Prime	6	36,741	96	2	2	55	–	–	200	400	1270
Palomar-Orange	Prime	6	26,678	96	2	2	55	–	–	140	290	920
Orange-Otay Ranch	Prime	6	26,040	96	2	2	55	–	–	130	280	890
Otay Ranch-Rutgers	Prime	6	25,874	96	2	2	55	–	–	130	280	890
Rutgers-SR 125	Prime	6	34,032	96	2	2	55	–	50	180	370	1150
SR 125-Eastlake Pkwy	Prime	6	31,096	96	2	2	55	–	50	160	340	1060
Eastlake Pkwy-Hunte Pkwy	Prime	6	23,400	96	2	2	55	–	–	120	360	800
Lonestar-Otay Mesa	Prime	6	30,224	96	2	2	55	–	50	160	330	1030
Lonestar Road												
La Media-SR 125	Major	4	32,034	96	2	2	45	–	–	90	190	600
SR 125-Harvest	Prime	6	42,161	96	2	2	55	–	80	230	460	1440
Orange Avenue												
Medical Center-Paseo Ranchero	Prime	6	51,399	96	2	2	55	–	80	280	570	1750
Paseo Ranchero-Road 1	Prime	6	52,985	96	2	2	55	–	90	280	570	1800
Road 1-La Media	Prime	6	52,762	96	2	2	55	–	80	280	570	1800
La Media-Rutgers	Prime	6	53,605	96	2	2	55	–	80	290	590	1830
Rutgers-SR 125	Prime	6	56,483	96	2	2	55	–	90	300	610	1930
SR 125-Eastlake Pkwy	Prime	6	40,368	96	2	2	55	–	70	210	440	1380
Eastlake Pkwy-Palomar	Prime	6	27,125	96	2	2	55	–	–	140	290	930
Palomar-Hunte Pkwy	Prime	6	45,500	96	2	2	55	–	70	240	490	1550
Hunte Pkwy-Wueste	Prime	6	20,000	96	2	2	55	–	–	110	220	690

Table 3.12-8 (Continued)

NEW TOWN PLAN
ONSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Otay Lakes Road												
La Media-Rutgers	Prime	6	32,266	96	2	2	55	–	50	170	350	1100
Rutgers-SR 125	Prime	6	43,848	96	2	2	55	–	70	230	480	1500
Hunte Pkwy-Wueste	Prime	6	35,407	96	2	2	55	–	60	190	380	1210
Wueste-Old Otay Lakes	Major	6	39,348	96	2	2	45	–	–	140	290	920
Otay Ranch Road												
Paseo Ranchero-La Media	Major	4	32,407	96	2	2	45	–	–	130	270	820
La Media-Rutgers	Major	4	26,708	96	2	2	45	–	–	110	220	690
Rutgers-Eastlake Pkwy	Major	4	20,269	96	2	2	45	–	–	60	170	530
Eastlake Pkwy-Palomar	Major	4	13,028	96	2	2	45	–	–	–	110	340
Otay Valley Parkway												
Palm-Paseo Ranchero	Major	4	30,330	96	2	2	45	–	–	–	–	–
Paseo Ranchero-SR 125	Major	4	40,143	96	2	2	45	–	–	–	–	–
Otay Valley Road												
Medical Center-Paseo Ranchero	Prime	6	41,020	96	2	2	55	–	70	220	440	1400
Palomar Street												
Eagle Ridge-Paseo Ranchero	Collector	4	16,735	96	2	2	45	–	–	–	140	440
Paseo Ranchero-Road 1	Collector	4	15,864	96	2	2	45	–	–	–	130	420
Road 1-La Media	Collector	4	16,790	96	2	2	45	–	–	–	140	435
La Media-Rutgers	Prime	6	28,055	96	2	2	55	–	–	150	310	960
Rutgers-SR 125	Prime	6	45,540	96	2	2	55	–	70	230	490	1550
SR 125-Eastlake Pkwy	Prime	6	48,128	96	2	2	55	–	100	260	520	1650
Eastlake Pkwy-Orange	Prime	6	38,948	96	2	2	55	–	70	210	420	1330
Orange-Otay Ranch	Major	4	19,263	96	2	2	45	–	–	70	160	500
Otay Ranch-Hunte Pkwy	Major	4	21,740	96	2	2	45	–	–	80	180	560
Paseo Ranchero												
Telegraph Canyon-Palomar	Major	4	24,347	96	2	2	45	–	–	100	200	630
Palomar-Orange	Major	4	24,890	96	2	2	45	–	–	100	200	630
Orange-Otay Ranch	Major	4	18,613	96	2	2	45	–	–	70	160	480
Otay Ranch-Otay Valley Rd	Prime	6	46,495	96	2	2	55	–	70	240	500	1590
Otay Valley Rd-Otay Valley Pkwy	Prime	6	72,750	96	2	2	55	–	120	390	780	2400

Table 3.12-8 (Continued)

NEW TOWN PLAN
ONSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Proctor Valley Road												
Old Proctor Valley-Miller Ranch	Major	4	28,723	96	2	2	45	–	–	120	230	740
Miller Ranch-SR 94	Major	4	5,848	96	2	2	45	–	–	–	50	150
Road 1												
Telegraph Canyon-Palomar	Collector	4	7,403	96	2	2	45	–	–	–	–	120
Palomar-Orange	Collector	4	10,085	96	2	2	45	–	–	–	80	260
Orange-Road 2	Collector	4	8,857	96	2	2	45	–	–	–	70	230
Road 2												
Paseo Ranchero-Road 1	Collector	4	11,102	96	2	2	45	–	–	–	90	290
Road 1-La Media	Collector	4	15,281	96	2	2	45	–	–	–	120	390
La Media-Rutgers	Collector	4	8,991	96	2	2	45	–	–	–	70	230
Road 3												
La Media-Rutgers	Collector	4	16,090	96	2	2	45	–	–	–	70	230
Rutgers-EastLake Pkwy	Collector	4	24,669	96	2	2	45	–	–	70	140	460
Rutgers Avenue												
Otay Lakes-Palomar	Major	4	29,876	96	2	2	45	–	–	120	240	770
Palomar-Orange	Major	4	36,722	96	2	2	45	–	–	150	300	950
Orange-Otay Ranch	Major	4	33,288	96	2	2	45	–	–	130	270	860
Otay Ranch-La Media	Major	4	13,050	96	2	2	45	–	–	–	105	330
La Media-La Media	Collector	4	8,689	96	2	2	45	–	–	–	70	230
South Dam Road												
Hunte Pkwy-Wueste	Major	4	34,502	96	2	2	45	–	–	140	280	900
Wueste-Otay Lakes	Major	4	33,993	96	2	2	45	–	–	140	280	900
State Route 125												
SR 125	Freeway	8	*210,000	95	3	2	55	90	300	980	1980	6200

Table 3.12-8 (Continued)

NEW TOWN PLAN
ONSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Telegraph Canyon Road												
Medical Center-Paseo Ranchero	Prime	6	25,240	96	2	2	55	–	–	130	270	870
Paseo Ranchero-LaMedia	Prime	6	23,890	96	2	2	55	–	–	130	260	810

*Maximum volume projected for SR 125 along project area

Table 3.12-9

NEW TOWN PLAN ROADWAY NOISE OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Airport Connector Road												
Paseo Ranchero-La Media	Collector	4	29,270	98	1	1	45	–	–	70	150	430
Airway Road												
Otay Mesa-Heritage	Major	4	23,508	96	2	2	45	–	–	60	190	600
Heritage-La Media	Major	4	19,979	96	2	2	45	–	–	50	160	500
La Media-Harvest	Major	4	13,961	96	2	2	45	–	–	50	160	520
Alta Road												
Otay Mesa-Siempre Viva	Major	4	10,986	96	2	2	45	–	–	–	90	280
Bonita Road												
I 805-Willow	Major	4	44,490	96	2	2	45	–	–	110	360	1150
Willow-Otay Lakes	Major	4	44,939	96	2	2	45	–	–	110	360	1150
Otay Lakes-Corral Canyon	Major	4	24,929	96	2	2	45	–	–	60	200	640
Briarwood Road												
SR 54-Sweetwater Rd.	Collector	4	24,921	96	2	2	45	–	–	–	120	370
Caliente												
Otay Mesa-Airway	Major	6	25,918	96	2	2	45	–	–	60	210	670
Airway-Siempre Viva	Major	4	20,546	96	2	2	45			50	170	530
Corral Canyon Road												
Bonita-East H	Collector	4	23,027	96	2	2	45	–	–	60	190	600
Crest Drive												
East J-Telegraph Canyon	Local Collector	2	11,006	98	1	1	35	–	–	–	60	180
Del Sol Boulevard												
I 805-Palm	Major	4	14,262	96	2	2	45	–	–	–	110	370
Palm-Airport Connector	Major	4	13,100	96	2	2	45	–	–	–	100	340
East H Street												
I 805-Ridgeback	Prime	6	61,553	96	2	2	55	–	65	210	670	1900
Ridgeback-Paseo Ranchero	Prime	6	39,778	96	2	2	55	–	–	130	430	1350
Paseo Ranchero-Otay Lakes	Prime	6	39,413	96	2	2	55	–	–	130	430	1350

Table 3.12-9 (Continued)

NEW TOWN PLAN ROADWAY NOISE
OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Otay Lakes-Rutgers	Prime	6	32,635	96	2	2	55	–	–	170	350	1110
Rutgers-SR 125	Prime	6	56,945	96	2	2	55	–	90	310	620	1940
East J Street												
I 805-Paseo Ranchero	Local Collector	2	5,452	98	1	1	35	–	–	–	–	90
Eastlake Drive												
Corral Canyon-East H	Local Collector	2	9,875	98	1	1	35	–	–	–	50	160
East H-SR 125	Local Collector	2	13,758	98	1	1	35	–	–	–	70	230
Harvest Road												
Lonestar-Otay Mesa	Major	4	14,588	96	2	2	45	–	–		120	380
Otay Mesa-SR 905	Major	4	20,001	96	2	2	45	–	–	80	170	520
SR 905-Airway	Major	4	22,423	96	2	2	45	–	–	70	180	570
Airway-Siempre Viva	Major	4	21,822	96	2	2	45	–	–	70	180	560
Heritage Road												
Airport Connector-Otay Mesa	Major	6	55,249	96	2	2	45	–	70	220	450	1430
Otay Mesa-SR 905	Prime	6	48,774	96	2	2	55	–	70	260	520	1650
SR 905-Airway	Prime	6	56,808	96	2	2	55	–	60	260	520	1670
Airway-Siempre Viva	Major	6	33,581	96	2	2	45	–	–	130	280	865
Hunte Parkway												
Proctor Valley-Otay Lakes	Major	4	19,825	96	2	2	45	–	–	80	160	520
Otay Lakes-Orange	Major	4	24,937	96	2	2	45	–	–	100	210	645
Interstate 805												
SR 54-East H	Freeway	10	257,752	96	2	2	55	140	450	1450	2900	6700
East H-Telegraph Canyon	Freeway	10	227,478	96	2	2	55	130	402	1280	2550	6400
Telegraph Canyon-Orange	Freeway	10	208,216	96	2	2	55	120	370	1170	2360	6150
Orange-Otay Valley Rd	Freeway	10	185,621	96	2	2	55	100	330	1030	2100	5800
Otay Valley Rd-Palm	Freeway	10	185,520	96	2	2	55	100	330	1030	2100	5800
Palm-SR 905	Freeway	10	173,296	96	2	2	55	90	310	970	1960	5660
La Media Road												
O[illegible]sa-SR 905	Major	4	39,281	96	2	2	45	–	–	120	230	–

Table 3.12-9 (Continued)

NEW TOWN PLAN ROADWAY NOISE
OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
SR 905-Airway	Major	4	51,803	96	2	2	45	–	–	150	310	950
Airway-Siempre Viva	Major	4	33,770	96	2	2	45	–	–	130	280	870
Lane Avenue												
East H-Otay Lakes	Collector	4	22,060	96	2	2	45	–	–	–	130	420
Lonestar Road												
Harvest-Sanyo	Prime	6	28,749	96	2	2	55	–	–	120	240	740
Medical Center												
Telegraph Canyon-Naples	Collector	4	7,178	96	2	2	45	–	–	–	–	140
Naples-Palomar	Collector	4	10,224	96	2	2	45	–	–	–	60	190
Palomar-Orange	Collector	4	16,025	96	2	2	45	–	–	–	100	300
Orange-Otay Valley Rd	Collector	4	16,628	96	2	2	45	–	–	–	100	320
Naples												
I 805-Oleander	Local Collector	2	7,474	98	1	1	35	–	–	–	–	120
Oleander-Medical Center	Local Collector	2	4,457	98	1	1	35	–	–	–	–	80
Oleander												
Telegraph Canyon-Naples	Collector	4	10,024	96	2	2	45	–	–	–	60	190
Naples-Palomar	Local Collector	2	3,875	98	1	1	35	–	–	–	–	70
Palomar-Orange	Local Collector	2	5,475	98	1	1	35	–	–	–	–	90
Orange-Otay Valley Rd	Local Collector	2	3,903	98	1	1	35	–	–	–	–	70
Orange Avenue												
I 805-Oleander	Prime	6	59,274	96	2	2	55	–	100	320	630	2000
Oleander-Medical Center	Prime	6	52,473	96	2	2	55	–	80	280	570	1750
Otay Lakes Road												
Bonita-East H	Prime	6	36,098	96	2	2	55	–	–	190	390	1240
East H-La Media	Prime	6	49,375	96	2	2	55	–	–	80	170	530
SR 125-Eastlake Pkwy	Prime	6	57,150	96	2	2	55	–	90	310	610	1950
Eastlake Pkwy-Hunte Pkwy	Prime	6	45,429	96	2	2	55	–	70	240	490	1550
Old Otay Lakes-SR 94	Major	4	25,034	96	2	2	45	–	–	100	210	640

Table 3.12-9 (Continued)

NEW TOWN PLAN ROADWAY NOISE
OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Otay Mesa Road												
SR 905-Caliente	Prime	6	23,471	96	2	2	55	–	–	120	250	800
Caliente-Heritage	Prime	6	31,358	96	2	2	55	–	–	160	340	1070
Heritage-La Media	Major	6	23,354	96	2	2	45	–	–	90	190	610
La Media-SR 125	Prime	6	82,720	96	2	2	55	–	130	440	900	2810
SR 125-Harvest	Major	4	83,254	96	2	2	45	–	100	340	670	2100
Harvest-Sanyo	Major	4	64,868	96	2	2	45	–	80	270	540	1650
Sanyo-Enrico Fermi	Major	4	58,167	96	2	2	45	–	70	240	470	1500
Otay Valley Road												
I 805-Oleander	Prime	6	45,806	96	2	2	55	–	70	240	490	1560
Oleander-Medical Center	Prime	6	43,219	96	2	2	55	–	–	230	470	1480
Palm Avenue												
I 805-Otay Valley Pkwy	Prime	6	48,057	96	2	2	55	–	70	250	520	1640
Otay Valley Pkwy-Del Sol	Major	4	23,085	96	2	2	45	–	–	90	190	600
Del Sol-Otay Mesa	Major	6	21,713	96	2	2	45	–	–	80	180	560
Palomar Street												
I 805-Oleander	Collector	4	21,175	96	2	2	45	–	–	80	180	550
Oleander-Medical Center	Collector	4	18,146	96	2	2	45	–	–	70	150	470
Medical Center-Eagle Ridge	Collector	4	19,003	96	2	2	45	–	–	70	160	490
Paseo Ranchero												
East H-East J	Collector	4	14,001	96	2	2	45	–	–	–	80	260
East J-Telegraph Canyon	Collector	4	18,678	96	2	2	45	–	–	–	110	350
Otay Valley Pkwy-Airport Connector	Prime	6	56,617	96	2	2	55	–	90	300	600	1930
Proctor Valley Road												
SR 125-San Miguel	Prime	6	74,905	96	2	2	55	–	120	400	800	2400
San Miguel-Hunte Pkwy	Prime	6	61,769	96	2	2	55	–	100	340	680	1900
Hunte Pkwy-Salt Creek Ranch Access	Prime	6	60,854	96	2	2	55	–	100	330	670	1830
Salt Creek Ranch Access-Old Proctor Valley Road	Major	4	38,407	96	2	2	55	–	–	150	320	1000

Table 3.12-9 (Continued)

NEW TOWN PLAN ROADWAY NOISE
OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Rutgers Avenue												
East H-Otay Lakes	Collector	4	26,508	96	2	2	45	–	–	70	220	690
Siempre Viva												
East Beyer-Caliente	Major	4	26,268	96	2	2	45	–	–	100	220	700
Caliente-Heritage	Major	4	32,103	96	2	2	45	–	–	130	270	830
Heritage-La Media	Prime	6	39,409	96	2	2	55	–	50	160	320	1020
La Media-SR 125	Prime	6	46,291	96	2	2	55	–	60	190	380	1200
SR 125-Paseo de las Americas	Major	4	50,070	96	2	2	45	–	70	205	410	1300
Paseo de las Americas-Enrico Fermi	Major	4	40,517	96	2	2	45	–	50	160	330	1050
State Route 54												
I 805-Woodman	Freeway	6	129,404	96	2	2	55	70	230	730	1460	4500
Woodman-SR 125	Freeway	6	107,437	96	2	2	55	60	190	610	1210	3800
SR 125-SR 94	Prime	4	37,659	96	2	2	55	–	65	200	410	1280
State Route 94												
SR 54-Jamacha Blvd	Freeway	4	70,930	96	2	2	55	–	120	400	800	2530
Jamacha Blvd-Miller Ranch	Prime	6	63,652	96	2	2	55	–	110	340	690	2170
Miller Ranch-Proctor Valley	Prime	6	14,619	96	2	2	55	–	–	70	160	500
Proctor Valley-Otay Lakes	Prime	6	16,124	96	2	2	55	–	–	80	180	550
State Route 125												
n/o Otay Lakes Road	Freeway	10	*234,426	96	2	2	55	130	430	1360	2720	6500
s/o Lonestar	Freeway	10	*170,198	96	2	2	55	80	270	880	1770	5550
State Route 905 (formerly SR 117)												
I 805-Otay Mesa	Freeway	8	187,589	96	2	2	55	100	330	1060	2120	5900
Otay Mesa-Caliente	Freeway	8	174,056	96	2	2	55	100	330	1060	2120	5710
Caliente-Heritage	Freeway	8	168,773	96	2	2	55	90	300	940	1900	5660
Heritage-La Media	Freeway	8	145,637	96	2	2	55	70	260	820	1640	5450
La Media-SR 125	Freeway	8	117,852	96	2	2	55	–	210	660	1340	4310
SR 125-Harvest	Prime	6	26,687	96	2	2	55	–	–	140	290	910

Table 3.12-9 (Continued)

NEW TOWN PLAN ROADWAY NOISE OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Sweetwater Road												
SR 54-Plaza Bonita	Major	4	32,015	96	2	2	45	–	–	130	260	820
Plaza Bonita-Willow	Collector	4	22,519	98	1	1	45	–	–	70	205	320
Telegraph Canyon Road												
I 805-Oleander	Prime	6	40,102	96	2	2	55	–	65	200	440	1480
Oleander-Medical Center	Prime	6	28,045	96	2	2	55	–	–	140	300	100
Wueste Road												
Otay Lakes-Orange	Local Collector	2	4,096	98	1	1	35	–	–	–	–	60

*Maximum volume projected for SR 125 north and south of project site within study area.

Gun Ranges

Two gun ranges are currently located on the project site. A small private shooting range is located north of the Otay River. Target Tossers Gun Club, a public shooting range, is located at the western property boundary south of the Otay River. It is assumed that both gun ranges would be relocated prior to development and would not result in an adverse impact.

Rock Quarries

Nelson and Sloan Mining Operation

The Nelson and Sloan Mining Operation is an active rock quarrying and crushing operation occupying approximately 150 acres of the Otay River parcel at the southwest base of Rock Mountain (see Section 3.1.1.1, Land Use, for additional information). Such operations inherently generate high noise levels. Table 3.12-3 summarizes the typical sound levels generated by rock quarrying and crushing operations. Compliance with applicable property line noise ordinances is the responsibility of the quarry operator.

The New Town Plan proposes to develop residential land uses immediately to the east, west, and north of the mining operation. The county noise ordinance permits extractive industries to generate one-hour average sound levels as high as 75 dBA at the property line, regardless of the adjacent land use. Based on the measurement sound levels presented in Table 3.12-3, the noisiest equipment/operations would result in a 75 dBA property line sound level at approximately 300 feet from the noise source. Calculations show that a 9300-foot buffer from the quarry property line would be required to achieve the residential noise standard of 45 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume that the receiver is in direct line-of-sight with the noise source. No consideration was given to the noise attenuating effects of intervening topography. The intervening knolls and ridgelines will tend to block sound transmission which may result in a reduced buffer area. The 45 dBA residential standard assumes that quarry operations begin prior to 7:00 a.m. Even if the Nelson-Sloan Mining Operation can comply with the applicable noise ordinances, noise at residential receptors within 9300 feet of the quarry may still be sufficiently audible to result in a significant impact to future residents of the development.

Daley Quarry

The Daley Quarry is located offsite just east of Lower Otay Lake off the south side of Otay Lakes Road. The 27-acre quarry is not currently in operation, but a permit is being sought through the county to allow for the continuation of mining operations. The sound levels generated by the Daley Quarry are expected to be similar to the sound levels generated by the Nelson and Sloan Mining Operation.

The San Ysidro parcel of Otay Ranch abuts the quarry property on the quarry's southern boundary. The New Town Plan proposes to develop residential land uses immediately to the south and west of the quarry. Like the Nelson and Sloan operation, even if the Daley Quarry can comply with applicable noise ordinances, noise from the quarry may still be sufficiently audible within 9300 feet of the quarry property line to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Nelson and Sloan Mining Operation and Daley Quarry is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during SPA Plan review. The study shall provide a

description of the proposed project, the existing noise environment, the future noise environment, noise impacts, and the required mitigation measures. The study will consider the effects of intervening topography which may tend to attenuate sound.

Recycling Center

A small wood recycling center is in operation at the west end of the Otay River parcel on Otay Valley Road. The recycling center would be relocated prior to project development and would not result in significant impacts .

Landfill

The Otay Landfill is operated by the County of San Diego. The landfill is located adjacent to the western boundary of the Otay River parcel north of Otay Valley Road at the north end of Maxwell Road. Measured hourly noise levels produced during the most intense period of typical daily landfill activity at a similar landfill was as high as 72 dBA at 100 feet from the active working face (ERCE 1991b). Compliance with applicable property line noise ordinances is the responsibility of the landfill operator.

The New Town Plan proposes to develop residential land uses immediately to the east of the landfill. The permitted sound level at the landfill property line would be the arithmetic mean of the permitted sound level of the landfill and the adjacent property's zones. The result would permit higher sound levels at the residences than what would be permitted in a strictly residential neighborhood. Based on a measured sound level of 72 dBA at 100 feet from the active work surface, similar operations would result in a sound level of 75 dBA at 70 feet. Based on a 70-foot reference distance, calculations show that a 1250-foot buffer from the landfill property line would be required to achieve the daytime residential noise standard of 50 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume that the receiver is in direct line-of-sight with the noise source. No consideration was given to the noise attenuating effects of intervening topography. The 50 dBA residential standard assumes that landfill operations are limited to the hours of 7:00 a.m. to 7:00 p.m. Even if the landfill can comply with the applicable noise ordinances, noise at residential receptors within 1250 feet of the landfill may still be sufficiently audible to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Otay Landfill is considered to be a significant and potentially unmitigable impact within 1250 feet of the facility. A site-specific acoustical study will be required during SPA Plan review. The study shall provide a description of the proposed project, the existing noise environment, the future acoustical environment, noise impacts, and the required mitigation measures. The study will consider the effects of intervening topography which may tend to attenuate sound. If development within the affected area is phased in subsequent to the landfill closure, the impacts would be avoided.

Industrial Activities

There are numerous industrial land uses adjacent to the Otay River parcel along Otay Valley Road. Auto wrecking yards are located in this area along with other types of industrial activities. Noise associated with each industry is specific to the type of activity. The permitted sound level at an industrial property line would be the arithmetic mean of the permitted sound level of the business and the adjacent properties zones. The result would permit higher sound levels at adjacent residences than what would be permitted in a strictly residential neighborhood. Assuming that each business can comply with applicable noise ordinances, noise may still be sufficiently audible at the residential receptors to result in a

significant impact. A site-specific analysis will be required during SPA Plan review. The study will provide a description of the proposed project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation measures.

Airfields

Brown Field

Brown Field is a general aviation airport located immediately south of the Otay River parcel. The existing noise contours depicted in the Brown Field Municipal Airport Master Plan, Adopted in 1978, and the more current noise contours in the updated Draft Brown Field Master Plan (unadopted) show that the project site lies outside of the 60 CNEL noise contour. Noise from Brown Field aircraft operations is not expected to cause a significant impact.

San Diego Air Sports Center

The San Diego Air Sports Center is a small recreational landing strip located east of Lower Otay Lake adjacent to Otay Lakes Road between the Proctor Valley and San Ysidro parcels. The landing strip is used for skydiving and ultralight flying. Noise contours are not available for this landing strip.

The New Town Plan proposes to develop residential land uses immediately to the north, south, and east of the landing strip. Federal Aviation Administration (FAA) guidelines prohibit skydiving and ultralight flying over congested areas. Therefore, the plan may result in a potentially incompatible land use. Potential impacts related to the landing strip are discussed in Section 3.1.2, Land Use. Since noise contours are not currently available, the analysis assumes that residential land use within one mile of the Sports Center may be significantly impacted by aircraft noise. A site-specific noise analysis will be required during SPA Plan review. At this level of analysis, noise from the Air Sports Center is considered to be a significant and potentially unmitigable impact.

Regional Airport

The City of San Diego is currently studying the concept of constructing a regional/binational airport in Otay Valley south of the project site. The proposal is in the very preliminary planning stages, and potential noise impacts from the proposed airport are currently unknown.

Light Rail Transit

The San Diego Metropolitan Transit Development Board (MTDB) is currently studying the concept of constructing a light rail transit (trolley) expansion into the study area. The proposal is in the preliminary planning stages, and potential noise impacts are unknown.

3.12.3 Proposed Mitigation

3.12.3.1 Site-specific Noise Studies

Potentially significant noise impacts have been identified from onsite roadways, the Nelson and Sloan Mining Operation, the Daley Quarry, the Otay Landfill, the San Diego Air Sports Center, and various industrial activities in close proximity to the project site. Site-specific acoustical analyses will be required during SPA Plan review and prior to adoption of any

Circulation Element General Plan Amendments. The study will provide a description of the proposed project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation measures. A "D" designator for noise shall be created to identify areas where a site-specific study is required. The "D" designator impact area shall include the following:

- All areas within 9300 feet of the Nelson and Sloan Mining Operation and the Daley Quarry;
- All areas within the 60 CNEL noise contour of onsite and offsite roadways, which shall include all roadways on the Otay River parcel and all roadways assigned a future ADT of 3000 trips or greater on the Proctor Valley and San Ysidro parcels;
- All areas within 1250 feet of the landfill;
- All areas within one mile of the San Diego Air Sports Center; and
- All areas adjacent to least Bell's vireo habitat.

Residential development within the impact area may be allowed if the site specific noise study shows that mitigation to below the level of significance is feasible.

Potentially significant noise impacts have been identified from offsite roadways. Site-specific acoustical analyses will be required for all areas adjacent to roadways proposed for widening, realignment, and/or an upgrade in roadway classification through a General Plan Amendment.

3.12.3.2 Noise Mitigation Measures

Vehicular Traffic

Noise mitigation is required for all residential land uses located in areas where the CNEL from vehicular traffic exceeds 60 dBA. The estimated 60 CNEL contour is located approximately 160 feet from the roadway centerline for collector streets, 400 to 2400 feet from the roadway centerline for major and prime arterials, and over 4000 feet from the centerline of the freeways. The modeled contours are considered a worst-case condition because the roadways were modeled at grade with the surrounding area, and the effects of intervening topography were not considered.

Onsite. In general, roadway noise impacts can be mitigated by setbacks, by the construction of barriers, or a combination of both. However, depending on the roadway design and surrounding topography, barriers such as noise walls and earthen berms in excess of 10 feet high may be necessary and are often not considered to be feasible or aesthetically desirable. The setback distance necessary to lower the wall height can be considerable, possibly several hundred to more than a thousand feet. Therefore, noise impacts from vehicular traffic are considered to be potentially unmitigable at residences proposed closest to the roadways. The required setbacks may result in lower residential densities.

Offsite. Mitigation of noise impacts resulting from project-related vehicular traffic on offsite roadways may require construction of barriers on public or private property to mitigate exterior noise impacts, and possibly retrofitting residences with noise insulation

for interior noise impacts. In areas were the residences have been built along the roadway, mitigation to below a level of significance may not be possible.

Noise from vehicular traffic and construction is considered to be a significant impact to the least Bells' vireo. In areas were major roadways are located or construction will be undertaken in close proximity to least Bell's vireo habitat, mitigation to below a level of significance may not be possible.

Rock Quarries

Noise associated with the Nelson and Sloan Mining Operation and the Daley Quarry is considered to be a significant impact. Based on the County of San Diego Noise Ordinance, sound levels from the quarries are permitted to be as high as 75 dBA L_{eq} at the source property line. Compliance with the noise ordinance is the responsibility of the quarry operator. Sound levels were calculated to be 45 dBA L_{eq} at approximately 9300 feet from the source property line. Mitigation of noise impacts may not be feasible at residences within 9300 feet and in direct line-of-sight of the quarry. However, mitigation may be possible as a result of intervening topography such as hills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate the impacts to below a level of significance. The study shall be prepared by a qualified acoustician in accordance with local noise standards. Residential development within 9300 feet of the quarries should be staged such that construction not take place unless the quarries have been mined-out and mining operations have ceased or noise impacts can be mitigated as demonstrated in the site-specific noise study.

Otay Landfill

Noise associated with the Otay Landfill is considered to be a significant impact. Sound levels were calculated to meet the 50 dBA L_{eq} daytime noise standard at approximately 1250 feet from the landfill property line. Mitigation of noise impacts may not be feasible at residences within 1250 feet and in direct line-of-sight of the landfill. However, mitigation may be possible as a result of intervening topography such as hills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate impacts to below a level of significance. Residential development within 1250 feet of the landfill should be staged such that construction not take place unless the landfill has undergone closure or noise impacts can be mitigated as demonstrated in the site-specific noise study.

San Diego Air Sports Center

Noise associated with the San Diego Air Sports Center is considered to be a significant impact. As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate impacts to below a level of significance. Residential development within one mile of the Air Sports Center should be staged such that construction not take place unless the Air Sports Center has closed or noise impacts can be mitigated as demonstrated in the site-specific noise study.

3.12.3.3 Noise Reduction Techniques

Effective noise mitigation measures are unique for each situation. The physical techniques to mitigate noise vary in their noise reduction capabilities. Factors to consider when

evaluating potential noise mitigation include the amount of noise reduction desired, situations where physical techniques would be most effective and feasible, and aesthetics. The following measures should be used as a guideline to mitigate noise impacts.

Exterior Noise

Proper site planning to reduce noise impacts shall be considered for all noise sensitive land uses. Buildings can be oriented on a site in such a way as to exploit the site's features. By consideration of a site's natural topography, size, and shape, it is often possible to reduce and possibly eliminate noise impacts. Site planning techniques include the following:

- Place commercial uses adjacent to the high noise roadways such as Heritage Road, Orange Avenue, Otay Valley Road, Paseo Ranchero, and State Route 125. These non noise-sensitive land uses will buffer the noise for the residences.

- Place less noise-sensitive land uses on parcels closest to significant noise generators such as the Nelson and Sloan Mining Operation, the Daley Quarry, the Otay Landfill, and adjacent to the various industrial activities.

- Increase the distance from the noise source to sensitive receptors by creation of setbacks.

- Place noise-sensitive land uses outside of the 60 CNEL noise contour of roadways.

- Place non-noise sensitive uses such as parking lots and utility areas between the noise source and receiver.

- Orient usable outdoor living space such as balconies, patios, and children play areas away from roadways.

Noise barriers such as walls and earthen berms are commonly used to mitigate noise from ground transportation sources. Noise barriers can be used to reduce the noise level both outdoors and indoors. The effectiveness of a barrier depends upon factors such as the relative height of the barrier to the line-of-sight of the sound, distance of the barrier to the source and receiver, and reflections of sound. To be effective, a barrier must block the line-of-sight from the source to the receiver. A barrier must also be of solid construction (e.g., masonry) without holes or gaps and be long enough to prevent sound from passing around the ends. A properly designed noise barrier can reduce noise as much as 15 decibels. However, walls greater than 6-feet high and wall/berm combinations greater than 10-feet high are often considered unaesthetic from a visual prospective. High barriers also tend to block views. When high barriers are not feasible, setbacks in conjunction with barriers may be required. A site-specific acoustical analysis is required to determine the proper height and placement of a barrier.

Interior Noise

An interior acoustical analysis will be required for all residential buildings located within the 60 CNEL noise contour to ensure that the building's design limits the interior noise level to 45 CNEL or below. The analysis shall be conducted upon submittal of building plans by a qualified acoustician. Indoor noise is controlled by the noise reduction characteristics of the building shell. In general, noise enters through doors and windows; therefore, careful consideration should be given to their placement. By limiting the number

and size of these opening on the side of the building exposed to noise, interior noise levels will be reduced. Often it is necessary to close windows to control interior noise. When this occurs, an alternative means of ventilation such as heat pumps or forced air unit is required to meet the Uniform Building Code requirements. Heavy pane or double-pane windows are frequently required to increase the sound insulation within a room.

3.12.4 Analysis of Significance

Significant noise impacts have been identified from roadways, the Nelson and Sloan Mining Operation, the Daley Quarry, the Otay Landfill, the San Diego Air Sports Center, and the various industrial activities in close proximity to the project site. Reduction of noise impacts from these noise sources to below a level of significance may not be feasible. At this level of analysis, noise from these sources are considered to be a significant and unmitigated impact.

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3.13 PUBLIC SERVICES AND UTILITIES

This section discusses the availability of the following public services and utilities in the Otay Ranch area: water availability and demand; wastewater and sewer service; integrated waste management; police protection; fire protection; emergency medical services; schools; library service; parks, recreation, and open space; gas and electricity; health and medical facilities; social and senior service facilities; and other public services (cemeteries, child care, and animal control). The growth inducing impacts associated with the expansion of public services and utilities are addressed in Section 7 of this EIR.

This section is based on a variety of public service reports which were prepared for the Otay Ranch project, along with applicable County of San Diego, City of Chula Vista, and City of San Diego planning documents. Included in the reports mentioned above are the Otay Ranch Draft Implementation Plans (Baldwin Vista 1991), prepared by the applicant for review and approval by the Otay Ranch Interjurisdictional Task Force. The purpose of the implementation plans is to determine the public facilities necessary to serve the proposed project. Each plan reviews applicable county and city goals, objectives, and policies, and based upon them, it recommends project-specific goals, objectives, policies, and implementation measures which, once approved and adopted, will govern the implementation of a general development plan for the Otay Ranch project. The general development plan's adopted policies will then guide the provision of public services and utilities for the project. A list of the public service reports is included in Table 3.13-1. Individual reports are available for public review at the Chula Vista Public Library and at the County of San Diego Department of Planning and Land Use. These documents are hereby incorporated into this section by reference.

The public services and utilities analysis is based on a population figure of 2.96 persons per dwelling unit. This figure is based upon the assumption that 38 percent of the 50,733 units are proposed as attached-family dwelling units, housing 2.55 persons per unit, and 61.9 percent of the units would be single-family detached, housing 3.2 persons per unit.

50,733 x 61.9% = 31,448 x 3.2 =	100,633	
50,733 x 38% = 19,285 x 2.55 =	49,177	
	149,810	persons

To ensure sufficient land is available to locate facilities from which public goods and services can be offered, a community purpose facility overlay zone is proposed as part of the Otay Ranch project. A "public good/service" is one which cannot be appropriated by any one person or private group and can be enjoyed by any member of the community, whether he/she contributes to its provision or not. These goods are most commonly provided by government agencies and not-for-profit organizations. It is proposed the Otay Ranch community purpose facility zone apply to public and privately owned land as an overlay zone. Use of the property would be limited to institutional purposes; however, the underlying use may be allowed through a special use permit process. The "community purpose facility zones" are proposed within villages and the Eastern Urban Center. These zones would permit public and quasi-public land uses with a minimum of regulatory constraints for educational institutions, civil organizations, libraries, child care, social and senior services, health services, government services and churches. Use of community purpose facility zones would avoid forcing public, religious, and charitable institutions to compete in the marketplace with "for-profit" enterprises. The zone also minimizes potential conflicts with adjacent uses during the permitting process.

Table 3.13-1

PUBLIC SERVICE REPORTS

Otay Ranch Draft Implementation Plans	Baldwin Vista, December 1991
Existing Conditions Report	JBF & Associates, October 30, 1989
Sewerage Facilities	Wilson Engineering, October 30, 1989
Solid Waste Facilities	Kleinfelder, Inc., May 1990
Water Facilities	Wilson Engineering, October 30, 1989
Water Reclamation Facilities	Wilson Engineering, October 30, 1989
Cemetery Facilities	Estrada Land Planning, August 10, 1990
Child Care Facilities	Estrada Land Planning, June 4, 1990
Animal Control Facilities	Estrada Land Planning, September 21, 1990
Fire Protection & Emergency Facilities	Estrada Land Planning, March 15, 1991
Law Enforcement Facilities	Estrada Land Planning, May 16, 1990
Library Facilities	Estrada Land Planning, April 23, 1990
Parks and Recreation Facilities	Estrada Land Planning, January 15, 1991
School Facilities	The Professional Research Office, May 1990
Social and Senior Services	Jeff Hale Consulting, December, 1991
Health and Medical Facilities	Jeff Hale Consulting, December, 1991

As proposed, the community purpose facility zone would be implemented to provide 1.39 acres of land per 1,000 new residents in compliance with the existing City of Chula Vista community purpose facility zone. Specific acreage requirements would be identified and land would be designated for institutional uses at the SPA Plan level. The "community purpose facility zone" concept is still in the formulative states and is subject to revisions.

As previously discussed in Section 1.2.2, this document is a Program EIR. According to CEQA, Program EIRs are intended to examine the environmental impacts of a series of related actions including broad policy programs (Section 15168[a]). CEQA guidelines also indicate that a program EIR should focus on the environmental effects that can be expected to result from plan adoption, leaving more detailed analysis to be completed in conjunction with project-specific EIRs (Section 15146[b]).

Public Services and Utilities and Financing Mechanisms

Various financing methods are available to fund public services and utilities improvements relative to the Otay Ranch project. Because the project is at the general planning stage, specific financing methods have not yet been determined. Financing options which are available include land secured financing, general obligation bonds, impact fees, user fees, privatization, environmental mitigation, and subdivision exactions. These financing mechanisms are discussed below.

Land Secured Financing

Land secured financing is bond financing secured by assessment or a special tax levied against real estate. As discussed more fully below, land secured financing is commonly used to raise money to construct or acquire public infrastructural improvements. California law provides several authorities to structure land secured financing.

The 1915 Improvement Bond Act, used in Connection with either the Improvement Act of 1911 or the Municipal Improvement Act of 1913. A full range of traditional public infrastructural improvements may be financed using the 1913/1915 Act proceedings: public streets, sidewalks, gutters, curbs, storm drainage facilities, sewers, water distribution systems, street lighting, traffic signs and signals, freeway overpasses, bridges, landscaping, and land stabilization. The costs of such improvements must be spread to properties within the boundaries of an assessment district according to a formula based upon benefit.

The Landscape and Lighting Act of 1972 (1972 Act) used in Connection with the 1915 Improvement Bond Act. The 1972 Act is substantially more restrictive than the 1913/1915 Act in that it can only be used in connection with park, landscaping, and recreational improvements (including the maintenance or servicing of such improvements). As in the 1913/1915 Act proceedings, the formula which spreads the assessment to the various parcels must be based upon benefit.

The Mello-Roos Community Facilities Act of 1982 (the Mello-Roos Act). The Mello-Roos authorization covers a broader range of facilities than the other two proceedings. In addition to traditional infrastructural improvements which can be financed under the 1913/1915 Act, Mello-Roos also covers general improvements such as libraries, park and recreation facilities, and school facilities. The facilities must have an estimated useful life of at least 5 years. In contrast with the spread formulas for special benefit assessment bonds, the Mello-Roos formula need not be based upon benefit.

A Community Facilities District (CFD) created pursuant to the Mello-Roos Act may also provide for the following services:

1) Police protection
2) Fire protection and suppression
3) Recreation program services and the operation and maintenance of parks, open space, museums, and cultural facilities
4) Flood and storm protection services

General Obligation Bonds

In June 1986, Proposition 46 amended the California constitution to permit cities and certain other local agencies to levy *ad valorem* property taxes to pay for new general obligation debt, subject to a two-thirds approving vote. General obligation bonds are backed by the agency's full faith and credit. General obligation bonds may be issued to finance the acquisition, construction, or completion of a wide variety of real property including parks, transportation improvements, and public buildings.

General obligation bonds are payable from the proceeds of *ad valorem* taxes levied on taxable property. Some bonds may be additionally secured by revenues which flow from facilities financed by the bonds or certain other sources. Compared to other types of bond issues, general obligation bonds are typically the most cost effective financing tool. The greatest constraint in selling general obligation bonds is the constitutional requirement for a two-thirds affirmative vote.

Impact Fees

Impact fees are levied to finance a specific activity, facility, or service which confers a direct, identifiable benefit on those paying the fees. There are several sources of authority for imposing fees. The Subdivision Map Act, as discussed more fully below, authorizes a city or county to impose fees in-lieu of dedications of land or improvements as a condition of subdivision approval.

User Fees

Cities and counties can enact service or actual use charges to provide the capital and operating costs of services provided by publicly owned enterprises such as parking facilities, sewer and water service, refuse and rubbish collection, libraries, parks and recreational facilities, and others.

Privatization

Recent years have seen a growth in the popularity of "privatization" (the use of private contractors or private ownership) to provide local services such as garbage collection, fire protection, and street maintenance. Privatization has certain advantages: government need not purchase and maintain specialized machinery, personnel for specialized or seasonal tasks need not be maintained on salary, and the cost to the local government of providing service may be reduced.

Environmental Mitigation

CEQA requires cities and counties to mitigate the significant environmental effects of projects they approve or to make special findings of overriding consideration. Cities and counties may require a developer to provide improvements to affected public facilities, such

as offsite streets, sewer and drainage systems, fire stations, and school facilities, to reduce environmental effects to a level of insignificance. However, state law specifies that cities and counties may require mitigation measures only if they have authority to do so independently of CEQA. The programmatic approach of this EIR allows the lead agency to consider program-wide mitigation measures early in the environmental review process.

Subdivision Exactions

Subdivision regulations are an exercise of police power and a principal instrument for implementing the general plan. The State Subdivision Map Act authorizes cities and counties to regulate the design and improvement of subdivisions. The Act also requires a connection between the impact of the project and the requirements for the developer's mitigation associated with the impact. Design and improvement include the physical layout of a subdivision, dedications of public improvements and easements, and other measures "as may be necessary or convenient to insure consistency with, or implementation of the general plan". The Act also authorizes cities and counties to require dedications of public improvements or the payment of in-lieu fees for:

- Streets, alleys, drainage, public utility easements, and public easements
- Bicycle paths (cannot be required unless the subdivision contains 200 or more parcels)
- Local transit facilities, such as bus turnouts, benches, shelters, and landing pads (applies to subdivisions with 200 dwelling units or more or 100 acres or more)
- Parks and recreational facilities (if a city or county's general plan or specific plan contains policies and standards for park and recreation facilities)
- School sites (this is a reservation with a right to purchase at a later date)
- Access to waterways, rivers, and streams
- Access to public lakes and reservoirs
- Drainage and sanitary sewer facilities
- Bridges and major thoroughfares

Future Regional Impact Fees

Included in the public services and utilities analysis are several facilities that provide services generally classified as regional in scope (regional parks and open space; health and medical facilities; and social and senior service facilities). Demand for these facilities and services will increase as the region continues to grow. As part of the regional population growth, Otay Ranch would proportionately contribute to the increased demand for regional facilities. Historically, regional facilities have been financed through general tax revenues from state and federal grants and subventions; however, in recent years these funding sources have become increasingly inadequate. The San Diego Association of Governments (SANDAG) forecasts that the region will experience substantial revenue shortfalls for the following facilities applicable to this section:

Facility	Shortfall (in Millions)
Regional Parks	$224.0
Health	224.0
Social Services	20.3

Currently, SANDAG is reviewing a recommendation that regional impact fees be imposed to partially offset the projected revenue shortfalls. The authority to exact regional impact fees does currently exist, therefore it is possible that Otay Ranch may be subject to such exactions in the future.

3.13.1 Water Availability and Demand

3.13.1.1 Existing Conditions

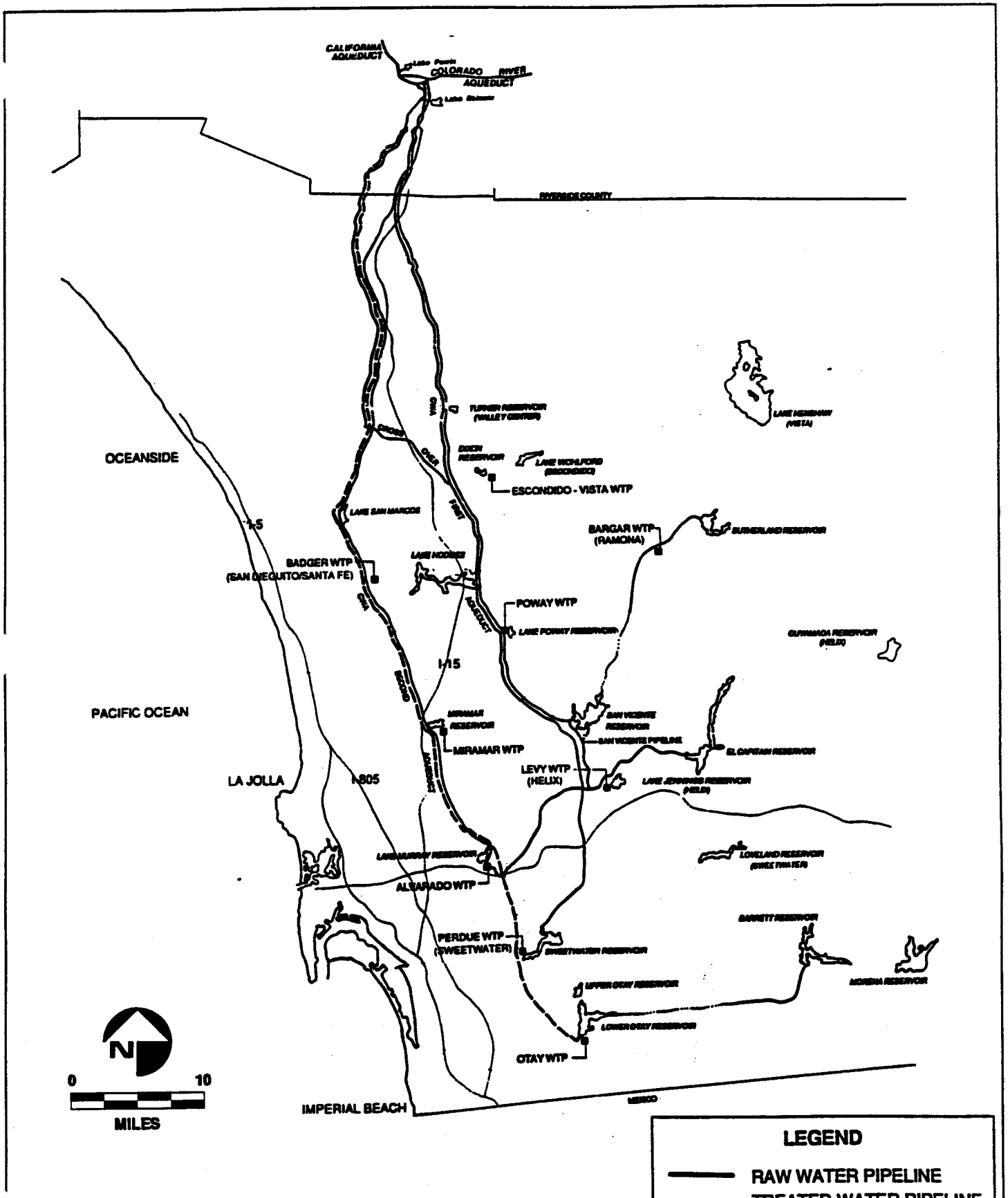
Water Supply

The San Diego region has a limited local supply of water; approximately 90 percent of the region's water supply must be imported. The remaining 10 percent of the region's water demand is met from water produced locally through a system of reservoirs and pipelines. The region's dependence on imported water has increased over the past five years as drought conditions have limited the availability of local water supplies.

~~The majority of the~~ Imported water is ~~imported~~ supplied to San Diego County by the Metropolitan Water District (MWD). The MWD's primary sources of water are the State Water Project (SWP) and the Colorado River. The MWD supplies water to the San Diego County Water Authority (CWA), which in turn supplies water to local purveyors. These local member water agencies store and distribute water to the public. Figure 3.13-1 provides an overview of the San Diego water supply system.

Although the existing system of imported water has provided San Diego County with a reliable water source for 45 years (SDCWA 1992), the future of imported water in San Diego County (and in southern California in general) is not guaranteed. The SWP, which delivers about half of urban southern California's imported water in non-drought years (SDCWA 1992); relies on existing waterways in the Sacramento-San Joaquin Delta to convey water from northern California into the California Aqueduct (a large concrete-lined canal system) that then transports the water to central and southern California. The Delta was not originally intended for this purpose and does not efficiently transport water; however, environmental concerns, fiscal considerations, and political pressures have prevented the Delta system from being upgraded or altered for water transportation. Either alteration of existing channels or the diversion of water around the Delta could have adverse effects on the wildlife and fish that rely on this ecosystem.

A second problem with the future reliability of imported water sources comes from southern California's reliability on water from the Colorado River. California withdrawals from the river currently exceed the state's legal allotment (of 4.4 million acre-feet per year, AFY), as determined by the U.S. Supreme Court, because the State of Arizona has not been withdrawing its full entitlement. Arizona currently takes 66 percent of its entitlement from the Colorado River, but expects to withdraw its full entitlement by 1996. This increase in water withdrawal from the Colorado River by the State of Arizona is expected to



BASE MAP: Powell/Pirnie 1990c

OGDEN

San Diego Water Supply System

FIGURE

3.13-1

decrease the amount that California has been withdrawing by a rate of approximately 940,000 AFY (0.94 million AFY) (Watry, Mumford 1992). This is an approximate 17.6 percent decrease in the amount of water that California has been withdrawing from the Colorado River. (California has been withdrawing approximately 5.34 million AFY; 0.94 million AFY ÷ 5.34 million AFY = 17.6 percent.)

Prolonged drought conditions, earthquakes, and continued population growth in California's major urban areas have all provided incentives to find alternatives to the existing water systems and supplies at all levels of government. Solutions being actively pursued by MWD, CWA, and local jurisdictions include approving state and federal legislation to allow the transfer of water provided from federal projects and private agricultural operations, resolution of the Delta issues, construction of additional local emergency water storage reservoirs, water conservation and reclamation programs, and desalination plants.

Table 3.13-2 shows existing and projected future available water supply to MWD as well as present and future water demand based on the projected needs of the MWD service area. As shown in Table 3.13-2, there is a deficit in the available water, even during years of normal rainfall. The MWD is trying to increase its available water supply through a variety of projects as discussed in its Regional Urban Water Management Plan for the Metropolitan Water District of Southern California (1990). The majority of these projects involve storage of water in years with average runoff for use during periods with below average runoff (for example, the existing Desert Water Agency and Cachella Valley exchange agreement). Another such project is the proposed Colorado River Banking Plan, which would involve purchasing excess State Water Project water during years with above average runoff and delivering this water for uses in southern California. During these years, the Colorado River Aqueduct System would deliver less water, thus allowing water to be stored in Lake Mead for use another year. A second alternative would be to purchase excess water in the Colorado River for direct storage in Lake Mead for use in years when excess water is not available.

MWD delivered 592,216 AFY to the San Diego CWA for the year 1988-1989 (MWD 1990, Table 3-1). The MWD projects that, in the future, demand will continue to increase due to population and economic growth although this demand will be partially offset by several factors including an increasing share of multifamily housing units in the total housing stock, the use of water-efficient plumbing fixtures as required by the 1981 and 1992 California Plumbing Codes, water conservation and educational programs, and increased retail prices which encourage consumers to use water more efficiently (MWD 1990, page 38). In 1990, the MWD projected that the CWA would have a demand of 469,400 AFY for municipal and industrial use only (i.e., not counting agricultural use), assuming current conservation practices. In the year 2010, the CWA is expected to need approximately 645,100 AFY for municipal and industrial use. The MWD bases its projections for the San Diego region partially on the growth projections of the SANDAG. The annexation of an area into the MWD occurs concurrently with annexation into the CWA since the CWA is a member agency of the MWD.

The CWA has developed a 1992 Strategic Plan to address its own water supply and reliability concerns. Included in that document is the CWA goal to support the MWD in developing additional water sources (Strategic Goal #2). However, the 1992 Strategic Plan also includes strategies to develop local water supplies such as reclamation, conservation, and desalination to supplement and act as contingency measures in the event that the MWD can no longer provide the water necessary for CWA's service needs. The CWA is active in working on strategies at state and federal levels to provide additional waters to southern California (SDCWA 1992).

Table 3.13-2 (Revised)

EXISTING WATER SUPPLIES AND PROJECTED DEMANDS FOR MWD'S SERVICE AREA (in million AFY)

	1995	2000	2010
Average Water Supply (based on average runoff)			
1. Local production[a]	1.36	1.37	1.38
2. L.A. Aqueducts[b]	0.38	0.38	0.38
3. Colorado River[c]	0.62	0.62	0.62
4. State Water Project[c]	1.51	1.53	1.53
Total	3.87	3.90	3.91
Projection of normal demand[d]	3.95	4.20	4.65
Projection of above-normal demand[e]	4.23	4.49	4.98
Potential (shortage) at normal demand[f]	(0.08	(0.30)	(0.74)
Potential (shortage) at above-normal demand	(0.36)	(0.59)	(1.07)
Dependable Water Supply (such as repeat of the 1928-1934 dry period			
1. Local production[a]	1.36	1.37	1.38
2. L.A. Aqueducts[b]	0.31	0.31	0.31
3. Colorado River[c]	0.62	0.62	0.62
4. State Water Project[c]	1.17	1.16	1.14
Total	3.46	3.46	3.45
Projection of normal demand[d]	3.95	4.20	4.65
Projection of above-normal demand[e]	4.23	4.49	4.98
Potential (shortage) at normal demand[f]	(0.49)	(0.74)	(1.20)
Potential (shortage) at above-normal demand	(0.77)	(1.03)	(1.53)
Probable Minimum Water Supply (such as repeat of the 1976-77 drought)			
1. Local production[a]	1.36	1.37	1.38
2. L.A. Aqueducts[b]	0.26	0.26	0.26
3. Colorado River[c]	0.62	0.62	0.62
4. State Water Project[c]	1.08	1.05	1.01
Total	3.32	3.30	3.27
Projection of normal demand[d]	3.95	4.20	4.65
Projection of above-normal demand[e]	4.23	4.49	4.98
Potential (shortage) at normal demand[f]	(0.63)	(0.90)	(1.38)
Potential (shortage) at above-normal demand	(0.91)	(1.19)	(1.71)

Table 3.13-2 (Revised) (Continued)

EXISTING WATER SUPPLIES AND PROJECTED DEMANDS FOR MWD'S SERVICE AREA (in million AFY)

Source: MWD, 1990. The Regional Urban Water Management Plan for the Metropolitan Water District of Southern California, November.

[a] Sources include local groundwater, surface water, and reclaimed supplies and Metropolitan sponsored water reuse.

[b] Sources available solely to the city of Los Angeles.

[c] Sources available to Metropolitan after accounting for losses.

[d] Demands may be lower during severe droughts due to implementation of short-term water conservation measures and increased public awareness. Demands include both municipal and agricultural water use and are based on adopted SCAG and SANDAG growth plans.

[e] Above-normal demands are based on higher-than-average temperatures and lower-than-average rainfall.

[f] Shortages could be reduced by implementation of water management measures. Included in these measures would be possible exchanges and transfers to assist in meeting Metropolitan's requirements.

~~Two~~ One jurisdictions currently provides water service to the project area: the Otay Water District (OWD). ~~and the City of San Diego Water Utilities Department (JBF & Associates 1989a).~~ The service area boundaries of ~~these two agencies~~ OWD in relation to Otay Ranch ~~are~~ is shown in Figure 3.13-2. As indicated in the figure, the OWD is currently the primary provider of water to the project site. The OWD serves the Otay River parcel and approximately 75 percent of the Proctor Valley parcel. The OWD used 22,809.5 acre feet of water from the CWA in 1989-90.

The entire San Ysidro parcel and a portion of the Proctor Valley parcel is outside of any water district and currently is not provided water service by any agency (JBF & Associates 1989a). These areas are controlled by the San Diego County Groundwater Ordinance.

Water Infrastructure

The OWD obtains filtered water from the CWA's Second Aqueduct, a 66-inch diameter pipeline which runs west of I-15 (see Figure 3.13-1). The CWA has plans to construct a second pipeline to Lower Otay Lake by 1994 (JBF & Associates 1989a). This second pipeline, 4E Phase 2, will run parallel to the existing pipeline #3 and have an ultimate capacity of 129.2 mgd. ~~Approximately 109 mgd will be allocated to the OWD, and approximately 20 mgd will be allocated to the City of San Diego (Mumford 1991).~~ Two aqueduct connections, #4 and #9, distribute water from the aqueduct, and each has a minimum rated capacity of 22 mgd (JBF & Associates 1989). Currently, average demand for the #4 and #9 connectors is 4.21 mgd and 1.42 mgd respectively, leaving an unused capacity of 17.79 mgd for the #4 connector and 20.58 mgd for the #9 connector (Charles 1991).

Reservoir storage is provided to regulate the source of supply within a particular water service zone and to provide additional water to the zone during peak hour demands and emergencies such as fire flows. Temporary water storage is provided by the OWD at the Patzig Reservoir, a 12.2 million gallon (mg) storage facility which serves the aqueduct connection and storage tanks along Otay Lakes Road.

The OWD has established five pressure zones within the project area to provide adequate water pressure to different pad elevations onsite. These five pressure zones, 624, 710, 980, 1296, and 1620, and the upper and lower elevations served by each zone, are indicated in Table 3.13-3. Locations of the pressure zones are shown in Figure 3.13-3. The OWD serves the 624 pressure zone from Patzig Reservoir without pumping; the 710 pressure zone is served by storage tanks and a booster station at Patzig. Water booster stations pump water from a water service zone to the next higher service zone. The 980 pressure zone is served by a pump station located in the EastLake Business Park.

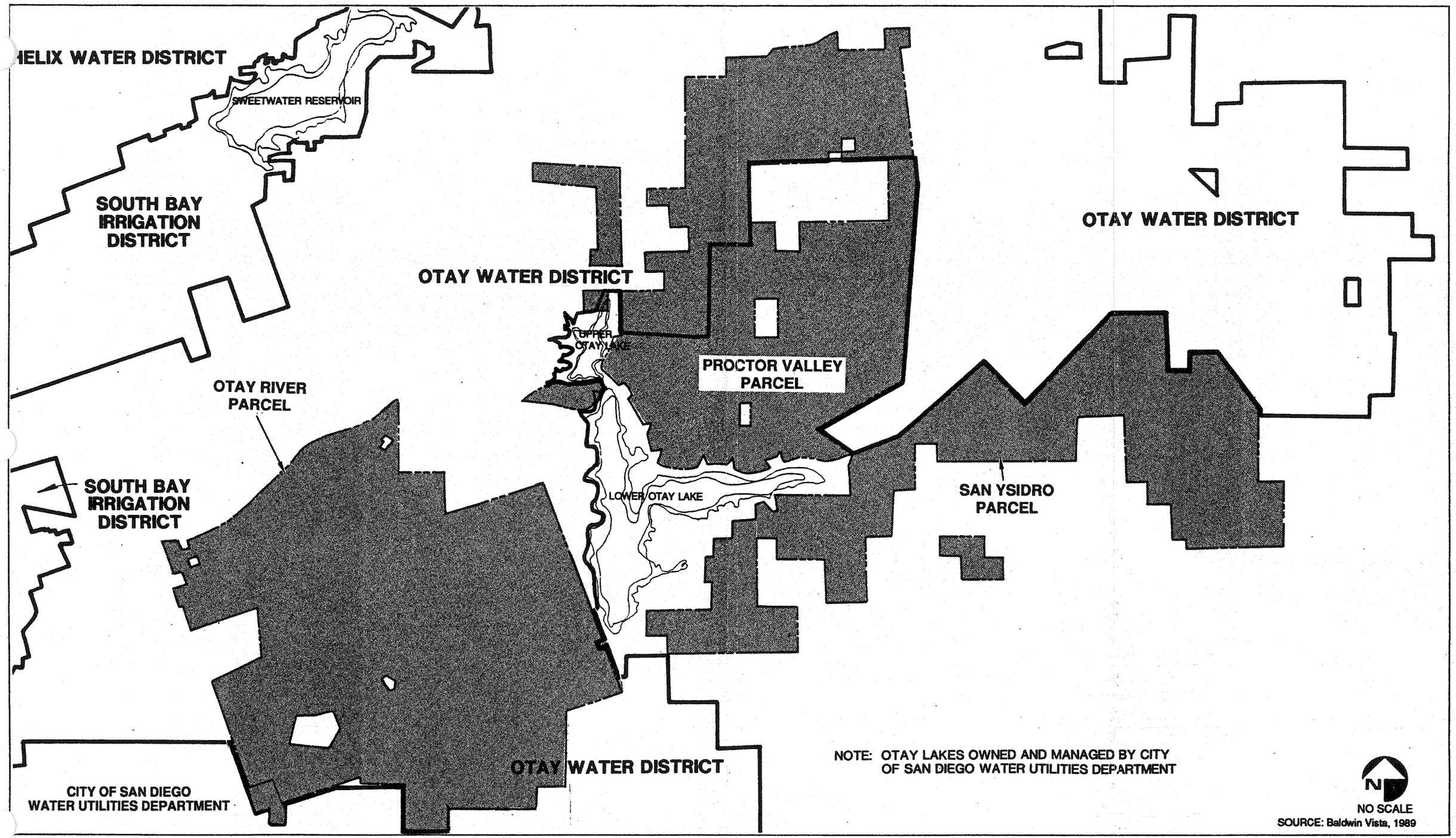
The City of San Diego Water Utilities Department provides water service to the majority of the City of San Diego, ~~which includes the portion of the Otay Ranch property within Otay Mesa (approximately 390 acres in the southern portion of the Otay River parcel),~~ Imperial Beach, Coronado, and ~~certain areas~~ parts of the County of San Diego. Although a portion of the Otay Ranch property falls within the City of San Diego municipal boundaries (approximately 390 acres, east of Brown Airfield on the Otay Mesa), this area is under the service jurisdiction of the OWD and would be provided service by the OWD. The City of San Diego also owns Upper and Lower Otay Lakes. Upper Otay Lake is not currently being used as an active part of the city's water supply system. Lower Otay Lake has a storage capacity of 49,510 acre feet and provides less than 5 percent of the water to the South Bay areas within the city limits (JBF & Associates 1989a). Lower Otay water is also used to serve portions of the City of San Diego other than the South Bay area. It should be

Table 3.13-3

WATER PRESSURES BY ZONE

Reservoir High Water Level, ft.	Pad Elevation Served (feet)		Static Pressure (psig)	
	Maximum	Minimum	Maximum	Minimum
624	474	300	140	65
710	560	475	102	65
980	830	561	181	65
1296	1145	831	201	65
1620	1440	1146	207	78

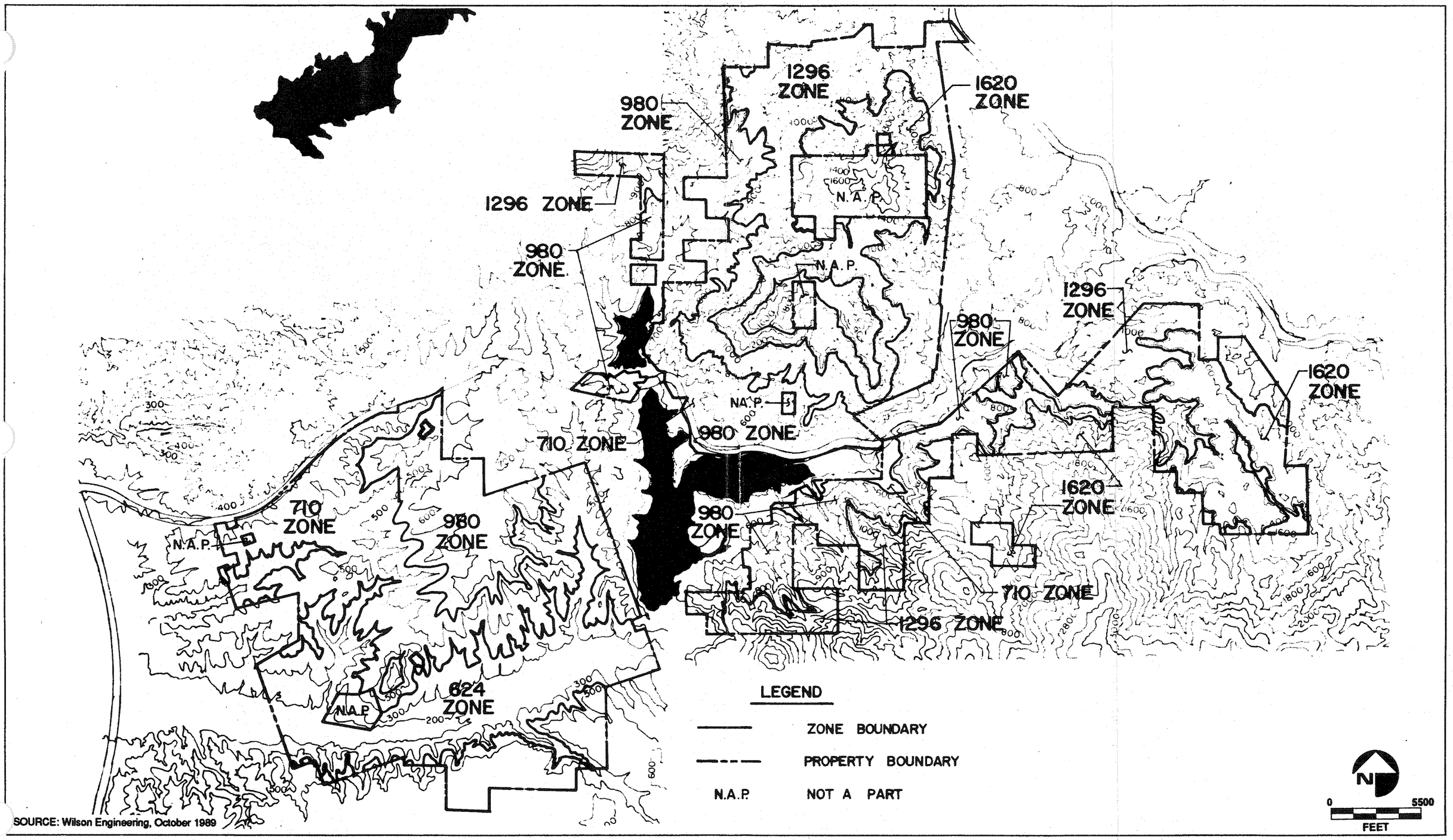
Source: Wilson Engineering 1992.



OGDEN

Water District Boundaries

FIGURE 3.13-2



SOURCE: Wilson Engineering, October 1989

OGDEN

Water Service Zones

FIGURE 3.13-3

noted that although the 390 acres in the southern portion of the Otay River parcel are within the City of San Diego's jurisdiction, the OWD also has jurisdiction over this area due to an overlap and is currently serving this area.

The Otay Filtration Plant, owned by the City of San Diego and located near Savage Dam at Lower Otay Lake, treats Lower Otay Lake water. The capacity of the Otay Filtration Plant is 40 mgd, with a potential future expansion to 100 mgd. The treated water from both the aqueduct and the reservoir is distributed via a pipeline which forks to the southwest and northwest, in the vicinity of Rock Mountain in the western portion of the property.

The City of Chula Vista has the authority to provide water within their current city limits but does not currently exercise their authority. The city is provided water service primarily by two major water agencies: the Sweetwater Authority and the OWD. The Sweetwater Authority services central Chula Vista largely from the Sweetwater ~~Reservoir~~ Treatment Plant which has an existing design capacity of ~~24~~ 30 mgd. Transmission and distribution pipelines, ranging in size from 6 inches to 42 inches, deliver water to Chula Vista with a normal operating pressure range of 40 to 90 pounds per square inch (psi). Daily and seasonal peak flow requirements, including fire flows, are offset by operational storage reservoirs located throughout the city. Total ~~operational~~ storage capacity for Sweetwater Reservoir is approximately ~~38 mgd~~ 28,088 acre feet at elevation 239 MSL with a daily demand of approximately ~~24~~ 20 mgd (~~City of Chula Vista 1989a~~ Sweetwater Authority Reynolds 1992).

The ~~majority of the~~ Otay River parcel and a large portion of the developable Proctor Valley parcel ~~is served~~ are within by the OWD. OWD refers to this area as the Central Area which encompasses three existing Improvement Districts (I.D.) outside of the project boundaries including I.D. No. 5, I.D. No. 10, and I.D. No. 22. Improvement Districts are defined as areas which are assessed fees in relation to the benefit received for constructing water or sewer facilities for that area. The project area is not included within any of the existing improvement districts.

The existing OWD system is composed of five pressure zones, as previously mentioned, two water booster pump stations, six reservoirs, and two connections to the CWA filtered water aqueduct system. Pipelines range in size from 6 to 30 inches, and current total storage volume is approximately 32 mg. The average daily demand for the system is about 4.5 mgd (City of Chula Vista 1989a).

The City of Chula Vista has adopted threshold standards to ensure that adequate supplies of quality water, appropriate for intended use, are available. These standards have been established to ensure that adequate storage, treatment, and transmission facilities are constructed concurrently with planned growth, and that water quality standards are not jeopardized during growth and construction. These standards require project applicants to request and deliver to the city service availability letters from the appropriate water district for each project. They also require the City of Chula Vista to annually provide the CWA, Sweetwater Authority, and OWD with a 12- to 15-month development forecast along with an evaluation of its ability to accommodate forecast and continuing growth. The City of Chula Vista's Growth Management Ordinance (No. 2448) also requires that a project applicant submit a Water Conservation Plan along with a SPA Plan application. The SPA Plan application will not be reviewed without the Conservation Plan.

Groundwater Supply

As previously mentioned, portions of the Proctor Valley parcel and the entire San Ysidro parcel are currently outside of a municipal water system. Areas outside of the imported

water distribution system are served by groundwater located in aquifers below the earth's surface. This water is pumped out of the ground through wells and supplied to users either through community water systems or individual wells. The Department of Health Services issues permits and inspects the installation of approximately 850 new water wells annually in areas that are served by individual wells (County of San Diego Public Facilities Element 1991).

The County of San Diego adopted a Groundwater Ordinance (Ordinance No. 7994, Chapter 7) on October 16, 1991, to ensure that development in groundwater-dependent areas of the County would not occur unless adequate groundwater supplies are determined to be available to serve both the existing uses within the affected groundwater basin and the proposed uses. The County Groundwater Ordinance (No. 7994, New Series) has minimum lot size guidelines for residential development based upon average annual rainfall. These lot size requirements were determined by scientific research to ensure that groundwater recharge, storage, and well capacity are adequate to meet the long-term consumptive water demand of residential development. According to the County's Public Facilities Element, while the region's groundwater basins are adequate to meet water demand for rural development patterns and small pockets of urban development, they are insufficient to support a metropolitan population.

Reclaimed Water

An important method of supplementing the water supply is water reclamation. Reclamation is the process of utilizing treated wastewater effluent for specific uses regulated by various agencies. The treated wastewater effluent (reclaimed water) must meet, at a minimum, secondary treatment standards as required by the federal government in the Clean Water Act of 1972 (revised in 1987) in order to be used as reclaimed water for golf courses, cemeteries, freeway or landscape medians, and other areas of similar public access. The California State Health Department (Title 22) requires further treatment of the secondary effluent for irrigation of public parks, schools, and playgrounds. By utilizing reclaimed water, the demand for potable water is decreased by an equal amount.

There are, however, potential problems to be solved in successfully reusing water. The variation in the flow rate of raw wastewater requires the construction of storage facilities to contain excess reclaimed wastewater when a greater amount of wastewater is being produced than can be used. A second piping system, also known as dual piping, is needed for the distribution of treated wastewater and adds further costs that have to be addressed in order to successfully make use of wastewater.

The San Diego Regional Water Quality Control Board (RWQCB) is ~~and the Colorado River Basin RWQCB are~~ in charge of assuring that the region's surface and subsurface waters are not adversely impacted by effluent discharge. These ~~agencies~~ RWQCB must approve all reclamation projects. Currently, strict regulations against the degradation of groundwater supplies with water containing high levels of salts, such as reclaimed water, make use of the reclaimed water problematic. These restrictions are being reconsidered.

The OWD is the purveyor of reclaimed water within their jurisdiction. A conceptual reclaimed water master plan is currently being prepared by the OWD which includes the Otay River parcel.

The City of Chula Vista is in the process of preparing a water offset program which will affect future development within the City. The CWA is also ~~preparing~~ considering the preparation of a regional water offset program which the City of Chula Vista may adopt if it

is compatible with their intentions. The use of reclaimed water will be a major issue in the guidelines within either of these offset programs.

3.13.1.2 Impact Analysis

Design criteria were developed to determine the sizing of reservoirs, water pump stations, water transmission mains, and treatment facilities for the Otay Ranch project. These criteria are in conformance with the Central Area Master Plan Update prepared by the OWD in January 1987 (Wilson Engineering 1992). OWD is currently preparing a comprehensive master plan for their entire district.

Water duty factors, or estimated water demand rates, were used in the Wilson Engineering Report to generate potable water demands for the Otay Ranch project and are listed in Table 3.13-4. Criteria for system water pressures under dynamic conditions of peak hour and fire flow are shown in Table 3.13-5.

Fire flows for the various land use areas are shown in Table 3.13-6. Fire flows for industrial areas were taken from the OWD Master Plan. Fire flows for commercial and residential areas were estimated from Insurance Services Offices Standards. These standards establish fire flow requirements based upon criteria such as building area, construction, occupancy, and proximity to other structures.

Two types of water storage are required for the Otay Ranch project: operational storage, necessary for general water service, and terminal storage, which is needed to provide a source of water for the project during the potential shutdown of pipelines which deliver imported water to the south county area. For the Otay Ranch project, it was assumed that each operational reservoir should be sized to store 1.3 times maximum day's demand plus the service area's maximum fire flow for a duration of five hours. According to the CWA, recommended terminal storage volume is ten average days' demand. Operational storage may be counted as part of the terminal storage requirements. Terminal storage may be a problem in the northern part of the Otay River parcel due to the lack of sufficient infrastructure in that area (Mumford 1992). Additional storage capacity may be required as a part of MWD's Water Use Efficiency Guidelines, which apply to areas proposing to annex into the MWD service area.

Pipelines for the Otay Ranch project are proposed to be sized to yield a maximum velocity of 10 feet per second for maximum day demands plus fire flows while being large enough to meet the minimum pressure requirements shown in Table 3.13-4. Adequate sizing of the mains was verified through modeling of the water distribution system within each water service zone. The combined capacity of each zone's pump stations was set to satisfy the summation of maximum day demand in all higher zones. The reservoirs would then be utilized to satisfy peak hour demand.

Based on the proposed land uses and the water duty factors outlined in Table 3.13-3, water demands were estimated for each land use area for the Otay Ranch project within each water service zone. The total water demand for the Otay Ranch project is estimated at approximately 40.2 mgd for an average day use (Wilson Engineering 1989). The Otay River, Proctor Valley, and San Ysidro parcels would require 24.4, 9.2, and 6.6 mgd, respectively.

Table 3.13-4

OTAY RANCH WATER DUTY FACTORS

Residential Average Day	600 gpd/du
Commercial, University, and Business Park Average Day	3,500 gpd/acre
Parks	2,200 gpd/acre
Maximum Day Peaking Factor	2.2 x Average Day
Peak Hour Peaking Factor	1.8 x Maximum Day

Source: Wilson Engineering 1992.

Table 3.13-5

MINIMUM WATER PRESSURES UNDER DYNAMIC CONDITIONS

Flow Condition	Minimum Pressure (psig)
Peak Hour	40
Fire Flow	20

Source: Wilson Engineering 1992.

Table 3.13-6

FIRE FLOWS

Land Use Type	Fire Flow (gpm)
Residential	1500
Commercial	3500
Industrial	5000

Source: Wilson Engineering 1992.

Jurisdictional Alternatives

As described in Land Use (Section 3.1), there are a number of jurisdictional alternatives to provide water service to the project, including the OWD, City of Chula Vista, City of San Diego, Sweetwater Authority, formation of a new water agency, or formation of a new city. The OWD is the preferred jurisdiction for water service; however, ~~E~~each of these alternatives is discussed below.

Otay Water District

Approximately ~~half~~ 70 percent of the Otay Ranch project is within the OWD. OWD ~~would be~~ is a logical service choice for the project except that its supplies are limited by delivery constraints in the CWA system. While the OWD is currently experiencing a water delivery shortage which impacts its ability to service new demands, this shortage is expected to be resolved when the new CWA pipeline 4E11, which is currently under construction, is completed. ~~it is currently experiencing a water shortage which impacts projected demands. This water shortage is expected to last until the new pipeline is completed by the CWA. Since OWD is unable to supply projected demands and is under a permit allocation system, other jurisdictional alternatives have been reviewed.~~

OWD has adequate capacity to serve existing needs and is planning to serve the portions of the project that fall within its jurisdiction (the Otay River parcel and a portion of the Proctor Valley parcel). Upon completion of CWA's pipeline 4E11, adequate capacity would be available to serve Otay Ranch. ~~beyond the year 2010.~~ With improvements to the MWD and CWA delivery and storage system, OWD would be able to fulfill its Water Service Master Plan (draft 1992) and provide water service to the Otay Ranch through the year 2030.

City of Chula Vista

In order for the City of Chula Vista to provide water service to the project, the area within the OWD would have to be transferred to the city including the facilities currently owned by the OWD. Under this scenario, the OWD would most likely be broken into three areas. The southern, or Otay Mesa area, would be transferred to the City of San Diego to provide service. All the facilities owned by the OWD on the mesa would be transferred to the City of San Diego. The central area, including the Otay Ranch property, would fall under the jurisdiction of the City of Chula Vista. The northern area would remain within the OWD.

~~In order to provide the City of Chula Vista with sufficient facilities to provide water to present and future customers in the central area of the OWD, the South Bay Irrigation District could also be made a subsidiary district of the City of Chula Vista. This would provide the City of Chula Vista with a large storage reservoir and treatment system as well as a number of connections to the CWA aqueduct. It would give the city access to both filtered and unfiltered water.~~

The City of Chula Vista is currently not a CWA or MWD member. If the City of Chula Vista were to provide water service to the project, the city would either have to become a member of ~~both~~ the CWA ~~f and the MWD~~ or retain the OWD or the South Bay Irrigation District as a wholesale agency for the Otay Ranch project to provide for membership in the CWA. ~~and MWD.~~ Membership in the MWD would occur through CWA representation on the MWD Board. This is considered a less likely alternative.

City of San Diego

If the Otay Ranch project were annexed to the City of San Diego, the city would serve the project unfiltered water through their Otay Filtration Plant and lake system, or filtered water from the CWA. ~~The City is also able to contract service to areas outside its corporate boundaries provided arrangements are made and approved by the agency with control over the land planning process.~~ Annexation to the City of San Diego would be subject to LAFCO approval.

Sweetwater Authority

The Sweetwater Authority exists through a Joint Powers Agreement between the South Bay Irrigation District and the City of National City which was entered into in 1972. In 1977, the Joint Powers Agreement was amended to allow for South Bay's purchase of the Sweetwater System. After acquisition of the water system, South Bay leased it to Sweetwater. In 1990, Sweetwater purchased the water system from South Bay. It can jointly exercise, as an entity separate from the individual agencies, powers common to the two agencies. It would be possible to detach the Otay Ranch property from the OWD, annex the property ~~into the South Bay Irrigation District, and thus~~ into the Sweetwater Authority. The Otay Ranch project would then have both an unfiltered water source from the Sweetwater Reservoir and filtration plant and would have filtered water available from the CWA.

Formation of New Water District

It would also be possible to detach Otay Ranch from the OWD and form a new water district. This new water district would either become a member of the CWA and the MWD and would have to build new facilities with adequate capacity to serve the project, or water would be purchased from the City of San Diego. However, if the option of purchasing water from the City of San Diego is pursued, it is possible that the CWA may impose restrictions on a member agency selling water to be used outside the CWA boundaries. Under this particular alternative, any existing OWD facilities would not be transferred to the new entity.

Formation of New City

If a new city were formed, it would be possible to detach Otay Ranch from the OWD. The OWD could be split into three portions similar to the scenario for annexation to the City of Chula Vista. The southern part of the district would go to the City of San Diego, the middle portion would be part of the new city, and the northern area would remain in the OWD. This system would be somewhat more complex since part of the central area of the OWD would remain intact to serve other property owners in the central district. The new city would have to build new facilities with adequate capacity to serve the project. The new city would also have to become a member of the CWA. ~~and the MWD.~~ Membership in the MWD would occur through CWA representation on the MWD Board.

Groundwater Alternative

Due to the present limitations of the imported water system, the possibility exists that the areas not currently within a water district (a portion of the Proctor Valley parcel and the entire San Ysidro parcel) would be denied annexation to the CWA. If this scenario were to occur and the use of ground water was proposed to serve these areas, further surveys and review of the quantity and quality of the ground water supply would be required based on the appropriate jurisdiction's standards.

As discussed in the existing conditions section of this analysis, the county has an adopted Groundwater Ordinance which outlines minimum lot size requirements based on average annual rainfall. The majority of the Otay Ranch project area which is located outside of the CWA boundaries has an average annual rainfall value of 12-15" per year. Some acreage in the extreme western portions of this area fall into the 9-12" average annual rainfall value. These average annual rainfall values translate to minimum residential lot size requirements within the Groundwater Ordinance of 11 and 15 acres, respectively. Any commercial development within a groundwater-dependent area would need to be assessed on a case by case basis to ensure an adequate long-term water supply. Therefore, because of the above limitations on density and generally poor water quality in the western portions of the project area outside of the CWA, development as proposed would be infeasible without annexation.

Preferred Water Distribution

~~Although a jurisdictional choice has not yet been made, based on the Wilson Engineering report the recommended alternative to obtain the additional water necessary for the project's short-term and long-term needs is by lease or purchase of capacity from the Lower Otay Filtration Plant and Reservoir. This water supply would provide a secondary source of potable water not available from OWD. The plant has additional filtration capacity under construction, and existing facilities are in place to supply filtered CWA water directly to Lower Otay Lake. This solution would be possible for any jurisdiction, although it may involve higher operational costs, since water would be filtered twice (once at Lake Skinner and then again at Lower Otay Lake); it would nevertheless be acceptable as an interim solution until the CWA constructs an unfiltered aqueduct barrel to Lower Otay Lake (Wilson Engineering 1992).~~

The jurisdictional preference for the project is to remain in the OWD. Based upon the Wilson Engineering Report, modifications to the Draft OWD Water Service Master Plan (1992) were suggested for water storage and delivery. These modifications have been reviewed by OWD and will be incorporated into the final Water Service Master Plan. The City of San Diego has indicated that opportunities do exist for expansion of storage and treatment capacities, but that any proposed joint facilities need to be coordinated. Informal negotiations have begun with the City of San Diego to acquire or lease storage and filtration plant capacity in the Lower Otay Reservoir and filtration plant for OWD (Wilson Engineering 1992). This type of storage and service capability would provide the OWD with an additional service alternative in the event of future disaster or long-term drought. Coupled with the completion of the CWA pipeline 4E11, which will more than double the water service capacity to the South County area, OWD has been determined to be the water service jurisdiction of choice for the proposed Otay Ranch project.

Each of the alternatives discussed above, with the exception of the groundwater alternative, would similarly impact the CWA and the MWD since additional water demands would be generated as a result of the project. As mentioned under the existing conditions section of this analysis, approximately half of the proposed project is currently within the CWA service area boundary. In order for the remainder of the project area to receive imported water, the area would require annexation into both the CWA and MWD. The MWD has adopted annexation guidelines which include procedural guidelines and fee requirements. The annexation guidelines also outline water use efficiency measures which must be complied with to the extent practicable. Until a jurisdictional decision is made regarding the provision of water to the Otay Ranch project area and analyzed in detail, this issue is considered a significant impact. Subsequent stages of environmental review are required at the SPA Plan level.

Analyses were conducted to establish the recommended water facilities for each water service zone. The recommended local delivery system is based on a supply from Lower Otay Lake. Maps of the proposed facilities for each service zone are available in the Wilson Engineering Otay Ranch Master Plan of Water and Sewage Report, October 1992.

624 Water Service Zone

The proposed facilities assume the purchase of average day demand filtration capacity in the Otay Filtration Plant and 30 days storage in Lower Otay Lake. This alternative would include 66,000 feet of transmission mains and one large pump station for transferring water to all higher zones.

710 Water Service Zone

The 710 Water Service Zone would supply all three parcels. The facilities would include three operational storage reservoirs, four booster stations delivering water to all higher zones, and 180,250 feet of transmission mains.

980 Water Service Zone

The 980 Water Service Zone would serve all three parcels. Facilities would include three reservoirs, four booster stations, and 156,800 feet of distribution mains.

1296 Water Service Zone

The 1296 Water Service Zone would supply a small area in the Proctor Valley and San Ysidro parcels. The western portion of the San Ysidro parcel would contain one reservoir, one booster station, and 19,500 feet of water transmission mains. The eastern portion of the San Ysidro parcel would contain one reservoir, one booster station, and 23,000 feet of transmission mains. The Proctor Valley parcel would include one reservoir, one booster station, and 48,750 feet of transmission mains.

1620 Water Service Zone

The 1620 Water Service zone would supply small areas in the eastern portion of the San Ysidro parcel and in the northern portion of the Proctor Valley parcel. The service zone within the San Ysidro parcel would consist of one reservoir, one booster station, and 21,500 feet of transmission mains. The service zone within the Proctor Valley parcel would consist of one reservoir, one booster station, and 15,000 feet of transmission mains.

Reclaimed Water

Reclaimed water may be considered as an alternate water supply for irrigation within the Otay River parcel of Otay Ranch. Reclaimed water is currently not recommended for the Proctor Valley or San Ysidro parcel because both are tributary to Lower Otay Lake which is a potable water source. Although the use of reclaimed water on the Proctor Valley and San Ysidro parcels it not recommended at this time, the possibility will be pursued further as development plans for these parcels progress. The State Health Department and RWQCB have numerous concerns regarding this matter which would require resolution, including the implementation of an adequate urban runoff protection system. Regional, community, and neighborhood parks, schools, private recreational facilities, and streetscapes may be suitable for irrigation with reclaimed water. Industrial use and grading may also be

considered for reclaimed water use, such as cooling towers, washdown, hydroblasting, and other process water requirements.

The major reclaimed water use area totals approximately 1,680 acres. Of this, 864 acres have been designated and located for the Otay River Regional Park, 107 acres have been designated and located for community parks, and 130 acres are proposed to be streetscape medians. The remaining 580 acres are proposed for neighborhood parks and schools, neither of which have been located at this time.

As mentioned previously, the average estimated potable water demand for Otay Ranch is 40.2 mgd. This total demand could be reduced by 3.7 mgd, or nearly 10 percent, with the use of reclaimed water on the Otay River parcel. Water conservation measures could reduce the potable demand 121 gpd per du for a savings of 6.0 mgd or an additional 15 percent. The use of reclaimed water and implementation of water conservation measures could potentially reduce the total potable water demand by 9.7 mgd or nearly 25 percent (Baldwin Vista 1991).

As growth in the region continues, the question of whether adequate water allocations can be made available to local water purveyors from the MWD, the primary water supplier, remains unanswered. In the absence of site-specific construction plans, the impact of the development of future SPAs within Otay Ranch cannot be determined. Further environmental review of this issue is required at the SPA Plan level, at which time the question of water availability will be addressed. At the General Plan level of analysis, the issue of water availability and demand is considered to be a significant impact.

3.13.1.3 Proposed Mitigation

- Upon completion of the comprehensive master plan currently under preparation by OWD, the recommended facilities for the Otay Ranch project shall be reviewed for conformance to this plan and current OWD standards, if applicable (EIR Proposed).

- Environmental analysis and a decision by LAFCO on the water supply and the water supplier shall be made after the Sphere of Influence study and prior to the approval of the first SPA. Additionally, a development agreement shall not be entered into without first identifying a water source. Finally no financing entities shall be formed or revenue bonds sold prior to the identification of a water source and confirmation (a "will serve" letter) that such water source is available to supply the proposed development concurrent with need for Otay Ranch (EIR Proposed.)

- ~~Prior to approval of any SPA Plan for Otay Ranch, it shall be determined which water district will serve the proposed SPA. Prior to development of Otay Ranch property not currently within a water district, the service provider shall be chosen and appropriate annexation shall occur. In addition, if required by the chosen water district, the project applicant shall obtain written verification from the water district at each phase of development that the tract or parcel will be provided adequate water service concurrent with need (a "will serve" letter) (EIR Proposed).~~

- Following the determination of which jurisdiction will provide water to ~~Otay Ranch~~ a proposed SPA in Otay Ranch, a Water Master Plan shall be prepared by the applicant in conformance with the water standards of the appropriate jurisdiction. The Water Master Plan shall address, in detail, the following:

- Design criteria and assumptions, in accordance with the appropriate agency and regulatory authorities.

- Location and size of facilities for onsite and offsite improvements.

- Operational and terminal storage.

- Water main pressure.

The Water Master Plan shall also include:

- A Public Facilities Financing and Phasing Plan.

- A Water Conservation Plan which shall include an analysis of water usage requirements as well as a detailed plan of proposed measures for water conservation. Measures shall include, but not be limited to, planting of drought tolerant vegetation for onsite landscaping and roadside maintenance; the use of irrigation systems which minimize runoff and evaporation loss; and the use of water conservation devices including low flush toilets, shower fixtures, and other amenities.

- A Water Reclamation Plan which shall include a reclaimed water distribution system designed to meet appropriate engineering standards. The plan shall address, in detail, storage and conveyance, phasing, and financing. The construction of a dual piping system of water supply shall be required for all development where the use of reclaimed water will not jeopardize potable water supplies.

- A Reclaimed Water Uses and Restrictions Plan which shall be prepared by the applicant in conformance with the Water Reclamation Plan and current engineering and health standards, prior to any SPA Plan adoption. These uses and restrictions shall be prepared in coordination with the appropriate agencies to promote the maximum use of reclaimed water allowed by law within the project area.

- Information on how the project will satisfy MWD's Water Use Efficiency Guidelines.

The Water Master Plan shall be approved prior to the approval of any SPA Plan within Otay Ranch (EIR Proposed).

3.13.1.4 Analysis of Significance

As discussed in the impact section of this analysis, it is unknown at this time if drought conditions will persist in the region and if, in the future, adequate water supply will be made available to the CWA from the MWD. At this level of analysis, impacts to water supply are considered significant. If it is determined that adequate water supply is available at the time of individual SPA Plan review, implementation of the above mitigation measures will mitigate project-specific water facility/service impacts to below a level of significance.

3.13.2 Wastewater and Sewer Service

3.13.2.1 Existing Conditions

The entire South Bay area is currently served by the San Diego Metropolitan Sewerage System (METRO). The City of Chula Vista and the City of San Diego are member agencies of METRO and have capacity in the system. The City of Chula Vista has an existing capacity of approximately 19.20 mgd and is currently using approximately 12.20 mgd; an unused capacity of 7.0 mgd thus currently exists (Wilson Engineering 1992). The City of San Diego has an existing capacity of approximately 153.46 mgd and is currently using 130.38 mgd, leaving an unused capacity of 23.08 (Wilson Engineering 1990). Facilities in the METRO system include the Point Loma advanced primary wastewater treatment plant, ocean outfall, pump stations, interconnecting interceptors, and the Fiesta Island sludge beds.

There are five existing sewer interceptors near the Otay Ranch project, all of which are located on the western side of the property (Figure 3.13-4). The Chula Vista system consists of the Telegraph Canyon trunk sewer which extends above the project limits along the northern side of the Otay River parcel, and the Poggi Canyon and Main Street trunk sewers which extend east of I-805. The City of San Diego Otay River Valley Interceptor extends along the southern boundary of the Otay River parcel. Figure 3.13-4 also shows a portion of the alignment of the existing METRO interceptor.

Sewage in southern San Diego County is collected and transmitted to the South Bay Interceptor which extends from San Ysidro north to the Point Loma Wastewater Treatment Facility. The Point Loma facility currently provides advanced primary wastewater treatment and has an existing capacity of 219 mgd. Under the federal Clean Water Act, the City of San Diego is required to provide secondary wastewater treatment. The city's wastewater treatment system will be upgraded in the next decade to meet the requirements of the federal Clean Water Act and the Regional Water Quality Control Board (RWQCB). ~~When upgraded to a secondary treatment facility, the Point Loma plant's capacity will be reduced to 150 mgd (Jamed 1991).~~ From the Point Loma facility, treated effluent is discharged into the ocean approximately 2 miles off the coast.

When upgraded to a secondary treatment facility, the Point Loma plant's capacity may be reduced to as little as 150 mgd if conventional treatment processes are utilized. Currently, scientific tests are being run to determine if an alternative chemical treatment of the influent will substantially alter the effluent characteristics. The Federal Court has granted the City of San Diego an 18-month time frame to run the tests necessary to determine if the effectiveness of chemical treatment on the influent will be equivalent to secondary treatment levels. The results of these tests and the potential changes to the Clean Water Program will not be known for some time. Additionally, the City of San Diego has identified a new sewage treatment plan alternative (for capital facilities), which is based, in part, on the use of chemical treatment at Point Loma. This new alternative, designed "the Consumers Alternative," cannot be fully analyzed until the Court rules on the results of the current testing programs. The State of California has adopted new Special District Act legislation for the METRO Sewer Service area. This legislation, which will come into existence January 1, 1993, includes the City of San Diego, the City of Chula Vista, the City of Coronado, the City of Del Mar, the City of Imperial Beach, the City of La Mesa, the Lemon Grove Sanitation District, the City of National City, the City of Poway, the County of San Diego, the Otay Water district, the Padre Dam Municipal Water district, and the San Diego County Water Authority, will bring together the necessary financial resources. While changes to facility schedules and treatment alternatives have not been finalized, the goal of providing sewage service to Otay Ranch has not been altered.

The formation of a new sanitation district and construction of a treatment plant are being evaluated for the east Otay Mesa area. The San Diego Metropolitan Task Force Group is recommending construction of a large secondary treatment system in the south county area and a reclamation facility in the Otay River Valley east of I-805. The water reclamation facility is proposed to be located near the western boundary of the Otay River parcel. This plant would be constructed in two phases with 6 mgd initial capacity by 1998 and 12 mgd capacity by the year 2010 (Clean Water Program 1990). The Clean Water Program for Greater San Diego includes a conceptual Master Plan of Water Reclamation and Reuse. This conceptual master plan, dated July 1989, proposes two water reclamation plants in the Otay Mesa and south county areas with an ocean outfall to serve both plants, as well as a secondary wastewater treatment plant to be built by the federal government along the international border.

The City of Chula Vista has adopted threshold standards to provide a sanitary sewer collection and disposal system for the residents of Chula Vista. The threshold standards have been established to ensure that necessary improvements consistent with sewer master plans and city engineering standards are provided on a project-by-project basis. The City of Chula Vista's threshold standards require that sewage flows and volumes not exceed city engineering standards. The threshold standards also require the city to annually provide the San Diego Metropolitan Sewer Authority with a 12- to 15-month development forecast. The city must confirm that the projection is within the city's purchased capacity rights, and provide an evaluation of its ability to accommodate forecast and continuing growth.

3.13.2.2 Impact Analysis

Design criteria developed by Wilson Engineering for wastewater collection facilities for the Otay Ranch project were based on the City of Chula Vista standards for sewer service. Where no standards were available from the City of Chula Vista, industry standards were utilized. These design criteria are summarized below. A more detailed discussion of the design criteria is available in the Master Plan of Sewerage prepared for this project (Wilson Engineering 1992).

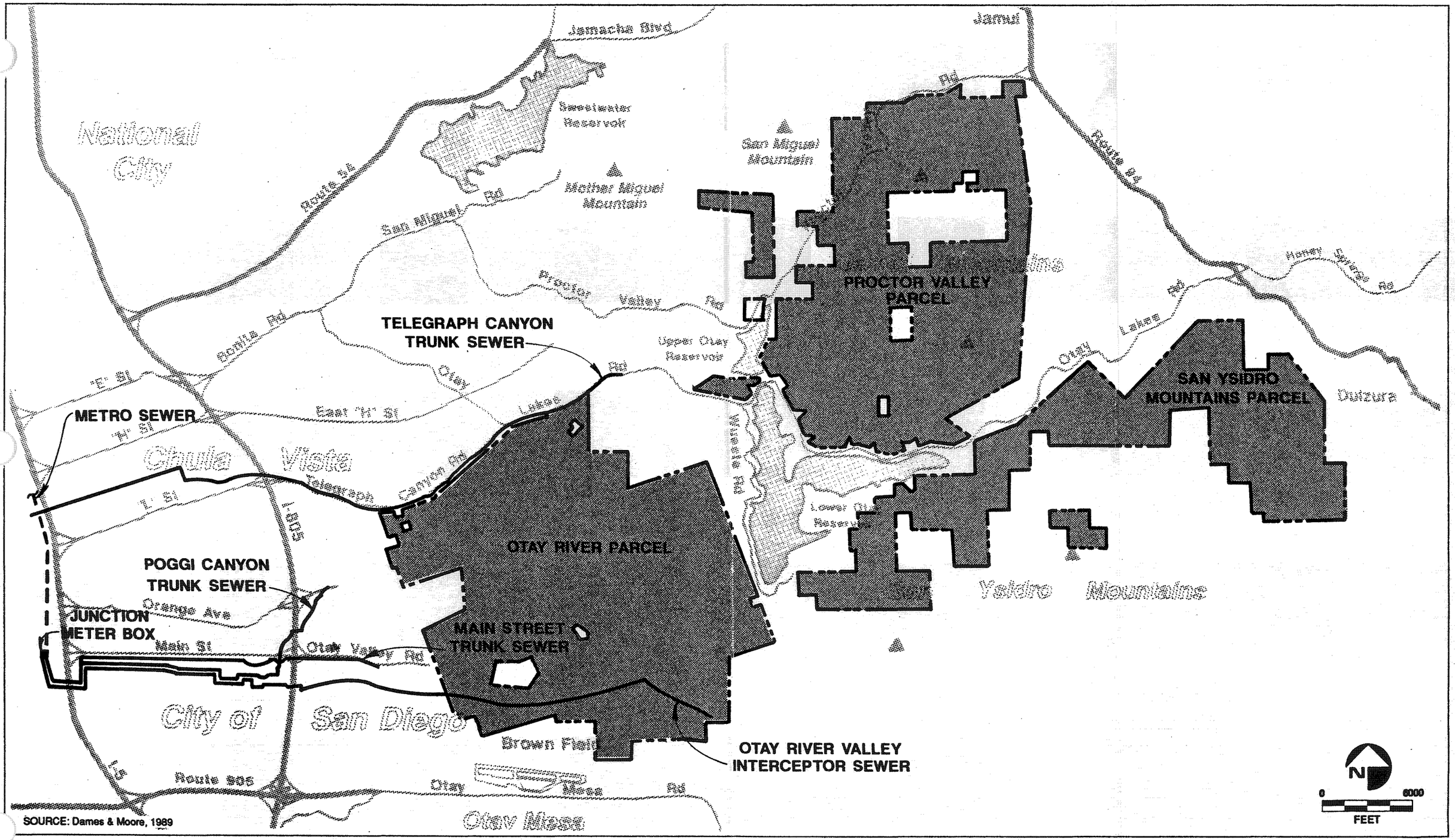
Flow Generation

An average flow of 250 gallons per day was used for residential units. An average flow of 2,500 gallons per day per acre was used for commercial and industrial acreage. Based on land use and the sewage generation factor, wastewater flows were estimated for each drainage basin. The total sewage generation for the New Town Plan is estimated at 16.8 mgd for average daily flows (Wilson Engineering 1992).

Two conveyance system alternatives for Otay Ranch were evaluated. The first alternative provides for pumping all flows to the Otay River Valley. The second alternative allows the Poggi Canyon and Telegraph Canyon flows to drain directly into the METRO.

<u>Alternative 1</u>

This alternative pumps flows from Telegraph Canyon and Poggi Canyon back to the Otay River Valley. The total average daily flow of 16.8 mgd would thus be conveyed to the Otay River Valley. This alternative requires separate piping in both Poggi Canyon and Telegraph Canyon to segregate project flows and isolate them for conveyance to the Otay River Valley. This alternative was not recommended by Wilson Engineering.



SOURCE: Dames & Moore, 1989

OGDEN

Existing Sewer Systems

FIGURE 3.13-4

Alternative 2

This alternative provides for gravity flow through Poggi and Telegraph Canyons to the METRO Interceptor. Under this alternative, only 13.1 mgd of the total 16.8 mgd would be conveyed to the Otay River Valley. The remaining 3.7 mgd would be generated within the Telegraph Canyon and Poggi Canyon basins and flow into METRO. This alternative would require utilization and upgrading of existing City of Chula Vista pipelines. Alternative 2 (see Figure 3.13-5) was the recommended alternative (Wilson Engineering 1992).

Jurisdictional Alternatives

City of Chula Vista

The City of Chula Vista has existing METRO capacity and interceptors which could be utilized during the early phases of the project. The reclamation plant in the Otay River Valley could be built as a City of Chula Vista plant that would be owned and operated by the city. The plant could also be owned by the City of Chula Vista but operated by the new METRO entity which will operate the new METRO facilities. Finally, the City of Chula Vista could own capacity rights, while the plant itself would be owned and operated by the METRO entity. The Clean Water Program is currently negotiating with Otay Ranch for the acquisition of property. They are also providing reports and presentations to the Executive Committee as needed to coordinate the planning process for the proposed Otay River Valley Reclamation Plant.

Otay Water District

If the project does not annex to the City of Chula Vista, it could obtain sewer service from the OWD. The OWD is empowered under state law to provide sewer service and is currently serving some areas. In order to provide service, the OWD would need treatment plant capacity which it does not currently have. It would either have to buy into the new METRO facilities or construct a reclamation plant in the Otay River Valley.

City of San Diego

If the Otay Ranch project were annexed to the City of San Diego, the project would be served by the San Diego Water Utilities Department. Sewage would be treated at the Point Loma Wastewater Treatment Plant (WTP) and then discharged into the Pacific Ocean via an outfall.

Formation of a New Sanitation District or a New City

A new sanitation district (or other special district) or a new city could provide sewer service to the project. Any of these new entities would have to buy into METRO capacity or construct a new reclamation facility in the Otay River Valley.

The jurisdictional preference for sewage service is the City of Chula Vista in coordination with METRO or its new Special District Act. For those areas of Otay Ranch which would not be incorporated into Chula Vista, the reviewing authority for facility design would be the County of San Diego and transmission agreements with the City of Chula Vista would be required to take the sewage flows through Chula Vista to METRO. This is considered to be a significant impact because the inter-agency arrangements for the new Special District Act have not been completed at this time.

A jurisdictional alternative has not been chosen to date. This is considered to be a significant impact of the proposed project.

Wastewater Treatment Alternatives

Four alternatives for providing wastewater treatment for the Otay Ranch project were analyzed. These alternatives include purchasing treatment capacity from METRO and construction of an independent treatment plant for the Otay Ranch project. A description of each of the alternatives follows.

Alternative 1 - Connection to Metropolitan

Alternative 1 consists of connecting the entire Otay Ranch project to METRO facilities.

Alternative 2 - Construction of a New Wastewater Treatment Facility with Solids Processing

Alternative 2 consists of a wastewater treatment facility with solids processing equipment. The facility would be sized for the Otay Ranch project only and would be constructed on the property.

Alternative 3 - Construction of a Water Reclamation Facility

Under this alternative, a wastewater treatment facility would be constructed suitable for production of an effluent that could be used for reclamation. The solids would be sent to METRO for further processing.

Alternative 4 - Construction of a Joint Facility with the County of San Diego

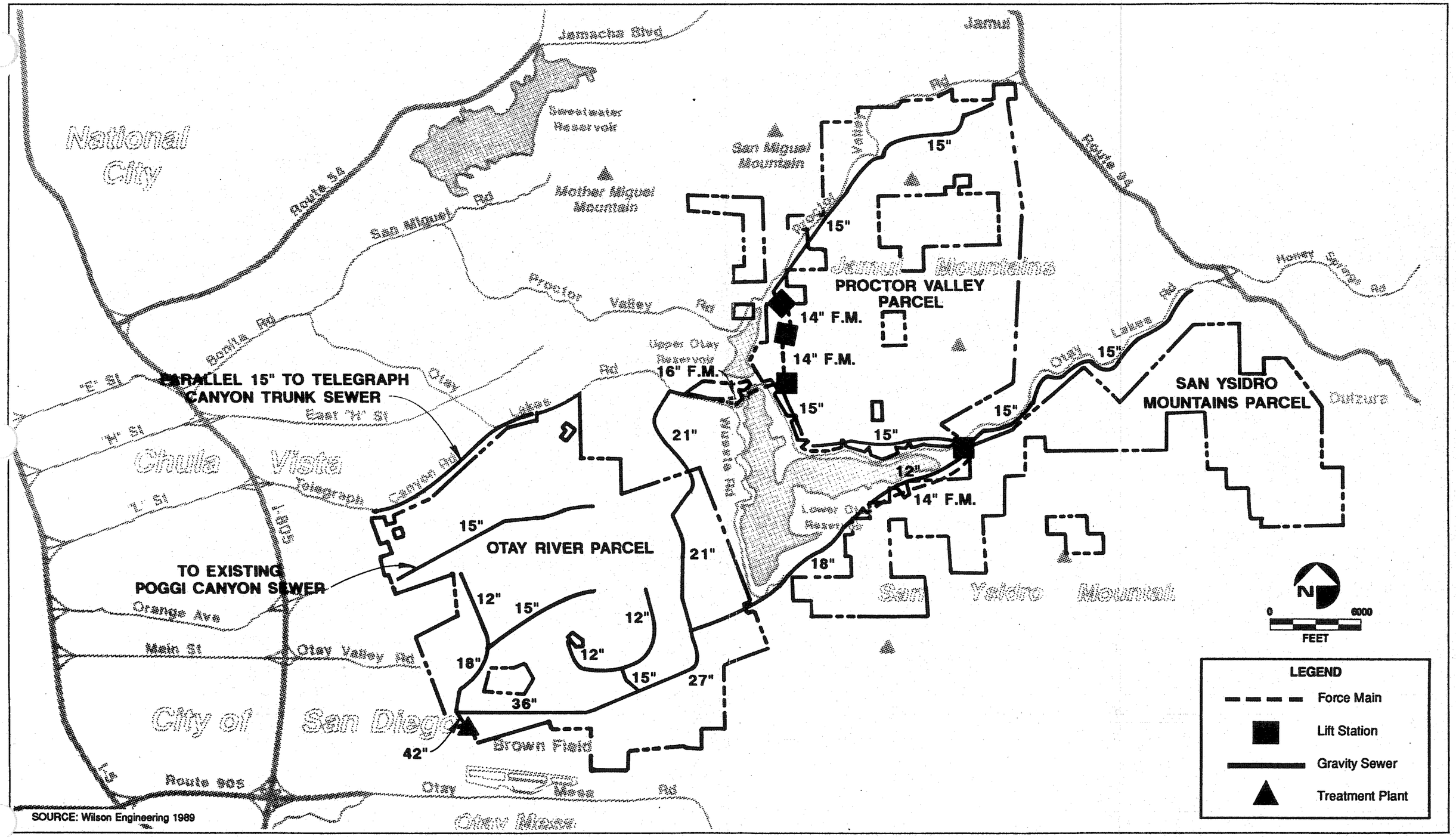
Alternative 4 is the same as Alternative 2, except the plant would be expanded to 25.2 mgd to handle the east Otay Mesa area of the County of San Diego and other areas of Chula Vista.

Wastewater Treatment Alternative 3 - Construction of a Water Reclamation Facility is the preferred solution for the proposed Otay Ranch project. In coordination with the Clean Water Program, City of Chula Vista, County of San Diego, and Otay Water District, a wastewater treatment facility suitable for the production of tertiary treated, reclaimed water would be constructed on the site designated and approved in the Otay Valley. Issues of timing and funding remain to be solved by the above agencies, but the phasing of the proposed Otay Ranch shows that this facility would not be required until some time in Phase-II, which is consistent with the latest schedule of the Clean Water Program.

~~A~~ Although Alternative 3 has been identified as the preferred alternative, wastewater treatment alternative has not yet been chosen. In the absence of detailed construction plans, the site-specific impacts associated with the development of future SPAs cannot be determined. Further environmental review is required at the SPA Plan level. At the General Development Plan level of analysis, wastewater facility/service impacts are considered to be significant.

3.13.2.3 Proposed Mitigation

- Prior to approval of any SPA Plan within Otay Ranch, it shall be determined which sewer district will serve the proposed SPA. In addition, if required by the applicable sewer district, the project applicant shall obtain written



SOURCE: Wilson Engineering 1989

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Proposed Sewer Facilities

FIGURE 3.13-5

verification from the applicable sewer district that the tract or parcel will be provided adequate sewer service concurrent with need (a "will serve" letter). The City of Chula Vista does not issue "will serve" letters. When applicable, the project applicant shall obtain written approval from the County Department of Health Services of private subsurface sewage disposal systems (EIR Proposed).

- Following the determination of which jurisdiction will provide sewer service ~~water~~ to a proposed SPA in Otay Ranch, a Sewer Master Plan shall be prepared by the project applicant in conformance with the sewer engineering and facility siting standards of the appropriate jurisdiction. The Sewer Master Plan may be phased and shall address, in detail, the following:

  - Design Criteria and Assumptions in accordance with the appropriate agency and regulating authorities.

  - Location and size of facilities for onsite and offsite improvements in accordance with the appropriate agency and regulatory requirements.

  The Sewer Master Plan shall also include:

  - A Public Facilities Financing and Phasing Plan. Phasing of facilities shall be consistent with the growth management provisions of the GDP/ Subregional Plan.

  The Sewer Master Plan shall be approved prior to the approval of any SPA Plan within Otay Ranch (EIR Proposed).

3.13.2.4 Analysis of Significance

At this level of analysis, impacts to wastewater and sewer services are considered significant. Implementation of the above mitigation measures at the SPA level will mitigate significant project-specific wastewater facility/service impacts to below a level of significance, however, if adequate sewer service including wastewater collection, transmission, and treatment facilities are not provided, impacts will remain significant.

3.13.3 Integrated Waste Management

3.13.3.1 Existing Conditions

The Integrated Waste Management Act of 1989, enacted by Assembly Bill 939 (AB939), requires each city and county within the State of California to recycle or divert 25 percent of its current waste stream from landfills by the year 1995 and 50 percent (or as much as possible) by the year 2000. Noncompliance with the goals and time lines set forth within the act can be severe, as the bill imposes fines up to $10,000 per day on jurisdictions (cities or counties) not meeting these recycling and planning goals.

The term "integrated waste management" refers to the use of a variety of waste management practices to safely and effectively handle the municipal solid waste stream with the least adverse impact on human health and the environment. The act has established waste management prioritization as follows:

- Source Reduction
- Recycling

- Composting
- Energy Recovery
- Landfilling
- Household Hazardous Waste Management

The San Diego region currently generates about 4 million tons per year (TPY) of solid waste, or approximately 1.3 tons per person. This represents an increase of 40 percent over the rate of solid waste generation in 1980. The average solid waste generation rate in San Diego County is 8.7 pounds/person/day (JBF & Associates 1989b). Remaining landfill capacity is diminishing rapidly and, according to the county's most recent County Solid Waste Management Plan (CoSWMP), the county will exceed its remaining landfill capacity between 1998 and 2010 (worst and best case scenarios, respectively). In response to the problem, the county is currently attempting to site new landfills in the north, south, and east county areas. Sites within the Otay Ranch ownership which are currently under consideration include 185 acres in Wolf Canyon (Site E-1b) and 260 acres in north Otay River Valley (Site E-8). Both sites are located on the Otay River parcel. An additional offsite location is adjacent to the southeast corner of the San Ysidro parcel. These studies represent an ongoing process, and actual operation of these new facilities is up to 7 years away (Kleinfelder Inc. 1990).

Existing solid waste disposal facilities in the project area include the Otay Landfill and several recycling facilities in proximity to the landfill. The Otay Landfill, a Class III facility, is located north of Otay Valley Road, one mile east of I-805, adjacent to the western boundary of the Otay River parcel. According to the City of Chula Vista General Plan, the Otay Landfill property consists of approximately 515.64 acres, of which 294 acres is used for landfill purposes. A 350-foot buffer exists around the landfill perimeter. The landfill is currently accepting 600,000 TPY and is expected to be in operation until 1999–2000.

3.13.3.2 Impact Analysis

Using the existing solid waste generation rate of approximately 1.3 tons per person per year, the proposed project has the potential to generate an additional 194,753 tons per year of solid waste upon buildout.

Population	x	Current Generation Rate	=	Project Generation
149,810	x	1.3 TPY	=	194,753 TPY

To meet the state-mandated recycling goal of 50 percent by the year 2000, the Otay Ranch project would be required to implement an integrated waste management system. The Otay Ranch Integrated Waste Management Implementation Plan (Baldwin Vista 1991) identifies the need for the following facilities within Otay Ranch:

- At least one Neighborhood Recycling/Drop-off Facility in each village, or a total of approximately 15 neighborhood facilities.

- One Materials Recovery Facility (MRF) on an 8-acre parcel centralized to the waste shed area to be served. The site would be located in an industrial or light manufacturing zone to be compatible with surrounding land uses. This facility would have the ultimate capacity to process approximately 200 TPD.

- One Composting Facility to compost the estimated green waste generated by Otay Ranch. This facility would be located on approximately 40 acres. The facility would be sited in conjunction with the MRF.

- One facility to collect household hazardous waste generated from South County residents. This facility would be sited in cooperation with the City of Chula Vista, County of San Diego, and the County Solid Waste Technical Advisory Board.

Development of the proposed project would result in a significant increase in solid waste generation within the South County area. Further environmental review is required at the SPA Plan level when more specific facility plans are available for review. The Otay Landfill is expected to meet the project's refuse disposal needs in the short term, although capacity may be reached in the year 2000, and additional landfill space will ultimately be required. The future county landfill site, when selected and implemented, will alleviate this problem. There is the potential for a new county landfill to be sited within the boundaries of the Otay Ranch project area, creating the need for potential changes in the proposed project. Until that time, this issue is considered to be a significant impact.

3.13.3.3 Proposed Mitigation

- Prior to SPA Plan approval, an Integrated Waste Management Master Plan shall be prepared by the applicant in coordination with the City of Chula Vista and the County of San Diego. The Integrated Waste Management Master Plan shall identify and reserve specific sites for integrated waste management facilities. Specific financing methods and timing of facility construction shall also be identified at this time (EIR Proposed).

- The proposed project shall participate in an integrated waste management program to include curbside recycling, neighborhood recycling/buyback centers, a materials recovery facility (MRF), a composting facility, and a household hazardous waste collection facility (Applicant Proposed).

- Require as a condition of SPA approvals compliance with County of San Diego and City of Chula Vista programs and regulations concerning long-term solid waste capacity.

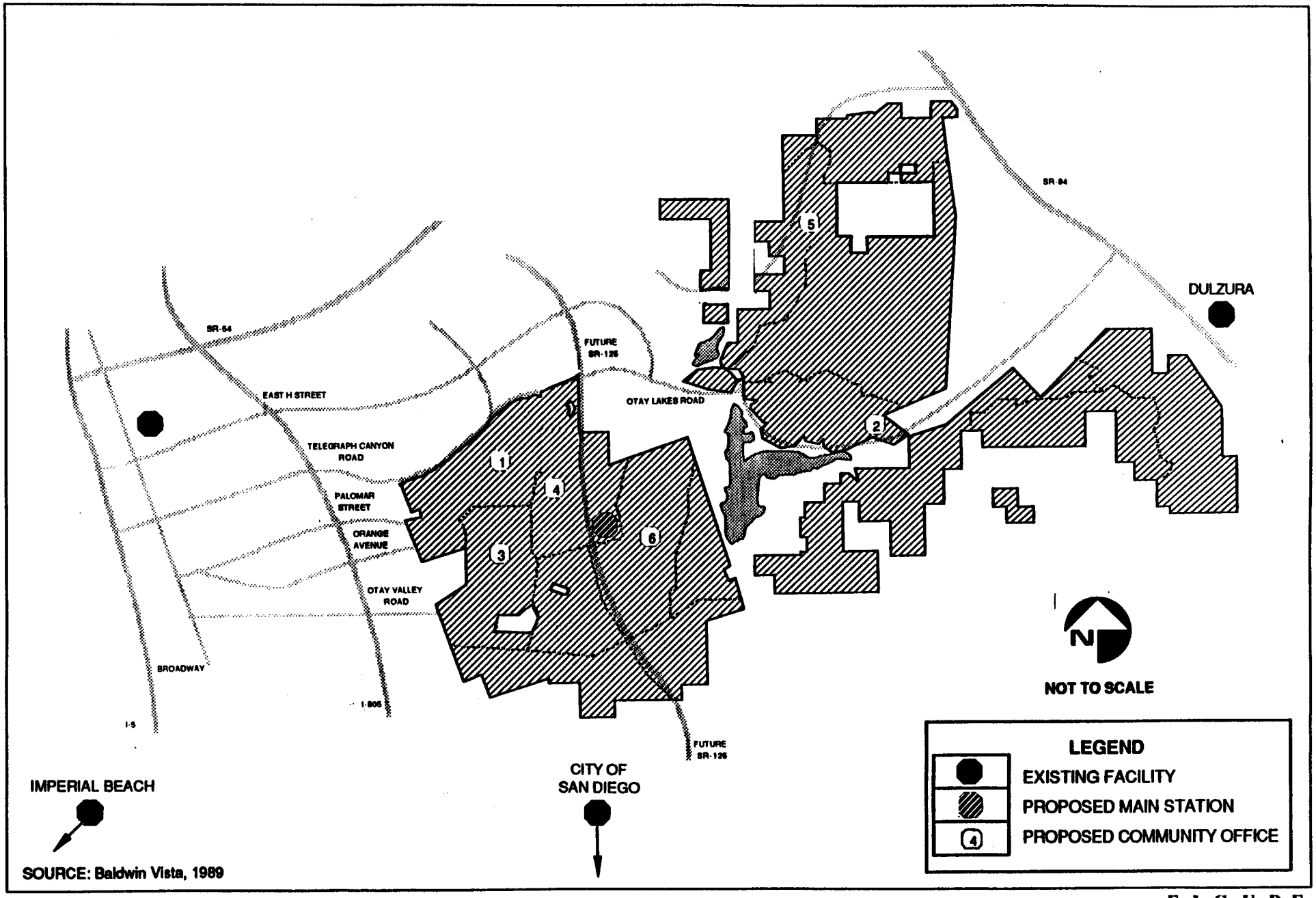
3.13.3.4 Analysis of Significance

Impacts to solid waste disposal services are considered significant at this level of analysis. However, implementation of the above mitigation measures at the SPA level will mitigate project-related solid waste impacts to below a level of significance.

3.13.4 Police Protection

3.13.4.1 Existing Conditions

The County of San Diego, City of Chula Vista, and City of San Diego provide law enforcement services for the Otay Ranch project area and surrounding communities. Figure 3.13-6, illustrates the location of law enforcement facilities currently serving the project area. The services provided by each jurisdiction are described below; the information contained in this analysis is based on 1991 data.



SOURCE: Baldwin Vista, 1989

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Existing and Proposed Law Enforcement Facilities

FIGURE 3.13-6

County of San Diego

The San Diego County Sheriff's Office (SDSO) currently provides public safety and protection services for all unincorporated areas of the county and for approximately 22,900 acres in Otay Ranch. The SDSO currently provides services to the Jamul Mountain and San Ysidro Mountain areas from the Imperial Beach Station, the Tecate Substation (temporarily located at Campo), and the Dulzura Office.

Police protection within all of the project site except for the City of San Diego land is currently provided SDSO's Imperial Beach Station. Located at 845 Imperial Beach Boulevard, this station serves the City of Imperial Beach, the unincorporated community of Bonita, Otay Ranch, and portions of east Otay Mesa (a population of approximately 40,000 persons). The Otay Ranch project area is within Sheriff Beats 724, 725, and 726. Services provided include general patrol, traffic enforcement, criminal investigation, crime prevention, juvenile services, communications dispatch, and various management support services.

The Imperial Beach Sheriff's Station has 46 employees: 37 sworn officers and 9 non-sworn officers, assigned to cover its entire command area, including the City of Imperial Beach and the unincorporated areas of the county. There are 15 units on patrol each day, including general patrol, traffic enforcement, and community service officers. There is a Juvenile Intervention Detective and one Crime Prevention Officer (D.A.R.E.) assigned to the Imperial Beach Station. The Imperial Beach Station currently provides 1.01 officers per 1,000 population. The County's Public Facility Element identifies a service objective of three 8-hour patrol shifts per day per 10,000 people. The County of San Diego Sheriff's office currently provides three patrol shifts per day per 12, 363, therefore not meeting their objective.

The Imperial Beach Station's unincorporated areas are serviced by an average of 5.24, 8.5 hour, patrol shifts per day, every day of the year. Imperial Beach city units provide back-up in the unincorporated area as needed. The average response time of Imperial Beach units working the unincorporated area of Bonita (an area similar to the planned project) for high priority (Priority One and Priority Two Urgent) calls is 7.9 minutes; the average response time of nonpriority calls is 15.7 minutes.

The level of patrol units per population, combined with other key factors such as population distribution, result in specific response times. Response time is considered the most meaningful indicator of service level adequacy.

The SDSO currently considers a response time of 8 minutes or less for priority calls (i.e., calls involving life-threatening situations or felonies in progress) and 16 minutes for non-priority calls in the urban unincorporated area to be adequate. In fiscal year (FY) 1989-1990, there were no priority calls received for beats within the Otay Ranch area (Cummings 1991). Actual non-priority calls and average response times in the project area during FY 1989-1990 are shown in Table 3.13-7. These response times exceed the required standards due to the existing road system, the sparse distribution of population, and the size and rural nature of the area (Cummings 1991).

The Tecate substation is staffed by one sergeant and three deputies available for the entire command area to respond to calls for service while on regular patrol or on-call status. From the Tecate Substation, one patrol unit is either on patrol or on-call around the clock to cover the entire Tecate command area. The average response time from Tecate substation is 18.4 minutes for priority and 29.1 minutes for non-priority calls (Baldwin Vista 1991). Currently, all shifts are patrolled with one deputy per patrol car.

Table 3.13-7

NON-PRIORITY CALLS IN FISCAL YEAR 1989-90

Sheriff's Beat	Number of Calls	Average Response Time
724	6	17.2 minutes
725	69	22.5 minutes
726	52	21.5 minutes

Source: Cummings 1991.

Dispatch services for all of the unincorporated areas of Otay Ranch are from the Clairemont Mesa Communications Center. The existing communications center can accommodate any expansion which may result from Otay Ranch development.

Funding for law enforcement facilities serving the unincorporated area is provided from the county's General Fund. Funding for facilities which are located within specific cities is provided by contracts with those cities.

City of Chula Vista

The Chula Vista Police Department (CVPD) currently provides police protection in the City of Chula Vista, including the areas along the northern and western edge of Otay Ranch. CVPD has one main police station, currently located at the civic center at 276 Fourth Avenue. There are 152 sworn officers and 79 non-sworn officers for a total of 231 (Baldwin Vista 1991). CVPD has 100 vehicles on patrol including motorcycles. Officers currently work five variable shifts, 10 hours/day, 4 days/week. A standard response provides one officer per patrol car. Chula Vista currently provides 1.13 officers per 1,000 population.

The City of Chula Vista has developed threshold standards for police protection to ensure that police staff, equipment, and training levels are adequate to provide police service at the desired level throughout the city. The threshold represents a "floor" below which service levels should not fall. Under the City of Chula Vista's jurisdiction, the project would have to meet the city's threshold standards which require a the following response times:

- For Priority One emergency calls, properly equipped and staffed police units are required to respond to 84 percent of the calls throughout the city within 7 minutes. An overall average response time of 4.5 minutes or less is required.

- For Priority Two urgent calls, police units are required to respond to 62 percent of the calls within 7 minutes. An average response time of 7 minutes or less is required.

Achievement of these levels of service is reviewed annually by the city's Growth Management Oversight Committee (GMOC). In accordance with City of Chula Vista policy, a moratorium on the acceptance of new tentative map applications could be implemented if it is determined that the service thresholds are not being met.

City of San Diego

The City of San Diego Police Department (SDPD) provides public safety and protection services for approximately 390 acres in the extreme southern portion of Otay Ranch. It currently has one substation which is located 2 miles north of the San Ysidro border crossing. Although a small portion of Otay Ranch is within the city's patrol area, no patrol service is provided north of Brown Field, except by the U.S. Border Patrol. The substation currently has a total of 98 sworn and non-sworn officers. There are approximately 50 vehicles, and patrols consist of one officer per patrol car on the day and midnight shifts. There are two officers per patrol car on the second shift which is the busiest and most dangerous.

The City of San Diego is currently proposing a new substation to be centrally located in its service area. Plans include a 17,000 square foot building with office and locker space for 190-200 persons. A 5,000 to 6,000 square foot service garage and 200 parking spaces are

also proposed. The city prefers a 3-4 acre site with good frontage, two points of access, and a corner lot. No exact location has been identified at this time. San Diego currently provides 1.68 officers per 1,000 population, 0.32 officers under the city's goal of 2.00 officers per 1,000 population.

3.13.4.2 Impact Analysis

In order to identify facility and equipment demand, a field patrol staffing model was used to determine staffing requirements for urban and rural areas (Hughes & Heiss 1991). The same modeling method is used by the City of Chula Vista and the County of San Diego to determine patrol staffing requirements. The demand for law enforcement personnel, and subsequently for facilities and equipment, is based on the following assumptions:

- 268 calls for service (CFS) per 1,000 population annually
- 50 adult and 6.3 juvenile arrests per 1,000 population
- 25 percent of CFS handled by community service officers and other non-patrol personnel
- 33 minutes of handling time per CFS in urban areas and 47 minutes in rural areas
- 1.4 units dispatched per CFS
- 1.3 hours per arrest/booking
- 0.81 reports per CFS averaging 23.4 minutes per report (urban), and 0.33 reports per CFS averaging 20 minutes per report (rural)
- patrol workload is balanced between CFS and pro-active patrol time
- patrol staff works 1,482 net hours per year
- response time thresholds are:
- urban: 84 percent of Priority one CFS in 7 minutes
  62 percent of Priority two CFS in 7 minutes
- rural: 12 minute average for high priority CFS
  24 minute average for low priority CFS
- patrol staff works four 10-hour shifts
- 1.74 support staff per 1.67 patrol staff

This analysis indicates that a total of 207 law enforcement agents would be needed to serve the urban and rural portions of Otay Ranch. Based on the City of Chula Vista's existing 204.5 square feet per employee, an additional 42,262 square feet of building space would be necessary to house law enforcement services. Adherence to police protection standards would ensure that adequate levels of service are maintained.

Development of Otay Ranch would result in significant impacts to law enforcement services if additional personnel and facilities are not provided to sufficiently handle the increased demand. The future preparation of SPA Plans for implementation of the New Town Plan would provide a master plan for law enforcement services and jurisdictional boundaries would be determined at that time. Potential locations for law enforcement facilities would also be selected at that time. Further environmental review is required at the SPA Plan level.

3.13.4.3 Proposed Mitigation

- With the preparation of the first SPA Plan for Otay Ranch, a comprehensive master plan for the provision of law enforcement services shall be developed by the project applicant in close coordination with the appropriate service provider and based on the jurisdictional arrangements. The master plan shall meet the city/county law enforcement requirements and include the types of facilities to

be provided, site and location criteria, design techniques to minimize crime, and funding mechanisms. The master plan shall also address the staffing needs of the California Highway Patrol (CHP). Preliminary information from the CHP indicates that they anticipate a need for two additional positions on the morning shift and two additional positions on the afternoon shift (see CHP comment letter to the Draft Program EIR, number 6) (EIR proposed).

- SPA Plans shall include a Public Facilities Financing and Phasing Plan (Applicant proposed).

- Each SPA shall be required to meet the criteria of the approved master plan. (Applicant proposed.)

3.13.4.4 Analysis of Significance

At this level of analysis, the project's impacts on law enforcement services would be considered significant. However, implementation of the above measures at the SPA level would ensure mitigation of project-related law enforcement impacts to below a level of significance.

3.13.5 Fire Protection

3.13.5.1 Existing Conditions

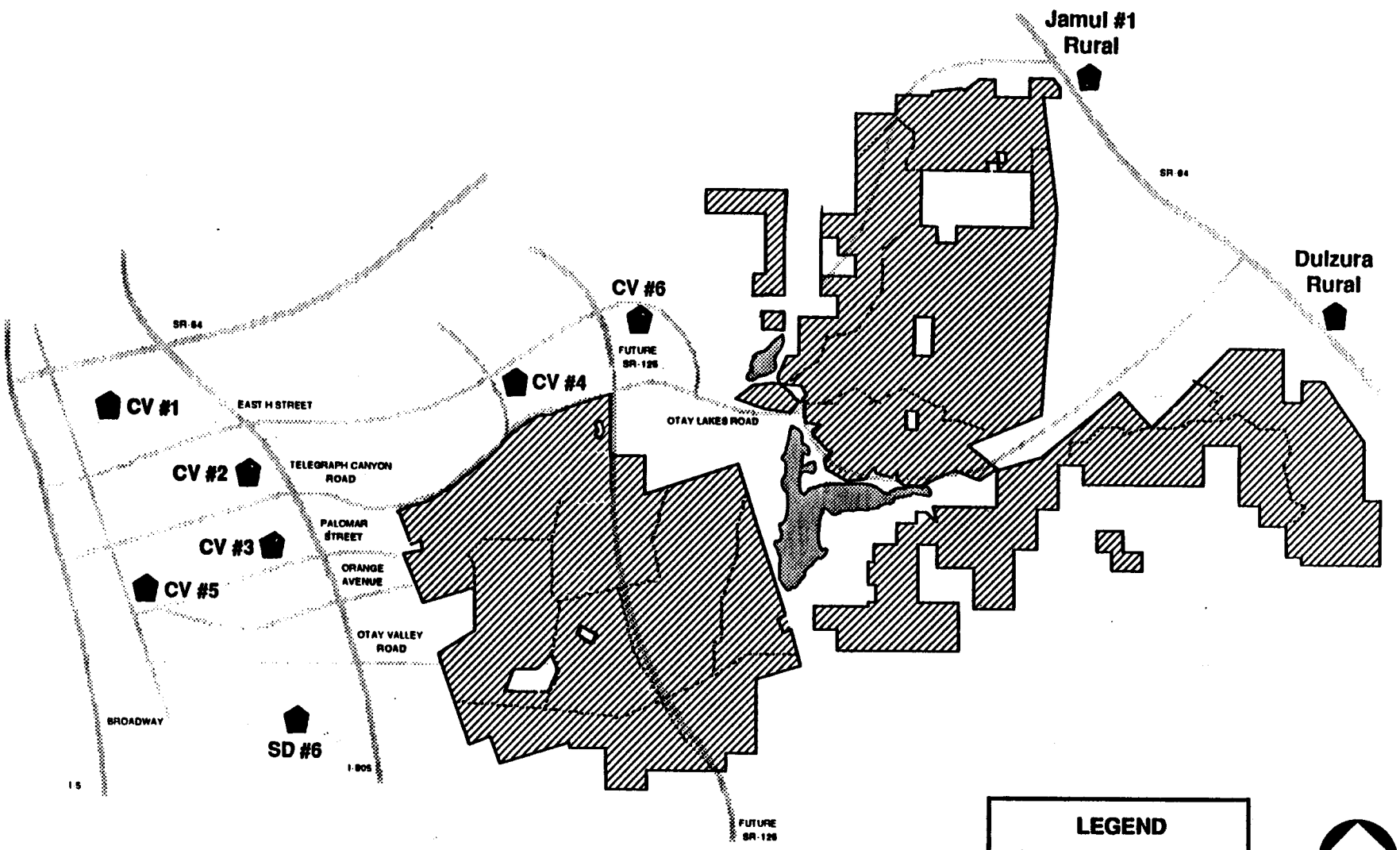
The Rural Fire Protection District (RFPD), Chula Vista Fire Department, San Diego Fire Department, and the California Division of Forestry currently provide fire protection services for the Otay Ranch project area. The City of Chula Vista and the City of San Diego Fire Departments provide dispatch and administrative services in accordance with an "Automatic Aid" agreement with communities which touch city boundaries to allow the closest fire protection units to respond to minimize response times. Figure 3.13-7 illustrates the fire protection jurisdictions and fire station locations serving the project area. The services provided by each jurisdiction are described below.

County of San Diego

The RFPD provides fire protection services for approximately 700 square miles in the southern and eastern unincorporated portions of San Diego County. There are 15 permanent stations within the RFPD, and 150 volunteer firefighters serve there. Two stations provide fire protection services to all of the unincorporated areas of Otay Ranch: the Jamul station, located at 14145 Highway 94 within Otay Ranch and the Dulzura station located to the east of the San Ysidro parcel.

Jamul Station

The Jamul station is currently staffed with a paid three-person company, 10 hours/day, 5 days/week, with volunteers providing coverage during nights and weekends. The Jamul station has a new pumper/combination type 1 structure engine, a type 3 brush truck, a water tender, and a heavy rescue vehicle. This station currently serves a population of over 17,000 for first in response to structure fires and emergency calls. Approximately 60-70 percent of all calls in the RFPD are rescue related, and all paid personnel and volunteers are trained emergency medical technicians. The RFPD maintains a 6-8 minute travel time.



SOURCE: Baldwin Vista, 1989

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Existing Fire Facilities

FIGURE 3.13-7

Current plans are to increase the Jamul station to a fully-paid station (staffed 24 hours/day, 7 days/week) in 1991. The RFPD 15-year plan includes maintaining the Jamul station at its current location.

Dulzura Station

The Dulzura station is a volunteer station. There are no plans to upgrade this station to a fully-paid or partially-paid staffed station in the foreseeable future, given current call volume (estimated 135 calls for service in 1990, annualized based on 11 months' data).

A 1.5-acre site has been purchased at Alta Road and Otay Mesa Road for a new station. The target date for the opening of this station is 1993, although the schedule is dependent on the rate of development in the area (Bagnell 1991). A Mello-Roos district is planned to be established for this station. Staffing will include one engine company, one truck company, and one medic or rescue squad.

The Fire Protection and Emergency Services Section of the county Public Facilities Element identifies minimum objectives that apply to the entire unincorporated area. These objectives do not preclude the adoption of more stringent provisions addressing fire protection and emergency service facility levels within a community or subregional plan or by a local public district that provides fire protection (County of San Diego 1991). Table 3.13-7 lists the maximum travel time objectives by land use. As the district is very rural, some standards, such as maximum mileage between the nearest residence and the nearest fire station, and response times for some calls, do not consistently meet standards (JBF & Associates 1989b).

City of Chula Vista

The City of Chula Vista's present fire station network consists of five Chula Vista based stations and one station located in the Bonita-Sunnyside Fire Protection District. The current fire station network equipment includes five engine companies and one ladder company. The Chula Vista Fire Department (CVFD) currently employs 92.5 people, including firefighters and administrative staff. CVFD presently has three stations, #2, #3, and #4 which serve the Otay Ranch/Eastern Territories area. The City of Chula Vista will assist in mutual or automatic aid for fire protection as appropriate, and also provides advanced life support (ASL) services. Almost 70 percent of all calls for service are medical in nature; one in six is for ASL. Current development in the area will dramatically increase Station #3 call volume. All three stations are equipped with one pumper truck and nine firefighters per station, working 24-hour shifts of three staff members per 24-hour day. The CVFD always responds to structure fires with two pumper trucks and one ladder company.

The Fire Station Master Plan for the City of Chula Vista proposes eight fire stations at buildout. The Master Plan proposes to relocate station #3, east of I-805, and station #4 to the Salt Creek Ranch Development. Two new stations are proposed, one in Rancho del Rey and one in the eastern territories of Otay Ranch. This eight-station network is based on the Chula Vista General Plan and does not take into consideration the proposed Otay Ranch. The City has also prepared an Emergency Disaster Plan which is currently undergoing final review. The CVFD requires the use of residential sprinklers unless specific contrary provisions are agreed to.

The City of Chula Vista has developed threshold standards for fire protection to ensure that the fire staff is properly equipped, trained, and funded to provide adequate service throughout the city. Under the City of Chula Vista's jurisdiction, the Otay Ranch project

would have to meet the city's threshold standards which require a response time of under 7 minutes to all dwelling units and commercial properties in 85 percent of the cases. In accordance with City of Chula Vista policy, a moratorium on the acceptance of new tentative map applications could be implemented if it is determined that service thresholds are not being met.

City of San Diego

The City of San Diego currently has one station, #6, that provides fire protection to Otay Ranch. This station is first in response to the Otay Valley Road Redevelopment Area and is located at Palm Avenue, west of I-805. The San Diego Fire Department (SDFD) maintains a maximum 6-minute response time for residential areas and a 4-minute response time for targeted areas defined as high life loss. These include major public assembly areas, commercial areas, and high-rise areas. Hazardous materials incident response is currently provided as a joint effort of both the City of San Diego Fire Department and the City Hazardous Materials Management Division's emergency response team.

The City of San Diego is proposing a new facility at the eastern end of Brown Field in 1991-1992, at which time San Diego plans to relocate Station #6 to the east side of I-805. The new facility at Brown Field will house 1 engine company, 1 truck company, and 1 brush rig and company in an 8,000-square-foot 4-bay facility with 12 staff members and 24 hour/day shifts (Baldwin Vista 1991).

Other Jurisdictions

California Department of Forestry

The California Department of Forestry provides wildland fire protection for Otay Ranch, adjacent federal lands, and areas which are not incorporated. It does not provide fire protection for structures. The closest fire stations to Otay Ranch are Dulzura, Potrero, Lions Valley, and Monta Vista. All of the stations are fully staffed during peak fire season (May 1 - December 1). The Monta Vista and Potrero Stations have two pumper engines each, and the Lions Valley and Dulzura Stations each have one engine. One engine company consists of three people.

Olympic Training Center

The Olympic Training Center (OTC) is planning a temporary fire facility onsite. This facility will be volunteer only and will have one engine company. When the City of Chula Vista Salt Creek Ranch Station is built, the OTC facility will be closed and first in response will be Chula Vista fire stations. The OTC will have emergency medial services 24 hours a day, provided by physicians and trainers. However, OTC will not be able to participate in a mutual aid agreement due to liability and insurance constraints.

3.13.5.2 Impact Analysis

Additional fire protection facilities would be necessary to serve the proposed 50,733 homes and 149,810 residents. For the proposed Otay Ranch project, the following assumptions were used to calculate demand for fire stations:

- Response times of 7.0 minutes for first-in units to 85 percent of the dwelling units in urban areas.
- "Travel time" response of 10.0 minutes for dwelling units in rural areas.

- Urban response time consists of 1.3 minutes dispatch and "turnout" and 5.7 minutes travel time to 85 percent of the dwelling units in urban areas.

- Dwelling unit development outside the 10.0 minute standard initiates construction and staffing of a station to bring an urban area within the target 7.0 minute response time standard and a rural area within the 10.0 minute "travel time" standard.

Based on required response times along with assumptions outlined above, approximately 4 new fire stations would be needed to serve the proposed development. Two stations are conceptually located west of Otay Lakes, and two east of Otay Lakes. These conceptual plans are subject to modification at the SPA Plan level.

In the absence of detailed construction plans, the site-specific impacts associated with the development of future SPAs cannot be determined. Further environmental review is required at the SPA Plan level when specific development plans are available. Significant impacts to fire protection service may occur with the development of Otay Ranch.

3.13.5.3 Proposed Mitigation

- Prior to submittal of the first SPA Plan, a fire master plan shall be prepared by the project applicant in close coordination with the appropriate service provider. The master plan shall address facilities requirements of the city and county including equipment needs, site selection criteria and specific site locations, and funding mechanisms. The master plan shall demonstrate that the proposed facilities shall enable the fire protection servers to achieve the urban and rural emergency response times of 7.0 to 10 minutes to 85 percent of the residences established by the City of Chula Vista threshold and County of San Diego Public Facilities Element. The master plan shall also include a Sprinkler Plan, ~~and~~ an Emergency Disaster Plan, and a Brush Maintenance Plan. (EIR proposed.)

- SPA Plans shall include a Public Facilities Financing and Phasing Plan (Applicant proposed).

- Fire protection service facilities shall be provided concurrent with need (EIR proposed).

3.13.5.4 Analysis of Significance

At this level of analysis, adoption of the New Town Plan would result in significant impacts on fire protection services. However, implementation of the above measures at the SPA level will ensure mitigation of project-related fire protection impacts to below a level of significance.

3.13.6 Emergency Medical Service

3.13.6.1 Existing Conditions

In the western portion of Otay Ranch and the surrounding communities, emergency medical services are currently provided by Hartson Medical Services. Hartson provides emergency medical technicians (EMTs) and paramedic services for the City of Chula Vista, City of San Diego, National City, and Imperial Beach under private contracts with each

municipality. The unincorporated areas of the county are not covered by contracted paramedic services, and are typically served by EMTs and the RFPD for first response services. Hartson Medical Services is required to respond to 90 percent of the emergency calls within 10 minutes.

There are five Hartson stations which provide paramedic and EMT services in areas from National City to the San Ysidro border crossing. The two stations located in Chula Vista provide primary response service to areas in Chula Vista exclusively. The National City station provides secondary response to Chula Vista and surrounding areas through a mutual aid agreement. The two southern stations provide EMT and paramedic services to the San Ysidro, Imperial Beach, and Nestor areas. All five stations work in two member teams on 24-hour shifts. Two of the facilities are co-located with fire stations, while the other three are located in apartment complexes.

Paramedics

Paramedics are equipped with life support systems and respond to emergency calls within a 10-minute maximum response time. Paramedics are centrally based and respond to emergency calls as do fire vehicles.

Emergency Medical Technicians

EMTs respond to non-emergency calls and provide transportation/ambulance service to and from medical facilities. Currently, EMTs are routed through the two Chula Vista stations and the San Ysidro station, and are always mobile. They respond to non-emergency calls while in operation and, like police units, are always moving from one call to another.

All emergency medical services are currently dispatched and routed through the base station facility located at Scripps Hospital in Chula Vista. Calls are monitored and dispatched equitably to the emergency room facilities in the south county region. No major trauma facility is currently located in the south county region, and all trauma injuries are transported to facilities in San Diego (e.g., University Hospital in Hillcrest).

Funding for emergency medical services varies throughout the county and can be provided by full subsidy through property taxes, user fees, or a combination of the two. Hartson is not subsidized by the City of Chula Vista or property taxes at this time. Fees for services are collected by Hartson. An average paramedic call costs approximately $500 (Baldwin Vista 1991).

3.13.6.2 Impact Analysis

The demand that would be generated by the Otay Ranch project for emergency services was determined using a per capita methodology and fire protection response time requirements. The per capita methodology identified a need for three new emergency facilities on Otay Ranch. Generated demand for emergency services is based on a standard of 1 emergency request/8,750 population/day and utilizes a standard of 1 paramedic unit for every 6 emergency requests. This works out to three emergency stations and units at full build-out to serve the 149,810 residents of Otay Ranch. Paramedic units would consist of two-member teams working 24-hour shifts.

Application of fire protection response time requirements (outlined in the Otay Ranch Implementation Plan) to emergency services, however, identified a need for four (not three) new emergency facilities in the Otay Ranch project area. It is likely that these four

public or private emergency service dispatch centers would be located at the four sites designated for fire protection facilities (Baldwin Vista 1991).

In the absence of detailed construction plans, the site-specific impacts associated with the development of future SPAs cannot be determined. Further environmental review is required at the SPA Plan level when specific development plans are available. Potentially significant impacts to emergency medical service may occur with the development of Otay Ranch.

3.13.6.3 Proposed Mitigation

- Prior to SPA Plan approval, an emergency service master plan shall be prepared by the project applicant in close coordination with the appropriate service provider. The master plan shall address facilities requirements including facilities for hazardous materials incidents, service locations and funding mechanisms, and shall be approved by the appropriate fire protection district. The master plan shall demonstrate that a 10-minute emergency response time will be achieved by all new or upgraded facilities (Applicant proposed).

- SPA Plans shall include a Public Facilities Financing and Phasing Plan (Applicant proposed).

- Emergency service facilities shall be provided concurrent with need (EIR Proposed).

3.13.6.4 Analysis of Significance

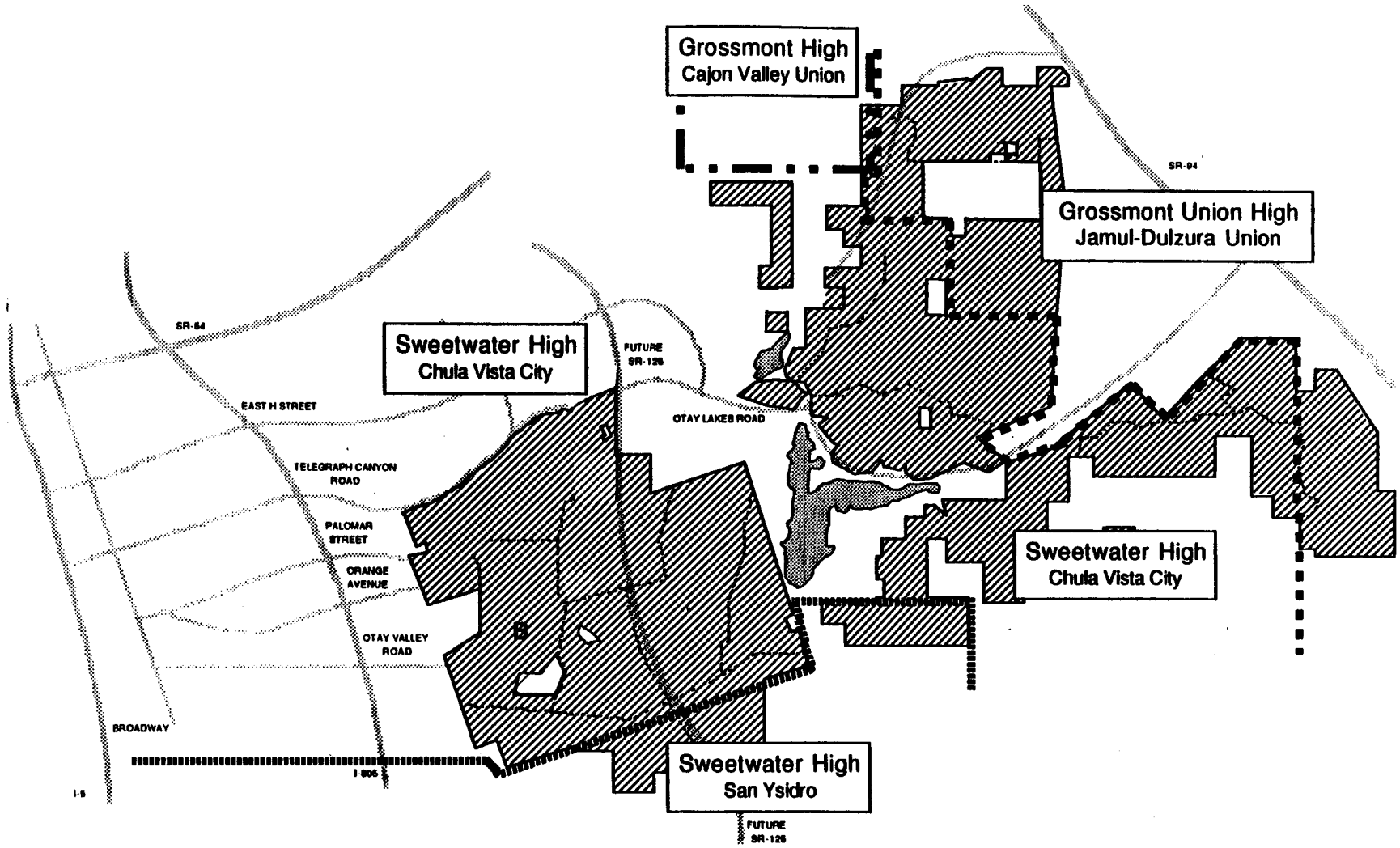
At this level of analysis, impacts to emergency medical services are considered significant. Implementation of the above measures at the SPA level will ensure mitigation of project-related impacts to emergency services to below a level of significance.

3.13.7 Schools

3.13.7.1 Existing Conditions

The Otay Ranch property lies within the jurisdiction of four elementary and two high school districts: Cajon Valley Union School District (K-8), Chula Vista Elementary School District (K-6), Jamul-Dulzura Union School District (K-8), San Ysidro School District (K-8), Grossmont Union High School District (9-12), and Sweetwater Union High School District (7-12). Figure 3.13-8 depicts the district boundaries. These school districts enrolled a total of 86,371 students in fall 1990, according to reports filed with the San Diego County Office of Education (Table 3.13-8). The Otay Ranch acreage is distributed among the six school districts as shown in Table 3.13-9.

As outlined in Table 3.13-10, students in these districts attend one of 56 elementary, 15 junior high/middle, or 18 senior high schools, including special education and continuation high schools. (Adult schools are not included in these figures.) According to school district staff, these districts are planning for a number of new schools in anticipation of future growth. These new schools are listed in Table 3.13-11. Capacity has been defined by the State of California as 31 students per classroom for elementary schools and 28 students per classroom for high schools. Currently, all of the elementary school districts are operating at or over capacity, with the exception of the Chula Vista School District (JBF & Associates 1989b). A multi-track, year-round program (a repeating schedule of 45 days of class followed by 15 days of vacation) has been implemented at



SOURCE: Baldwin Vista, 1989

NOT TO SCALE

OGDEN

School Jurisdiction Boundaries

FIGURE 3.13-8

Table 3.13-8

MAXIMUM TRAVEL TIME OBJECTIVES FOR FIRE PROTECTION COUNTY OF SAN DIEGO

Land Use Category	Travel Time Maximum	Land Use Category Definition
Town	5 minutes	Single-family residential lots of less than 2 acres, or more intensive uses such as multifamily residential. Includes all industrial development and all commercial development except neighborhood commercial.
Estate	10 minutes	Single-family residential lots from 2 to 4 acres in size. Includes neighborhood development.
Rural	20 minutes	Large lot single-family residential and agricultural development. Lot sizes of greater than 4 acres.

Source: County of San Diego 1991.

Table 3.13-9 (Revised)

CURRENT ENROLLMENT (FALL 1991) OTAY RANCH SCHOOL DISTRICTS

District	K-6	7-8	9-12	Special Education	Total
Cajon Valley U.	14,039	3,219	0	536	17,794
Chula Vista	17,578	0	0	542	18,120
Jamul-Dulzura U.	935	282	0	14	1,231
San Ysidro	3,115	669	0	74	3,858
Grossmont UHS	0	0	18,082	742	18,824
Sweetwater UHS	0	9,028	17,533	118	26,679
Total	35,667	13,198	35,615	2,026	86,506

Source: Ogden 1992.

Table 3.13-10

OTAY RANCH ACRES BY SCHOOL DISTRICT

School District	Otay River Parcel	Proctor Valley Parcel	San Ysidro Parcel	Total Acres
Cajon Valley Union	0	183	0	183
Jamul-Dulzura	0	3,376	1,455	4,831
Grossmont Union High	0	3,559	1,455	5,014
Chula Vista	9,386	4,787	3,551	17,724
San Ysidro	0	0	559	559
Sweetwater Union High	9,386	4,787	4,110	18,283
Otay Ranch Total	9,386	8,346	5,565	23,297

Source: The Professional Research Office 1990.

Table 3.13-11

EXISTING SCHOOLS
OTAY RANCH SCHOOL DISTRICTS
FALL 1989

District	Elementary Schools	Jr./Middle Schools	High Schools	Other	Total
Cajon Valley U.	19	4	0	1	24
Chula Vista	31	0	0	3	34
Jamul-Dulzura U.	1	1	0	0	2
San Ysidro	5	1	0	0	6
Grossmont UHS	0	0	10	1	11
Sweetwater UHS	0	9	8	1	18
Total	56	15	18	6	95

Source: Baldwin Vista 1991.

many of the schools to alleviate some of the crowding. The majority of the high schools are also operating close to or over capacity (JBF & Associates 1989b).

A "student generation factor" represents the average number of public school-age children in any one housing unit within a school district's service area. Typically, student generation factors vary based on the type of housing unit, with single-family units generating the most students, mobile homes in parks generating the fewest students, and attached units, including apartments, townhouses, and condominiums generating a figure in between. Table 3.13-12 shows the current student generation factors for each grade group in each district. In the table, grade 6 was separated as a distinct group because Jamul-Dulzura Union uses the middle school grouping of 6-8, while the other elementary schools use the K-6 grade grouping.

The San Diego County Office of Education, an independent agency governed by the elected trustees composing the County Board of Education, also provides some educational services on a San Diego County region-wide basis. An example of programs and services provided to the region include:

- HOPE Infant Program
- Regional Occupational Program (ROP)
- Community/Home Education
- Instructional Television
- School Library Services
- Film and Tape Library
- Outdoor Education Child Nutrition

3.13.7.2 Impact Analysis

A forecast of the students estimated to be generated by the Otay Ranch project upon buildout was developed based on the current student generation factors used by each of the school districts. This forecast considered the number of new housing units proposed within the service boundaries of each school district. As shown in Table 3.13-13, the project could generate ~~16,245~~ 14,019 K-~~6~~ 5th grade students, 2,285 6th grade students, ~~5,171~~ 5,121 7-8th grade students, and ~~9,879~~ 9,761 9-12th grade students. This potential generation of a total of ~~31,295~~ 31,185 students is considered a "worst-case" scenario and does not take into consideration the potential for students to attend private schools.

With the approval of the school districts, the site capacity goals of 650 students per elementary school, 1,500 students per middle or junior high school, and 2,500 students per senior high school were used to estimate the facility needs of Otay Ranch students. Table 3.13-14 estimates the number of schools each existing district would need to serve Otay Ranch students. This estimate assumes all existing facilities will be full at the time of build-out of Otay Ranch. As shown in Table 3.13-14, ~~32~~ 34 new schools would be needed to serve Otay Ranch students. Specific siting, sizing, phasing, and funding for school facilities would be determined at the SPA Plan level.

Development of the Otay Ranch project would impact SDCOE due to the increased demand for SDCOE services by the new residents and employees generated by the project, in addition to the increased demand for services by the affected school districts.

Table 3.13-12 (Revised)

NEW SCHOOLS
OTAY RANCH SCHOOL DISTRICTS*

School District	General Location	Est. Opening Date
	Elementary Schools	
Cajon Valley Union		
#1 elementary	Flinn Springs/Blossom Valley	Fall 1992/93
#2 elementary	Steel Canyon/Jamul Drive	Fall 1992/93
Chula Vista		
#1 Ro. Del Rey	E. J St./Paseo Ranchero	Fall 1990
#2 Terra Nova	Windrose Way	Fall 1991
#3 EastLake Greens	East of EastLake Pkwy.	Fall 1991
#4 Salt Creek I/Ranch	southern project boundary	Fall 1993
#5 Ro. Del Rey	North of H Street	Fall 1993
#6 Otay Mesa/Pardee	unknown	Fall 1993
#7 Ro. San Miguel	unknown	Fall 1994
#8 Sunbow	E. Palomar/Paseo Ladera	Fall 1994
#9 EastLake Trails	East of Hunte Pkwy.	Fall 1995
#10 (southern area)	unknown	Fall 1995
#11 Robinhood Ridge	unknown	Fall 1996
#12 Salt Creek I/Ranch	E. H St./Hunte Pkwy.	Fall 1997
#13 EastLake Woods	East of Hunte Pkwy., north of #9	Fall 2002
	Middle/Junior High	
Cajon Valley Union		
#1 junior high	Fury/Brabham	Fall 1994/95
Jamul-Dulzura Union		
#1 middle school	Olive Vista	Fall 1992
Sweetwater Union High		
#1 Ro. Del Rey	East J St./Paseo Ranchero	Fall 1995/96
#2 EastLake Woods	West of Salt Creek	Fall 1998
	Senior High	
Grossmont Union High		
#1 West Hills High	Santee	Fall 1990
#2 Steele Canyon High	near SR-94	Winter 1997
Sweetwater Union High		
#1 EastLake Greens	West EastLake Pkwy.	Fall 1991
#2 Ro. San Miguel/ Salt Creek/et al.	unknown (in Otay Ranch)	unknown
#3 Otay Mesa/Dennery Ranch	near Otay Rio Park	unknown

Source: The Professional Research Office 1990
* No information was available from the San Ysidro School District.

Table 3.13-13

STUDENT GENERATION RATES PER HOUSING UNIT (1990)

District	K-5	6	7-8	9-12	Total
Chula Vista*	0.257	0.043	—	—	0.300
San Ysidro*	0.430	0.070	0.230	—	0.730
Sweetwater*	—	—	0.100	0.190	0.290
Jamul-Dulzura*	0.510	0.073	0.127	—	0.710
Cajon Valley/SF	0.293	0.037	0.110	—	0.440
Cajon Valley/MF	.14	.023	.047	—	0.210
Grossmont/SF	—	—	—	0.256	0.256
Grossmont/MF	—	—	—	0.102	0.102

*Same rate for SF and MF
SF = Single-family
MF = Multifamily

Source: The Professional Research Office 1990.

Table 3.13-14 (Revised)

PROJECTED STUDENTS GENERATED BY OTAY RANCH

District	K-5	K-6	7-8	9-12	Total
Chula Vista	11,456	1,917	--	--	13,373
San Ysidro	46	7	24	--	77
Sweetwater	--	--	4,468	8,489	12,957
Jamul-Dulzura	2,496	358	621	--	3,475
Cajon Valley	21	3	8	--	32
Grossmont	--	--	--	1,272	1,272
Total	14,019	2,285	5,121	9,761	31,186

Source: The Professional Research Office 1990.

In the absence of detailed construction plans, the site-specific impacts associated with the development of future SPAs cannot be determined. Further environmental review is required at the SPA Plan level when specific development plans are available. Until that time, it is determined that significant impacts to schools may occur with the development of Otay Ranch.

3.13.7.3 Proposed Mitigation

- With the preparation of the first SPA Plan for Otay Ranch, a master plan for the provision of school facilities shall be prepared by the project applicant in close coordination with the affected school districts. The school facilities master plan shall assure the availability of school service for the first development within Otay Ranch and shall provide a comprehensive framework for the provision of school service with implementation of the entire Otay Ranch development. The master plan must demonstrate that a maximum of capacity of 650 elementary students, 1,500 junior high school students and 2,500 high school students will be achieved at each new school proposed in conjunction with Otay Ranch, in accordance with school district standards (EIR proposed).

- The General Development Plan shall identify the general locations of schools. (EIR proposed.)

- Prior to SPA Plan approval, the project applicant shall provide documentation confirming school site locations and school district approval of the locations within that SPA. This approval shall entail site location, size, and configuration of schools, with provisions for access and pedestrian safety to the satisfaction of the various school districts. Funding and phasing shall also be addressed and confirmed in accordance with school district procedures. (EIR proposed.)

- SPA Plans shall include a Public Facilities Financing and Phasing Plan (Applicant proposed).

- Prior to SPA Plan approval, the project applicant shall provide documentation to the appropriate jurisdiction confirming school district satisfaction of facility funding to fully mitigate Otay Ranch student generation impacts to below a level of significance. (EIR proposed.)

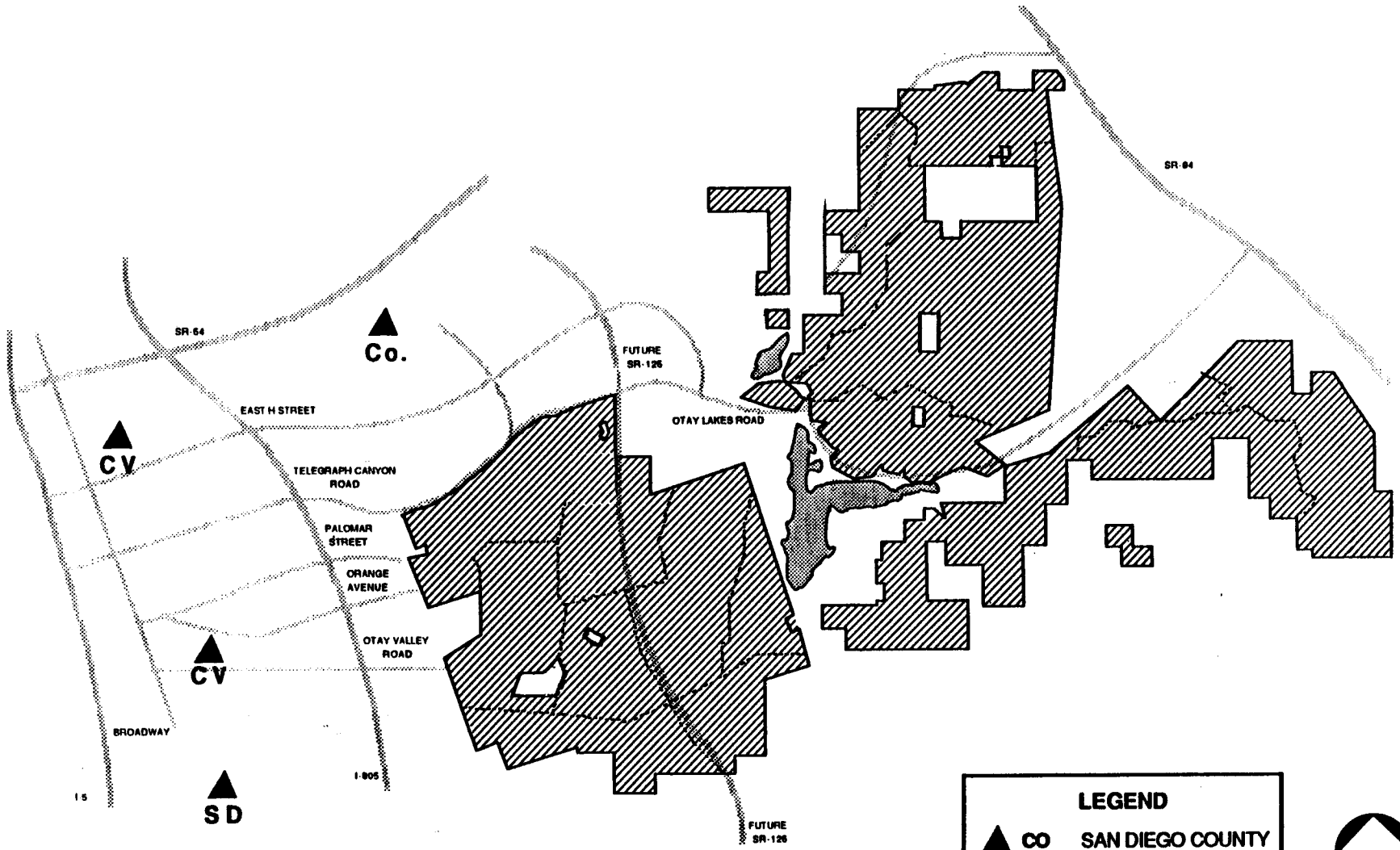
3.13.7.4 Analysis of Significance

At this level of analysis, impacts to schools are considered significant. Implementation of the above measures at the SPA level will ensure that project-related impacts to school services are mitigated to below a level significance.

3.13.8 Library Service

3.13.8.1 Existing Conditions

The County of San Diego, City of Chula Vista, and City of San Diego, currently provide library and media services for the Otay Ranch area. Figure 3.13-9 illustrates the location of library facilities presently surrounding Otay Ranch.



SOURCE: Baldwin Vista, 1989

OGDEN

Existing Library Facilities

FIGURE 3.13-9

County of San Diego

The County of San Diego currently has 31 branch libraries, 2 book mobiles, and 1 government reference library which service all unincorporated areas of San Diego County and 11 cities in the county. The branches located closest to the project site are within the communities of Spring Valley, Lemon Grove, and La Mesa. A new library facility is proposed for the Rancho San Diego area.

San Diego County has adopted a minimum standard of two volumes per capita and 0.35 square feet of library space per capita as a goal for the next 10 years. In 1990, the county library had a collection of 700,000 books, amounting to approximately one book per capita, below the adopted standard of two volumes per capita. The county currently counts an average of 0.17 square feet of library space per capita, 0.18 square feet short of its goal (JBF & Associates 1989b).

City of Chula Vista

The City of Chula Vista currently has three library facilities. The main library, the Chula Vista Public Library, is located at 365 F Street and is a two-story, 55,000-square foot facility with circulation of over 1 million books per year. The library's collection has 220,000 books and other materials as well as a 152-seat auditorium space and two conference rooms. This library is a multi-use facility and provides auditorium space and limited exhibition space. A branch library, Castle Park/Otay, is located at 1592 Third Avenue. This facility has 1,720 square feet of leased space and has a collection of 15,000 books. The second branch library facility is a 608-square-foot room in the Woodlawn Park Community Center at 115 Spruce Street. There are 7,500 books at this location. The City of Chula Vista currently has 110 paid employees (37 of whom are full time) and over 50 volunteers in its library system.

The city is currently planning three new library facilities. A 35,000-square foot facility is planned in the Montgomery/Otay Planning Area. The city received a $6,747,528 grant from the State of California to construct this library at 4th and Orange avenues. This facility should be complete by February 1994 (Lane 1991). The Castle Park Branch will be closed when the new library opens. A second new branch library facility is proposed in the eastern portion of Chula Vista at East H Street and Paseo Ranchero, with a maximum size of 35,000 square feet to be built in phases. A third new facility is proposed in the EastLake Village development and is currently planned at 17,000 square feet. The EastLake library would serve the initial development on the Otay River parcel of Otay Ranch.

The City of Chula Vista's adopted threshold standards for library service include 500 gross square feet of library space, adequately equipped and staffed, per 1,000 population. The city currently has 57,328 square feet of library space for a population of 135,163 which is 10,253 square feet below the threshold standard of 67,582 (Palmer 1991). The city has also adopted the following minimum planning guidelines for space requirements and size of collection of library facilities which are outlined in the Public Facilities Element of the Chula Vista General Plan (Chapter 3, Section 5.6):

- Library space of 0.5 gross square feet per capita
- Three books per capita
- One periodical subscription per each 150-200 residents

Currently, Chula Vista provides 1.7 books/capita, which is 1.3 books/capita short of the adopted minimum. The city's objective is to eventually provide from 0.5 to 0.7 square feet of library space per capita.

City of San Diego

The City of San Diego currently has one main library in downtown San Diego and 31 branch facilities located throughout San Diego. The main library is a four-story, 45,000-square-foot facility with a collection of 725,000 books. The branch libraries average 10,000 square feet and have between 40-45,000 books. The City of San Diego's total collection is approximately 1.7 million in circulation. Approximately 85 percent of the system's circulation takes place in the city's branch libraries. Two branch libraries presently serve the Otay Ranch project area. One 4,100-square-foot branch is located in San Ysidro, with a collection of 20,000 books. The second facility is located in Otay Mesa and has 10,000 square feet with a collection of 48,000 books. Bookmobile service is provided to areas with less than 20,000 people who do not live within 2 miles of a branch library. A third branch is proposed in the year 2000, in the western portion of the Otay Mesa area. This will also be a 10,000-square-foot facility.

The City of San Diego currently uses a population measure of 20,000 people/branch. New branch libraries should have a minimum of 10,000 square feet and maintain a collection of 40,000-45,000 volumes. Distribution and routing is currently provided in the main library facility.

Funding Sources

Funding for construction of new county library facilities comes from external non-operating sources, including redevelopment tax increment financing within cities, contributions from the cities and communities served, private contributions, and federal Library Services and Construction Act (LSCA) Title II grants. Since the county library has its own property tax share (approximately 1.5 percent of the 1 percent property tax), funding library facilities is not the responsibility of the county General Fund. However, the library system is experiencing critical funding problems resulting from Proposition 13 and changes in Special District Augmentation Fund distribution. This funding shortage, along with the county library's inability to fund operating and maintenance costs, has greatly constrained efforts to expand county library facilities. Other funding sources include development impact fees, developer agreements, private contributions, grants, special taxes, and user fees.

3.13.8.2 Impact Analysis

Based on the standard identified in the Implementation Plan for Library Facilities (Section T) of 0.50 square feet of library space and 3 books per capita, an additional 74,905 square feet of library space and an additional 449,430 volumes of books would be required to serve the Otay Ranch project.

The Otay Ranch Implementation Plan for Library Facilities proposes a total of 104,867 square feet of library space to serve the project. It is anticipated that one "main" library would be developed in the Otay River parcel of the Otay Ranch project; however, the specific location of the library would be determined at the SPA Plan level. Branch facilities may also be provided. Further review of library facilities is required at the SPA Plan level, and until specific plans for the provision of library facilities are available, this issue is considered to be a significant impact.

3.13.8.3 Proposed Mitigation

- Prior to the approval of any SPA Plan, a Library Master Plan shall be prepared by the project applicant in accordance with the criteria of the applicable jurisdiction. The master plan shall address site location, size, and funding mechanisms (Applicant proposed).

- SPA Plans shall include a Public Facilities Financing and Phasing Plan (Applicant proposed).

3.13.8.4 Significance of Impact

At this level of analysis, impacts to library services are considered significant. Implementation of the above mitigation measures at the SPA level will mitigate project-related impacts to library service to below a level of significance.

3.13.9 Parks, Recreation, and Open Space

3.13.9.1 Existing Conditions

The County of San Diego, City of San Diego, and the City of Chula Vista park and recreation departments and the Bureau of Land Management (BLM) provide recreation services in areas surrounding Otay Ranch. These agencies provide active recreational programs and facilities and maintain park areas for passive recreational use.

Private businesses provide outdoor recreational activities to community residents in areas surrounding Otay Ranch.

Otay Ranch is also adjacent to the Olympic Training Center (OTC) which plans to provide limited recreational services to area residents.

The only authorized recreational activity currently occurring on Otay Ranch is a gun club for skeet and trap shooting located adjacent to Rock Mountain at the western end of the Otay River Valley.

County of San Diego

The County of San Diego Department of Parks and Recreation has the responsibility for planning, developing, operating, and maintaining county park and recreation facilities for unincorporated communities (County of San Diego 1990). The county also participates in joint powers agreements and other agreements and partnerships with other public and private agencies to develop and operate facilities. County parks are divided into two major categories: regional parks and local parks (County of San Diego 1991).

<u>Regional Parks</u>

The county defines regional parks as areas of natural quality used for nature-oriented outdoor recreation; the parks are intended to serve residents and visitors of the entire county. The primary purpose of these parks is to preserve sensitive environmental resources and, whenever possible, make these resources available for public enjoyment (County of San Diego 1991).

According to the county's Public Facility Element (Section XII-3):

> The larger regional parks are usually areas of natural quality for nature oriented outdoor recreation. These primarily undeveloped regional parks may include recreational activities such as camping, riding and hiking trails, nature centers, picnic areas, active and informal play areas, and natural open areas. Generally, about 80 percent or more of the land in these parks in preserved for preservation, natural resource management and natural open space, and 20 percent or less is developed for active recreational uses. These parks must be large enough to encompass the resources to be preserved and managed, as well as to accommodate appropriate recreation use. Regional parks accommodate only minimal improvements such as trails, parking, and restroom facilities.

The County of San Diego Public Facilities Element (CPFE) recommends a minimum regional park size of 200 acres, with a minimum of 50 usable acres for active recreation. The CPFE includes a goal of 15 acres of regional park per 1,000 residents in the region.

There are 15,875 acres of county-owned regional park land. The county regional park land total amounts to approximately 6.6 acres per 1,000 residents of the entire region. Primarily undeveloped regional parks make up over 95 percent of the regional park acreage total. In general, 80 percent or more of the land in these parks is reserved for preservation, natural resource management, and natural open space.

San Diego County parks in the area surrounding Otay Ranch include:

Regional Parks:
- Otay Lake Park (70 acres)
- Sweetwater Park (571 acres)

Special Study Areas:
- South Bay Biological Study Area (27 acres)

Otay Lake Park was temporarily closed in September of 1991 due to lack of funding (Gengler 1992).

Otay Valley Regional Park, a proposed regional park, is currently in the planning process. The Otay Valley Regional Park is currently the subject of a Joint Exercise of Power Agreement (JEPA) intended to acquire property and develop a regional park in southern San Diego County. The JEPA, which has been approved by the cities of San Diego and Chula Vista and the County of San Diego, created an Otay Valley Regional Park Policy Committee to act as the decision-making body on matters concerning the proposed regional park. The Otay Valley Regional Park Policy Committee established a "Focused Planning Area" boundary which comprised approximately 6,000 acres within Otay Ranch. This boundary and the associated acreage within Otay Ranch were not intended as a proposed park boundary, but rather a study area for the proposed park. The Otay Ranch portion of the Focused Planning Area falls under the purview of both the JEPA and the Memorandum of Understanding which created the Otay Ranch Interjurisdictional Task Force (refer to Section 1.2.3).

The JEPA in conjunction with the National Park Service then developed a Progress Plan within the Focused Planning Area based on an opportunities and constraints analysis prepared for the Focused Planning Area. The opportunities and constraints analysis identified areas of concern and interest based on an adopted Goals Statement for the Otay Valley Regional Park. Although the Progress Plan does not supersede the Focused

Planning Area, it establishes a conceptual study area boundary within which the Otay Valley Regional Park boundaries can be established. The conceptual park boundary was accepted by the Otay Valley Regional Park Policy Committee and the Interjurisdictional Task Force in December 1991. The boundary of the Focused Planning Area in relation to the Interjurisdictional Task Force Proposed Park Area boundary is shown on Figure 3.13-10.

Local Parks

Local parks include both neighborhood and community parks. The County's Recreation Element recommends the following size parameters for area parks:

Neighborhood Parks	5 - 20 acres
Community Parks	20 - 100 acres

In addition to neighborhood and community parks, local park land may include accompanying open space areas such as parkways and scenic corridors, greenways, slopes, riding and hiking trails, school playgrounds, and other public facilities which meet part of the need for local recreational facilities.

The county's Recreation Element outlines standards adopted in 1972, and revised in 1982, identify the following facilities which may be included in local parks:

- 1 basketball court for every 5,000 people
- 1 baseball field for every 6,000 people
- 1 softball field for every 3,000 people
- 4 tennis courts for every 8,000 people
- 1 25-meter swimming pool for every 10,000 people
- 1 skating rink for every 30,000 people
- 1 outdoor theater (non-commercial) for every 20,000 people
- 1 shooting range for every 50,000 people
- 1 golf course for every 25,000 people

The county Park Lands Dedication Ordinance (PLDO) requires 3 acres per 1,000 population for local parks. The requirements of the PLDO can be satisfied through the dedication of land or park development, payment of fees, provision of private or public recreation facilities, or a combination of these methods prior to final subdivision map approval. In 1990, there were 579.3 acres of local park land in the unincorporated areas of the county, amounting to 1.45 acres per 1,000 unincorporated area residents. This is 1.55 acres below the PLDO requirement of 3 acres per 1,000 population.

The County Public Facility Element indicates a goal of 15 acres of local parks per 1,000 unincorporated area residents. An objective of that goal is to provide 5 acres of local parks per 1,000 unincorporated residents in the short term (County of San Diego 1991).

The County Recreation Element indicates a goal of 15 acres per 1,000 population for local parks defined as a combination of neighborhood and community parks, riding and hiking trails, school playgrounds, and other public recreational facilities which meet local needs.

Sweetwater Lane Park (11.3 acres) is the only local county park in the project area.

City of Chula Vista

Local Parks

The City of Chula Vista also defines neighborhood and community parks as local parks. The Chula Vista General Plan recommends minimum park sizes of 15 acres for community parks and 7 acres for neighborhood parks. The preferred size is 20 to 30 acres for community parks and 10 to 15 acres for neighborhood parks (City of Chula Vista 1991).

The Chula Vista PLDO requires 3 acres per 1,000 population for local parks. The requirements of the Chula Vista PLDO can be satisfied through the dedication of land, payment of fees, provision of ~~private or~~ public recreation facilities, or a combination of these methods.

Neighborhood Parks

The Chula Vista General Plan recommends 7-acre neighborhood parks that include facilities based on population such as:

- 1 picnic shelter for each 1,000 people
- 1 tennis court for each 2,000 people
- 1 softball field for each 5,000 people
- 1 multi-purpose court for each 5,000 people
- 1 soccer field for each 10,000 people (currently under consideration for modification to 1 for each 5,000 people)
- 1 handball/racquetball court for each 20,000 people

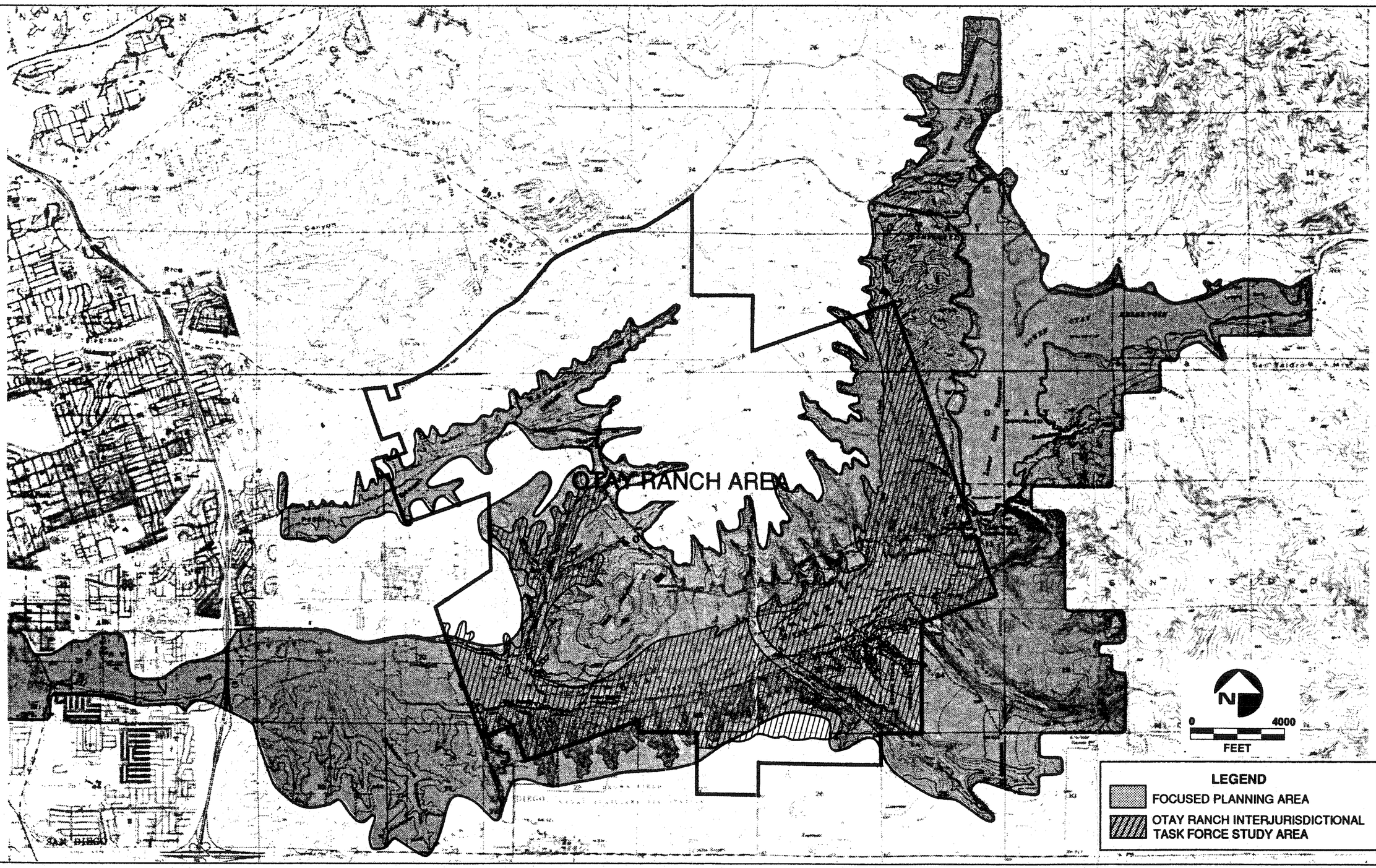
It should be noted that this list of facilities, as well as the list provided below for Community Parks, is for analysis purposes only. The final determination of the types, quantities, and locations of the specific facilities to be provided at each park would be based upon a needs analysis for each park type and site (Schmidt 1992).

Community Parks

In addition to the facilities listed above, the Chula Vista General Plan, Park and Recreation Element, requires the following facilities in a community park:

- 1 25-meter swimming pool for each 10,000 people
- 1 50-meter swimming pool for each 20,000 people (inclusive of 25-meter pool standard)
- community center/gymnasium for each 24,000 people
- 1 lighted softball field for each 5,000 people

The City of Chula Vista presently has 5 community parks (170 acres), 29 neighborhood parks (114.4 acres), 1 special purpose park (3.4 acres), and 6 mini-parks (1.9 acres). The city currently has 284.4 acres of both neighborhood and community parks serving a population of approximately 135,163, which computes to 2.10 acres per 1,000 population. To satisfy the city standards of 3 acres per 1,000 population, a total of 405 acres (i.e., 120.6 additional acres), is needed to serve the present population. The city plans to add 61.5 acres west of I-805 and 328.5 acres east of I-805 to accommodate the ~~to~~ existing population.



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Otay Valley Regional Park
Focused Planning Area and Interjurisdictional Task Force Study Area

FIGURE
3.13-10

Chula Vista Greenbelt

The City of Chula Vista also has a conceptual greenbelt system ~~of~~ plan which includes active and passive parks, undeveloped open space, stream valley and flood plains, wetlands, water and agricultural areas that will form a continuous 28-mile system around the city (City of Chula Vista 1991).

City of San Diego

The City of San Diego Water Utilities Department and the California Department of Fish and Game oversee recreational activities at Otay Lakes. Lower Otay Lake is 1,100 acres at spillway level and currently covers approximately 800 acres. The southern portion of the lake is adjacent to the county's Otay Lakes Park. The entire open space area is 2,174 acres.

Recreational uses associated with Lower Otay Lake include the City of San Diego boat launch facility (fishing and boating); non-motorized boating such as canoeing, kayaking, and rowing; the County of San Diego Campground; the San Diego Air Sports Center (glider park and skydiving); waterfowl hunting; and other passive and active recreational uses such as picnicking, hiking, walking, jogging and bicycling around the lake. According to the City Lakes Recreational Development Plan, Lower Otay Lake is also recognized as one of the world's premier bass fisheries (Brown 1992).

The City of San Diego Water Utilities Department boat launch facility, located to the south, is the most notable and active existing use in the immediate area. The city facility operates year-round, during fishing season (Wednesdays, Saturdays, and Sundays mid-January through mid-October) and waterfowl hunting season Wednesdays and Saturdays, mid-October through mid-January). Rowboats can be rented and are launched from the onsite dock. Private boats are more frequently used on the lake, and can be launched from the facility during open days.

The City of San Diego Lakes Recreational Development Plan recommends that non-motorized boating opportunities on the city-owned reservoir should be expanded through the development of an aquatic oriented recreation center. Such a center could offer rental equipment and instruction in sailing, rowing, canoeing/kayaking, water safety, and fishing.

Other Regional Considerations

Bureau of Land Management

Recreational uses occur on the BLM's two undeveloped parcels located on the upper slopes of the Jamul Mountains and adjacent to Otay Ranch. Existing recreational uses include: picnicking and day hiking, camping, hunting and shooting, hang gliding, two wilderness study areas (rare plants), and "off-highway" vehicle use areas.

The BLM Otay National Cooperative Land and Wildlife Management area covers approximately 20,000 acres. The BLM has completed the South Coast Planning Area Data Resource Management Plan and EIR for the area which outlines specific recreational uses.

Olympic Training Center

The ARCO OTC located adjacent to the Otay Ranch will be the country's first warm weather, year-round, multi-sport training facility. The mission of the OTC is to train and develop elite athletes. Sport venues included in Phase I are:

archery	rowing	track and field
soccer	canoe/kayaking	synchronized/-swimming
cycling	team handball	diving
tennis	field hockey	volleyball
modern pentathlon	water polo	

Sports facilities include:

- 57,000-square-foot gymnasium
- 2 synthetic surface hockey fields
- 4 soccer fields
- athletics throwing field
- 400-meter track
- 50-meter pool
- diving well
- 12 clay tennis courts
- 6-bay boathouse and 2,000-meter regatta course
- 2-mile jogging track

Additional facilities include a residence hall for at least 300 athletes, dining facilities, administrative offices, visitors center, and a sports medicine and testing facility.

The olympic facilities will be available to the community on an organized basis during periods when these facilities are not in use for olympic athlete training. Each facility may be available up to 30 percent of the time. The OTC may also be used for special competitions and will offer offsite educational programs in conjunction with area school programs. The OTC is an additional recreational resource for south county residents, but is not considered in calculations to satisfy park and recreation demands within Otay Ranch.

State Department of Parks and Recreation

The State Department of Parks and Recreation obtained a series of easements for the California Riding and Hiking Trail in 1947. This 20-foot wide easement runs from Savage Dam, along the south shore of Lower Otay Lake, and along Otay Lakes Road to Highway 94 (refer to Section 3.1.1.2, Figure 3.1-3).

Private Parks and Commercial Recreation

Commercial recreational facilities surrounding Otay Ranch include: four golf courses (Chula Vista Municipal Golf Course, Bonita Golf Course, San Diego Country Club (closed to the public), and EastLake Golf Course (limited public access), riding stables, go-cart tracks, family fun centers, movie theaters, arcades, bowling alleys, skating rinks, miniature golf courses, and recreational vehicle and tent camping.

Funding Methods

The Quimby Act (Government Code Section 66477) specifies that new subdivisions can be required to dedicate land or pay a fee in-lieu of dedication for local parks at a maximum level of 3 acres per 1,000 population. Up to 5 acres per 1,000 population can be required if the current local park acreage exceeds the 3-acre level. These fees cannot be used for regional parks.

The county implemented the Quimby Act by adopting the Park Lands Dedication Ordinance (PLDO) in 1973. This ordinance requires developers to dedicate land, or pay or guarantee

an in-lieu fee for the acquisition and development of local park facilities, prior to final subdivision map approval. This requirement is based on the provision of 3 acres of local park land per 1,000 residents. For the purposes of local park planning and distribution of PLDO funding, the unincorporated area is divided into Local Park Planning Areas (LPPAs). PLDO money collected within a particular LPPA must be spent on local parks that will directly serve residents within that planning area. The PLDO fee is currently $800 per dwelling unit.

The City of Chula Vista's Growth Management Program outlines the existing financing approaches used by the city to pay for the construction of needed public facilities. These approaches include both impact fee programs and debt financing mechanisms. The funding source for park facilities within the City of Chula Vista is the Park Acquisition and Development fee (PAD). The PAD is currently $4,375 per single-family dwelling unit, $3,810 per attached dwelling unit, $3,365 per duplex, and $2,990 per multifamily dwelling unit (Schmidt 1992).

Other sources of funding and land for local and regional park development are state and federal grant funds and the county General Fund.

3.13.9.2 Impact Analysis

Regional Parks

The New Town Plan proposes a total of 9,700 acres of land, approximately 42 percent of the project site, be devoted to a regional open space and park system (JBF & Associates 1989b). ~~Using~~ To meet the county Standard and the county parkland goal of 15 acres per 1000 population of regional parks, approximately 2,247 acres of regional parkland would be required within the development. Two regional parks are proposed as part of the open space system; the Otay Valley Regional Park and the San Ysidro Mountains Regional Nature Park. The Otay Valley Regional Park is proposed as a 846-acre regional open space park within the Otay River parcel. The Otay Valley Regional Park is proposed to offer active and passive recreational facilities such as golf, playing fields, equestrian activities, and community facilities along a river valley open space and habitat system; however, the ultimate design of this park is currently under the Joint Exercise of Powers Agreement as discussed in the existing conditions section of this analysis. The San Ysidro Mountains Regional Nature Park is proposed as 900 acres preserved in its natural state. This park would provide activities such as hiking and camping. Trails are proposed to connect the two regional parks, and trail linkages to the BLM Wildlife Management Area and the county trail system are also proposed. Proposed regional park acreage totals 1,746 acres and is therefore 501 acres short of ~~what is required to serve the project~~ the County's goal, resulting in a significant impact.

Local Parks

Using the City of Chula Vista and County of San Diego park land standard of 3 acres per 1,000 population of local parks, approximately 449 acres would be required within the development.

The proposed land use plan identifies seven community parks, totaling 211 acres of active recreation area. Four community parks (encompassing 107 acres) are proposed in the Otay River area, two parks (totaling 76 acres) would be situated in the Proctor Valley area, and one 28-acre park would be located in the San Ysidro Mountains area. Neighborhood parks approximately five to ten acres in size would be located within each village, and additional park land could be provided in the future upon construction of schoolyards and

golf courses during implementation of the New Town Plan. The specific acreage of those parks would be determined at the SPA Plan level. Although the Facilities Implementation Plan for parks, recreation, and open space states that Otay Ranch would provide the required local parkland acreage, it is not known at this level of analysis where or how this acreage will be provided, thus resulting in a significant impact at this level of analysis.

Open Space

Major open space areas would be linked both onsite and offsite by a 2,716-acre greenbelt system consisting of both natural and manufactured open space. Major greenbelt systems include Wolf Canyon, Poggi Canyon, Salt Creek, Proctor Valley, Cedar Creek, Little Cedar Creek, Hubbard Springs, and the San Ysidro Mountains. An additional 4,162 acres of natural open space are proposed in the Jamul Mountains; open space would also be provided by the Otay Valley Regional Park. A system of biking, pedestrian, and equestrian trails is proposed to be provided within the Otay Ranch project. Specific plans for this system would be determined at the SPA Plan level. The proposed open space system is illustrated in Figure 2.3-3.

Recreation

Development of the proposed project would result in the urbanization of the areas surrounding Upper and Lower Otay Lakes, thus permanently altering the character of the area. Urbanization of these areas would result in the loss of waterfowl hunting on the lakes, a significant and unmitigable impact of the proposed project (Brown 1992). The cumulative loss of waterfowl hunting opportunities in the region is discussed in Section 6 of this EIR.

The proposed project would also impact the State Department of Parks and Recreation's riding and hiking trail easement due to the proposed upgrade of eastern Otay Lakes Road and the proposed development of Southern Dam Road south of Lower Otay Lake.

A Resource Management Plan (RMP) is being developed for the Otay Ranch property. The RMP is intended to achieve two primary purposes: (1) to create a manageable permanent open space system that will serve as a "living museum" by providing opportunities for onsite research and (2) to provide for the long-term protection, enhancement, and management of the sensitive natural and cultural resources located within Otay Ranch. The RMP has established policies and standards to accomplish these goals, and once approved, the RMP would be implemented in phases.

The cornerstone of the Otay Ranch RMP is the establishment of a permanent management preserve for the protection, enhancement, restoration, and recovery of natural resources. Although the RMP applies to the entire Otay Ranch study area, the central feature of the RMP is the creation of a separate management preserve dedicated to the protection of sensitive natural, and cultural resources within Otay Ranch. In addition to preserving, enhancing, and restoring sensitive resources, the preserve provides for public access and regional recreation uses that are consistent with resource protection. The preserve would be designated in phases.

3.13.9.3 Proposed Mitigation

- Open space shall be provided in compliance with the following policies outlined in the RMP for Otay Ranch (Applicant proposed):

Policy Number 20. Within the management preserve, permitted recreational uses shall be consistent with long-term protection and management of sensitive natural and man-made resources. A maximum of 400 acres within the preserve shall be designated for active recreational purposes. A range of public access and regional recreational uses shall be provided within the management preserve. Permitted recreation uses within the preserve shall include the following, as long as they are designed in an environmentally-sensitive manner (RMP November 22, 1991):

- Walking and hiking trails throughout most of the preserve, linking with the county trails system.
- Limited wilderness-type camping and picnic facilities in non-sensitive areas.
- Equestrian trails in non-sensitive areas.
- Bicycle trails in non-sensitive areas.
- A native plant nursery and botanical garden.
- An interpretive center for biological, cultural, and paleontological resources.
- Links-style golf course(s) in non-sensitive areas.

Policy Number 22. A "Recreation Access Plan" shall be formulated during the Phase 2 RMP, when more information regarding regional park concepts is available, to identify the kinds (hiking, bicycle, equestrian) and locations of public trails to be provided within the management preserve. The required Access Plan shall address the following issues:

- Establishing linkages between preserve trails and community and regional trail systems, including regional park trails.
- Identifying trail access points to the management preserve consistent with resource protection goals.
- Establishing appropriate daily and seasonal time limits on trail use.
- Assuring that the kind and intensity of trail uses is consistent with protection of resource areas being traversed.

- The project shall adhere to the City of Chula Vista and the County of San Diego standards for park acreage in compliance with the Quimby Act (EIR proposed).
- Recreational facilities and open space shall be provided in accordance with the General Development Plan (GDP)/Community Plan and the General Plan Amendments (EIR proposed).
- The project SPA Plans shall further define the location, acreage, and boundaries of neighborhood and community parks and open space on the Otay Ranch property in a form and manner acceptable to the City of Chula Vista and the County of San Diego (Applicant proposed).

- Prior to the approval of any SPA Plan, a Parks, Recreation, and Open Space Master Plan shall be developed by the project applicant in accordance with the required parkland acreage standards of the appropriate jurisdiction(s). ~~City of Chula Vista and County of San Diego.~~ The master plan shall address facilities requirements, site-selection criteria and specific park site locations, and funding mechanisms. A bicycle and trails plan shall be developed by the project applicant in conjunction with the Parks, Recreation, and Open Space Master Plan for Otay Ranch (EIR proposed).

- SPA Plans shall include a Public Facilities Financing and Phasing Plan (Applicant proposed).

- The funding source for local parks shall be the Park Lands Dedication Ordinance (PLDO), or similar exaction authority. Should the PLDO be satisfied through the payment of fees ~~($800/du)~~, the park improvements shall be made by the jurisdiction or park district. If the PLDO is satisfied by land dedication, the developer shall provide turn-key facilities (Applicant proposed).

- The reconstruction of the State Department of Recreation's California Riding and Hiking Trail shall be implemented along with the proposed roadway improvements. If necessary, easement relocation shall occur at the applicant's expense (EIR proposed).

3.13.9.4 Analysis of Significance

At this level of analysis, project impacts to parkland, recreation facilities, and open space are considered significant. Implementation of the above measures at the SPA level will ensure mitigation of project-related impacts regarding parks, recreation, and open space to below a level of significance.

3.13.10 Electricity and Gas

3.13.10.1 Existing Conditions

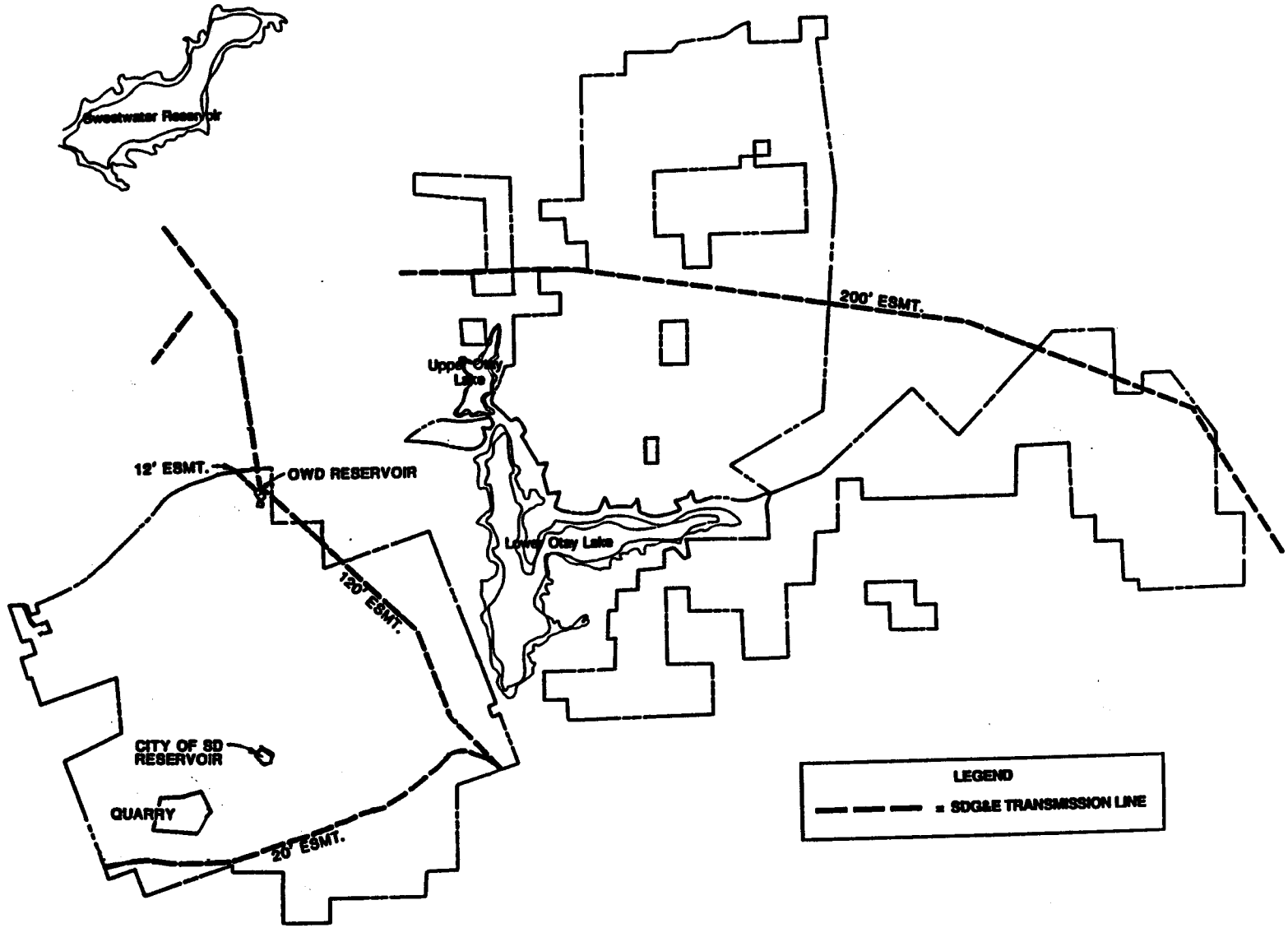
The proposed project is currently within the service area of San Diego Gas and Electric (SDG&E). Three substations are located in close proximity to the project site: the Miguel Substation, located approximately 2 miles north of the Otay River parcel, the Proctor Valley Substation, located approximately 1.5 miles north of the Otay River parcel, and the Otay Lake Substation, located near the southeast boundary of the Otay River parcel. The SDG&E South Bay Power Plant is located approximately 5 miles west of the project site in the City of Chula Vista.

Two SDG&E transmission lines exist on the Otay River parcel. A 200-foot SDG&E transmission corridor crosses the northern portion of the San Ysidro parcel and the central portion of the Proctor Valley parcel (Figure 3.13-11). A 500-kV transmission line exists within this easement.

One gas line currently runs along the northwest boundary of the Otay River parcel.

3.13.10.2 Impact Analysis

Approximately five substations and associated distribution lines would be required to serve the proposed project (Rose 1991). Placement of these facilities and associated impacts would be determined at the SPA Plan level.



SOURCE: JBF and Associates, 1988.

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Existing SDG&E Transmission Lines on the Site

FIGURE 3.13-11

Research is currently underway by the California Public Utilities Commission (CPUC) and several other agencies and research institutes to determine if there are health effects associated with proximity to transmission lines and other electrical facilities. The biological effects have been established, but a conclusive relationship between these effects and possible public health risks has not been established. Accurate risk assessments are not possible at this time (CPUC 1989). Other transmission line issues include:

- Any encroachment upon SDG&E's right-of-way can only be allowed with written consent from SDG&E.
- The project should be designed to recognize existing electrical facilities as existing land uses. Land uses adjacent to or in the vicinity of these existing transmission lines should be chosen and designed for compatibility.
- Access to SDG&E's facilities must be maintained before, during, and after construction.
- Grading and land form design of the project should not result in altering access or drainage in any way that could adversely affect access to SDG&E facilities.

Natural gas pipelines necessary to serve the proposed project would be installed underground within the right-of-way of roadways. No significant impacts are anticipated although further review of proposed facilities will be required as more information becomes available.

SDG&E does not anticipate any significant impacts associated with the provision of electric and gas facilities for Otay Ranch, provided the following mitigation measures are implemented.

3.13.10.3 Proposed Mitigation

- The project applicant shall work with SDG&E during all stages of electrical and gas facilities planning to minimize disturbance to sensitive resources (EIR proposed).
- Land uses adjacent to the SDG&E transmission lines shall be subject to review and comment by SDG&E (EIR proposed).

3.13.10.4 Analysis of Significance

Implementation of the above measures during project development shall mitigate impacts to electric service to below a level of significance. The provision of gas facilities is not considered a significant impact.

3.13.11 Health and Medical Facilities

3.13.11.1 Existing Conditions

Health and medical programs are primarily provided in the South County area by the government, private non-profit organizations, and commercial businesses.

Government Services

The public sector, particularly state and county governments, provides some basic medical services to needy segments of the population such as the unemployed, indigent, elderly, mentally ill, and persons with disabilities. The federal government provides funding and facilities for health care services for veterans and military personnel and their dependents. The state offers services and contracts through the Department of Rehabilitation.

County of San Diego

At the local level, the County of San Diego has the primary mandate to provide health services to county residents. Many County programs are mandated by federal and state law, while others are developed locally to meet local health needs. Health facilities and programs for residents of the entire San Diego region, including both the unincorporated areas and cities, are provided by the County Department of Health Services. The county supports health care programs to prevent disease and health risks, treat existing disease, provide supportive environments in which individuals may address their problems, and mitigate conditions which are hazardous to health (County of San Diego 1991). The County Department of Health Services provides services including but not limited to: alcohol and drug abuse services; environmental health services; mental health services; public health services; and physical health services. Programs include activities such as immunizations, nutrition, education, AIDS testing, restaurant kitchen inspection, and toxic spill response. In 1989-90, net county per capita health care costs were $22.49 (net of state and federal funds and miscellaneous) (Hughes, Heiss & Associates 1991).

The County of San Diego currently provides services for the South County area through the South Bay Public Health Center, located in Chula Vista, where public health services are provided. The county also provides physical health, mental health, and alcohol and drug treatment services on a contract basis in the general South County area. Regional programs serving South County are now located in downtown Chula Vista. Government services occupy both owned and leased facilities.

Currently, some facilities owned or leased by the county are overcrowded and in urgent need of renovation, replacement, or modernization. The structures of the public health centers are 30 years old and inadequate in terms of space due to the growth in patient flow and clinic activity. A significant shortage of adequate space exists, and it is estimated an additional 9,000 square feet of space is needed in seven of the eight public health centers now deemed inadequate (County of San Diego 1991).

During the past decade, spending for health and medical services by the public sector has not kept pace with inflation and population growth. The County of San Diego continues to be pressured to use very limited discretionary funds for other mandated services. In 1990 the state made additional dramatic funding cuts for mandated physical and mental health programs. The future loss of discretionary funding by the County of San Diego resulted in increased pressure on the cities and private sector to fund more health and human services. The federal and state governments continue to transfer the costs of health services to local governments by mandating services without proportionally increasing funding. During the past few years, the region's incorporated cities, in supporting both health and social services, have been limited due to limited financial resources and the fact that the county has historically provided these services. Problems which were not apparent when the Gann limit and Proposition 13 were passed, such as toxic poisoning, drug-addicted babies, and AIDS, are placing additional strains on the state and local government health service dollars. Problems are also due to limitations in county revenue generating ability and lack

of adequate state funding, as well as concerns regarding the county exceeding the Gann limit (Baldwin Vista 1991).

Non-Profit Organizations

Health and medical services offered by private, non-profit organizations augment the services available from the government. Services are provided through government contracts, grants, fees for-service, third-party reimbursements, and charitable contributions. Non-profit South County organizations currently providing health and medical services, include hospitals, mental health facilities, community clinics, nursing facilities, home health services and community health education and research organizations.

Hospitals

Residents of the South County are currently served by three hospitals:

1. Community Hospital of Chula Vista: 229-bed general medical and surgical facility operated by a non-profit corporation.

2. Scripps Memorial Hospital, Chula Vista: 159-bed general medical and surgical facility operated by a nonprofit corporation.

3. Paradise Valley Hospital: 217-bed general medical and surgical facility operated and owned by a church.

Chula Vista Community Hospital and Scripps Memorial Hospital both are expanding their facilities and services to keep pace with the growing South County population. Hospital services may include: outpatient services; therapeutic services; acute care; community outreach and education; and trauma unit.

Mental Health Facilities

Mental health facility services include both psychiatric and psychological services. The South County community is currently served by three psychiatric centers:

1. Southwood Psychiatric Centers: 106-bed acute psychiatric hospital, outpatient clinic, and residential treatment center (Southwood House) operated by a for-profit corporation.

2. Vista Hill Hospital: 77-bed non-profit acute adult, child, and adolescent psychiatric hospital specializing in drug and alcohol related problems.

3. Paradise Valley Hospital: 38-bed church related acute care hospital with a 66.9 percent occupancy rate (this facility is a unit within the Paradise Valley medical hospital).

The average length of stay for psychiatric patients is 20 days for these facilities.

Community Clinics

The South County community is currently served by two community clinics located in Imperial Beach and San Ysidro. Community clinics provide primary health care to low-income and uninsured persons. Clinics tend to be located in lower-income communities to

facilitate client access. Some community clinics will play a role in the provision of services associated with preferred provider programs through satellite offices.

Nursing Facilities

The South County community is currently served by nine skilled nursing facilities. Services provided by nursing facilities include: acute care; adult day health care and respite care; intermediate care; skilled nursing care; and congregate care. Nursing homes can be operated on a commercial or non-profit basis.

Nursing facilities in the South County serve a population of approximately 23,705 persons over age 65. Of these seniors, 9,367 are over age 75. Five percent of all seniors live in institutions (2 percent for persons 65-74 years; 7 percent for persons 75-84 years; and 23 percent for persons 85 years and older) (Baldwin Vista 1991). It is therefore anticipated that approximately 1,373 South County seniors will need some form of nursing care in 1990. The South County has the capacity to serve only 1,200 clients, based on the number of beds available and maximum utilization rates. Currently, South County residents receive additional nursing home services from North San Diego County nursing homes which have surplus space. Demand for services is currently greatest for Medi-Cal clients.

Community Health Education

The South County community is currently served by various health education and research organizations providing services to the residents of San Diego County. The services of these organizations are augmented by outreach and educational services of local hospitals, nursing homes, universities and colleges, government departments, and social service organizations. Educational services are provided throughout the county in hospitals, community meeting rooms, schools, and health facilities.

Commercial Business

Physicians

Approximately 6,100 medical doctors serve the 2,357,868 residents of San Diego County. The San Diego Chapter of the American Medical Association (AMA) does not have specific data on the number of doctors specifically serving South County. Services provided by medical practitioners include: general practice medical services; specialized medical services; "redi-care" or "urgent-care" services; sports medicine; therapeutic and training services for disabilities and imparities (hearing, sight, locomotion); laboratory and radiology service; and birthing centers.

Chiropractors and Dentists

There are currently 727 chiropractors and 1,585 dentists (San Diego Dental Association) serving the 2,357,868 residents of San Diego County.

Allied Health Professionals

Approximately 200 psychologists, marriage and family counselors, and licensed clinical social worker groups and individual practitioners serve the 2,357,868 residents of South San Diego County.

Preferred Provider Organizations

Preferred provider organizations offer services to clients on a capped fee for service rate. Organizations such as Kaiser Permanente Foundation and the Community Care Network offer area employers an alternative to traditional medical insurance coverage. Employees are provided with medical services from a list of member physicians and medical facilities and pay a copayment rather than an insurance deductible. Kaiser Permanente Foundation provides approximately 20 percent of all hospital services in San Diego County.

3.13.11.2 Impact Analysis

The additional Otay Ranch population of 149,810 would result in a significant increase in demand for health and medical facilities in the South County area. The County of San Diego has not yet developed standards and performance guidelines which specify the connection between growth and the need for additional health services. Therefore, the demand level for the Otay Ranch project was estimated through consideration of existing service levels and the desire to ensure facilities are commercially available to site health and medical services needed not only by the future residents of Otay Ranch, but a portion of the public medical and health services needed regionally.

Demand for health and medical facilities is derived from demographic trend data, analysis of current services, data from medical facility planners, and discussions with health and medical service providers. Based on these factors, it is foreseeable that the following type of facilities may be required to serve the residents of Otay Ranch at build-out (refer to Section K of the Facility Implementation Plans for additional information on the following facilities demand assumptions):

- Two public health satellite offices or expansion of the public health center serving this region of the county
- Five 99-bed nursing homes of approximately 30,000 to 50,000 square feet each
- Three commercial home health care offices at approximately 2,500 square feet each
- Four drug and alcohol county-contracted, community based organizations providing prevention, education, early intervention, recovery services and aftercare
- Nine public and private community meeting spaces, one in each village and one in the Eastern Urban Center which are available for health education and training programs
- Four commercial ambulatory pavilions with approximately 15,000 square feet to 20,000 square feet of office space housing 8 to 12 physicians and other medical services
- Two-hundred fifty-five commercial physician, dentist, chiropractic, therapeutic, laboratory, and medical services and supply offices averaging 1,250 square feet each
- Seven 6-12 bed group homes for developmentally or physically challenged persons

Hospitals

Based on existing and projected services provided in the South County, it does not appear that an additional acute hospital facility would be needed to serve the residents of Otay Ranch (Baldwin Vista 1991). Both Scripps Memorial and Chula Vista Community Hospitals are significantly expanding their capacity and plan for additional expansions to keep pace with South County's growing medical needs. The proximity of the Chula Vista Community Hospital to the project also indicates there may not be a need for additional, large-scale hospital facilities. Kaiser Permanente has purchased a hospital site at EastLake, near Otay Ranch, which decreases the need for a hospital within the Otay Ranch project area.

Mental Health Facilities

Recent service trends indicate an increase in day treatment and out-patient services as an alternative to traditional therapy in a hospital setting. This change is due to reimbursement restrictions, cost containment measures, and changes in delivery methodology.

Mental health professionals identify a need for community facilities for prevention programs, community education, adult day care programs, and self-help group meetings. Such facilities may be shared with other programs and be co-located in churches or community centers. Co-location of mental health facilities within churches or community centers is a policy issue requiring discussion and review at the SPA Plan level.

Community Clinics

It is unknown at this time whether community clinics would be located within Otay Ranch (Baldwin Vista 1991).

Nursing Facilities

The build-out of Otay Ranch may require the location of additional nursing facilities providing various levels of care to meet the needs of the residents of Otay Ranch. The need for nursing facilities to serve the residents of Otay Ranch may vary from the demand generated for existing communities. However, if existing community averages are used, it is estimated 13.9 percent of the San Diego County population will be over age 65 by the year 2000 (Baldwin Vista 1991). Therefore, an estimated 20,733 residents of Otay Ranch would be over age 65 year of age. Currently, 5 percent of all persons over age 65 live in acute care, adult day health care, intermediate care, skilled nursing care or aggregate care. Therefore, approximately 1,037 residents of Otay Ranch may be in need of full-time nursing care.

The current nursing home demand in South County would indicate 500 additional nursing beds or an average of five 99-bed nursing facilities may be needed to serve the residents of Otay Ranch, based on current services and projected service utilization. Demand for nursing home services may decrease by up to 25 percent if there is a greater utilization of adult day care services which provide activities and supervision for the elderly during the day.

Community Health Education

County-wide educational and research services are centrally located within the county and therefore are unlikely to be located in Otay Ranch. However, these organizations may

require access to community meeting space for classes, health presentations, and self-help groups. Otay Ranch social and community facilities implementation plans call for the location of easily accessible public meeting space within each village and within the Eastern Urban Center. These spaces would be available for use by public and non-profit organizations for community education purposes.

Physicians

The build-out of the Otay Ranch New Town Plan would require private practice doctors to serve the residents. Medical planners believe physicians are likely to locate offices in: 1) a medical office building adjacent to a hospital, 2) office buildings known as "ambulatory pavilions," or 3) neighborhood single practice medical offices or urgent-care facilities. The location of these office types depends on the type of services provided. A discussion of each facility type is provided in Section K of the Facility Implementation Plans prepared for this project.

Dentists, Chiropractors, and Allied Health Professionals

It is estimated the residents of Otay Ranch may need 100 dentists, based on the number of dentists currently serving San Diego County residents (1 per 1,488 population). It is also estimated the residents of Otay Ranch may require 46 chiropractors, based on current services available to San Diego residents (1 per 3,243 population).

Space for purchase or lease, which is accessible to the public and suitable for siting of medical practitioner services, would be made available within the community of Otay Ranch (Baldwin Vista 1991). This space would provide the opportunity for service providers to locate facilities where there is a demand for service.

Although there are currently no statutory requirements for the provision of health and medical services, it is expected that development of the proposed project would have significant impacts on the provision of these services as the population continues to increase and the demand for health and medical services in the region continues to grow. Further environmental review of this issue is required at the SPA Plan level to ensure that adequate facilities are available to serve Otay Ranch.

3.13.11.3 Proposed Mitigation

- To ensure provision of and access to facilities which meet the health care needs of Otay Ranch residents, governmental agencies and development planners shall work directly with service providers to identify the need for and location of medical and health facilities in the Otay Ranch area during all stages of planning (Applicant proposed).

- Prior to SPA Plan approval, siting and design criteria shall be developed by the project applicant, in conjunction with the appropriate governmental agencies, to address public and private health and medical care facilities. Criteria should include, but not be limited to, consideration for impact of facility concentration on neighborhoods, access to transportation, and co-location of comparable programs where feasible (Applicant proposed).

3.13.11.4 Analysis of Significance

At this level of analysis, impacts to health care and medical facilities and considered significant. Implementation of the above mitigation measures at the SPA level will mitigate project-specific health and medical facility impacts to below a level of significance.

3.13.12 Social and Senior Service Facilities

3.13.12.1 Existing Conditions

Social service programs in the South County area are primarily provided by the government, non-profit charitable organizations, and commercial businesses. Each of these service providers is discussed below.

Government Services

Social service programs are mandated by state and federal statutes and regulations and are largely funded from federal and state sources. The public sector funds many basic supportive services to needy segments of the population such as the unemployed, the poor, homeless persons, the elderly, the mentally ill, and persons with disabilities.

At the regional level, the County of San Diego has the primary mandate to provide social services to county residents. In addition, several public and quasi-public entities address social needs including the Private Industry Council (PIC), SANDAG, Regional Task Force on the Homeless, and other private-public sector partnerships. Through the provision of government services directly and via contract with non-profit organizations, the county Board of Supervisors distributes funds for services based on a fair-share formula for each district. This process distributes discretionary county social service resources based on demographically indicated needs. During FY 1989-90, the average per capita county expenditure for social services was $20.91 (net of state and federal funds and miscellaneous fees) (Hughes, Heiss and Associates 1991).

Social service facilities and programs for residents of the entire San Diego region, including both the unincorporated areas and cities, are provided by the County Department of Social Services. The Department of Social Services is the largest department in the county employing one out of every five county employees (3,316.75 staff in FY 1989-90). Additionally, 160,165 volunteer hours are donated annually. The department serves one out of every eleven county residents, or 218,567 people, each month and accounts for $569 million in expenditures within the county's $1.34 billion budget (FY 1989-90). During FY 1989-90, the average per capita social services expenditure including offset revenues was $227. The Department of Social Services occupies 614,849 square feet in 32 separate locations (Department of Social Services 1990).

The majority of county, state, and federal regional offices for the South County area are currently located in and around the Chula Vista downtown area. This location ensures access to social service programs for all South County residents. Attachment B of the Senior and Social Service Facilities Implementation Plan provides a detailed list of the various government social services currently serving the residents of the South County.

The federal and state governments have continued to transfer the costs of senior and human care services to county and municipal governments by mandating services and expenditure levels without proportionally increasing funding. Net per capita expenditures in constant dollars are lower in almost all service areas. The County of San Diego continues to be pressured to use very limited discretionary funds for jails, courts, and other mandated

services. This results in the redirection of current contracts from senior and human care services with community-based agencies to other mandated services. Further, the County of San Diego is falling behind in social services facility improvements. The future loss of discretionary funding by the County of San Diego results in increased pressure on the region's incorporated cities and the private sector to fund more health and human services. Problems not apparent when the Gann limit and Proposition 13 were passed are placing additional strains on the state and local governments.

Non-Profit Charitable Organizations

Social and senior services offered by private, non-profit organizations augment the services available from government. Services are provided through contracts with government agencies, grants, fees-for-services and charitable contributions. There are 37 non-profit health and social service organizations located in Chula Vista, Castle Park, and Otay Mesa. An additional 17 non-profit health and social service organizations are located in Imperial Beach, San Ysidro, and South San Diego. Attachment C of the Senior and Social Service Facilities Implementation Plan lists the current organizations located in the South County.

The Social Service Plan for the City of Chula Vista ranks alcohol and drug services, child care and latchkey programs, and domestic violence and abuse as the services most needed in Chula Vista (Saper 1987). The plan projects growing needs for services such as low-income and shared housing, AIDS education and prevention, transportation, disabled services, and family planning. The Social Service Plan also identifies a growing concern regarding the aging of the population, vulnerability of the young, housing costs, and service difficulties due to language, culture, and transportation barriers. The City of Chula Vista has increased Community Service Block Grant (CDBG) funding for alcohol recovery, domestic violence and latchkey programs in response to the Social Service Plan. The City's Human Services Council is currently exploring alternatives to increase financial and voluntary resources to address these concerns.

Currently, the Area Agency on Aging funds the Salvation Army Nutrition Center in Chula Vista. The provision of programs for seniors is mandated and largely funded by the Federal and State governments through the County's Area Agency on Aging.

Commercial Business

Home Health Services

The South County community is currently served by seven home health provider organizations. Home health providers assist the elderly and disabled persons in maintaining their independence and help them continue to live at home. Home health services also allow hospital patients to be discharged earlier in their care which reduces medical costs. Health planners estimate 3 percent of the total senior population need assistance with daily living. Over 11,000 home health workers provide these services in San Diego County. Currently, an unknown number of persons receive in-home support services in the South County (Baldwin Vista 1991).

Senior Services

The City of Chula Vista has recently constructed the two-story, 15,000-square-foot Norman Park Senior Center in downtown Chula Vista. The first floor of the new center contains a 10,000-square-foot multi-purpose room. The second floor of the new center has conference rooms and houses senior service agencies, such as legal, medical, housing information, and referral services. The Chula Vista Parks and Recreation Department

coordinates the programs at the new center. Approximately 11,000 seniors per month participate in recreational, social, educational, and fund raising activities (Baldwin Vista 1991).

Some services, such as consumer assistance, health inspection, genetic counseling, and mental health education, need a large population base in order to operate in a cost-effective and efficient manner. These services are more likely to be provided on a county-wide or district basis rather than at a local or neighborhood level. County-wide services also require client access and are most likely to be located within major metropolitan areas, such as downtown San Diego.

The total number of people served by all social and senior service organizations and departments in San Diego County is not known. Services vary based on client needs and available funding. A list of County Department of Social Service services and payments is included in the Otay Ranch Implementation Plan for Social and Senior Services Facilities (Section M).

3.13.12.2 Impact Analysis

The additional Otay Ranch population of 149,810 would result in a significant increase in demand for social and senior services facilities in the South County area. Social service programs required to meet the needs of society are so numerous, varied, and complex the County of San Diego has had difficulty formulating overall standards for needed facilities and programs. Facility needs vary by program, and are directly related to the population served and the type of service provided.

The development and build-out of Otay Ranch would require that additional facilities for community social services be located in the South County. Based upon the area analysis and general operating practices of the County of San Diego and City of Chula Vista, a demand level for social services was developed. This demand level was determined by identifying service levels required for a population of 149,810 and the desire to ensure facilities are commercially available to site social services needed by the future residents of Otay Ranch and a portion of the social services needed regionally. The method for determining needs used a comparison with other South County community services and their relationship with other social services provided in the County of San Diego. As proposed, the availability of commercial sites would be facilitated through the use of an "community purpose facility zone" (see Section 3.13).

Facilities Demand

The future community of Otay Ranch would require the location of government service and non-profit organization offices to meet the needs of residents. The majority of government services would be kept in centralized locations for the convenience of South County residents. Villages within Otay Ranch would have receptor and/or kiosk information areas for public and non-profit social services, as well as services appropriately provided at the neighborhood level. All other county-wide health and human service related offices would remain within the San Diego metropolitan area. As demand increases, suitable lease space available within the Chula Vista downtown area could be obtained by government and private service providers. Lease space which is accessible to the public would also be available in Otay Ranch for government social service locations to ensure that services locate where there is a demand for service. A subsequent analysis is required at the SPA Plan level to review the availability of appropriate space and locations in downtown Chula Vista. Otay Ranch would participate in subsequent analyses by county staff to determine offsite locations for services, if appropriate (Baldwin Vista 1991).

Based on existing services currently provided in the South County, it appears numerous new and existing non-profit organizations with varying staff sizes and facility needs would be required to serve the residents of Otay Ranch. Commercially leased office space and field office space in government facilities would be required, such as recreation centers and cultural centers; and schools to house social service outreach staff. In addition, a health worker referral office with information, referral and translation services may be desirable. General locations would be provided for social service organizations, charities, private adult care and mental care facilities within Otay Ranch (Baldwin Vista 1991).

Although some services must be provided from a centralized office on a county-wide basis, the preferred method of providing direct social and senior services to residents is at the local level. The community of Otay Ranch would have a large commercial office area in the Eastern Urban Center, as well as numerous village centers. Non-profit organizations could locate in business areas such as the village centers or Eastern Urban Center, close to public transportation and other businesses. Residences for seniors and those in need of social services should be located within the village core to facilitate easy access to local services and commercial businesses. Involvement of South County social service organizations and government offices in Otay Ranch planning is necessary to insure these agencies can plan for the location of services in a timely manner through the ongoing assessment of community needs. As proposed, preservation of land for siting residential facilities would be assured through the use of community purpose facility zone.

Although there are currently no statutory requirements for the provision of social and senior services, it is expected that development of the proposed project would have significant impacts on the provision of these services as the proportion of the population over the age of sixty continues to increase and the demand for social services in the region continues to grow. Further environmental review of this issue is required at the SPA Plan level to ensure that adequate facilities are available to serve Otay Ranch.

3.13.12.3 Proposed Mitigation

- To ensure provision of and access to facilities which meet the senior and social service needs of Otay Ranch residents, governmental agencies and development planners shall work directly with service providers to identify the need for and location of senior and social service facilities in the Otay Ranch area (Applicant proposed).

- Prior to approval, SPA Plans shall be circulated by the project applicant to the Commission on Aging, Department of Social Services, Area Agency on Aging, Human Services Council and Chula Vista 21 for their review and input (Applicant proposed).

- Planning for social services for the residents of Otay Ranch shall incorporate the following considerations (Applicant proposed):

    - The elderly have special needs for affordable housing, transportation, and health care. The number of persons 65 years of age and older requiring long-term care will continue to increase significantly, and as family size also decreases, there will be less family-based support and increased reliance on outside services for the elderly.

- The public sector and community-based organizations will need to deliver services in more culturally sensitive ways. Close collaboration with ethnic and cultural groups will be essential.

- ~~As the number of pre-school and school-age children increase, more child care, before and after school programs and other youth services will be needed.~~

3.13.12.4 Analysis of Significance

At this level of analysis, impacts to senior and social service needs are considered significant. Implementation of the above mitigation measures at the SPA-level will mitigate project-specific social and senior service facility impacts to below a level of significance.

3.13.13 Other Public Services

3.13.13.1 Cemetery Facilities

Existing Conditions

The City of San Diego, private corporations, and various religious institutions currently provide cemetery and mausoleum services for the existing residents of Otay Ranch and neighboring south county communities. The existing major burial facilities within the central and south county region serve an existing population of 495,000.

County of San Diego

The three privately owned facilities located in south county are Glen Abbey Memorial, La Vista Memorial, and Greenwood Cemetery.

Glen Abbey Memorial is the closest cemetery to Otay Ranch, located off Bonita Road, east of I-805. This is a publicly owned non-sectarian facility and covers 112 acres, of which 42 are developed. There are approximately 2,900 graves to date, with another 6,000-7,000 immediately available and a full development potential of 200,000 grave sites. All types of burial services are available at this facility.

La Vista Cemetery is a privately owned cemetery located in Lincoln Acres, north of SR-54, and east of I-805. This cemetery covers 30.2 acres, and currently has 6,600 graves on 10 developed acres. This is one of the oldest cemeteries in the San Diego area. It was established in 1861 and has approximately 1,000 unrecorded grave sites. There are approximately 25,000 spaces still available in the cemetery.

Greenwood Cemetery opened in 1907 and is located north of Imperial Avenue, east of I-805. This cemetery currently has 100,000 graves and 100 developed acres. Twenty acres of land are undeveloped, with a remaining potential of an additional 100,000 grave sites. The facility is projected to reach full capacity in the year 2040. This is a non-sectarian, public corporation cemetery that offers full burial services.

City of San Diego

There are two cemeteries located in the City of San Diego, Mt. Hope Cemetery and Holy Cross Cemetery.

Mt. Hope Cemetery is operated by the City of San Diego and is located east of I-15 and south of Market Street. This cemetery covers approximately 100 acres, and has 69,000 graves on 69 developed acres. Approximately 50,000 grave sites remain to be developed. Mt. Hope Cemetery was established in 1859 and is a non-sectarian facility. As a public cemetery, Mt. Hope can only offer ground burial sites.

The Holy Cross Cemetery is a Catholic facility located east of I-805 and south of the 94 freeway. This cemetery is currently in the process of expanding and has 50,000 burial sites on 39 developed acres. It is purchasing adjacent land to accommodate approximately 900 burials per year. It was founded in 1917 and is the only Catholic cemetery in the San Diego region. It will continue to operate as long as adjacent land is available for expansion.

In summary, there are over 375,000 burial sites currently available or to be developed, not including the Holy Cross expansion, on over 150 acres within the central and south county regional areas. All of the cemeteries have burial sites that are now available and four offer mausoleum, columbarium (vault space for cinerary urns), and crypt space, both above and below ground.

Impact Analysis

The following assumptions were used to assess project-related impacts to cemetery facilities:

Mortality Rate:	7.18 deaths per year per 1,000 people (Baldwin Vista 1991).
Deaths Per Year:	1,056 deaths per year for a population of 149,810 persons (Otay Ranch at buildout).
Burials:	Approximately 25-43 square feet/person
Cremations:	Approximately 53 percent of all burials are cremations; cremations require approximately 2.5 square feet of ground space or 2.5 linear feet of wall space. Approximately 50 percent of all cremations are interred (Baldwin Vista 1991).

Based on the assumptions stated above, the demand for cemetery facilities generated by full buildout of Otay Ranch is 0.62 acres/149,810 residents/year. This amounts to a generated demand for approximately 62 acres over the life of the project after buildout (for 100-year service life).

There are presently over 150 acres of land available within the south county area to accommodate the future demands of Otay Ranch and the south county region. Combining the projected population with the proposed population of Otay Ranch, it is estimated that approximately 4 acres of burial and cemetery space would be needed per year. Utilizing the demand generated analysis, current trends in burial practices, estimated population, and the existing cemetery facilities surrounding Otay Ranch, it is anticipated that no additional facilities would be required within Otay Ranch to meet the future needs of the Otay Ranch communities. No significant impacts to cemetery facilities would occur with the development of Otay Ranch.

Proposed Mitigation

No mitigation is necessary.

Analysis of Significance

Project-related impacts to cemetery facilities are not considered significant.

3.13.13.2 Child Care

Existing Conditions

No day-care facilities are currently located within the Otay Ranch project boundaries, as this area is currently undeveloped land. There are, however, 24 large private day-care facilities located in Chula Vista, Imperial Beach, National City, Bonita, and the remaining south county region. The existing facilities provide a wide range of child care services, including infant care, toddlers ages 2-4, preschool, and after school day-care for children ages 5-13. Facilities range in size to serve 60-120 children per day-care center, the average large child care facility having approximately 9,000 square feet of space. Twenty parking spaces are required for a 9,000-square-foot facility. Private in-home day-care services average 4-6 children per home and also provide full-service child care for all ages. Child care facilities are also provided at numerous religious institutions throughout the south county area and include infant, toddler, preschool, day school, and after school care. Both formal large facility and home-based (paid) types of child care and informal (non-paid) methods are necessary to meet the needs of children and their families. All licensed child care facilities must meet strict state standards regarding the number of children/adult, required outdoor play areas, facility design, and square footage per child. In addition, applicable county and city zoning ordinances and building codes must be met. Currently there are no existing policies for the provision of child care.

Impact Analysis

Based upon a youth population of 5,978 children ages 0-13 utilizing either large private facilities, religious institutions, or home day-care providers, the estimated demand for child care facilities for Otay Ranch at buildout is for 35 facilities. This demand is based on the assumptions and methodology outlined in the Facilities Implementation Plan for Child Care, which was based on the estimated Otay Ranch population of 149,810 residents and existing population ratios.

Proposed Mitigation

- Prior to the approval of any SPA Plan, a Child Care Master Plan shall be prepared by the project applicant. The plan shall address site-selection criteria and acreage requirements based on the child-care demand of the project (EIR proposed).

- Child care and pre-school facility sites shall be located adjacent to public and private schools, religious assembly uses, village center employment areas, transit centers and other locations deemed appropriate (Applicant proposed).

Analysis of Significance

At this level of analysis, impacts to child care facilities are considered significant. Implementation of the above mitigation measures at the SPA level will mitigate project-related child care impacts to below a level of significance.

3.13.13.3 Animal Control

Existing Conditions

The County of San Diego and the City of Chula Vista currently provide animal control services for the Otay Ranch project area. The San Diego Humane Society also provides animal shelter and related services for San Diego County residents.

County of San Diego

The County of San Diego Department of Animal Control provides animal health and regulatory services to over 75 percent of the residents of San Diego County. The department is the sixth largest animal control department in the nation. In Fiscal Year 1989, the Department of Animal Control received 41,050 animals and issued 93,000 dog licenses.

Services are provided in all unincorporated areas of the county and in 10 cities within San Diego County by contract. Staff is on the premises 24 hours a day, 7 days a week, and private veterinarians provide emergency services on a contract basis. The department provides the following services and programs:

- Emergency care for injured animals
- Surveillance for rabies, rabies vaccination clinics, and quarantine of biting animals
- Investigation/prosecution of anti-cruelty laws
- Control of vicious or stray animals
- Licensing of dogs
- Adoption and lost pet services
- Spay/neuter referral and information
- Public education and information
- Inspection and licensing of private kennels
- Humane disposal of injured and unwanted animals
- Shelter for domestic animals, reptiles, and livestock
- Senior adoption and foster care programs
- Animal rescue - provides animal rescue to all cities in case of disasters

The South Shelter, located in Bonita, currently provides animal control services to the Otay Ranch area. This shelter was constructed in 1976, and in 1989-90 impounded 16,581 animals (average daily attendance of 250 animals), making it the busiest shelter in the county. This facility, as well as all San Diego County animal shelters, is operating above capacity. The facility comprises approximately 261,360 square feet and is located on a 18.24-acre parcel; it provides 157 dog kennels, an adoption cattery, two cat holding rooms, four livestock corrals, and veterinary and administrative offices. The South Shelter's property has a CALTRANS easement on 7.24 acres. CALTRANS released the easement in 1990, based on plans for SR-125. In early 1991, CALTRANS renewed its interest in securing the easement again for a SR-125 interchange. If CALTRANS exercises its option to use this parcel, the South Shelter will relocate to property provided by CALTRANS in trade for the existing animal shelter site. This facility serves 551,709 residents.

The County is currently preparing an impact fee ordinance to fund additional animal control facilities needed to serve new development.

City of Chula Vista

The City of Chula Vista currently has one animal shelter facility located on Otay Valley Road which provides animal shelter services for domestic animals, reptiles, fish, and small livestock. Chula Vista also provides trapping, shelter, and relocation services for non-vicious native animals found within the city and pound contract services for National City and Imperial Beach. The shelter is similar to the Humane Society and county animal control facilities, operating pet adoption services and humane disposal of unwanted animals. The facility does not have a full-time veterinarian on staff.

The Chula Vista facility is located on a 1-acre site, with 75 outside and uncovered kennels which house 2 to 3 animals per kennel. The shelter is open to the public Monday through Saturday, and is staffed from 6 a.m. to 6 p.m., 7 days a week. The existing facility is at capacity and within the next few years will have to be rebuilt or relocated due to road construction and realignment of Otay Valley Road. A temporary facility will be used until capital fund money is available for new construction. The City of Chula Vista is currently in the process of siting a new animal control facility in the Eastern Territory. This new site may adequately serve Otay Ranch.

The animal control division is operated through the Chula Vista Police Department and currently employs three animal control officers, two kennel attendants, one supervisor, and a part-time clerk. They have four animal control vehicles. All animals are received and impounded at the Chula Vista Animal Shelter.

The Humane Society

The Humane Society conducts humane investigations and accepts owned animals for adoption and humane disposal. Humane Societies provide animal control services through contracts with area cities.

Impact Analysis

Buildout of the Otay Ranch project would create the need for adequate square footage of animal control facilities. These facilities should include additional new caging, and veterinary and administrative offices to provide adequate services. It is currently anticipated that existing facilities would be expanded to accommodate the proposed project rather than the construction of a new facility on a separate site. Implementation of the proposed project and the related population increase would result in significant impacts to existing animal control facilities due to the additional demand.

Proposed Mitigation

- The project applicant shall participate in programs to equitably share the funding of animal control facilities and designate animal control facilities sufficient to provide adequate square footage of shelter space per Otay Ranch dwelling unit to the satisfaction of the appropriate jurisdiction (EIR Proposed).

- Jurisdictional boundaries, including determination of the areas to be served by the County of San Diego and the City of Chula Vista, shall be identified prior to SPA Plan approval (EIR Proposed).

Analysis of Significance

At this level of analysis, impacts to animal control facilities are considered significant. Implementation of the above mitigation measure at the SPA level will mitigate project-related animal control impacts to below a level of significance.

3.14 RISK OF UPSET

3.14.1 Existing Conditions

This section describes the project site and surrounding area with respect to the use, storage, transport, and disposal of hazardous materials and hazardous wastes. The purpose of this description is to identify conditions in which an accident or upset could adversely affect human health or the environment.

The project site is generally an undeveloped area used for dry farming, cattle production, quarrying, and private recreation; several regional utility facilities cross the site (see Section 3.1 for a detailed discussion of existing land use). Woodward-Clyde Consultants conducted a hazardous waste site assessment of the western portion of the Otay Ranch property in April 1989; the northern and eastern portions were not evaluated due to the mountainous terrain of these areas and the fact that these areas have not historically been used for cultivated or industrial purposes.

The existing cultivated areas near Telegraph Canyon and the ranch operations area have been subject to irrigated cultivation since the 1950s. Pesticides and herbicides were commonly used on irrigated crops during that period. The ranch operations center has been used for storage and maintenance for the agricultural operations on the property (Baldwin Vista 1989). Laboratory testing of surface soil samples in the area of the ranch operations center indicated that the following contamination areas may exceed acceptable concentration levels of hazardous substances: 1) petroleum hydrocarbon contaminated soils, with concentrations higher than the acceptable level (using state threshold standards), near the lubrication rack and open air shed; 2) localized fuel hydrocarbon contaminated soils near the underground fuel storage tank; and 3) localized pesticide residual contaminated soil located near the pesticide storage shed (Woodward-Clyde 1989).

The area directly northeast of Brown Field is currently not being used. The southwestern part of this area was previously an orchard site and contained numerous buildings which have been removed. Past agricultural use occurred on the adjoining property to the south; however, due to low likelihood of pesticide use for the limited dryland farming that occurred, the possibility of residual pesticide concentration is considered very remote (Woodward-Clyde 1989). Brown Field was constructed on adjoining property to the west in the 1950s; records show that 26 fuel storage tanks were located at the southwest corner of Brown Field, 16 of which had been removed or abandoned by 1987. The remaining fuel storage tanks are located approximately 5,000 feet beyond the western border of the Otay Ranch property (Woodward-Clyde 1989).

Existing uses on or adjacent to the southwestern portion of the property, including Otay River Valley, include: dry farming and grazing over much of the upland north of Otay River Valley; an animal husbandry facility, referred to as Bird Ranch; the quarry operation near Rock Mountain; and the Otay Landfill and Appropriate Technologies II hazardous waste reprocessing operation located adjacent to the western property boundary. Previous uses in the area included dry farming on both sides of the river valley, irrigated farming west of Bird Ranch, sand and gravel mining in the river valley, salvage operations at the northwest corner of Brown Field, and hazardous waste disposal at the landfill between 1970 and 1980. Several abandoned pipes and an aboveground water tank have been identified in the southeast area. Offsite dumping has occurred in a ravine northwest of Brown Field. The former Brown Field Bombing Range, located in the southeast corner of the parcel, was not surveyed during Woodward-Clyde's site assessment due to the danger of unexploded ordnance in that area. Although the Rock Mountain quarry operation is

located within the Otay Ranch property, it is not included in Baldwin's proposed development and is treated as an offsite use.

Soil samples were analyzed in areas of potential contamination in the southwestern portion of the property. Soil samples associated with former irrigated farming showed low levels of residual pesticides, concentrations not exceeding hazardous waste standards. A soil sample less than 2,000 feet from the landfill showed pesticide levels slightly above state regulatory threshold levels; however, Woodward-Clyde (1989) stated that offsite disposal of soil with marginal exceedances of threshold pesticide levels is not practical. The pesticide concentrations were below the EPA levels for pesticides in foods; Woodward Clyde (1989) thus concluded that adverse health effects were unlikely, and any grading for development would significantly reduce concentrations. Offsite contamination may result from waste oil and fuel spillage, residual blasting chemicals, and air emissions from the quarry operation (Woodward-Clyde 1989). Past disposal of hazardous waste at the Otay Landfill could result in potential ground-water contamination and migration of landfill gases. State and federal regulations require the operator to clean up the site, including offsite problems associated with the landfill. Soil tests of the Otay Ranch property downslope of the offsite dumping area indicated possible migration of hazardous contamination. No unusual levels of heavy metals were detected at this site; there was, however, evidence of petroleum hydrocarbon contamination (Woodward-Clyde 1989).

3.14.2 Impact Analysis

This section examines the potential risk to the health of Otay Ranch residents from an accident or upset condition in the project area. Significant impacts could occur from hazardous waste contamination of soil or ground water, explosion of previously unexploded ordnance, or increased risk of fire or explosion.

As discussed in Section 3.14.1, soils contaminated with petroleum hydrocarbons and pesticides have been identified in the area of the ranch operations center (identified as the Old Ranch Complex in Figure 3.1.1). This area is proposed for residential development in the New Town Plan; therefore, the potential exists for exposure to concentrations in excess of the state threshold standards in this area.

The fuel storage tanks at the southwest corner of Brown Field are located over 5,000 feet from the property and are not expected to affect the project site (Woodward-Clyde 1989). The former Brown Field Bombing Range, located in the southeast corner of the Otay River parcel is proposed for open space and research/industrial uses in the New Town Plan. This area poses a danger from unexploded ordnance. Woodward-Clyde noted evidence of petroleum hydrocarbon contamination associated with the previous disposal of hazardous waste at the site of the present Otay Landfill during their site assessment in 1989; however, there was no evidence of adverse effects on Otay Ranch (Woodward-Clyde 1989).

The current landfill operation and the Rock Mountain quarry operation could result in adverse air quality and noise effects on adjacent residential areas (see Sections 3.11 and 3.12, respectively). In addition, the transport of hazardous waste associated with operation of the hazardous waste transfer station at the Otay Landfill could pose a danger to residents of Otay Ranch. This operation must comply with EPA regulations for treatment, storage, or transport of hazardous materials.

In addition to the risks described above associated with previous land uses and offsite uses, there are potential risks associated with development of Otay Ranch. Light manufacturing is proposed in the research and industrial areas; these facilities would use chemicals and hazardous materials in their operations. Retail stores, including dry cleaners,

supermarkets, and gasoline stations would be located in the retail centers of Otay Ranch. The proposed SR-125 freeway would cross Otay Ranch and be used to transport hazardous waste as well as freight and chemicals. The proposed university would use chemicals and radioactive materials in its laboratories. The use of these hazardous materials cannot be specifically identified or quantified at this stage of the planning process. The health risks associated with these activities will be evaluated at the SPA plan level. The use, transport, storage, and disposal of hazardous materials would be conducted in compliance with the relevant regulations of federal, state, and local agencies, including EPA, DHS, and Caltrans.

3.14.3 Proposed Mitigation

1. Soil and ground-water testing shall occur in the ranch operations center area potentially affected by the previous disposal of hazardous waste or historic pesticide use. The purpose of the testing shall be to identify areas of contamination in excess of federal and state standards. Should areas of excess contamination be identified, remediation shall occur prior to residential development. (EIR proposed.)

2. The applicant shall notify prospective buyers and the California Department of Health Services (DHS), as required, regarding of their intention to develop the area adjacent to the Otay Landfill and the Appropriate Technologies II hazardous waste facility. (EIR proposed.)

3. A survey shall be conducted of the Brown Field Bombing Range by the Army to identify the presence of any unexploded ammunition. Should unexploded ordnance be located on the property, appropriate measures shall be taken for removal of the material. (EIR proposed.)

4. The transport of hazardous waste on existing and future roadways shall be conducted in accordance with the California Code of Regulations (CCR) and the Code of Federal Regulations (CFR). These regulations identify Department of Transportation (DOT) approved methods for packaging and containerizing hazardous waste and site appropriate options and procedures relative to the handling and transportation of these wastes. (EIR proposed.)

5. The need for emergency evacuation routes and other emergency facilities shall be determined at the SPA level based not only on the presence of offsite industrial uses, but on those that may occur onsite as well. (EIR proposed.)

3.14.4 Analysis of Significance

Implementation of the measures identified above will mitigate health risks to below a level of significance.

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SECTION 4
ONSITE ALTERNATIVES

4.1 INTRODUCTION

CEQA Guidelines Section 15126(d) requires that EIRs contain an evaluation of alternatives, including the No Project Alternative, to the proposed project which could feasibly attain the basic objectives of the project while reducing or eliminating an identified significant environmental effect of the proposed project. The following is a description and environmental evaluation of the eight onsite land use configurations, including the No Project Alternative, that have been presented as alternatives to the New Town Plan for the Otay Ranch property. The onsite alternatives were developed by the Project Team, in cooperation with the Interjurisdictional Task Force and resource agencies. Together with the New Town Plan, the various alternatives represent a range of development densities and land use planning options for the property; the approval of a specific alternative will stipulate the maximum number of dwelling units for Otay Ranch. All alternatives cover the same acreage as the New Town Plan proposal. The alternatives, in order of descending number of dwelling units and environmental disturbance, include the following:

Table 4.1-1

SUMMARY OF PROJECT ALTERNATIVES

Alternative	# of dwelling units	Acres of Development
Phase II-Progress Plan Alternative	30,059[1]	10,498[2]
Phase I-Progress Plan Alternative	29,773	12,104
Fourth Alternative	27,418	9,815
Project Team Alternative	24,064	9,646
Composite General Plans Alternative	20,470	18,777
Low Density Alternative	10,287	9,631
Environmental Alternative	9,251	6,107
No Project Alternative	0	0

[1] Includes 1,151 dwelling units of future EastLake development.
[2] Includes 169 acres of future EastLake development.

In addition to the New Town Plan, the environmental impacts of the Phase I-Progress Plan Alternative and Environmental Alternative are analyzed in detail in this EIR; these three scenarios represent the high, middle, and low end of development with respect to density and area of disturbance. The impacts of the remaining alternatives are analyzed qualitatively, as they fall within the range of impacts of the alternatives analyzed in more detail.

Several similarities exist among the land use characteristics of the project alternatives. For example, each alternative proposes a mix of multi- and single-family residential uses,

although the distribution and number of units of each type vary among the alternatives. Each alternative assumes the SR-125 freeway would be extended through the Otay Ranch property to Otay Mesa by CalTrans, and Paseo Ranchero/Heritage Road would cross the river valley. Other roadway extensions are proposed across the Otay River Valley and vary between alternatives. The county's preliminary plans to place a water reclamation plant in the Otay River Valley are accommodated within all the land use plans. The Eastern Urban Center would be present in varying locations and sizes within the Otay River parcel for each alternative, with the exception of the No Project Alternative. Finally, it was assumed that each alternative would entail an amendment of the county and City of Chula Vista general plans, except the Composite General Plans and No Project alternatives, and that similar approvals would be necessary throughout the plan implementation and development process. Table 4.1-2 highlights the key characteristics of the project alternatives.

Sections 4.2 through 4.9 of this EIR describe the project alternatives, potential environmental impacts, proposed mitigation, and the significant unmitigable impacts associated with each alternative. The impacts for each alternative are discussed by issue area. The mitigation measures include measures proposed by the applicant as part of the Otay Ranch development as well as additional measures recommended by the Project Team to reduce or eliminate potential impacts. Section 4.10 presents a comparison of the impacts of the project alternatives.

Table 4.1-2

KEY COMPONENTS OF PROJECT ALTERNATIVES

Issue	New Town Plan	Phase I-Progress Plan	Phase II-Progress Plan	Fourth Alternative	Project Team Alternative	Existing General Plans	Low Density Alternative	Environmental Alternative	No Project Alternative
Village Definition:									
Gross Densities	2.13 du/ac	1.28 du/ac	1.30 du/ac	1.18 du/ac	1.03 du/ac	0.61 du/ac	0.44 du/ac	0.40 du/ac	0 du/ac
Residential Mix	64% SF; 36% MF	54% SF; 46% MF	55% SF; 45% MF	51% SF; 49% MF	40% SF; 60% MF	80% SF; 20% MF	88% SF; 12% MF	73% SF; 27% MF	N/A
Village Concept	Mixed-use Village Centers	Residential with Village Centers	Mixed-use Village Centers	Residential with Village Centers	Mixed-use Village Centers	None	None	None	None
Transportation/ Transit & Villages:	Urban Villages Oriented to Transit	Urban Transit Oriented Villages Transit Corridor Adj to SR-125	Urban Transit Oriented Villages Transit Corridor Through EUC and Adj. to SR-125	Transit Oriented Village W of Salt Creek	Alts to Auto Transp; Transit Corridor	County/City Circulation Plans	No Transit Emphasis	Transit Corridor Adj. to SR-125 Village Centers	Existing Roads
Eastern Urban Center:	Otay River Parcel (363 ac)	Otay River Parcel (305 ac)	Otay River Parcel (289 ac)	Otay River Parcel (336 ac)	Otay River Parcel (286 ac)	Otay River Parcel (285 ac)	Otay River Parcel (208 ac)	Otay River Parcel (186 ac)	None
Number of Otay River Crossings:	3 (SR-125, Alta, and Paseo Ranchero/ Heritage)	4	3	4	4	3	3	2 (SR-125 and Paseo Ranchero/- Heritage)	2 (SR-125 and Paseo Ranchero/- Heritage)
Ranch House Site:	Medium Residential	Special Study Area	Low Density/ Resort Uses	Conference Center	Conference Center	Agriculture	Conference Center	Conference Center	Ranch House
University Site:	Between Salt Creek and Lower Otay Lake (400 ac)	Adjacent to Olympic Training Center and Lower Otay Lake (size undetermined)	Adjacent to Olympic Training Center and Otay Lake (size undetermined)	None	Between Eastern Urban Center and Otay River Valley (384 ac)	I-125 & Eastern Urban Center (160 ac)	West of Salt Creek (213 ac)	Southern Otay River Parcel (225 ac)	None
Conference Center:	None	In Jamul Mtns.	None	In Jamul Mtns. and Ranch House	In Jamul Mtns. and Ranch House	None	In Jamul Mtns.	None	None
Resort:	103 ac. north of lake	151 ac. north of lake	213 ac. north of lake and at Ranch House	153 ac. north of lake	236 ac. north of lake	None	203 ac. north of lake	40 ac. north of lake	None

Table 4.1-2 (Continued)

KEY COMPONENTS OF PROJECT ALTERNATIVES

Issue	New Town Plan	Phase I-Progress Plan	Phase II-Progress Plan	Fourth Alternative	Project Team Alternative	Existing General Plans	Low Density Alternative	Environmental Alternative	No Project Alternative
Regional Park:	2 Reg. Parks (Urban & Rural)	3 Open Space Areas	3 Open Space Areas	3 Open Space Areas	3 Regional Parks	Otay River Valley	3 Open Space Areas	3 Open Space Areas	Undeveloped Open Space
Resource Management Plan (RMP):	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Other Features:	Town Center/-Governmental Core near lake	Special Study Areas	Special Study Areas; Very Low Density Residential; EastLake acreage included in GPA	Even split of attached/detached units.	Urban/clustered development	Mostly residential use; no managed preserve	Suburban and rural land uses	Large residential lots (eastern parcels)	No Development

4.2 PHASE I-PROGRESS PLAN ALTERNATIVE

4.2.1 Description

Under the Phase I-Progress Plan Alternative, a maximum of 29,773 residential dwelling units (du) would be constructed on 8,250 acres of land within the 23,088-acre site (Table 4.2-1). Adoption and implementation of this alternative would result in approximately 86,456 new residents in the project area. Approximately 54 percent of the housing proposed under this alternative would be single-family residences, while the remainder would be multifamily attached units. As illustrated in Figure 4.2-1, the residential densities would vary across the site, although the majority of the residences would be constructed within the 11 proposed villages on the Otay River parcel at an average net density of 6.60 du/ac. The Proctor Valley parcel would be characterized by low to medium density residential development, most of which would be single-family detached homes at an average net density of 2.42 du/ac. Large lots, ranging in size from 0.33 to 2 acres and larger, and special grading criteria are proposed for those homes on foothills and in the vicinity of the community of Jamul. Residential areas on the San Ysidro parcel would consist mostly of low density uses and would be concentrated in the western portion near Lower Otay Lake and in the eastern portion near Dulzura. Lots on the San Ysidro parcel would range in size from 2 to 8 acres, with an area of medium density residential development in the lake vicinity. The net residential density would average 0.88 du/ac on the San Ysidro parcel.

Commercial acreage, industrial development (i.e., business park and limited industrial), schools/public facilities, park/recreation facilities, and "Special Plan Areas" may encompass an additional 1,817 acres of development. A majority of the commercial land uses would be concentrated in the Eastern Urban Center on the Otay River parcel, with San Ysidro featuring a small pocket of commercial development in a village center near Lower Otay Lake. Thirteen village centers, featuring mixed uses, elementary schools, and neighborhood parks are planned under this alternative. The village centers, Eastern Urban Center, Proctor Valley resort, and conference center uses are "Special Plan Areas" under the Phase I-Progress Plan Alternative.

To balance the developed portions of the site, this alternative also proposes the preservation of 10,984 acres of undeveloped open space encompassing the Otay River Valley, San Ysidro Mountains, and Jamul Mountains. A resource management plan would be implemented for this alternative. Fifty acres have also been identified as a vernal pool study area near Lower Otay Lake. Several community and neighborhood parks would supplement the natural open space and trail system with active recreation areas, including parkland within the Otay Valley Regional Park. Man-made open space, composed of parkway and greenbelts, would be integrated into the trail system. A potential university site has been identified adjacent to the Olympic Training Center and the western shore of Lower Otay Lake; the exact acreage and configuration would be determined in the future. Approval of a university would require discretionary action by the relevant jurisdiction and associated environmental review. Future studies are proposed under the Phase I-Progress Plan Alternative to evaluate potential uses for the rock quarry site upon facility closure, the university site, western developable area on the San Ysidro parcel, and to identify appropriate uses for central Proctor Valley and the Ranch House Estate. These studies would also involve environmental review at some later stage.

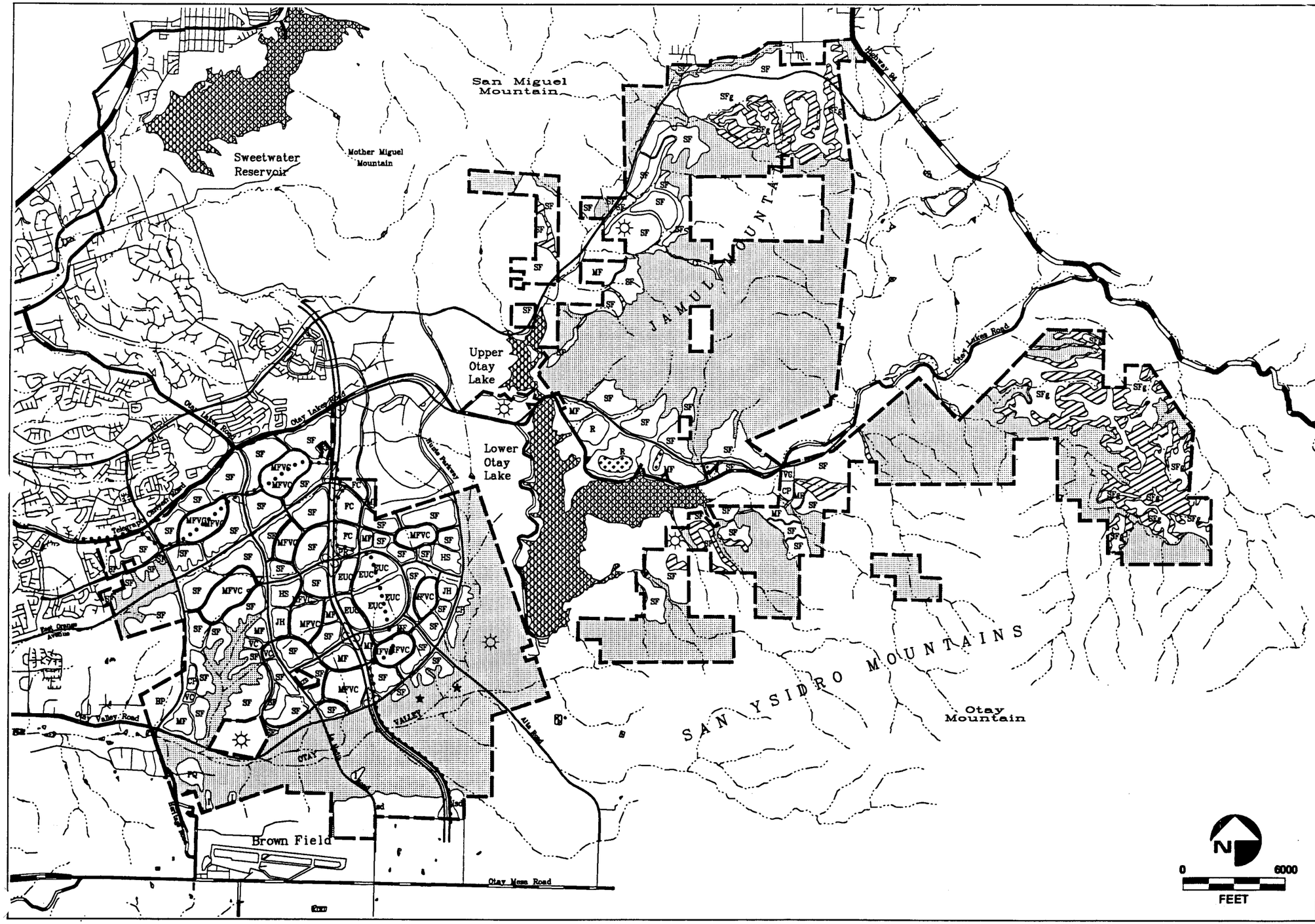
The circulation plan for the Phase I-Progress Plan features a series of prime arterials, major roads, and collectors. Four Otay River Valley crossings, including SR-125, La Media Road, Heritage Road, and Alta Road through O'Neal Canyon would provide regional

Table 4.2-1

LAND USE STATISTICS
FOR PHASE I-PROGRESS PLAN

Land Use Designation	Residential Density (du/ac)	Otay River Parcel Acres	Otay River Parcel Dwelling Units	Proctor Valley Parcel Acres	Proctor Valley Parcel Dwelling Units	San Ysidro Parcel Acres	San Ysidro Parcel Dwelling Units	Otay Ranch Total Acres	Otay Ranch Total Dwelling Units
RESIDENTIAL									
Single Family		2,349		1,512		627		4,488	
Multifamily		693		190		57		940	
Special Grading Criteria		--		582		781		1,363	
Restricted Development		--		414		958		1,372	
Total Residential:		3,042	18,491	2,698	6,358	2,423	2,324	8,163	27,173
COMMERCIAL									
Retail Commercial		100		--		--		100	
Freeway Commercial		112		--		--		112	
INDUSTRIAL									
Research Industrial		280		--		--		280	
Limited Manufacturing		26		--		--		26	
Business Park		106		--		--		106	
PUBLIC/QUASI-PUBLIC									
Public Facilities/Schools		300		--		10		310	
PARKS/SQUARES		166		--		27		193	
EASTERN URBAN CENTER									
Residential		87	2,600					87	2,600
Retail Commerical		203						203	
Parks		15						15	
RESORT		--		151		--		151	
CONFERENCE CENTER		--		19		--		19	
SPECIAL STUDY AREA (Ranch House)		--		132		--		132	
OPEN SPACE									
Vernal Pool Study Area		--		50		--		50	
Man-made		1,591		383		13		1,987	
Natural		3,420		4,482		3,082		10,984	
FREEWAY		170		--		--		170	
TOTALS		9,618	21,091	7,915	6,358	5,555	2,324	23,088	29,773

Sour Robert Bein, William Frost & Associates 1991; as revised by Ogden, 1992.



LEGEND

- Open Space
- Man Made Open Space
- Restricted Development
- Vernal Pool Study Area
- Special Study Area
- Potential Active Recreational Areas

Residential
- SF Single Family
- MF Multiple Family
- SFg Special Grading Criteria
- MFVC Multiple Family/Village Center

Commercial
- C Commercial
- FC Freeway Commercial

Industrial
- BP Business Park
- Isd City of San Diego Industrial
- I Limited Manufacturing

Public & Open Space
- HS High School
- JH Junior High School
- CP Community Park
- PR Park & Ride facility
- WS Water Storage
- PQ Public/Quasi-Public

Special Plan Area
- EUC Eastern Urban Center
- R Resort
- CC Conference Center
- VC Village Center

- Hwy 125
- Parkway
- Transit corridor
- Primary arterials
- Otay Ranch property

OGDEN

Phase I - Progress Plan Alternative

FIGURE 4.2-1

access from the Otay Ranch property to the Otay Mesa industrial area. To supplement the roadway network, a transit corridor is planned along the SR-125 corridor and Telegraph Canyon Road.

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4.2.2 Land Use, Planning, and Zoning

4.2.2.1 Impact Analysis

Displacement of Existing Land Uses

The existing land uses displaced by this alternative would be as follows: agricultural operations on portions of the site, nine residences, several agricultural-related structures located at the old headquarters for the Otay Ranch operations (the Old Ranch Complex), and the Target Tossers Gun Club. Temporary land uses located at the "Bird Ranch" and the recycling business and house located in the extreme southwestern corner of the property would not be displaced by this alternative (F. Arbuckle, personal communication, 1991). It is not known at this time whether or not land uses at the Otay Ranch House complex would be displaced; this area is mapped as a Special Study Area on the Subregional Plan map.

The displacement of agriculture on the site is addressed in Section 3.7 of this report. The loss of 9 to 14 houses presently located on the site (depending on whether or not houses located at the Otay Ranch House are also displaced) is not a significant land use impact since the project would replace these units with new residential development. The cultural resources impact on these structures is discussed in Section 4.2.5.

Compatibility of the Project with Adjacent Land Uses

The Otay River parcel of the Phase I-Progress Plan would be developed with land uses similar in nature and density to those already occurring or under construction in proximity to the project, with only a few exceptions. For example, land uses proposed under this alternative for areas adjacent to EastLake include multifamily residential (12 du/ac) near EastLake medium-high density residential areas, and single-family residential (6 du/ac) near EastLake low-medium density residential areas. Land uses proposed near Sunbow are single-family residential (4.5 du/ac) in proximity to Sunbow's low-medium density residential development. A business park is proposed adjacent to the offsite industrial areas along Otay Valley Road, and industrial development is proposed across from the Otay Rio Business Park under construction off Heritage Road and in Otay Mesa east of Brown Field where new industrial development is already occurring.

The primary areas of potential land use incompatibility with adjacent land uses offsite under this alternative are along the western boundary of the Otay River parcel where residential development is proposed in proximity to the Otay Landfill. Potential land use incompatibilities could occur from health concerns related to the landfill, including air quality and odors, as well as noise impacts. Air quality and noise concerns are addressed in Sections 4.2.12 and 4.2.13, respectively. Lighting impacts are potentially significant, but mitigable.

Development on the Proctor Valley parcel would be located primarily on a mesa overlooking Lower Otay Lake where a resort is proposed and along Proctor Valley Road from north of Upper Otay Lake to the property's eastern boundary at SR-94 in Jamul. Significant land use incompatibilities (similar to those projected for the New Town Plan) would occur next to the San Diego Air Sports Center as a result of the proposed development. Development in the vicinity of Jamul would be large-lot single-family residential development ranging from 0.33 to 2 acres in size. Any lots less than 1 acre in size would not be ~~This is~~ compatible with existing single-family development in the area.

Development proposed for the San Ysidro parcel is primarily surrounded by open space, and thus significant land use incompatibilities with adjacent land uses would generally not occur. As in the case of the New Town Plan, exceptions include development proposed near the San Diego Air Sports Center and the single-family residential development proposed adjacent to the Daley quarry site. Since it is not known at this time whether or not a permit will be granted and whether or not the quarry will still be in operation when buildings proposed for this area are constructed and occupied, potentially significant land use impacts could occur (see also Section 4.2.12, Air Quality, and Section 4.2.13, Noise).

Impacts to rural lands north and east of the Proctor Valley and San Ysidro parcels may occur indirectly due to growth induced by the extension of infrastructure and the Urban Limit Line (see Section 7, Growth Inducement).

Compatibility of Proposed Land Uses Internal to the Project

Like the New Town Plan and the Environmental Alternative, the Phase I-Progress Plan proposes residential neighborhoods of varying densities supported by retail commercial and public/quasi-public uses, as well as regional employment centers including an Eastern Urban Center and freeway-serving commercial uses along the eastern side of proposed SR-125. Other proposed employment centers include a business park located along the western property line north of Otay Valley Road, areas designated as Limited Industrial in the southwestern corner of the site, and areas designated as Industrial in accordance with the City of San Diego's land use designations in the portions of the property located within the City of San Diego (east of Brown Field). These industrial areas are buffered from other onsite land uses by open space and, in the case of the business park off Otay Valley Road, an internal road. The plan also includes a potential university site to be located in the eastern part of the Otay River parcel. This site would also be buffered from other onsite land uses by open space and/or internal roads. Therefore, except for the specific area discussed below, based on the proposed Land Use Plan map for this alternative, no significant land use incompatibilities would result from the project's internal design as long as the applicable SPA plans contain adequate buffering and landscaping guidelines for areas between residential and non-residential development. (This is also recommended in the Village Character Issue Paper, developed by the project team for Otay Ranch.)

The Phase I-Progress Plan proposes residential development adjacent to the Nelson and Sloan quarry, located within the project's boundaries on an out-parcel. In the case of adequate buffering for this potentially significant land use incompatibility, it is likely that buffers larger than those currently shown on the proposed Land Use Plan map would be necessary to protect adjacent residents from the possible adverse effects of quarry operations (e.g., dust, noise, and lighting). The placement of residential land uses in proximity to the Nelson and Sloan quarry during operation of the quarry, as shown on the proposed Phase I-Progress Plan map, would result in a significant land use incompatibility of this alternative (see also Section 4.2.12, Air Quality, and Section 4.2.13, Noise).

Residential development is also proposed along SR-125, which could result in land use, incompatibilities due to noise (see Section 4.2.13). Economic impacts would not occur to the Eastern Urban Center with this alternative since the entire center would be located east of the highway instead of being divided by the highway.

This alternative assumes the relocation of the FAA VORTAC facility. If the existing FAA VORTAC facility is not relocated, then proposed land uses would be inconsistent with these existing land uses.

In the Proctor Valley parcel, the Phase I-Progress Plan proposes a resort and associated single and multifamily residential development, a small conference center, and varying densities of residential development (primarily single-family housing) supported by neighborhood commercial land use. No internal land use incompatibilities would result since the resort area is separated from the other residential areas by open space. There is one Special Study Area located in the central part of Proctor Valley that will be the subject of further study if this alternative is selected. Additional studies would be required if the analysis reveals land use incompatibilities for any newly proposed land uses.

Development proposed for the San Ysidro parcel under this alternative is primarily single-family housing with one area along Otay Lakes Road that is proposed as a village center (including some multifamily residences) and park. No internal land use incompatibilities would occur in this parcel since the village center would not be located adjacent to any very low density housing, and the housing that is proposed near the center would be more urban in design.

Project Consistency with Applicable Existing Land Use Plans, Policies, Designations, and Zoning

This alternative would result in a significant change from the site's existing open space and agricultural land uses to urban, semi-rural, and rural land uses. The change in land use character from undeveloped or underdeveloped open space to development is a significant unavoidable impact of this alternative.

The Phase I-Progress Plan is generally consistent with County of San Diego policies and goals applicable to the project (see Section 3.1.1). The development would occur in accordance with an approved facilities financing plan (Land Use Policy 8, Otay Subregional Plan) and would construct more urban types of land uses adjacent to eastern Chula Vista, which is urban in character, while proposing lower densities of residential development or open space in the existing rural or open space areas (Goal 1, Jamul-Dulzura Subregional Plan; Overall Goal 1.1, Land Use Goals 2.2, 2.3, and 2.4 and Policy 3.1, Regional Land Use Element). Specific consistency with these and other applicable policies or goals, however, will have to be determined as additional project details become available during subsequent phases of the project development. For example, policies and guidelines regarding design, lot restrictions, and landscaping would be included in the various SPA plans and should be evaluated at that time to see if they will adequately retain the rural character of the existing rural communities within the Jamul-Dulzura subregion (Goal 1, Jamul-Dulzura Subregional Plan). A map showing proposed grading and development densities in relation to 25 percent slopes should be included to determine consistency with Land Use Policy 4 of the Jamul-Dulzura Subregional Plan. Land Use Policies 5 and 10 of the Jamul-Dulzura Subregional Plan also contain specific development criteria that should be included in the applicable SPA plans for those areas (see Section 3.1.1).

The Phase I-Progress Plan proposes development within several of the RCAs mapped for the area by the county: RCAs #122-San Miguel Mountain-Jamul Mountains, #124-Brown Field Area, and #127-Otay Mountain-Lower Otay Lake (see Figure 3.1-9). Since development is proposed in these areas, potentially significant impacts to sensitive resources could occur unless the same special considerations is required by the new community plan for the area as is required by the RCA designation by the county. The remainder of the RCAs in the area (RCA #112-Mother Miguel Mountain, #123-Otay River, and #125-Brown Field Old Bombing Range) are primarily designated as open space on the Phase I-Progress Plan Land Use Plan map and would not be significantly impacted.

No significant inconsistencies to applicable City of San Diego objectives would occur as a result of this alternative since the area under the city's jurisdiction would be designated as Industrial in a manner consistent with the existing City of San Diego designations. (See Section 4.2.13, Noise, for discussion of the alternative's consistency with planning documents related to Brown Field.)

The Phase I-Progress Plan is consistent with most applicable City of Chula Vista policies since it would provide for a range of housing and employment opportunities, supported by commercial and public/quasi-public uses (Goal 1-Objective 5, Goal 2-Objectives 7 and 8, Goal 3-Objectives 10, 12, and 13, Land Use Element of the Chula Vista General Plan; and Goal 2-Objective 4, Eastern Territories Area Plan of the Chula Vista General Plan). The alternative also provides for a regional retail center (Goal 2-Objective 7, Land Use Element of the Chula Vista General Plan; and Goal 3-Objective 7, Eastern Territories Area Plan of the Chula Vista General Plan), a four-year college or university site (Goal 4-Objective 18, Land Use Element of the Chula Vista General Plan), and open space available for the Chula Vista greenbelt and trail system (Goal 5-Objective 20, Land Use Element of the Chula Vista General Plan).

The Phase I-Progress Plan is inconsistent with Goal 3-Objective 16 (Land Use Element of the Chula Vista General Plan) regarding provisions for mobile home parks since the alternative does not propose such land uses; however, this inconsistency is not significant since the proposed Land Use Plan map is general enough to allow their inclusion as a land use at a later date. This alternative is inconsistent with Goal 3-Objective 14, Land Use Element of the Chula Vista General Plan regarding the use of low-medium density, single-family housing as the predominant land use in the Eastern Territories. The plan proposes that approximately 25 percent of the residential acreage and 54 percent of the total units consist of medium, medium-high, or high density residential development; see Table 4.2-1.

4.2.2.2 Proposed Mitigation

Mitigation for land use impacts of the Phase I-Progress Plan are required at the GDP/Subregional Plan level and will be implemented at the SPA plan level. These include:

1. The SPA plans developed for the areas of the Otay River parcel adjacent to EastLake, Sunbow, and the Otay Annex Landfill shall contain landscaping, grading, and buffering guidelines (including recommendations contained in Sections 3.11 and 3.12 of this report) designed to prevent land use interface impacts such as noise, lighting, and loss of privacy between Otay Ranch and these adjacent land uses. The SPA plan shall be reviewed by the city or county planning department that has jurisdiction over these areas to ensure that proposed guidelines are adequate to prevent significant interface impacts from occurring. (EIR proposed.)

2. The project plans shall be submitted to the FAA for review as soon as possible to determine if land use incompatibilities would exist between the project and the existing San Diego Air Sports Center. If it is determined that such incompatibilities would occur, then the extent of the incompatibilities (i.e., the size of the buffer needed) must also be determined. The project applicant shall then revise the project's phasing plan to allow for use of the sports center until its existing option has expired (i.e., through the year 2002). (EIR proposed.)

3. Development proposed adjacent to the Daley quarry site in the San Ysidro parcel shall occur in accordance with the mitigation measures listed in Sections 3.11

and 3.12 of this report. The mitigation measures contained in these sections shall be included in the applicable SPA plan for this area of the project. (EIR proposed.)

4. The SPA plans developed for the various areas of the project site shall contain landscaping, grading, and buffering guidelines designed to prevent land use interface impacts such as noise, lighting, and loss of privacy from occurring between adjacent internal land uses, especially between single-family and multifamily residential land uses and between residential and non-residential land uses. Lots contiguous to Jamul in the Proctor Valley parcel may not be smaller than 1 acre in size. All SPA plans shall be reviewed by the city or county planning department that has jurisdiction over the area in which the proposed SPA plan is located to ensure that proposed guidelines are adequate to prevent significant interface impacts from occurring. Policy A-6, as listed in the Village Character Issue Paper (July 24, 1991), regarding "buffering and/or transition techniques" shall be included in the land use policies of the GDP. (EIR proposed.)

5. Development proposed adjacent to the Nelson and Sloan quarry in the Otay River parcel shall occur in accordance with the air quality and noise mitigation measures listed in Sections 3.11 and 3.12, respectively, of this report. The mitigation measures contained in these sections shall be included in the applicable SPA plan for this area of the project. (EIR proposed.)

6. If the existing FAA VORTAC facility is not relocated, the Subregional Plan map shall be revised to indicate this existing land use. In addition, the SPA plan developed for this area shall contain landscaping, grading, and buffering guidelines designed to prevent land use interface impacts. The SPA plan shall be reviewed by the city or county planning department that has jurisdiction over this area to ensure that proposed guidelines are adequate to prevent significant interface impacts from occurring. (EIR proposed.)

7. Special development criteria shall be developed in coordination with the project's RMP to protect the resources located outside the management preserve similar to the intent of the Resource Conservation Area Overlay zone. The development criteria and RMP shall be reviewed and approved by the County of San Diego and City of Chula Vista planning departments to ensure that potential impacts to sensitive resources will be avoided. (EIR proposed.)

4.2.2.3 Analysis of Significance

The proposed mitigation measures would reduce most of the potential land use impacts to below a level of significance. However, this alternative would change the existing character of the site from undeveloped or underdeveloped open space to developed land. This is a significant unavoidable impact of this alternative, especially for the areas in or adjacent to Jamul, Proctor Valley, Lower Otay Lake and the San Ysidro Mountains.

Significant land use impacts would occur due to inconsistency with county policies to preserve rural lands and with City of Chula Vista goals for development of the Eastern Territories primarily with low-medium residential densities and a four-year university.

No significant unmitigable land use impacts other than the unavoidable change in character of the site from undeveloped to developed would occur as a result of the Phase I-Progress Plan.

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4.2.3 Landform Alteration/Aesthetics

4.2.3.1 Impact Analysis

Change to the Overall Visual Character of the Project Area

This alternative would change the existing visual character of the site from primarily open space and agriculture to a partially urbanized area. Although the majority of the Otay River Valley and Jamul Mountains would be retained in open space, the Phase I-Progress Plan proposes major urbanization of existing open space areas. These overall changes in the site's visual character are significant and unavoidable impacts. In addition, night lighting would be introduced in the eastern rural areas of the site (i.e., Proctor Valley and San Ysidro parcels). Night lighting impacts would be less than significant since the project would have to comply with the County's Dark Sky Ordinance or similar city ordinances.

Alteration of Significant or Sensitive Landforms

Implementation of the Phase I-Progress Plan Alternative may involve significant amounts of landform alteration in areas with steep slopes and canyons. Landforms that would be affected by grading and site development include the northern slopes of Otay River Valley, Wolf Canyon, and Poggi Canyon on the Otay River parcel; the foothills of the Jamul Mountains and central Proctor Valley on the Proctor Valley parcel; and the area south of the eastern arm of Lower Otay Lake and the eastern portion of the San Ysidro parcel. No development has been proposed within Big Cedar Canyon, Little Cedar Canyon, O'Neal Canyon (except Alta Road), or on Rock Mountain. Areas restricted by steep slopes have been identified as such on the land use plan within the northern foothills of Jamul Mountain and the eastern San Ysidro parcel (Figure 4.2-1). Large-lot residential development would be located atop the surrounding ridges in these areas, thus reducing landform alteration effects of grading steep slopes. In addition, resort development near Lower Otay Lake would be primarily located on the broad, gently sloping terrace to the north, leaving the steeper slopes of the mountains in open space. Despite these restrictions, portions of the Phase I-Progress Plan development limits would encroach into significant or sensitive landforms, including:

- Residential development along minor ridgetops and knolls south of Lower Otay Lake (San Ysidro parcel)
- Residential development along the southern slopes of Telegraph Canyon
- Residential development on minor ridgetops in the western foothills of the Jamul Mountains (Proctor Valley parcel)
- Residential and village center development around the edges of Wolf and Poggi Canyons
- Remedial grading on slopes within Otay River Valley.

Disturbance of these landforms would constitute a significant impact; however, with proper care taken to avoid steep slopes during preparation and implementation of the grading plans, the effects could be minimized. Policies would be implemented as part of the Otay Ranch GDP in order to guide and/or limit grading that would eventually occur as a result of Phase I-Progress Plan development (refer to Section 3.2.2 for policy details).

Despite these proposed grading guidelines, the potential for significant landform alteration would still exist due to steep slopes in certain areas. Grading proposed for the environmentally-sensitive Otay River Valley would also be considered a significant landform alteration impact of this alternative.

Visual Impacts in Areas Visible to Large Numbers of People

The short-term visual effects of grading operations associated with the Phase I-Progress Plan Alternative would be adverse, but less than significant. All grading operations would be temporary and phased to occur primarily in areas isolated from intensely-used public viewing areas, or in areas where grading and construction is occurring in conjunction with other planned community developments in the region and thus are a common sight. The project phasing would also limit the amount of grading visible at any one time.

The Phase I-Progress Plan Alternative would have significant long-term visual impacts from landform alteration of visible steep slopes (over 25 percent) and development near scenic roadways. Significant amounts of slope and minor ridgetop grading could be necessary north of Otay River Valley, northeast and southeast of Lower Otay Lake, and north/northeast of Jamul Mountains to accommodate the proposed resort and residential land uses proposed in those locations. The grading of these four areas would be likely to result in alteration of the landform that is noticeable from existing development or roadways on a long-term basis, i.e., after landscaping and development. Therefore, in these four specific areas of the project, long-term visual impacts of grading (i.e., landform alteration) would be significant. The effects of grading steep slopes within Wolf Canyon and Poggi Canyon would not be visible from sensitive locations and would be evaluated during the SPA submittal.

A discussion of each of the sensitive view areas in proximity to the project is provided below:

- Telegraph Canyon Road - Development proposed for areas visible from Telegraph Canyon Road would be primarily single-family residential, although small amounts of multifamily residential development might also be visible. This type of development is similar in intensity to that visible from Telegraph Canyon Road to the north and to the south within the EastLake Greens project. However, screens of mature landscaping combined with existing setbacks conveys a less intrusive presence on the streetscape. The project, as currently proposed, does not feature those landscaping details. Therefore, significant visual and policy impacts to motorists on Telegraph Canyon Road or to residents located on the bluffs along the north side of Telegraph Canyon Road could occur.

- Otay Valley Road - The entire Otay River Valley within the Otay River parcel and the majority of the slopes on either side of the valley would be left in open space under the Phase I-Progress Plan Alternative. Otay Valley Road itself would be extended along the northern slopes of and would remain on the north side of the river. (It is assumed that the valley would still undergo remedial grading to remove remnants of previous mining operations.)

  Since most of the project site that is currently visible from Otay Valley Road would be left in open space (with the exception of development proposed between the existing landfill and the Nelson and Sloan quarry), and since the existing development near Otay Valley Road reduces the visual quality of the area, no significant visual impacts to views from Otay Valley Road would occur as a result of the development. The removal of the effects of mining operations on the Otay

River Valley and subsequent revegetation of the area would have a positive visual effect on the Otay Valley Road view.

- Orange Avenue and Hunte Parkway - The development proposed along future extensions of Orange Avenue and Hunte Parkway would be similar to adjacent development (i.e., Sunbow and EastLake Greens) as well as to the development that is characteristic of eastern Chula Vista (i.e., mixed use urban development). Therefore, no significant visual impacts from development proposed within the viewshed of these two roads would occur; however, further evaluation will occur at the SPA level.

- Proctor Valley Road and Jamul - Development proposed by the Phase I-Progress Plan Alternative for areas adjacent to Proctor Valley Road would include low, low-medium, and medium densities of residential development. This type of development would not only result in significant adverse visual impacts due to the contrast it would provide to the existing character of the view, but has the potential to block the long-range views of the surrounding hills that are currently available from Proctor Valley Road. Therefore, the development proposed through Proctor Valley would result in significant visual and visual policy impacts to users of Proctor Valley Road.

  Effects of site grading and development on Jamul residents would be considered significant due to the dramatic change in site character from open space to low to low-medium residential use. By restricting development to level ridgetops and hillsides, the visibility of the project increases its adverse effect on visual resources in northern Proctor Valley.

- Otay Lakes Road, Wueste Road, and Lower Otay Lake - Development proposed by the Phase I-Progress Plan Alternative would significantly alter the character of these views. Development would significantly detract from the visual quality of the Lower Otay Lake area by developing the bluffs and hillsides that surround the lake. Visual impacts would be especially significant as a result of development proposed on the hills to the southeast of the lake within the San Ysidro parcel, which are visible from Proctor Valley Road, Otay Valley Road, Otay Lakes Road, Wueste Road, and many areas within the the Otay River parcel itself. This may eventually become a major open space area within southeastern San Diego County, and it is therefore of regional importance from a visual standpoint.

  Otay Lakes Road would be relocated from along the lake's northeastern shoreline to an alignment internal to the Otay Ranch project under the Phase I-Progress Plan Alternative; this would have potentially significant visual and policy impacts since the scenic aspects of the road may be reduced due to the realignment and adjacent development potentially obstructing views.

- Highway 94 - The portions of the site visible from Highway 94 under the Phase I-Progress Plan Alternative would be limited to single-family residential development in the extreme northeast corner of the Proctor Valley parcel and in the eastern part of the San Ysidro parcel that is subject to special grading criteria to reduce impacts to sensitive slopes. Views of the development would be short in duration due to the curvature of the roadway and medium- to long-range since the highway is located approximately 0.4 miles east of the site at the closest point; thus no significant visual impacts ~~would~~ are likely to occur.

4.2.3.2 Proposed Mitigation

No measures are available to mitigate the loss of open space and the unavoidable conversion in visual character of the project; the adverse effects are unmitigable.

To reduce landform alteration impacts, the grading and development policies accompanying the project shall be supplemented by measures that limit grading of ridgelines and steep slopes, require landscaping on manufactured slopes, control roadway designs on hillsides, and require the preparation and review of all grading plans by a certified engineering consultant. Details of these measures are contained in Section 3.2.3.2.

To minimize the significant impacts on highly visible areas, such as development within Otay River Valley, around Lower Otay Lake, and in the Jamul foothills, future analysis of grading plans shall focus on the resort building locations, bulk, and setbacks; views from scenic highways; and manufactured slopes in Otay River Valley. The project shall also integrate view corridors and vistas along the re-aligned Otay Lakes Road, place height limitations on structures surrounding the lake, and place open space easements across undeveloped landforms. Additional measures shall be implemented to control the design of future development and avoid visually intrusive features. Review of architectural, landscape, and site plans shall ensure the use of non-glare materials, compatible scale/bulk, and natural coloration of building materials, among other features. Details on these measures are provided in Section 3.2.3.3.

4.2.3.3 Analysis of Significance

The following would remain significant impacts of the Phase I-Progress Plan Alternative after implementation of the above mitigation: alteration in areas of sensitive landforms (i.e., steep slopes and the Otay River Valley); an unavoidable change in the existing visual character of the Otay Ranch site; and visual impacts of development proposed for the southwestern corner of the San Ysidro parcel (unless the development plan is amended and this area is left undeveloped).

4.2.4 Biological Resources

4.2.4.1 Impact Analysis

Reduction of Vegetative Communities/Habitats

The reduction of both natural and disturbed habitats associated with the Phase I-Progress Plan is shown in Table 4.2.4-1. The overall reduction of open space by planning area is estimated at 52 percent for Otay Ranch, of which 64 percent would occur on the Otay River parcel, 43 percent on the Proctor Valley parcel, and 45 percent on the San Ysidro parcel. An overlay of the proposed development areas onto the vegetation map of Otay Ranch is included in Appendix A-4. The above figures do not include the development of the Special Study Area (University site) in Salt Creek Canyon. The development of the university would be additive to the above figures and those on Table 4.2.4-1 and 4.2.4-2.

Reduction of Sensitive Habitats

A summary of the reduction of sensitive habitats with the implementation of the Phase I-Progress Plan is shown in Table 4.2.4-2. This table consolidates the various sensitive habitats from Table 4.2.4-1 and separates those habitats which are considered wetlands. As seen in Table 4.2.4-2, this alternative would reduce sensitive habitats overall on Otay Ranch by 37 percent (4,689 acres). Over 96 percent (4,318 acres) of this impacted acreage would be Diegan coastal sage scrub. Wetlands would be impacted by only about 9 percent (73 acres) with the largest single contribution being the loss of 42 acres of alkali meadow in the Proctor Valley area. The loss of Diegan coastal sage scrub, maritime succulent scrub, southern interior cypress forest, coast live oak woodland, valley needlegrass grassland, and wetlands are considered significant impacts. Significant wetland impacts include vernal pools, floodplain scrub, alkali meadow, southern live oak riparian forest, sycamore alluvial woodland, and southern willow scrub. Each reduction would exceed the thresholds for the determination of significance in the City of Chula Vista General Plan EIR (City of Chula Vista 1990).

The combination of Diegan coastal sage scrub and maritime succulent scrub impacted totals 4385 acres. Of this total, 1372 acres are estimated to occur within the "restricted development" category in the Proctor Valley (414 acres) and San Ysidro parcels (958 acres). Given that this area is not expected to be developed, this acreage is subtracted from the impact total leaving 3013 acres impacted. This acreage includes a disturbed coastal sage scrub component (639 acres) in Proctor Valley. An evaluation of coastal sage scrub impacts is presented in Table 4.2.4-3. The table ranks impacts to coastal sage scrub based on a cumulative score. The score is acquired by rating impacts for specific areas based on three elements: presence of sensitive plants, sensitive animals, and location. Location takes into account the importance of open space continuity, presence of a wildlife corridor, and adjacency or buffering of key resources. Each of these three elements is rated for each area on a scale of 0 to 5 (most sensitive) and added to achieve the ranking of the impact acreage. The rankings varied between 4 and 14. It should be pointed out that the impact acreage within each parcel is in some cases the total of a number of different areas of impact (e.g., 290 acres within the Otay River parcel is the sum of three different areas of equal ranking). The rankings are broken into three levels to establish high, medium, and low impacts. These ranking levels are shaded differently on Table 4.2.4-3. The different levels are compared by adding the total rankings in each level. The totals for the lowest and highest levels are 22 and 50, respectively. The cumulative total for the highest level is therefore 2.3 times the lowest level.

Table 4.2.4-1 (Revised)

SUMMARY OF IMPACTS TO VEGETATIVE HABITATS
PHASE I-PROGRESS PLAN ALTERNATIVE

HABITAT	OTAY RIVER Open Acres	OTAY RIVER Impacted Acres	OTAY RIVER Total Existing	OTAY RIVER % Impacted	PROCTOR VALLEY Open Acres	PROCTOR VALLEY Impacted Acres	PROCTOR VALLEY Total Existing	PROCTOR VALLEY % Impacted	SAN YSIDRO Open Acres	SAN YSIDRO Impacted Acres	SAN YSIDRO Total Existing	SAN YSIDRO % Impacted	TOTAL	Total Open	Total Impacted	Total % Impacted
UPLAND SCRUB COMMUNITIES																
Diegan coastal sage scrub	1400.7	416.1	1816.8	22.9%	3346.2	1496.5	4842.7	30.9%	1663.2	1573.1	3236.3	48.6%	9895.8	6410.1	3485.7	35.2%
Southern mixed chaparral	0.0	0.0	0.0	0.0%	463.0	106.1	569.1	18.6%	485.6	32.5	518.1	6.3%	1087.2	948.6	138.6	12.7%
Chamise chaparral	7.0	0.0	7.0	0.0%	259.4	705.1	964.5	73.1%	131.7	337.4	469.1	71.9%	1440.6	398.1	1042.5	72.4%
Mixed chaparral/ coastal sage scrub	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	23.7	5.6	29.3	19.1%	29.3	23.7	5.6	19.1%
Mixed chaparral/chamise chaparral	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	23.7	0.0	23.7	0.0%	23.7	23.7	0.0	0.0%
Mixed chaparral/Tecate cypress	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	86.9	0.0	86.9	0.0%	86.9	86.9	0.0	0.0%
Coastal sage scrub/non-native grassland	9.0	0.0	9.0	0.0%	0.0	0.0	0.0	0.0%	175.2	187.6	362.8	51.7%	371.7	184.0	187.6	50.5%
Coastal sage scrub/mixed chaparral	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	93.2	4.1	97.3	4.2%	97.3	3.0	4.1	4.2%
Maritime succulent scrub	217.6	67.1	284.7	23.6%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	284.7	218.0	67.1	23.6%
Disturbed coastal sage scrub	0.0	1.2	1.2	100.0%	140.5	639.5	780.0	82.0%	0.0	0.0	0.0	0.0%	781.2	141.0	640.7	82.0%
TOTAL	1634.2	484.4	2118.6	22.9%	4209.1	2947.2	7156.3	41.2%	2683.1	2140.3	4823.4	44.4%	14098.4	8437.1	5571.9	39.5%
FLOODPLAIN SCRUB																
Baccharis scrub	18.8	0.0	18.8	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	18.8	18.8	0.0	0.0%
Tamarisk scrub	3.6	0.0	3.6	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	3.6	3.6	0.0	0.0%
Tamarisk/mulefat scrub	372.3	20.0	392.3	5.1%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	392.3	372.3	20.0	5.1%
Mulefat scrub	112.8	0.0	112.8	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	112.8	112.8	0.0	0.0%
TOTAL	507.5	20.0	527.5	3.8%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	527.5	507.5	20.0	3.8%
GRASSLAND / MEADOW																
Grassland	0.0	38.3	38.3	100.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	38.3	0.0	38.3	100.0%
Non-native grassland	750.3	376.2	1126.5	33.4%	1.3	60.6	61.9	97.9%	15.9	81.5	97.4	83.7%	1285.8	767.5	518.3	40.3%
Non-native grassland/coastal sage scrub	94.3	51.0	145.3	35.1%	0.0	0.0	0.0	0.0%	129.3	235.5	364.0	64.7%	509.3	223.5	286.5	56.3%
Disturbed non-native grassland	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	7.9	4.2	12.1	34.5%	12.1	7.9	4.2	34.5%
Valley needlegrass grassland	0.0	0.0	0.0	0.0%	12.5	36.6	49.1	74.5%	0.0	0.0	0.0	0.0%	49.1	12.5	36.6	74.5%
Alkali meadow	0.0	0.0	0.0	0.0%	102.9	34.7	137.6	25.2%	0.0	0.0	0.0	0.0%	137.6	102.9	34.7	25.2%
Disturbed alkali meadow	0.0	0.0	0.0	0.0%	5.5	6.9	12.4	55.7%	0.0	0.0	0.0	0.0%	12.4	5.5	6.9	55.7%
Disturbed valley needlegrass grassland	0.0	0.0	0.0	0.0%	27.9	186.7	214.6	87.0%	0.0	0.0	0.0	0.0%	214.6	27.9	186.7	87.0%
TOTAL	844.6	465.5	1310.1	35.5%	150.1	325.5	475.6	68.4%	153.1	321.2	473.5	67.8%	2259.2	1147.8	1112.2	49.2%

Table 4.2.4-1
(Continued)

SUMMARY OF IMPACTS TO VEGETATIVE HABITATS
PHASE I-PROGRESS PLAN ALTERNATIVE

HABITAT	OTAY RIVER Open Acres	OTAY RIVER Impacted Acres	OTAY RIVER Total Existing	OTAY RIVER % Impacted	PROCTOR VALLEY Open Acres	PROCTOR VALLEY Impacted Acres	PROCTOR VALLEY Total Existing	PROCTOR VALLEY % Impacted	SAN YSIDRO Open Acres	SAN YSIDRO Impacted Acres	SAN YSIDRO Total Existing	SAN YSIDRO % Impacted	TOTAL	Total Open	Total Impacted	Total % Impacted
WOODLANDS																
Coast live oak woodland	0.0	0.0	0.0	0.0%	171.4	4.3	175.7	2.4%	3.9	1.0	4.9	20.3%	180.6	175.3	5.3	2.9%
Southern live oak riparian forest	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	67.3	7.7	75.0	10.3%	75.0	67.3	7.7	10.3%
Southern interior cypress forest	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	162.7	1.8	164.5	1.1%	164.5	162.7	1.8	1.1%
Sycamore alluvial woodland	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	7.0	0.0	7.0	0.0%	7.0	7.0	0.0	0.0%
Southern willow scrub	12.3	0.0	12.3	0.0%	1.0	0.7	1.7	38.6%	0.0	0.0	0.0	0.0%	14.0	13.3	0.7	4.7%
TOTAL	12.3	0.0	12.3	0.0%	172.4	5.0	177.4	2.8%	240.9	10.5	251.4	4.2%	441.1	425.6	15.5	3.5%
WETLANDS																
Vernal Pool*	155.0	7.0	162.0	4.3%	9.0	6.0	15.0	40.0%	0.0	1.0	1.0	100.0%	178.0	164.0	14.0	7.9%
Coastal and valley freshwater marsh	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	3.3	0.0	3.3	0.0%	3.3	3.3	0.0	0.0%
Aquatic habitat	0.0	0.0	0.0	0.0%	0.1	2.4	2.5	94.2%	0.0	0.0	0.0	0.0%	2.5	0.1	2.4	94.2%
TOTAL	0.0	0.0	0.0	0.0%	0.1	2.4	2.5	94.2%	3.3	0.0	3.3	0.0%	5.8	3.4	2.4	41.0%
OTHER																
Developed	0.0	9.8	9.8	100.0%	0	97.9	97.9	100.0%	0.0	0.0	0.0	0.0%	107.7	0.0	107.7	100.0%
Exotic trees	17.0	8.3	25.3	32.8%	0	4.6	4.6	100.0%	1.1	2.2	3.3	66.7%	33.2	18.1	15.1	45.5%
Agriculture	404.1	5209.7	5613.8	92.8%	0	0	0.0	0.0%	0.0	0.0	0.0	0.0%	5613.8	404.1	5209.7	92.8%
TOTAL	421.1	5227.8	5648.9	92.5%	0.0	102.5	102.5	100.0%	1.1	2.2	3.3	66.7%	5754.7	422.2	5332.5	92.7%
Grand Total	*3420*	*6198*	*9617*	*64%*	*4532*	*3383*	*7914*	*43%*	*3081*	*2474*	*5555*	*45%*	*23087*	*10944*	*12054*	*52.2%*

* Not included in acreage total because these acres are covered by other habitats.
Acreage represents vernal pool habitat including intervening mima mounds. This acreage circumcribes the concentrations of vernal pools and is substantially greater than the vernal pool surface area.
The vernal pool habitat does not necessarily include or coincide with vernal pool watershed or buffer area.

Table 4.2.4-2

IMPACT OF THE PHASE I-PROGRESS PLAN ON SENSITIVE HABITATS

Cover Type	Existing Acres	Impacted Acres	% Impacted
UPLAND COMMUNITIES			
Diegan coastal sage scrub[1]	11,146	4,318	38.7%
Maritime succulent scrub	285	67	23.5%
Southern interior cypress forest	165	2	1.2%
Coast live oak woodland	181	5	2.8%
Valley needlegrass grassland[2]	264	224	84.8%
Subtotal	**12,041**	**4,616**	**38.3%**
WETLANDS			
Baccharis scrub	19	0	0.0%
Tamarisk scrub	4	0	0.0%
Tamarisk scrub/mulefat scrub	392	20	5.1%
Mulefat scrub	113	0	0.0%
Alkali meadow	138	35	25.4%
Disturbed alkali meadow	12	7	58.3%
Southern live oak riparian forest	75	8	10.7%
Sycamore alluvial woodland	7	0	0.0%
Southern willow scrub	14	1	7.1%
Vernal pool [3]	179	14	7.8%
Coastal and valley freshwater marsh	3	0	0.0%
Aquatic habitat	3	2	66.7%
Subtotal	**780**	**73**	**9.4%**
TOTALS	**12,821**	**4,689**	**36.6%**

1 Includes both disturbed (82.0 percent impacted) and undisturbed (35.5 percent impacted) Diegan coastal sage scrub.

2 Includes both disturbed (87 percent impacted) and undisturbed (74.5 percent impacted) Valley needlegrass grassland.

3 Not included in acreage total since these acres are covered by other habitats. Represents vernal pool habitat including intervening mima mounds. This acreage circumscribes the concentrations of vernal pools and is substantially greater than the vernal pool surface area. The pool habitat does not necessarily include or coincide with vernal pool watershed or buffer area.

Table 4.2.4-3

RANKING OF IMPACT TO COASTAL SAGE SCRUB PHASE I-PROGRESS PLAN

Ranking[1]	Acreage by Parcel[2] Otay River	Proctor Valley	San Ysidro		Acreage[2] Total	Mitigation[4] Implementation
4			401		401	
5		315			315	
6		315			315	
7		526	40		566	
				Subtotal	**1597**	
8			120		120	-120
9		315	40		355	
10		421	40		461	-355
				Subtotal	**936**	
11	96		161		257	
12	96				96	-36
13		210			210	-189
14	290				290	-18
				Subtotal	**853**	
Totals	**482**	**2102**	**802**		**3386**	**-718**

Notes:

1 Sensitive plants, sensitive animals, and location are rated on a 0 to 5 (most sensitive) scale for each area of impact. Location includes importance for open space continuity, wildlife corridor, and adjacency to key resources. Cumulative score determines ranking.

2 Acreage may represent one area or summation of acreages for multiple areas.

3 Total acreage impacted does not include "restricted development" areas in Proctor Valley and San Ysidro parcels.

4 Estimate of acreage not impacted if mitigation recommendations enacted, see Table 4.2.4.7 for a description of recommended mitigation measures.

Ranking for 4, 5, 6, and 7

1.2x composite ranking for 4, 5, 6, and 7

2.3x composite ranking for 4, 5, 6, and 7; 1.9x composite ranking for 8, 9, 10

The table illustrates a number of factors which should be taken into account in the overall impact evaluation process. The Otay River parcel impacts the smallest amount of coastal sage scrub, but all of it is in the highest ranking zone. The coastal sage scrub on the other two parcels is divided similarly between the three ranking zones. The largest impact acreage is within the lowest ranking zone and is all within the Proctor Valley and San Ysidro parcels. This impact acreage accounts for 47 percent of the total impact and is ranked more than 2 times lower than the habitat impacted on the Otay Ranch parcel. This evaluation of the distribution of scaled impacts is considered relevant to the overall analysis of impacts, the evaluation of the open space design, and the potential to equitably mitigate habitat losses by directing mitigation, redesign, and restoration into the most critical areas.

An evaluation of grassland impacts is presented in Table 4.2.4-4. The relative quality of grasslands being impacted is estimated by ranking grassland areas on the site based on a cumulative score. The score is acquired by rating impacts for specific areas according to three elements: location, sensitive plants, and sensitive animals. Location takes into account the importance of open space continuity, presence of a wildlife corridor, adjacency or buffering of key resources. Also included in the score for location is type of grassland habitat. The most sensitive type of grassland is valley needlegrass grassland; habitats of intermediate sensitivity include grassland found on clay soils and disturbed valley needlegrass grassland; and the least sensitive habitats include non-native grassland/coastal sage scrub and non-native grassland. The rank for sensitive plants and for sensitive animals was assigned on the basis of presence, extent of occurrence, and degree of sensitivity of the sensitive plant and animal species. Each of the three elements is rated for each area on a scale of 0 to 5 (most sensitive) and added to achieve the ranking of the impact acreage. The cumulative rankings varied between 3 and 14. They are broken into three levels to establish high, medium, and low impacts. These ranking levels are shaded differently on Table 4.2.4-4.

The grassland habitats not classified as sensitive (i.e., non-native grassland and non-native grassland/coastal sage scrub) were included in the analysis to help identify the most critical areas to retain for grassland restoration.

The table illustrates a number of patterns which should be taken into account in the overall impact evaluation process. The grassland impacted in the highest sensitivity ranking zone is primarily in the Otay River parcel (Wolf and Johnson canyons and the southern edge of the J29-30 vernal pool complex) with one area occurring in the Proctor Valley parcel (the large thornmint population). These impacted areas are small in size relative to the impacted acreage of medium and low sensitivity grassland. The medium sensitivity areas impacted included parts of Otay Mesa in and around the J29 and J30 vernal pool groups and the southwestern portion of the Otay River Parcel as well as parts of the Proctor Valley Parcel.

All grassland areas to be impacted within the San Ysidro Parcel are ranked in the lowest sensitivity zone. The greatest amount of grassland acreage impacted in the Otay River parcel is in the medium and low sensitivity ranking zones. The majority of grassland acreage impacted in the Proctor Valley parcel is in the medium sensitivity ranking zone.

Reduction of Sensitive Plants

A summary of the impact analysis is included in Table A-7 of Appendix A; the numbers of points of occurrence to be impacted by the Phase I-Progress Plan and total numbers of occurrences for each species is presented in Table A-8 of Appendix A. An overlay of the Phase I-Progress Plan on the sensitive plant map for Otay Ranch is included in Appendix A-9.

TABLE 4.2.4-4
RANKING OF IMPACT TO GRASSLAND SCRUB
PHASE I - PROGRESS PLAN

Sensitivity Ranking[1]		Otay River		Proctor Valley		San Ysidro		Acreage[2] Total
		Location	Acreage	Location	Acreage	Location	Acreage	
LOW	3	Vortex	40					
	4	South of J29	69	"Inverted L" West	15			84
	5	Northwest corner	17			Northeast area	321	338
	6	Northern-most patches	22	Proctor Valley South	46			68
	7	East of M5	7	[3] "Inverted L"	35			121
							Subtotal	611
MEDIUM	8	[7] J31 and SE of J30	147					68
	9	[6] South of J30	80	[3] Proctor Valley North	12			92
	10	[4] Southwest corner	35	[3] North of K6	162			197
							Subtotal	357
HIGH	11	[4] Johnson Canyon	20					
		[4] (South edge of J29-30)	6					26
	12	[5] East of Wolf Canyon	15	[4] Thorn-mint Population	15			30
	14	[5] Mouth of Wolf Canyon	7					7
							Subtotal	63
TOTALS			465		285		321	1031

NOTES:
1. Location, type of grassland habitat, and sensitive plants and animals are rated on a 0 to 5 (most sensitive) scale for each area of impact. Location includes importance for open space continuity, wildlife corridor, and adjacency to key resources. Cumulative score detemines ranking.
2. Total acreage impacted does not include "restricted development" areas in Proctor Valley and San Ysidro parcels.
3. Significant impact is found because of presence of Valley Needlegrass grassland.
4. Significant impact is found because of presence of highest priority sensitive species.
5. Significant impact is found because of presence of highest priority sensitive species and wildlife corridor.
6. Significant impact is found for a proportion of total acreage because of the presence of highest priority sensitive species and vernal pools.
7. Significant impact is found because of importance to raptors and presence of second priority sensitive species

Potentially significant indirect impacts to sensitive plant species may occur within populations that are adjacent to proposed development areas. Indirect impacts occur when project-related activities affect biological resources in a manner other than direct. Indirect impacts would potentially include increased levels of human activity and disturbance including trampling of vegetation, dumping of trash, disturbance from domestic animals, and increased soil erosion. Introduction of exotic plant species from landscaped areas in backyards, along roads, businesses, and public parks potentially threaten sensitive plant populations. Development also may cause changes in drainage patterns, surface runoff, the amount of surface water within floodplain areas, surface water quality, and groundwater quality and quantity. These changes will in turn affect sensitive plant species.

The direct impacts of the plan on each sensitive plants species is as follows.

Highest Priority Species

The following highly sensitive plant species would not be directly affected by the Phase I-Progress Plan:

Dunn's Mariposa Lily (*Calochortus dunnii*)
Slender-pod Caulanthus (*Caulanthus stenocarpus*)
Mexican Flannelbush (*Fremontodendron mexicanum*)

The following highly sensitive species would be affected by the Phase I-Progress Plan.

San Diego Thorn-mint (*Acanthomintha ilicifolia*). Both sites in the Proctor Valley parcel near Lower Otay Lake would be lost. These impacts would be considered significant.

San Diego Button-Celery (*Eryngium aristulatum* var. *parishii*). Approximately 7 ~~12~~ (~~8~~11 percent) of the vernal pools supporting populations of this species would be developed by the Phase I-Progress Plan Alternative. The extensive populations associated with J23, J24, J25, and J29 vernal pool complexes as well as those in Upper Proctor Valley (R 3+) would be preserved in open space. Most of J30 similarly would be preserved. All of the vernal pools within the J31+ complex would be developed. Impacts to San Diego button-celery are considered significant.

Otay Tarweed (*Hemizonia conjugens*). The following areas of concentration of Otay tarweed would be developed, Poggi Canyon, between Poggi and Telegraph Canyons, north slope of Rock Mountain, and in the disjunct parcel north of Upper Otay Lake. This species would be retained in a portion of each of the following areas, Salt Creek, Wolf Canyon, and the slopes of Otay River Valley. The number of point occurrences that would be impacted by the proposed development is 30 out of 160 (28 percent). These impacts would be considered significant.

Willowy Monardella (*Monardella linoides* ssp. *viminea*). This species may be impacted at the lower end of the canyon in the western portion of the San Ysidro parcel. However, additional surveys for the SPA plan may indicate that no direct impact would result from this plan. The species would be retained throughout the rest of the canyon. The number of point localities that potentially may be impacted is 2 out of a total of 9, depending on the exact locations of the plants in the lower part of the canyon. This is a potentially significant impact. Potentially significant indirect impacts also may occur from the adjacent development. Alterations in the flow of water into the canyon and disturbance from pedestrians, horses, mountain bikes, and dumping of trash all pose a threat to the continued survival of this population.

California Orcutt Grass (*Orcuttia californica*). The location of this previously recorded species in the J30 vernal pool complex on Otay Mesa would be lost. This is a potentially significant impact. Additional field surveys in a wetter year(s) would better confirm either the extirpation or presence of this vernal pool species on the ranch.

Otay Mesa-mint (*Pogogyne nudiuscula*). This species would be retained in all vernal pool complexes in which it occurs, J23, J24, J25, and J30. However, the proposed development would impact one pool with Otay mesa-mint at the southern edge of its population on Otay Mesa in J29-30. Although this would be considered a significant impact, it would be easily avoidable.

Second Priority Species

The following second-priority plant species would not be directly affected by the implementation of the Phase I-Progress Plan:

Dense Reed Grass (*Calamagrostis densa*)
San Miguel Savory (*Calamintha chandleri*)
Summer Holly (*Comarostophylos diversifolia* ssp. *diversifolia*)
Gander's Pitcher Sage (*Lepechinia ganderi*)

The following second-priority species would be affected by the Phase I-Progress Plan:

Orcutt's Brodiaea (*Brodiaea orcuttii*). A small portion of the large Proctor Valley population would be directly impacted by development. The occurrences in the eastern tributary of Proctor Valley and the drainage with willowy monardella in the western part of the San Ysidro parcel would remain in open space. One out of 12 occurrences (8 percent) of this species would be developed. This is not considered a significant direct impact. Potentially significant indirect impacts, however, may occur from the adjacent development. Alterations in the flow of water into the canyon and disturbance from pedestrians, horses, mountain bikes, and dumping of trash all pose a threat to the continued survival of this population.

Otay Manzanita (*Arctostaphylos otayensis*). Approximately 38 percent of the point localities recorded for this species on Otay Ranch would be developed. These impacts would occur to those populations located on the north side of Jamul Mountains. A large population situated within the isolated parcel near Little Cedar Canyon and small populations on the upper slopes of Cedar Canyon would be preserved in open space. These impacts would be considered significant.

Tecate Cypress (*Cupressus forbesii*). Approximately 3 percent of the point localities recorded for this species on Otay Ranch would be developed. The Phase I-Progress Plan Alternative would result in minor impacts to scattered individuals of Tecate cypress in canyons in the western San Ysidro Mountains and in Cedar Canyon. Substantial populations located in canyons in western San Ysidro Mountains, Little Cedar Canyon, and Cedar Canyon would be retained in open space. Impacts to Tecate cypress are not considered significant. However, impacts to southern interior cypress forest are evaluated separately in Table 4.2.4-2.

Variegated Dudleya (*Dudleya variegata*). The Phase I-Progress Plan Alternative would result in the loss of approximately 30 percent of the point localities recorded for this species on Otay Ranch. The greatest impacts to this species would occur on Otay Mesa and in the Otay River Valley. All of the populations of variegated dudleya on the western slope of Rock Mountain and in the Jamul Mountains would be lost. Minor impacts to the species

would also occur in the San Ysidro Mountains. A portion of the populations located on Otay Mesa, in the Otay River Valley, and in the San Ysidro Mountains would be preserved in open space. Impacts to this species would be considered significant.

San Diego Barrel Cactus (*Ferocactus viridescens*). An estimated 26 percent of the recorded point localities for San Diego barrel cactus on Otay Ranch would be lost through implementation of the Phase I-Progress Plan Alternative. Substantial impacts to this species would occur north of the Otay River Valley, in the Jamul Mountains, and in Salt Creek. Lesser impacts would also result on Otay Mesa and in the western San Ysidro Mountains. Approximately 70 percent of the point localities of the species would be retained in open space on the Otay River parcel, 81 percent would be preserved on the San Ysidro parcel, and 50 percent would be retained on the Proctor Valley parcel. These impacts would be considered significant.

San Diego Golden Star (*Muilla clevelandii*). Approximately 63 percent of the point localities recorded for this species on Otay Ranch would be developed as a result of this alternative. Substantial impacts would occur west of Sycamore Canyon, east of the San Diego Air Sports Center, in upper Proctor Valley, in the inverted "L" parcel west of Proctor Valley, and in the Jamul Mountains. All of the populations located near the Minnewawa Truck Trail, and those associated with the vernal pool complexes J23, J24, and J25 on Otay Mesa would be preserved in open space. Additional populations would be preserved in open space west of Sycamore Canyon, in upper Proctor Valley, and in the Jamul Mountains. Impacts to San Diego golden star would be considered significant.

Little Mousetail (*Myosurus minimus* var. *apus*). The recent occurrences of this species in the K6 vernal pool complex north of Lower Otay Lake would be retained in open space. The historical location on Otay Mesa, in the J29 vernal pool complex, would be lost to development. This is a potentially significant impact. Additional field surveys in a wetter year(s) would better confirm either the extirpation or presence of this vernal pool species on Otay Mesa within the Otay Ranch ownership.

San Diego Navarretia (*Navarretia fossalis*). This species would be lost from the ranch due to development of vernal pools in the southernmost extent of the J29 vernal pool complex on Otay Mesa. This is considered a significant impact.

Snake Cholla (*Opuntia parryi* var. *serpentina*). Approximately 38 percent of the point localities of snake cholla would be lost as a result of this alternative. The population occurring at the mouth of Wolf Canyon would be impacted. Additional impacts would result to populations on the north side of Otay Valley and in the Poggi Canyon Key Resource Area. All occurrences in the canyon east of Salt Creek would be retained in open space. Additional occurrences on the north side of Otay Valley and in Poggi Canyon would also be preserved. Impacts to snake cholla would be considered significant.

Narrow-leaved Nightshade (*Solanum tenuilobatum*). This species would be impacted by partial development of its distribution in the Jamul Mountains. A smaller area occupied by this species in the San Ysidro parcel north of Cedar Canyon would be lost. The number of occurrences to be developed is 39 out of 104 (38 percent). This species is frequent in the Jamul Mountains and is restricted to San Diego County. The population on Otay Ranch is considered regionally significant; therefore, an impact of approximately 40 percent of its occurrences on the ranch is considered significant.

Third Priority Species

The following third-priority species would not be affected by this alternative:

San Diego Bur-sage (*Ambrosia chenopodiifolia*)
California Spinebush (*Adolphia californica*)

Those species that would be affected by the Phase I-Progress Plan include:

San Diego Sagewort (*Artemisia palmeri*). Three of the six occurrences (50 percent) of this species would be impacted in Proctor Valley. San Diego sagewort is uncommon on the ranch, and this population is not considered regionally significant; therefore, the impacts to this species are not considered significant.

Campo Clarkia (*Clarkia delicata*). Approximately 67 percent (2 out of 3) of the point localities recorded for this species on Otay Ranch would be impacted as a result of implementation of this alternative. All impacts to this species would occur in the northeast Jamul Mountains. A portion of the population in the same area would be preserved in open space. Impacts to Campo clarkia would be considered significant.

Orcutt's Bird's-beak (*Cordylanthus orcuttianus*). The population south of the San Diego Air Sports Center would be impacted by development. This species would be lost from the ranch, and impacts would be considered significant.

Palmer's Grappling-hook (*Harpagonella palmeri*). Approximately 20 percent of the recorded point localities for this species on Otay Ranch would be lost to development as a result of this alternative. Impacts would occur in the upper Proctor Valley area and Johnson Canyon. Populations located in Johnson Canyon, near the mouth of Salt Creek and on the south slopes of the Otay River Valley would be retained in open space. Impacts to this species would not be considered significant.

San Diego Marsh-elder (*Iva hayesiana*). This species would be reduced by 18 percent on the San Ysidro parcel (14 of 79 points of occurrence), 48 percent on the Proctor Valley parcel (57 of 119 points of occurrence). It would be reduced by approximately 1 percent on the Otay River parcel (1 of 57 points of occurrence) due to the development of infrastructure facilities. The overall loss of this species on the ranch would be approximately 28 percent. This level of impact to a CNPS List 2 species is considered significant.

Munz's Sage (*Salvia munzii*). This species would be impacted by development on the Proctor Valley and San Ysidro parcels. On the Proctor Valley parcel, an estimated ~~33~~ 58 percent (60 of 104 points of occurrence) would be impacted by development. On the Proctor Valley parcel, this percentage of impact is estimated at 60 percent (25 of 42 points of occurrence). The highest concentrations on the lower slopes in the western San Ysidro parcel are proposed for development. Significant stands of the species on the southwestern slope of Jamul Mountain are also proposed for development. The overall level of impact on the ranch is estimated at 57 percent. This is considered a significant impact.

Greene's Ground-cherry (*Physalis greenei*). This species was previously recorded on the Ranch in the Salt Creek area and north of Otay River Valley. Both localities would be affected by the development plan, although 2 of 4 points of occurrence in the Salt Creek area would be retained. Although this species was not located in the 1989 and 1990

surveys, it is presumed to be extant until directed surveys in a wetter year indicate otherwise. Impacts to this species are considered potentially significant.

San Diego County Needlegrass (*Stipa diegoensis*). This species would be reduced by 17 percent on the Otay River parcel (1 of 6 occurrences), 38 percent on the Proctor Valley parcel (24 of 64 occurrences), and 24 percent on the San Ysidro parcel (10 of 41 occurrences). The overall impact on the ranch would be approximately 32 percent. The anticipated incremental reduction of this species is not considered a significant effect.

San Diego Sunflower (*Viguiera laciniata*). This common but narrowly endemic element of Diegan coastal sage scrub would be incrementally reduced by the loss of low scrub habitat on all three parcels. It would be reduced by 51 percent (147 of 286 points of occurrence) on the San Ysidro parcel, 43 percent (112 of 262 occurrences) on the Proctor Valley parcel, and 27 percent (61 of 226 occurrences) on the Otay River parcel. The sighting of the University in Salt Creek Canyon could further reduce this species' abundance on the ranch. The impacts to this species from the Phase I-Progress Plan are considered significant.

Fourth Priority Species

The following fourth priority species would not be impacted by the Phase I-Progress Plan:

Mountain Misery (*Chamaebatia australis*)
Chaparral Pea (*Pickeringia montana* ssp. *tomentosa*)
Engelmann Oak (*Quercus engelmannii*)

The following fourth priority species would be impacted by this alternative.

Western Dichondra (*Dichondra occidentalis*). Approximately 33 percent of the point localities recorded for this species on Otay Ranch would be lost as a result of this alternative. Impacts would occur northeast and northwest of Cedar Canyon and in the southern Jamul Mountains. Populations in the same three general locations would be preserved in open space. Impacts to this species would not be considered significant.

Spiny Rush (*Juncus acutus* var. *sphaerocarpus*). Implementation of the Phase I-Progress Plan Alternative would impact approximately 17 percent of the point localities recorded for this species on Otay Ranch. Impacts would occur on the Proctor Valley parcel and on the Otay River parcel. Populations would be preserved in open space in the San Ysidro parcel as well as the Proctor Valley and Otay River parcels. These impacts would not be considered significant.

California Adder's-tongue Fern (*Ophioglossum lusitanicum* ssp. *californicum*). This species would be lost in both of its locations on the ranch, (100 percent) i.e., Proctor Valley and north of Lower Otay Lake. This is considered a significant impact.

Coulter's Matilija Poppy (*Romneya coulteri*). Approximately 52 percent of the point localities recorded for this species on Otay Ranch would be impacted. All impacts would occur in the east San Ysidro Mountains. Populations of this species would be preserved in open space in the Jamul Mountains, east of O'Neal Canyon, and in the east San Ysidro Mountains. Impacts to this species would not be considered significant.

Ashy Spike-moss (*Selaginella cinerascens*). This species would be impacted on all three parcels. The losses would be approximately 25 percent on the Otay River parcel (18 of 71 points of occurrences), 59 percent (41 of 70 points of occurrences) on the Proctor Valley parcel, and 64 percent (51 of 80 points of occurrences) on the San Ysidro parcel.

The overall level of impact on the ranch would be approximately 50 percent (110 of 221 occurrences). This is not considered a significant impact.

Reduction of Sensitive Animals

An overlay of the Phase I-Progress Plan on the sensitive wildlife map for Otay Ranch is included in Appendix A-9. Determination of direct and indirect impacts to sensitive wildlife from the Phase I-Progress Plan are based on criteria outlined in the New Town Plan (see Section 3.3.2.4). Table 4.2.4-5 presents impacts to sensitive wildlife within each parcel resulting from development of this alternative. An assessment of the significance of the impacts for each species is also presented. The Phase I-Progress Plan significantly impacts one endangered animal species and five species petitioned or proposed for federal or state-listing as endangered. The Phase I-Progress Plan would also significantly impact six species with CDFG Species of Special concern status, two of which are also federal candidates. Another 28 species with federal candidacy or state species or special concern status could be significantly impacted from implementation of this alternative.

First Priority Species

Endangered Species

Southwestern willow flycatcher (*Empidonax traillii*), if present within the project area, would be ~~similarly~~ impacted in the same manner as the Least Bell's vireo.

Least Bell's Vireo (*Vireo bellii pusillus*). Within the Otay River parcel the species could be significantly impacted by loss of habitat at the La Media Road crossing of the Otay River. In the spring of 1991 a singing male least Bell's vireo was regularly observed at this location (Ogden, unpublished data). Indirect construction impacts could occur at the SR-125, Heritage Road, and Alta Road crossings of the Otay River. Elevated noise levels from vehicular traffic could indirectly affect this species at these locations.

The population of least Bell's vireo along Dulzura Creek adjacent to the San Ysidro parcel would be indirectly impacted by development of the village center. Construction noise and long-term effects of development such as increased noise, lighting, and domestic cats could affect this population. Adjacent urban development might also increase the incident of brown-headed cowbird parasitism as natural vegetation is eliminated. Potential indirect effects of construction and urbanization should be analyzed at the next level of environmental review. Any road crossings of Otay River and Dulzura creek would need to be sited in association with the wildlife agencies' approval to avoid impact to this species.

Species Petitioned for State and/or Federal Listing

Invertebrates

Distribution and occurrence of Quino checkerspot butterfly (*Euphydrayas editha quino*) and two species of fairy shrimp, *Streptocephalus woottoni* and *Branchinecta sandiegensis* is not well documented in the project area. The two fairy shrimp species would be significantly impacted by development of vernal pool complex J-30. An 8 percent loss of vernal pool habitat could potentially be significant to these species. Potential habitat for these species would be lost from Proctor Valley and around the vernal pool study areas north of Lower Otay Lake. Potential habitat would be retained on Otay Mesa, and within the vernal pool study areas on the Proctor Valley parcel. Hermes copper butterfly (*Lycaena hermes*) could be signfiicantly impacted by a 38 percent reduction in replant scrub communities. The

Table 4.2.4-5 (Revised)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE PHASE I-PROGRESS PLAN ALTERNATIVE

Species Name	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Signi-ficance[3]	Standards[4]	Recommended Measures to Reduce Impacts to a Level Below Significance
	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]			
First Priority Species									
Endangered Species:									
Southwestern willow flycatcher	—	L	—	N	—	N	PS	100%	See measures 1b-d, 3b, 4, 5, and 6 in New Town Plan (Table 3.3-7). See measures 2 and 3 below.
Least Bell's vireo	1/8	L	—	N	—	N	S	100% or HCP/MSCP	1. See measures 1b-d, 3b, 4, 5, and 6 for New Town Plan (Table 3.3-7). 2. Assess direct impacts from proposed road construction at the following alignments: a. Otay Valley Road in the Otay River Valley b. Heritage Road/Paseo Ranchero crossing of the Otay River c. La Media Road crossing of the Otay River d. SR-125 and associated transit corridor crossing of the Otay River e. Alta Road crossing of the Otay River f. Otay Lakes Road-widening the crossing at Dulzura Creek. Any other proposed roads with potential for direct impacts to occupied or potential habitat. 3. Prepare a mitigation plan for significant direct road impacts and incorporate into the general mitigation plan (measure 1d, New Town Plan). The plan shall include the following measures: a. Redesign alignments to avoid impacts. Where avoidance of impacts is not feasible, redesign alignmnts to reduce impacts. Potential realignments include: - Otay Valley Road - move alignment north away from Otay River. Provide a minimum 200 foot open space buffer between the road alignment and occupied, high quality potential, and restored habitats. The buffer width could change pending the results of noise studies (see measures 4b in New Town Table 3.3-7), and consultations with, and approval by the resource agencies. - La Media Road - eliminate this crossing of the Otay River. If this is not feasible, avoid impacting occupied habitat. - Alta Road - eliminate this crossing of the Otay River. If it is infeasible to eliminate this crossing, design the alignment to avoid impacting.

Table 4.2.4-5 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE PHASE I-PROGRESS PLAN ALTERNATIVE

Species Name	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Signi-ficance[3]	Standards[4]	Recommended Measures to Reduce Impacts to a Level Below Significance
	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]			
Species Petitioned for Federal and/or State Listing									
Invertebrates:									
Streptocephalus woottoni	—	H	—	M	—	H	S	100% or HCP/MSCP	See measures 7-10 for New Town Plan (Table 3.3-7).
Branchinecta sandiegensis	—	H	—	M	—	H	PS	100% or HCP/MSCP	See measures 7-10 for New Town Plan (Table 3.3-7).
Harbison's dun skipper	—	N	—	L	—	L	PS	100% or HCP/MSCP	See measure 11 for New Town Plan (Table 3.3-7).
Herme's copper	—	N	—	L	—	L	PS	100% or HCP/MSCP	See measure 12 for New Town Plan (Table 3.3-7).
Thorne's hairstreak	—	N	—	N	—	N	PS	100% or HCP/MSCP	See measure 13 for New Town Plan (Table 3.3-7).
Quino checkerspot	—	H	—	H	—	H	PS	100% or HCP/MSCP	See measure 14 for New Town Plan (Table 3.3-7).
Reptiles and Amphibians:									
California red-legged frog	—	N	—	N	—	N	PS	100% or HCP/MSCP	See measure 15 for New Town Plan (Table 3.3-7).
Southwestern pond turtle	—	N	—	N	—	N	PS	100% or HCP/MSCP	See measure 15 for New Town Plan (Table 3.3-7).
									Additional mitigation: • preserve occupied and potential upland nesting habitat adjacent to occupied, potential, and restored aquatic habitat.

Table 4.2.4-5 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE PHASE I-PROGRESS PLAN ALTERNATIVE

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel				
Species Name	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]	Signi-ficance[3]	Standards[4]	Recommended Measures to Reduce Impacts to a Level Below Significance
Cactus wren								100% or HCP/MSCP	4. See measures 16-18 for the New Town Plan. 5. Assess direct impacts from road construction at the SPA Level. Road alignments to be considered include: a. Otay Valley Road along the northern slope of the Otay River Valley. b. Hunte Parkway along the west side of Salt Creek Canyon c. Paseo Ranchero Road across Poggi Canyon. d. East Orange Avenue through Poggi Canyon. e. SR-125 alignment on the north slope of Otay River Valley and through Johnson Canyon. f. Alta Road through lower Salt Creek. g. Palomar street north of Poggi Canyon. h. La Media Road on the north slope of the Otay River Valley. i. Any additional roads that have the potential to impact occupied habitat. 6. Prepare and implement a mitigation plan for any significant direct impacts from road construction. The mitigation plan shall follow the requirements of measure 20 of the New Town Plan (Table 3.3-7). Potential realignments include but are not limited to: • Otay Valley Road - move north above Otay River Valley. • Hunte Parkway - move west away from Salt Creek Canyon. • Paseo Ranchero Road - avoid canyon at southwest end. Eliminate Poggi Canyon crossing if feasible. If elimination of Poggi Canyon crossing is infeasbile, redesign to avoid impacting occupied habitat. • East Orange Avenue - avoid impacting native scrub habitats in Poggi Canyon. • Alta Road - move alignment west to avoid O'Neal Canyon and the mouth of Salt Creek Canyon.
Development Impacts[5]:	17/60	H	—	N	—	N			
Road Impacts[6]:	10/60								
Total Impacts[7]:	27/60	H	—	N	—	N	S		
California gnatcatcher								100% or HCP/MSCP	7. See measures 17, 18, 20b-c, 21, 22, 23, 24a-e, 25, and 26b-c in New Town Plan (Table 3.3-7). 8. See measures 5-6 above.
Development Impacts[5]:	26/73	H	15/40	H	13/31	H			
Road Impacts[6]:	12/73		4/40		0/31				
Total Impacts[7]:	38/73	H	19/40	H	13/31	H	S		

Table 4.2.4-5 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE PHASE I-PROGRESS PLAN ALTERNATIVE

Species Name	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Signi-ficance[3]	Standards[4]	Recommended Measures to Reduce Impacts to a Level Below Significance
	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]			
Tricolored blackbird	2/6	H	—	H	—	N	S	100% of Breeding Habitat or HCP/MSCP	9. See measure 27 for New Town Plan (Table 3.3-7).
Second Priority Species									
Reptiles & Amphibians:									
Western spadefoot toad	—	H	—	M	—	M	PS	80% or MSCP	See measure 28 New Town Plan (Table 3.3-7)
Arroyo southwestern toad	—	L	—	M	—	M	PS	80% or MSCP	See measure 29 for New Town Plan (Table 3.3-7).
San Diego banded gecko	—	L	—	L	—	M	PS	80%	See measure 29 for New Town Plan.
San Diego horned lizard	0/1	M	1/3	H	2/2	H	S	80% or MSCP	See measure 30 for New Town Plan (Table 3.3-7).
Sandstone night lizard	—	M	—	M	—	L	PS	80%	See measure 29 for New Town Plan (Table 3.3-7).
Coronado skink	—	h	—	h	—	H	PS	80%	See measure 29 for New Town Plan (Table 3.3-7)
Orange-throated whiptail	1/5	M	1/2	H	—	H	S	80% or MSCP	See measure 30 for New Town Plan (Table 3.3-7).
Coastal western whiptail	—	M	—	H	—	H	PS	80%	See measure 29 for New Town Plan (Table 3.3-7).
Silvery legless lizard	—	M	—	M	—	M	PS	80%	See measure 29 for New Town Plan (Table 3.3-7)
Coastal rosy boa	—	M	1/1	H	—	H	PS	80%	See measure 29 for New Town Plan (Table 3.3-7).
San Diego ringneck snake	—	N	—	N	—	L	PS	80%	See measure 29 for Town Plan (Table 3.3-7).
Coast patch-nosed snake	—	M	—	H	—	H	PS	80%	See measure 29 for Town Plan (Table 3.3-7).
San Diego mountain kingsnake	—	N	—	N	—	H	NS		
Two-striped garter snake	—	N	2/2	H	0/1	L	PS	80%	See measure 31 for Town Plan (Table 3.3-7).
Northern red diamond rattlesnake	—	M	—	H	—	H	PS	80%	See measure 29 for New Town Plan (Table 3.3-7).

Table 4.2.4-5 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE PHASE I-PROGRESS PLAN ALTERNATIVE

Species Name	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Signi-ficance[3]	Standards[4]	Recommended Measures to Reduce Impacts to a Level Below Significance
	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]			
Birds:									
Osprey	0/1	N	—	N	—	N	NS		
Northern harrier	21/41	H	15/20	H	10/11	H	S	100% of Breeding Population and 80% of Non-Breeding Population or MSCP	See measures 32, 33a-b, 33d-k, 34, and 35 for New Town Plan (Table 3.3-7).
Black-shouldered kite	3/13	H	0/1	H	—	H	PS	60%	See measures 32, 33a-b, 33d-k, 34, and 35 for New Town Plan (Table 3.3-7).
Sharp-shinned hawk	0/1	L	1/2	M	0/1	H	NS		
Cooper's hawk	1/1	L	2/2	M	1/6	H	S	80% or MSCP	See measures 32, 33a, 33 i-o, 34c, and 35 for New Town Plan (Table 3.3-7).
Red-shouldered hawk	1/3	L	1/3	M	—	H	NS		
Ferruginous hawk	3/4	H	2/3	H	—	H	NS		
Golden eagle	5/10	H	14/23	H	1/5	H	S	100% of Breeding Habitat and Associated Key Foraging Habitat or MSCP	See measures 32, 33a-o 34, and 35 for New Town Plan (Table 3.3-7).
Prairie falcon	0/4	H	4/5	H	—	H	NS		
Merlin	1/1	M	1/1	H	—	H	NS		
Mountain plover	—	H	—	H	—	H	NS		
Long-billed curlew	—	H	—	H	—	H	NS		

Table 4.2.4-5 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE PHASE I-PROGRESS PLAN ALTERNATIVE

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel				
Species Name	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]	Signi-ficance[3]	Standards[4]	Recommended Measures to Reduce Impacts to a Level Below Significance
Burrowing owl	3/3	H	1/1	H	—	H	PS	100% or MSCP	See measure 36 for New Town Plan (Table 3.3-7).
Long-eared owl	—	L	—	L	—	H	PS	100%	See measures 32, 33i-o, 34c, and 35 for New Town Plan (Table 3.3-7).
Short-eared owl	—	H	—	H	—	H	NS		
California horned lark	—	H	—	H	—	H	PS	80%	See measure 37 for New Town Plan (Table 3.3-7).
Purple martin	—	H	—	H	—	H	NS		
Loggerhead shrike	6/15	H	0/3	H	—	H	PS	80%	See measure 37 for New Town Plan (Table 3.3-7).
Yellow warbler	0/1	L	—	N	—	N	PS	80%	See measures 1b-d, 2, 3,4 5, and 6 for New Town Plan (Table 3.3-2).
Yellow-breasted chat	1/8	L	—	N	—	N	PS	80%	See measures 1b-d, 2, 3, 4, 5, and 6 for New Town Plan (Table 3.3-2).
Blue grosbeak	3/21	L	3/7	L	0/1	L	PS	60%	Implementation of measure 1-5 in New Town Plan (Table 3.3-7) least Bell's vireo should mitigate any impacts.
Southern California rufous-crowned sparrow	—	M	0/4	H	1/6	H	PS	80% or MSCP	See measure 38 for New Town Plan (Table 3.3-7).
Bell's Sage sparrow	4/12	M	2/6	H	5/6	H	PS	80%	See measure 38 for New Town Plan (Table 3.3-7).
Grasshopper sparrow	8/9	H	12/15	H	—	H	PS	60% or MSCP	See measures 37 for New Town Plan (Table 3.3-7).
<u>Mammals</u>:									
California leaf-nosed bat	—	L	—	L	—	M	PS	100% of Roosting Habitat	See measure 39 for New Town Plan (Table 3.3-7).
Townsend's big-eared bat	—	L	—	L	—	M	PS	100% of Roosting Habitat	See measure 39 for New Town Plan (Table 3.3-7).
Pallid bat	—	L	—	L	—	M	PS	100% of Roosting Habitat	See measure 39 for New Town Plan (Table 3.3-7).

Table 4.2.4-5 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE PHASE I-PROGRESS PLAN ALTERNATIVE

Species Name	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Significance[3]	Standards[4]	Recommended Measures to Reduce Impacts to a Level Below Significance
	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]			
California mastiff bat	—	L	—	L	—	M	PS	100% of Roosting Habitat	See measure 39 for New Town Plan (Table 3.3-7).
San Diego black-tailed jackrabbit	—	M	—	L	—	H	PS	80%	See measure 38 for Town Plan (Table 3.3-7).
Pacific little pocket mouse	—	L	—	L	—	N	PS	100% or HCP/MSCP	See measure 40 for New Town Plan (Table 3.3-7).
Northwestern San Diego pocket mouse	—	L	—	M	—	M	PS	80%	See measure 40 for New Town Plan (Table 3.3-7).
Dulzura California pocket mouse	—	L	—	M	—	M	PS	80%	See measure 40 for New Town Plan (Table 3.3-7).
Southern grasshopper mouse	—	L	—	M	—	M	PS	80%	See measure 40 for New Town Plan (Table 3.3-7).
San Diego desert woodrat	—	M	—	M	—	M	PS	80%	See measure 41 for New Town Plan (Table 3.3-7).
American badger	1/1	H	—	H	—	M	NS		

Table 4.2.4-5 (Revised) (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE WILDLIFE SPECIES
PHASE I-PROGRESS PLAN ALTERNATIVE

1 The detected direct impact is the number of detected points of occurrence eliminated by proposed development over the total number of points of occurrence in that parcel. The total number of points of occurrence for California gnatcatchers represents an estimate of a maximum number of pairs based on extensive data bases (ASI 1988; MBA 1989 and 1991; Ogden 1991; and RECON 1989)

2 The potential direct impacts are based on loss to development of potential habitat for that species.

3 Significance of impact is based on detected impacts, potential impacts from habitat loss to proposed development, and on available distribution and abundance information for each sensitive wildlife species within the project area. Also taken into account were microhabitat use patterns that could reduce or increase the potential for impact to that species. Any adverse impacts to Priority 1 species were considered significant. In most cases, impacts to Priority 2 species that are presumed to be widespread on Otay Ranch were significant if greater than 20% of points of occurrence and/or greater than 20% of potential habitat were lost to development. Species with only a few points of occurrence were evaluated individually.

4 Standards presented in this table are the minimum preservation requiremnts for each species which is signifciantly impacted by the proposed development in the Phase I - Progress Plan. The preservation standard for a particular species may change at the SPA Level if there is a change in the sensitivity status of that species.

5 "Development Impacts" would be due to habitat loss from proposed residential and commercial development.

6 "Road Impacts" would be due to road construction and would only apply to onsite individuals not already affected by "Development Impacts", sightings locations which would be impacted by both road construction and habitat loss to development are included in the "Development Impacts" category.

7 Total impacts combines the Development and Road Impact categories.

Legend:

— = insufficient quantitative data recording presence of species within parcel
H = High probability for direct impact through >40% reduction of potential habitat
M = Moderate probability for direct impact through 20-39% reduction of potential habitat
L = Low probability for direct impact through 1-19% reduction of potential habitat
N = No potential impact
NS = No significant impacts
S = Significant impacts
PS = Potentially significance impacts, more data needed on distribution and abundance

reduction of southern live oak riparian forest by 8 acres could significantly impact Harbison's dun skipper (*Euphyes vestris harbisoni*) if it occurs onsite.

Reptiles and Amphibians

California red-legged frog (*Rana aurora draytonii*) and southwestern pond turtle (*Clemmys marmorata pallida*) could potentially be impacted by development of aquatic habitats in Proctor Valley. However, more information is needed on the distribution of these species on Otay Ranch for a definitive assessment of impacts.

Birds

California Gnatcatcher (*Polioptila californica*). On Otay Ranch, 54 of the estimated 140-150 pairs of California gnatcatcher would be lost to development through the Phase-I Progress Plan. This impact would increase substantially if the university site were developed. At least 26 California Gnatcatcher locations would be eliminated in the Otay River parcel. Roughly 26 percent of the population of this species on Otay Ranch is present in Salt Creek Canyon. Development of the east end of Poggi Canyon, the edges of Wolf Canyon, and the Rock Mountain area results in the significant loss of gnatcatcher habitat as well as a movement corridor. Road alignments would impact an additional 11-12 pairs in the Otay River Parcel. Impacts would occur at the Palomar Street, East Orange Avenue, Paseo Ranchero Road, La Media Road, Otay Valley Road, SR-125, and Alta Road alignments. A minimum of 13 pairs would be impacted by development on the San Ysidro parcel, and 14 pairs on the Proctor Valley parcel. Road construction would impact approximately four more pairs in the Proctor Valley Parcel (Proctor Valley Road and Otay Lakes Road). At this level of analysis there were no road impacts to gnatcatchers in the San Ysidro parcel. An additional 8 gnatcatcher sighting locations on the borders of these two parcels could also be impacted by development of the Phase I-Progress Plan. Implementation of this alternative would eliminate high occupancy gnatcatcher habitat at the west end of the San Ysidro parcel adjacent to Lower Otay Lake. The greatest impacts to California gnatcatchers in the Proctor Valley parcel would occur on the southwest side of Lower Otay Lake and along the southern slopes of the Jamul mountains adjacent to Otay Lakes Road.

Overall, a reduction by approximately 49 percent of the estimated California gnatcatcher pairs on Otay Ranch constitutes a highly significant impact.

Cactus wren (*Campylorhynchus brunneicapillus*). An estimated 28 percent (17/60) of the sightings of this species would be developed on the Otay River parcel. As with the California gnatcatcher, this species would be substantially affected by the development of a university in the Salt Creek drainage. Proposed road alignments would significantly affect approximately 10 points of occurrence (16.8 percent) for cactus wren. Road alignments of concern include ~~Heritage Road~~, Palomar Street, Paseo Ranchero Road, La Media Road, Alta Road, East Orange Avenue, Otay Valley Road/Hunte Parkway, and SR-125. The reduction of this species would be considered significant.

Tricolored blackbird (*Agelaius tricolor*) could be significantly impacted by the SR-125 Otay River crossing at the site of a large nesting colony in 1991. A 92 percent reduction in agriculture fields would eliminate foraging habitat for this species and constitutes an additional significant impact.

Second Priority Species

A 38.4 percent reduction in upland scrub communities through development of the Phase I-Progress Plan Alternative could significantly impact sensitive wildlife species inhabiting these communities. Impacts would be significant to San Diego horned lizard (*Phynosoma coronatum blainvillei*), orange-throated whiptail (*Cnemidophorous hyperythrus beldingi*). Species known to occur on Otay Ranch that would be impacted include coastal western whiptail (*C. tigris multiscutatus*), coastal rosy boa (*Lichanura trivirgata roseofusca*), northern red diamond rattlesnake (*Crotalus ruber ruber*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), Bell's sage sparrow (*Amphispiza belli belli*), San Diego desert woodrat (*Neotoma lepida intermedia*), and San Diego black-tailed jackrabbit (*Lepus californicus bennetti*). Species which were not detected but which could be impacted by development of upland scrub include ~~Hermes copper (*Lycaena hermes*),~~ San Diego banded gecko (*Coleonyx variegatus*), sandstone night lizard (*Xantusia henshawi gracilis*), Coronado skink (*Eumeces skiltonianus parietalis*), silvery legless lizard (*Anniella pulchra pulchra*), coast patch-nosed snake (*Salvadora hexalepis virgultea*), northwestern San Diego pocket mouse (*Perognathus fallax fallax*), Dulzura California pocket mouse (*Perognathus californicus femoralis*), and southern grasshopper mouse (*Onychomys torridus ramona*).

Western spadefoot toad could be impacted by the reduction of 7.9 percent of vernal pool habitat, 39.5 percent of upland scrub, and 49.2 percent of grassland habitats. Additional information on the distribution and abundance of this species is required to determine the significance of impacts.

Pacific pocket mouse (*Perognathus longimembris pacificus*) will probably not be impacted by development in the Otay River parcel as the Otay River Valley will be retained in open space. It is not known if they occur on the western parcel, but if they do, road alignments through the valley could impact this species. More information is required on their distribution onsite in order to evaluate impacts.

Two riparian bird species, the yellow breasted chat (*Icteria virens auricollis*), and the yellow warbler (*Dendroica petechia*) could be impacted in the same manner as least Bell's vireo at Otay River crossings. They would also be affected by the same indirect impacts from development adjacent to Dulzura Creek.

Two locations for two-striped garter snake (*Thamnophis hammondii*) could be impacted by development of drainages on the Proctor Valley parcel. The Arroyo southwestern toad (*Bufo microscaphus californicus*) has a low potential to be impacted from development of sandy washes and streamside habitat in Proctor Valley. More information is needed on the distribution and abundance of these two species onsite in order to determine the significance of impacts.

Breeding and wintering raptor populations would lose much foraging habitat under the Phase I-Progress Plan Alternative. A 49.2 percent reduction in grassland habitats, 39.5% decrease in upland scrub, and 93% loss of agricultural fields would be of regional significance for several sensitive raptor species. Resident and wintering northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperii*), and golden eagle (*Aquila chrysaetos*) would be significantly impacted by the loss of foraging areas. Wintering species such as sharp-shinned hawk (*Accipiter striatus*), ferruginous hawk (*Buteo regalis*), merlin (*Falco columbarius*), and prairie falcon (*Falco mexicanus*) would be effected by development. However, occurrence of these latter three species was limited to only a few individuals during the 1991 raptor study so impacts would not be considered significant. Key raptor foraging habitat that would be eliminated by the Phase I-Progress Plan occurs

at the north end of the Proctor Valley parcel, the west end of the San Ysidro parcel adjacent to Lower Otay Lake, the mesa south of the Otay River Valley, the lower southern slopes of the Jamul Mountains, and in the northern half of the Otay River parcel.

Breeding habitat for northern harrier (two to three nesting locations) would also be developed north of Poggi Canyon, on the mesa south of the Otay River Valley, and at the west end of the Otay River. These would be significant impacts to this species. Cooper's hawk would be significantly impacted at Hubbard Springs, site of an active nest in 1991. Indirect impacts from development of a village center such as noise, human disturbance, and artificial lighting could occur in breeding habitat along Dulzura Creek adjacent to the San Ysidro parcel. Golden eagles nesting in the San Miguel mountains could suffer indirect breeding impacts from increased human disturbance as the area becomes developed.

Other sensitive species utilizing grasslands and agricultural fields would be incrementally impacted by development of this plan. These species include loggerhead shrike (*Lanius ludovicianus*), California horned lark (*Eremophila alpestris actia*), grasshopper sparrow (*Ammodramus savannarum*), and American badger (*Taxidea taxus*). Burrowing owl (*Athene cunicularia*) sighting locations would be eliminated from Poggi Canyon, the mesa south of Otay River Valley, and from the southern slope of the Jamul Mountains. This is a potentially significant impact. The single detected American badger burrow in Poggi Canyon would be developed. Impacts for these last two species would not be significant due to their limited presence in the project. Short-eared owl (*Asio flammeus*) have been detected along the northern edge of the western parcel but would not be expected to be significantly impacted because of their rarity onsite.

Development of ten percent of the southern live oak riparian forest in the San Ysidro parcel and associated indirect impacts could potentially affect ~~Harbison's dun skipper (*Euphyes vestris harbisoni*),~~ San Diego ringneck snake (*Diadophis punctatus similis*), San Diego mountain kingsnake (*Lampropeltis zonata pulchra*), Cooper's hawk, and long-eared owl (*Asio otus*). If any of the undetected species are present within the Hubbard Springs oak woodland, impacts could potentially be considered significant due to the limited distribution of oak woodland on the site. Mountain lion (*Felis concolor*) sign was also detected in this area and proposed development could significantly impact denning sites and movement corridors.

Thorne's hairstreak (*Mitoura thornei*) is limited in distribution to Tecate cypress stands on Otay Ranch. This species would not be directly affected by development. However, catastrophic events such as wildfire could potentially impact this species.

Sensitive bat species such as California leaf-nosed bat (*Macrotus californicus*), Pallid bat, (*Antrozous pallidus paceficus*) Townsend's big-eared bat (*Plecotus townsendii townsendii*), and California mastiff bat (*Eumops perotis californicus*) could be affected by development close to roost sites or by the loss of foraging habitat. More information is required on the presence and distribution of these bats on Otay Ranch in order to assess the significance of any impacts.

Analysis of Open Space Design

Adjacent Natural Areas

The Phase I-Progress Plan ties together the Otay River Valley with Otay Mountain and provides open space linkages for wildlife movement between Otay Mountain, Jamul Mountain, and San Miguel Mountain. This alternative presents minor conflict with the

BLM acquisition parcel on Otay Mountain as recommended in the recent BLM Resource Management Plan and EIS (BLM 1991). Such an acquisition would affect some small areas designated for special grading criteria or "restricted development."

Otay Valley Parcel. Within the Otay River parcel, there is no connection between Poggi Canyon and Wolf Canyon. Without this connection the Poggi Canyon open space would become an island and likely lose many of the key species (cactus wren, California gnatcatcher) over time. The Otay Mesa area with its vernal pool resources is effectively tied to the river valley.

Proctor Valley Parcel. The plan provides for two wildlife corridors between Jamul Mountain and San Miguel Mountain as well as providing for interface with the lower end of the east side of Upper Otay Lake. The most northern corridor is constrained by proposed development and "restricted development." The second corridor is provided south of the "Special Study Area" designation in Proctor Valley. This corridor is too narrow and is blocked by proposed development and a conference center. This corridor would not be effective as currently designed.

San Ysidro Parcel. The San Ysidro open space is tied to the adjacent BLM land on Otay Mountain, and the disjunctive parcel is not proposed for development. At the eastern end of the San Ysidro parcel, a peninsula of single-family residential is proposed for a ridge adjacent to Hubbard Springs. This would necessitate crossing a drainage which contains coast live oak riparian forest and would represent an extension into a natural open space area. The area is utilized by mountain lion and bobcat and is a main tributary wildlife corridor to Cedar Canyon. Cooper's hawk actively nests in the adjacent woodland, and American kestrels and red-tailed hawks utilize the area. The incursion of development would be considered a significant impact.

Infrastructure

Detailed infrastructure facility designs are not available for the Phase I-Progress Plan but would be expected to be similar to those discussed for the New Town Plan. Some placement of pipelines, reservoirs, and access roads in open space areas could be anticipated. Such incursions into natural open space would incrementally affect the integrity of the natural areas.

Regional Parks

This alternative does not designate any regional parks; this would reduce the potential impacts associated with such parks, although the impacts would be potentially nonsignificant in the case of the San Ysidro Regional Park in the New Town Plan. The elimination of the Otay Valley Regional Park, however, which was proposed to have more active uses, would reduce impacts in the river valley and allow it to be a more effective wildlife movement corridor. A proposed park in the Otay River Valley would be the subset of separate environmental review.

~~University Site~~

~~As discussed under this heading for the New Town Plan, the construction of a University site in Salt Creek Canyon would create a significant impact. The resource values within this area are cumulative and virtually unmitigable.~~

Conference Center

The Phase I-Progress Plan proposes a conference center in a narrow canyon on the northwestern slopes of the Jamul Mountains in the Proctor Valley parcel. This site is within a canyon between Callahan Mountain and Jamul Mountain. This canyon represents a potential wildlife movement corridor between Jamul Mountain and San Miguel Mountain. It represents one of the two largest canyon systems on the western side of the Jamul Mountains. The other one is identified as a wildlife corridor in the New Town Plan in upper Proctor Valley. The area has not been as heavily disturbed as other canyons in Proctor Valley. It has a narrow wetland strip along the canyon with scattered oaks and almost a continuous cover of San Diego marsh-elder. This sensitive species, as well as the sensitive San Diego County sunflower and San Diego County needlegrass, could be affected by the Phase I-Progress Plan.

Roadways

Roadways crossing open space would incrementally degrade the areas by potentially causing movement barriers to wildlife, reducing habitat, introducing noise and lighting and hazard to wildlife and facilitating access. Roadways which potentially cross open space areas on the Phase I-Progress Plan are as follows:

Heritage Road. Impacts to wildlife movement could occur at this crossing of the west end of the Otay River Valley.

East Orange Avenue. This roadway would extend eastward through the center of the Poggi Canyon open space.

Otay Valley Road. This east-west roadway would cross Wolf Canyon at the critical entrance to the canyon. This likely at-grade roadway could significantly reduce wildlife movement into the canyon. It would then course eastward across the Rock Mountain open space to join La Media Road.

La Media Road. This roadway potentially may affect vernal pool resources or disrupt the supportive watershed of the adjacent pools. It is unknown whether this road would be a bridge or at grade across the river valley. An at-grade road would create a difficult design problem to facilitate wildlife movement safely through the canyon. A bridge would facilitate such movement. La Media Road crosses Otay River at a location where a least Bell's vireo male was observed several times during the spring of 1991. This could be a significant impact to least Bell's vireo pending further study of the distribution and abundance of this species within the Otay River parcel.

SR-125. This major roadway would cross the Otay River Valley; it is viewed with less concern than the smaller roads based on the presumption that the roadway could bridge or partially bridge the valley thus allowing better wildlife movement. This alignment would potentially affect marsh habitat in the floodplain which supports the sensitive tri-colored blackbird. Potential indirect impacts to least Bell's vireo need to be assessed at the next level of review.

Alta Road. This roadway would follow O'Neal Canyon down to the river valley and then cross the mouth of Salt Creek Canyon to tie in with Otay Valley Road on the north. This roadway would significantly affect the value of O'Neal Canyon which is considered a prime wildlife corridor between Otay Mountain and the river valley. Crossing at the west of the entrance to Salt Creek Canyon could constrain the movement of wildlife into the

canyon. This road crossing could also impact wildlife movement along the Otay River valley.

Wildlife Corridors

~~Three~~ Four of thirteen regional wildlife corridors would be significantly blocked by the Phase I-Progress Plan. Another ~~nine~~ seven regional corridors could be impacted by roads or adjacent development and ~~one~~ two regional corridors would not be affected. Two major local corridors would be significantly blocked, one other could be constrained, and the fourth would not be affected.

Otay Valley Parcel

There is no provision in the Phase I-Plan for a connection between Poggi and Wolf Canyons. A corridor with a minimum width of 500 feet is needed between these two canyons to allow California gnatcatchers and cactus wrens to disperse. This corridor would need to be revegetated. The development of proposed corridor alignments would be considered a significant impact. This plan also does not maintain the gnatcatcher and cactus wren connection between Wolf Canyon and the Otay River Valley in the Rock Mountain Area. The Rock Mountain section is developed as residential, single-family homes in the Phase I-Progress Plan, breaking this connection, ~~potentially~~ eliminating a habitat corridor for these two birds. However, the bobcat portion of the corridor is retained although the Otay Valley Road crossing of this corridor could be a significant impact. The coastal sage scrub along the north side of Otay Valley and the bottom of Wolf Canyon is currently continuous, connected by the scrub on Rock Mountain above the quarry.

Salt Creek Canyon and its connection to the Otay Valley and to the west shore of Otay Lake are maintained in the Phase I-Progress Plan. Impacts could occur from Otay Valley Road and the Heritage Road, La Media Road, SR-125, and Alta Road crossings of the Otay River Valley. The O'Neal Canyon corridor is also preserved as open space by this plan. However, Alta Road could constrain wildlife movement along this corridor.

Proctor Valley Parcel

Regional corridor 1 which connects San Miguel Mountain with the Jamul and San Ysidro Mountains would be heavily impacted by this plan so that it may not function as a corridor. Wildlife movement would be significantly blocked by the residential development along Proctor Valley, and the conference center proposed for the oak grove section of the main ravine would prevent movement of animals through the canyon.

Regional corridor 2 which connects Dulzura Creek with Jamul Mountain would be impacted by the realignment of Otay Lakes Road and the proposed residential areas along it the southern end of the corridor. These impacts to regional wildlife movement could be significant.

Local corridors 3 and regional corridor 7 which connect the ridges on Jamul and Callahan Mountains with Dulzura Creek would be maintained intact by the Phase I-Progress Plan. There would be no significant impacts to these corridors.

Local corridor 4, which follows the Proctor Valley drainage, would no longer serve as a movement corridor due to the proposed residential development on both sides of Proctor Valley Road. This would be a significant impact to local wildlife movement along the valley and to Upper Otay Lake.

San Ysidro Parcel

Regional corridor 5 connects the east end of Lower Otay Lake with the Otay River Valley. It runs along the southeast shore and through the steep ravine below the dam. The proposed residential development along the southeast edge of the reservoir would significantly block movement along this corridor.

Regional corridor 6 is the steep, narrow ravine with it's northern end in Bushalaugh Cove. The sides and bottom of this ravine would be preserved as open space, allowing animals access to the reservoir, but the rim of the ravine is planned as single-family units. Since the corridor is so narrow, the impact of development along the lower half-mile long section may be significant.

Corridor 8, an important local corridor, could potentially be blocked by a ~~finger of development~~ road crossing at the northern end.

Local corridor 9, which connects Otay Mountain with the reservoir and Dulzura Creek, would be maintained by the Phase I-Progress Plan.

Both Little Cedar and Cedar Canyons serve as regional movement corridors between the San Ysidro Mountains and Dulzura Creek. These canyons are preserved as open space in the Phase I-Progress Plan although restricted and single family development to the west could affect these corridors.

Preservation of Key Resources

Based on an overlay of the Phase I-Progress Plan on the composite map of key resources (Appendix A-9), this alternative would retain an estimated 77 percent of the areas delineated on the composite map. Areas of difference (i.e. impact of the Phase I-Progress Plan within key resource areas) are shown in Table 4.2.4-6 and discussed below. The differences are fairly evenly divided among the planning parcels and are not skewed to one particular area or parcel.

Otay River Parcel

Poggi Canyon. In Poggi Canyon, the composite map ties in resources on the ridge north of the canyon (Otay tarweed and California gnatcatcher) and provides for a potential movement corridor northward through some canyons to offsite open space associated with El Rancho del Rey. The Phase I-Progress Plan would not preserve this area north of the canyon. Other differences are that the composite map extends the farther east to pick up additional sensitive scrub habitat and southerly to include side canyons and additional points of occurrence for sensitive plants and animals.

Wolf Canyon. The differences here are principally around the perimeter. Generally, the concept would be to minimize intrusions into the canyon such as the narrow single-family intrusion on the east side.

Otay River Valley. The most significant difference is that the alternative does not retain the north slope of the river valley west of Wolf Canyon. The alternative also shows a potential water treatment facility at the west end of the valley.

Salt Creek Canyon. The difference here is along the western boundary. The key resource line was drawn to include cactus wrens and California gnatcatchers shown on the baseline

Table 4.2.4-6

COMPARISON OF OPEN SPACE DESIGN OF PHASE I-PROGRESS PLAN TO COMPOSITE KEY RESOURCES MAP

Planning Parcel/ Subareas	Planned Open Space within Phase I-Progress Plan (acres)	Composite Key Resources (acres)	Difference Between Plan and Key Resource Area (acres)	% Planned Open Space Within Composite Key Resource Areas
Otay River				
Poggi Canyon	169	462	-293	37
Wolf Canyon	190	305	-115	62
Salt Creek Canyon	623	791	-169	79
Otay River Valley	1838	2147	-310	86
Otay Mesa*	597	633	-36	94
SUBTOTAL	**3417**	**4339**	**-923**	**79**
Proctor Valley/Jamul Mountains				
Proctor Valley/Callahan Mtn	514	737	-223	70
San Miguel Mtn	154	360	-206	43
Jamul Mtn	2698	3059	-361	88
Otay Reservoir	0	135	-135	0
SUBTOTAL	**3366**	**4291**	**-925**	**78**
San Ysidro Mountains				
West Otay Mtn	550	630	-80	87
San Diego Air Sports Center	227	337	-110	67
North Otay Mtn	74	398	-324	19
Otay Mtn	175	175	0	100
Cedar Canyon/Hubbard Spring	995	1196	-200	83
SUBTOTAL	**2021**	**2735**	**-715**	**74**
TOTAL	**8803**	**11366**	**-2563**	**77**

*This does not include the potential loss of habitat by a University site in Salt Creek Canyon.

resource maps. The Phase I-Progress Plan shows a community park site within the primary area of difference.

Otay Mesa. The differences here are not major and are associated with small industrial areas.

Proctor Valley Parcel

Differences within this parcel are spread over four main subareas:

Proctor Valley/Callahan Mountain. An estimated 60 percent of the difference here is the overlap of areas designated as "restricted development" within the key resource area. Such areas would not likely be developed and, as such, the difference would be substantially reduced at the SPA level of analysis. This alternative shows development within the main drainage which forms the spine of the wildlife corridor in this area. This would be a significant flaw in the functional capability of the corridor.

San Miguel Mountain. The principal difference here is that the key resource area anticipates the need to retain one or both of the drainages traversing the L-shaped parcel as part of a major regional wildlife movement corridor.

Jamul Mountain. The principal difference is that the composite key resource map retains the major canyon off Jamul Mountain as a wildlife corridor, eliminating the conference center from this area and pushing development back away from the key drainages. Linear development along Upper Otay Lake would also conflict with this key resource area.

Otay Reservoir. The main difference is that the composite map ties the Vernal Pool Study Area designated in the Phase I-Progress Plan to the city-owned open space around the reservoir.

San Ysidro Parcel

West Otay Mountain. The main difference is associated with the alternative plan for development west of the main drainage in this area which supports numerous sensitive species.

San Diego Air Sports Center. The principal difference is associated with the alternative plan for development in an area which supports California gnatcatchers.

North Otay Mountain. This area contains the largest acreage difference between the Phase I-Progress Plan and the composite key resource area map. Some of this difference may dissipate since it is included in the "restricted development" category. The key resource area map anticipates retention of this area as a potential wildlife corridor.

Otay Mountain. There is no difference in this area.

Cedar Canyon-Hubbard Springs. The differences here are attributed to development proposed in the Hubbard Springs area and to areas of overlap of "restricted development." The concern with development adjacent to Hubbard Springs was discussed previously.

4.2.4.2 Proposed Mitigation

Compliance of the Phase I-Progress Plan with the RMP

The Phase I-Progress Plan comes close to meeting the Resource Management Plan (RMP) goal. However, it does not meet a number of specific objectives, policies, and standards set forth in the RMP. Modification and redesign is necessary to preserve certain sensitive habitats, provide additional acreage for restoration of sensitive habitats, to protect sensitive plants and animals, and to retain wildlife movement and habitat linkage within the Preserve area.

Key Resource Areas

The Phase I-Progress Plan would partially fulfill the RMP requirement to preserve large blocks of key biological resource areas within the Management Preserve (Policy 2.1). The RMP does not define the amount of a key resource that should be preserved; however approximately 77 percent of the key resource acreage on Otay Ranch would be preserved under the Phase I-Progress Plan (Table 4.2.4-5). Key resource areas for which less than 75 percent of the habitat would be preserved as open space include; Poggi Canyon, Wolf Canyon, Proctor Valley/Callahan Mountain, San Miguel Mountain, San Diego Air Sports Center, and North Otay Mountain.

Sensitive Habitats

The Phase I-Progress Plan does not preserve coastal sage scrub and woodland habitats at the level required in the RMP. There is also insufficient acreage onsite for the combined restoration components required by the RMP for the various sensitive habitats. However, with some redesign and modification, the Phase I-Plan could potentially achieve RMP policies and guidelines. The Phase I-Progress Plan reduces coastal sage scrub habitats by 38 percent which is greater than the 30 percent reduction allowed by the RMP (Policy 2.2). A 74.5 percent reduction in existing undisturbed native needlegrass grasslands meets the RMP allowable loss of 75 percent. Wetlands are reduced by 9 percent under the Phase I-Progress Plan. The RMP requires that 90 percent of identified wetlands be included in the Preserve and allows no net loss (Policy 2.10). The 9 percent of impacted wetlands on Otay Ranch would need to be mitigated for onsite through restoration for compliance of the Phase I-Progress Plan with RMP standards and guidelines. Under the Phase I-Progress Plan vernal pools would not be preserved according to RMP Policy 2.9 because of impacts to portions of vernal pool group J29-J30. The RMP policy for vernal pool restoration does not include a quantitative standard and is currently undergoing revision. There would be an approximate ten percent reduction in southern live oak riparian forest, a three percent reduction in coast live oak woodland, and a one percent reduction in southern interior cypress forest. The RMP requires 100 percent preservation of these sensitive woodlands (Policy 2.4).

Sensitive Plants

The Phase 1-Progress Plan would not meet RMP standards (Policy 2.6) for the following state and federally-listed plant species: San Diego thorn-mint, and San Diego button celery. There is also the potential for willowy monardella, Otay Mesa mint and California orcutt grass to be impacted beyond the level allowed by the RMP depending on more detailed development plans. The California Native Plant Society List 1B or List 2 sensitive plant species to be impacted above the 25 percent loss allowed by the RMP (Policy 2.8) are Otay manzanita, San Diego barrel cactus, San Diego goldenstar, prostrate navarretia, snake cholla, narrow-leaved nightshade, San Diego sagewort, Orcutt's birdbeak, delicate clarkia,

San Diego marsh-elder, San Diego County needlegrass, and San Diego sunflower. The California Native Plant Society List 3 or List 4 sensitive species to be impacted above the 50 percent loss allowed by the RMP (Policy 2.7) are Munz's sage, California Adder's tongue-fern, Coulter's matilija poppy, and potentially ashy spike-moss and Greene's ground cherry.

Sensitive Animals

Construction of roads for the Phase I-Progress Alternative could impact the state and federally endangered least Bell's vireo at a higher level than allowed by the RMP (Policy 2.6). Further information on the distribution and abundance of this species is necessary to determine the level of impacts under this alternative. California gnatcatcher and cactus wrens would be impacted at higher levels than allowed by the RMP (Policy 2.5). Based on available point location and habitat loss data, at least seven federal candidate species would be reduced below the 25 percent level allowed by the RMP (Policy 2.8). These federal candidate species include San Diego horned lizard, orange-throated whiptail, two-striped garter snake, ferruginous hawk, loggerhead shrike, Bell's sage sparrow, and tricolored blackbird. Another 21 federal candidate species could also be impacted at higher levels than allowed by the RMP, depending on the species distribution and abundance onsite.

Wildlife Corridors

~~Three~~ Four of 13 regional wildlife corridors would be significantly blocked under the Phase 1-Progress Plan and seven ~~the remaining nine~~ have the potential to be constrained or impacted by roads and adjacent development. Two regional corridors would not be impacted. Of the four important local corridors, two would be significantly impacted, one would be constrained, and one would not be impacted. These impacts to wildlife movement do not meet the requirements for linkage and wildlife corridors set forth by the RMP (Policy 4.1).

Additional mitigation measures proposed for the Phase I-Progress Plan Alternative are listed in the section below.

An overlay of the Phase I-Progress Plan onto a map of the disturbed habitats on Otay Ranch is shown in Appendix A-9. The results of this overlay are tabulated in Table 4.2.4-7 and show the extent of disturbed acreage some of which would be appropriate for enhancement, restoration, and habitat reestablishment. The table shows an estimated 1,756 disturbed upland acres available for restoration of coastal sage scrub and maritime succulent scrub. Given a reasonable retention of this habitat in areas designated as restricted development, the potential to achieve a 1:1 replacement of this habitat on the ranch is possible. The replacement acreage of this habitat would be primarily within the Otay River parcel; it thus would be adjacent to higher value scrub habitat than if the restored acreage were farther east. However, restoration of coastal sage scrub adjacent to Little Cedar Canyon in the San Ysidro parcel could be valuable to wildlife. Extensive disturbed native grassland acreage exists which could be utilized for mitigation for the loss of native grasslands. A large extent of acreage is available to mitigate the loss of minor disjunctive wetlands onsite. However, a limited amount of disturbed alkali meadow is available for restoration. Some project redesign to reduce this potential mitigation requirement is recommended.

Table 4.2.4-7

PHASE I-PROGRESS PLAN
DISTURBED AREAS AVAILABLE FOR ENHANCEMENT, RESTORATION, AND HABITAT RE-ESTABLISHMENT

HABITAT	OTAY RIVER		PROCTOR VALLEY		SAN YSIDRO		Total Acres in Open Space	Total Acres Impacted
	Acres in Open Space	Impacted Acres	Acres in Open Space	Impacted Acres	Acres in Open Space	Impacted Acres		
Coastal sage scrub/non-native grassland	9	0	0	0	175	188	184	188
Non-native grassland/coastal sage scrub	94	53	0	0	129	235	224	288
Disturbed coastal sage scrub	0	1	141	639	0	0	141	639
Baccharis scrub	19	0	0	0	0	0	19	0
Tamarisk scrub	4	0	0	0	0	0	4	0
Tamarisk scrub/mulefat scrub	372	20	0	0	0	0	372	20
Mulefat scrub	113	0	0	0	0	0	113	0
Non-native grassland	739	358	1	60	16	82	756	500
Disturbed non-native grassland	0	0	0	0	8	4	8	4
Disturbed alkali meadow	0	0	5	7	0	0	5	7
Disturbed valley needlegrass grassland	0	0	28	187	0	0	28	187
Agriculture	415	5045	0	0	0	0	415	5045
Vernal pool restorable areas (1,2)	43	251	38	0	0	0	81	251
Clay soils (1)	779	750					779	750
TOTAL	1393	5457	169	893	328	509	1897	6858

(1) Not included in acreage total since these acres are covered by other habitats.
(2) Restorable acreages are taken from Report on Hydrology Flora of the Otay Ranch Vernal Pools (MBA 1991). Areas of existing vernal pools with intact mima mound topography were not included in the acreage for restorable areas, although a non-intrusive level of restoration could be done in these areas (i.e., removal of exotic species).

Sensitive Habitats Mitigation

Impacts to the following sensitive habitats are considered significant and unmitigable without major project redesign: Diegan coastal sage scrub, maritime succulent scrub, vernal pools, valley needlegrass grassland, and alkali meadow.

Impacts to all woodland and three additional wetland habitats are considered significant but mitigable to below a level of significance through minor project redesign and habitat restoration as discussed in Table 4.2.4-8. These habitats include coast live oak woodland, southern live oak riparian forest, southern interior cypress forest, southern willow scrub, floodplain scrub, coastal freshwater marsh, and aquatic habitat.

Major redesign of the project to reduce coastal sage scrub impacts would be necessary in Salt Creek, Poggi Canyon, Wolf Canyon, Rock Mountain area, north side of Otay River Valley, southside of Lower Otay Lake and the San Diego Air Sports Center. If these modifications are made, the remaining impacts to coastal sage scrub could be mitigated through habitat restoration and purchase and preservation of offsite acreage.

Table 4.2.4-8 provides a summary of impacts and mitigation measures for sensitive habitats for the Phase I-Progress Plan.

Mitigation measures in Table 4.2.4-8 would account for the reduction of impacts to Diegan coastal sage scrub to the level noted in the last column of Table 4.2.4-3. Additional reduction of impact would occur with an equitable amount of restoration of coastal sage scrub. Equitability is assessed based on location of restorable habitat and potential ranking of the enhanced or reclaimed habitat. ~~According to Table 4.2.4-6, an estimated 1897 acres of restorable habitat is available. If only partial credit (50 percent) is allowed for restoring "disturbed coastal sage scrub", the available acreage total is reduced to 1734 acres. This reduction of credit is applied almost entirely to acreage in the Proctor Valley and San Ysidro parcels. Available acreage is thus distributed as follows: 1388 acres within the Otay River parcel, 98 acres within the Proctor Valley parcel, and 240 acres in the San Ysidro parcel. The majority of this habitat is within the Otay River parcel where the habitat ranking is in the upper level.~~ Restoration of habitat should be encouraged in the Otay River parcel ~~this area~~ to support and enhance the higher sensitivity of existing scrub habitats in this parcel, to effectively link open space to facilitate movement including California gnatcatchers and cactus wrens, to link vernal pool habitat, and offset increased pressures of adjacent development and recreational uses of the natural open space. A key element of the impact and restoration equation is the requirement as stated in the RMP to preestablish mitigation acreage prior to the loss of habitat. Since habitat loss is presumed to initially occur in the Otay River parcel, restoration should commence within that parcel and should occur as near to the impact area as possible. Criteria will need to be developed to evaluate the success of the habitat restoration. These criteria may be based in part on the characteristics of the affected habitat and/or the ability of the habitat to support comparable biota and/or select sensitive species. These criteria are intended to become part of the RMP.

Potential indirect impacts to sensitive habitats shall be mitigated by providing a minimum 100-foot buffer zone around sensitive habitat areas. No development, landscaping or clearing for fire management shall be allowed within the buffer zone. In addition, active recreation areas shall be located a minimum of 100 feet away from areas occupied by sensitive biological resources.

The revegetation map will be refined at the SPA level of review to gain consistency with the MSCP vegetation mapping and to increase the accuracy of vegetation boundaries. The

Table 4.2.4-8 (Revised)

SNMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
PHASE I-PROGRESS PLAN ALTERNATIVE

Habitats	Acres Impacted (% Impacted)	RMP Goals (% Protection)	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)*	Mitigation
<u>Upland Scrub Communities</u>							
Diegan Coastal Sage Scrub	4318 (38.7%)	70%	> 5 ac.	>0%	S	NM	1. Critical coastal sage scrub habitats with high densities of sensitive wildlife species should be retained. Redesign project to preserve 80% of this habitat onsite and implement habitat restoration to offset remaining impact. Redesign is necessary to minimize or avoid impacts in: - Salt Creek (all existing coastal sage scrub (CSS) - Poggi and Wolf canyons (all existing CSS) - Portions of Rock Mountain and existing CSS on north side of Otay River Valley - Patches of CSS south of Lower Otay Lake and the San Diego Air Sports Center

* Non-mitigable indicates that impacts cannot be mitigated without major redesign of the project.

Table 4.2.4-8 (Revised) (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
PHASE I-PROGRESS PLAN ALTERNATIVE

Habitats	Acres Impacted (% Impacted)	RMP Goals (% Protection)	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)*	Mitigation
Diegan Coastal Sage Scrub (Continued)							Additional recommendations to reduce impacts to wildlife corridors and CSS habitats are as follows: a. Redesign central Proctor Valley to reduce CSS impacts and to accommodate a regional wildlife corridor. Relocation of the conference center within this corridor would be required to facilitate effective wildlife movement. Relocate or eliminate single-family housing on the west side of Proctor Valley in the eastern portion of the L-shaped parcel to facilitate wildlife movement. This is principally covered by disturbed coastal sage scrub which shall be enhanced. b. Eliminate the proposed low density housing on the ridgeline adjacent to Hubbard Springs to prevent intrusion into key wildlife area and crossing of a drainage.

Table 4.2.4-8 (Revised) (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
PHASE I-PROGRESS PLAN ALTERNATIVE

Habitats	Acres Impacted (% Impacted)	RMP Goals (% Protection)	Thresholds		Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)*	Mitigation
			Chula Vista GP	County of San Diego			
Diegan Coastal Sage Scrub (Continued)							c. Eliminate the single-family housing at the westernmost point of proposed development in the San Ysidro parcel. Area supports high concentrations of sensitive plants as well as California gnatcatcher, and access to area would necessitate crossing of a key wildlife corridor between Otay Mountain and Lower Otay Lake. d. Redesign multiple and single family housing west of the mouth of Wolf Canyon to widen the entrance to this open space canyon. The relocation of Otay Valley Road northward would be part of this redesign to facilitate the retention of coastal sage scrub along the edge of the river valley.and associated sensitive plants and animals.

Table 4.2.4-8 (Revised) (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
PHASE I-PROGRESS PLAN ALTERNATIVE

Habitats	Acres Impacted (% Impacted)	RMP Goals (% Protection)	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)*	Mitigation
Diegan Coastal Sage Scrub (Continued)							e. Eliminate that portion of single-family housing proposed to extend into central Wolf Canyon on the eastside to reduce loss of maritime succulent scrub f. Reduce the extent of single-family development proposed to impact coastal sage scrub south of Poggi Canyon north of the landfill to facilitate retention of habitat in this area and development of a wildlife corridor to Wolf Canyon over a potential development setback from the landfill. g. Restore coastal sage scrub habitat in available areas (see Table 4.2.4-4 and Figures A-4.34 through A-4.36). Restoration shall be prioritized toward the Otay River parcel because of the potential higher value of the restored land (see Table 4.2.4-3). Within the Otay River parcel, focal areas of restoration are:

Table 4.2.4-8 (Revised) (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
PHASE I-PROGRESS PLAN ALTERNATIVE

Habitats	Acres Impacted (% Impacted)	RMP Goals (% Protection)	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)*	Mitigation
Diegan Coastal Sage Scrub (Continued)							- providing a habitat corridor between Poggi and Wolf canyons. - establishing a wider continuous stand of coastal sage scrub along the northern slope of the Otay River Valley. - restoring habitat along the west side of Salt Creek Canyon. h. Develop mitigation monitoring and maintenance plan including criteria to evaluate "success" of reestablished habitat. i. Pre-establish habitat prior to the reduction of habitat acreage. This shall occur adjacent to or in the immediate vicinity of the affected habitat.

Table 4.2.4-8 (Revised) (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
PHASE I-PROGRESS PLAN ALTERNATIVE

Habitats	Acres Impacted (% Impacted)	RMP Goals (% Protection)	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)*	Mitigation
Maritime Sage Scrub	67 (23.6%)	70%	> 5 ac.	>0%	S	NM	2. Redesign project to preserve 98% of this habitat and implement habitat restoration to offset remaining impact. Mitigation for maritime succulent scrub is discussed in conjunction with Diegan coastal sage scrub above. This habitat acreage is scattered throughout the Otay River parcel and is particularly sensitive where cactus thickets are present. Effort shall be made to protect disjunctive stands especially where they support such thickets and can logically be tied to a larger open space network. Cactus thickets cannot be reestablished in a timely manner. Detailed examination of these disjunctive stands of habitat needs to be made at the next level.
Chaparral	782 (37.5%)		--		N		

Table 4.2.4-8 (Revised) (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
PHASE I-PROGRESS PLAN ALTERNATIVE

Habitats	Acres Impacted (% Impacted)	RMP Goals (% Protection)	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)*	Mitigation
Floodplain Scrub	20 (3.8%)	95% Maintain functional wetland values, no net loss.	> 0	>0%	S	M	3. All wetlands shall be avoided to the extent practicable. Preservation of 95% and no net loss of floodplain scrub is required. Impacts shall be minimized through placement and design features and shall be mitigated at an appropriate ratio based on habitat type and quality and whether preestablishment of in-kind habitat has occurred. Compensation would be approved by the California Fish and Game through the Streambed Alteration Agreement and/or the Corps of Engineers 404 permit process, as appropriate. Adequate disturbed and/or low quality floodplain acreage is available within the Otay River Valley to adequately mitigate wetland impacts.
Coastal Freshwater Marsh/Aquatic	2 (41.5%)	95% No net loss.	> 0	>0%	S	M	4. See mitigation measure 3.

Table 4.2.4-8 (Revised) (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
PHASE I-PROGRESS PLAN ALTERNATIVE

Habitats	Acres Impacted (% Impacted)	RMP Goals (% Protection)	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)*	Mitigation
Grassland/Meadow							
Non-native Grassland	847 (45.9%)	--	--	--	S	NM	5. This habitat type is disturbed but is important for raptor foraging. The provision of a large open space system with open habitats and native grasslands will partially mitigate this impact (see Table 3.3-7, mitigation measures 24 to 27).
Valley Needlegrass Grassland	223 (84.7%)	--	> 5 ac.	>10%	S	NM	6. Redesign project to preserve 50% of this habitat onsite and implement restoration to offset remaining impact. Overall impacts to Valley needlegrass grassland (undisturbed and distrubed) are significant and unmitigable without major redesign of the Phase I-Progress Plan. The loss of 37 acres (74 percent) of undisturbed valley needlegrass grassland can be mitigated by minor

Table 4.2.4-8 (Revised) (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
PHASE I-PROGRESS PLAN ALTERNATIVE

Habitats	Acres Impacted (% Impacted)	RMP Goals (% Protection)	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)*	Mitigation
Valley Needlegrass Grassland (Continued)							redesign and habitat restoration. However, the loss of 187 acres (87 percent) of disturbed valley needlegrass grassland, would require major redesign of the project and habitat restoration to fully mitigate impacts. Highest priority areas of grassland to retain for preservation or preservation and restoration include the disturbed perennial grassland contiguous with the K6 vernal pool complex and large San Diego thorn-mint population north of Lower Otay Lake, grassland areas on the eastern side of Wolf Canyon, and grassland within the intact mima mound topography south of the J29-30 vernal pool complex on Otay Mesa.

Table 4.2.4-8 (Revised) (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
PHASE I-PROGRESS PLAN ALTERNATIVE

Habitats	Acres Impacted (% Impacted)	RMP Goals (% Protection)	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)*	Mitigation
Alkali Meadow	42 (28.0%)	95% No net loss.	> 0	>0%	S	NM	7. Redesign to preserve 98% sensitive habitat and implement habitat restoration to offset remaining impact. Habitat shall be retained and enhanced within the northern Proctor Valley wildlife corridor to the extent practicable. The retention of all natural drainages to the extent practicable at the next level of review is necessary to substantially reduce this impact.
Vernal Pools	14 (7.8%)	95%	>0%	>0%	S	NM	8. Mitigation shall include the following: a. Redesign the development plan to preserve 100% of the large or high value vernal pool groups and 98% of all other pool groups. Refer to text for definition of the high value pool complexes.

Table 4.2.4-8 (Revised) (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
PHASE I-PROGRESS PLAN ALTERNATIVE

Habitats	Acres Impacted (% Impacted)	RMP Goals (% Protection)	Thresholds		Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)*	Mitigation
			Chula Vista GP	County of San Diego			
Vernal Pools (Continued)							b. Provide adequate buffer for preserved pool complexes, and c. Restore or enhance vernal pool habitat. The restoration/ enhancement of vernal pools shall occur in areas that have been disturbed and either support degraded vernal pool habitat or appear (or are known) to have supported vernal pools before the disturbance. This type of habitat would be available for restoration in the J29-30, J31+, J23-24, and J25 vernal pool complexes on Otay Mesa; in the K15+, K16+, K2, and K17+ complexes in Otay Valley; in M2 and M5+ of Poggi Canyon; and R3+ in Proctor Valley.

Table 4.2.4-8 (Revised) (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
PHASE I-PROGRESS PLAN ALTERNATIVE

Habitats	Acres Impacted (% Impacted)	RMP Goals (% Protection)	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)*	Mitigation
Vernal Pools (Continued)							Approximately 42 out of 332 acres of vernal pool restorable areas (including the intervening uplands) would be retained by the Phase I-Progress Plan and available for mitigation. The 42 acres of disturbed habitat would provide adequate acreage for vernal pool restoration needs after redesign and obtaining the preservation standards. Indirect impacts to the watershed support areas and buffer areas shall be avoided.
Woodlands							
Coast Live Oak Woodland	5 (3.0%)	100%	--	>0%	S	M	9. This impact shall be avoided at next level of review. Redesign to retain 100% of this habitat onsite. Refer to text for mitigation for indirect impacts.
Southern Live Oak Riparian Forest	8 (10.3%)	100%	>0%	> 0%	S	M	10. See mitigation measure 9.
Southern Interior ›ss Forest	2 (1.1%)	100%	--	--	S	M	11. See mitigation measure 9.

Table 4.2.4-8 (Revised) (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
PHASE I-PROGRESS PLAN ALTERNATIVE

Habitats	Acres Impacted (% Impacted)	RMP Goals (% Protection)	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Non-Mitigable (NM)*	Mitigation
Sycamore Alluvial Woodland	0 (0.0%)	100%	> 0%	> 0%	NS		
Southern Willow Scrub	1 (5.0%)	95% No net loss	--	> 0%	S	M	12. See mitigation measure 3.
CNMulative Habitat Reduction	12,054		> 40 ac.	--	S	NM	13. This effect is reduced through the effective implementation of recommendations for sensitive plants (Table 4.2.4-8), sensitive wildlife (Table 4.2.4-4), habitats (Table 4.2.4-7), the wildlife corridors, and the critical review of specific impacts at the next level of review. Minor changes in development envelopes, placement of roadways and other infrastructure will go to avoid or minimize cNMulative impacts and ensure that the resulting open space network is both valuable and viable.

* Non-mitigable indicates that impacts cannot be mitigated without major redesign of the project.

updated vegetation maps shall be based on aerial photographs and filed surveys. Mitigation, however, shall be required for sensitive habitats mapped at the Program EIR level that have subsequently been disturbed or degraded.

Coastal Sage Scrub

Mitigation of the 4.318-acre impact to coastal sage scrub to below a level of significance will require implementation of the following measures:

(1) Major redesign of the project to retain 80 percent of the coastal sage scrub onsite and the key areas identified in Table 4.2.4-8.

(2) Restoration of approximately 1,500 acres of identified high priority areas within the Otay River parcel (Figure 3.3-8). Mitigation shall be complete and demonstrated successful prior to impact.

(3) Acquisition and long-term protection of approximately 1,000 acres of coastal sage scrub offsite. This will mitigate the impacts remaining after avoiding 80 percent of onsite habitat and restoring the high priority areas identified in Figure 3.3-8. Offsite mitigation shall not be used in place of avoidance or onsite restoration, but is necessary to reduce impacts to below a level of significance. Offsite mitigation shall be purchased in areas identified by the NCCP and MSCP programs as key areas for a South County biological preserve.

The mitigation program shall consist of a four-year experimental phase and an eight-year phase for the full-scale restoration. The mitigation shall be initiated with the first SPA. Because the restoration must be successfully completed prior to impact of sensitive habitats, the first SPA shall be located within non-sensitive habitat. The experimental phase of the mitigation program includes collection of biological data to refine the locations for restoration, to obtain baseline information on adjacent undisturbed habitats, and to develop the most effective restoration methodologies. The full-scale restoration shall include a one- to three-year period for site preparation (i.e., weed removal and planting) and a five-year period for quantitative monitoring and assessment of restoration success. Horticultural monitoring and remedial maintenance will be ongoing. The mitigation must meet the success criteria and be satisfactory to the appropriate jurisdiction before impact to the original sensitive habitat can occur. Refer to the Habitat Restoration Guidelines (Section 3.3.3.4) for conceptual restoration and enhancement approaches.

With major project redesign, approximately 1,500 acres of disturbed habitat would be available for restoration to coastal sage scrub in the identified high priority areas of the Otay River parcel (Figure 3.3-8). The actual acreage available for restoration will depend on the final approved plan and on the suitability of specific areas for restoration as determined by the revegetation designer, plant ecologist, and soil scientist. Note that more than 1,500 acres of restoration acreage is illustrated in Figure 3.3-8. The area shown in the Proctor Valley parcel in Figure 3.3-8 is mapped as disturbed valley needlegrass grassland and is available for native grassland restoration, rather than for mitigation of coastal sage scrub. Most of the disturbed coastal sage scrub in the Proctor Valley and San Ysidro parcels probably would regenerate naturally after the pressure from livestock grazing is removed (H. Wier, T. Oberbauer, pers. comm. 11/92; comment number 7 from the California Native Plant Society, 10/6/92; comment number 44 from the Fish and Wildlife Service, 10/8/92). Therefore, intensive restoration would be of little value in these areas.

Within the floodplain terraces and north slopes of Otay River Valley, Salt Creek, and Wolf and Poggi canyons lies approximately 650 acres of agriculture and 350 acres of non-native grassland and non-native grassland/coastal sage scrub available for mitigation. Restoration in the majority of these areas would involve habitat type conversion rather than enhancement of existing disturbed scrub habitats. For this reason, and because restoration shall occur prior to project impacts, full mitigation credit is appropriate (i.e., 1:1 ratio of restored to impacted habitat). Coastal sage scrub mitigation for impacts associated with the first SPAs shall occur within the Otay River Valley, Salt Creek, and Wolf and Poggi Canyons. Restoration of these areas is critical for habitat and regional corridors for California gnatcatcher and cactus wren.

Approximately 340 acres of non-native grassland/clay lens habitat occupied by the endangered Otay tarweed exists on the south slopes of Otay River Valley. This area has more limited potential for restoration because of the high occurrence of Otay tarweed. Some of this area, however, may be appropriate for enhancement or restoration on slopes that are unoccupied by Otay tarweed. Otay tarweed typically occurs on clay soils, often in disturbed grassy areas, and attempts to rid the site of non-native grasses may also negatively impact tarweed. Micro-sites within this area shall be identified during the experimental phase for potential for restoration to coastal sage scrub, native grassland, or for introduction of sensitive plant species requiring clay soils. Full mitigation credit (1:1 ratio) shall be received for acreage restored/enhanced in the identified micro-sites. Thus, 170 acres credit would be given if one half of the 340-acre site was restored/enhanced.

A second large area (225 acres) with limited potential for restoration exists in the Otay Mesa J 29-30 vernal pool complex. This area has a high occurrence of endangered vernal pool species, and, therefore, has limited potential for some of the large-scale weed control techniques. More experimentation also is required in this area to develop effective methods of selectively removing weed species without damaging vernal pools or natural topographic and soil features. Restoration/enhancement of an open sparse phase of coastal sage scrub and native grassland would be appropriate in this area. Half to full credit (2:1 to 1:1 ratio) shall be received for restoring/enhancing this area, depending on results of experiments to determine how much and what type of manipulation is apptopriate. Because this area may benefit most from minor enhancement, and because it still has high biological value in its present disturbed state, a mitigation ratio of 2:1 (half credit) may be most appropriate. Refer to vernal pool section below for vernal pool mitigation.

An estimated 1,000 to 1,500 acres of restoration acreage and, therefore, mitigation credit shall be received for restoring and enhancing coastal sage scrub in the high priority areas onsite. It should be reiterated that restoration of the high priority areas discussed above and shown in Figure 3.3-8 is required to the degree determined to be biologically appropriate and feasible by the restoration team including the revegetation designer, plant ecologist, and soil scientist.

With 80 percent preservation of coastal sage scrub, the mitigation burden is reduced to 2,305 acres. With restoration of 1,000 to 1,500 acres and an estimated credit of approximately 1,300 acres, the burden is further reduced to 1,005 acres. Acquisition and preservation of approximately 1,000 acres of coastal sage scrub offsite in coordination with NCCP and MSCP programs is required to complete the mitigation.

Potential indirect impacts shall be mitigated by providing a minimum 100-foot width buffer area around all preserved coastal sage scrub. No development, landscaping or clearing for fire management shall be allowed within the buffer areas.

Maritime Succulent Scrub

Mitigation for the 67-acre impact to maritime succulent scrub will require major redesign of the project to preserve 98 percent of this habitat onsite. Restoration of approximately 6 acres is required to offset the remaining impacts. Appropriate locations for restoration of this habitat within the Otay River parcel will be determined by subsequent field transect studies during the experimental phase of the mitigation program. High priority areas for upland restoration are identified in Figure 3.3-8. Replacement ratios and phasing of the mitigation program are discussed in conjunction with coastal sage scrub mitigation.

Valley Needlegrass Grassland

Mitigation for the 224-acre impact to valley needlegrass grassland will require major redesign of the project to preserve 50 percent of this habitat onsite and restoration of disturbed habitats in the Proctor Valley and Otay River parcels to offset the remaining impacts. High priority areas for native grassland restoration are located within and adjacent to the K6 vernal pool complex north of Lower Otay Reservoir and in selected areas in the Otay River parcel to be determined by subsequent field transect studies (refer to Figure 3.3-8 for high priority upland restoration areas). A ratio of between 1:1 and 3:1 (restored to impacted habitat) would be appropriate depending on the condition of the habitat to be restored and what type of manipulation is appropriate. A mitigation program including a 4-year experimental phase and an 8-year maintenance and monitoring program would be required.

Alkali Meadow

Mitigation requirements for the 42-acre impact to alkali meadow includes redesign of the project to preserve 98 percent of this habitat onsite and restoration of disturbed alkali meadow habitat in the Proctor Valley parcel to offset the remaining impact. Creation of the appropriate hydrological requirements and micro-environmental conditions unique to alkali meadow from graded areas or even other wetland communities is not considered feasible. Restoration within the disturbed alkali meadow habitat area within Proctor Valley, however, is feasible and would be required to mitigate the 2 percent impact.

Potential indirect impacts shall be mitigated by providing a minimum 100-foot width buffer area on either side of all alkali meadow habitat. No development or landscaping shall be allowed within the buffer areas. Impacts to alkali meadow from hydrological alterations (including potential displacement of native habitat with exotic and wetland species) shall be mitigated as described herein. The water runoff from surrounding development shall be diverted and controlled to retain the same amount and seasonality of water input existing before development. A study shall be required at the SPA level of analysis to determine existing hydrological conditions of streams containing alkali meadow and what hydrological changes will occur to these streams after development. The results of these studies shall be used to engineer the storm drain system to reflect pre-impact hydrological conditions over the long-term. A low-flow diversion shall be designed in such a way that normal daily nuisance flow would stay in the storm drain system. Flow from rain storms beyond the normal nuisance flow would be diverted into the sensitive resource area up to a designated rate of flow to be determined by the hydrological studies. Such a system would keep the nuisance flow out of the sensitive resource area to prevent the conversion of the drainage into a perennial stream and prevent habitat alteration. It also would protect the drainage from increased storm flows which often accompany development and sometimes damage downstream habitat.

Woodland Habitats

Mitigation for impacts to southern interior cypress forest, coast live oak woodland, and southern live oak riparian forest, shall include redesign to preserve 100 percent of these habitats.

Potential indirect impacts shall be mitigated by providing a minimum 100-foot width buffer area around the sensitive habitat, within which no development or landscaping would be allowed. Impacts to these woodlands from hydrological alterations (including potential displacement of native woodland habitats with exotic and wetland species) shall be mitigated as described above for alkali meadow. Adverse impacts are anticipated to occur to the southern interior cypress forest, sycamore alluvial woodland, and possibly coast live oak woodland. Southern live oak riparian forest, however, may benefit from some nuisance flow. A system shall be devised to best reflect the pre-impact hydrology for each of the woodland habitat types. For the three former woodland types, a modified low-flow diversion as described above for alkali meadow may be most effective for protection of these habitats. The biologist, hydrologist, and engineer shall work together to design the system.

Floodplain Scrub, Southern Willow Scrub, and Aquatic/Freshwater Marsh

Mitigation for impacts to floodplain scrub, southern willow scrub, and aquatic/freshwater marsh habitats includes redesign of the project to retain 95 percent of these habitats and restoration/enhancement of disturbed wetland habitat to mitigate the remaining impacts. Restoration/enhancement shall occur in the Otay River Valley within tamarisk/mulefat scrub habitat (Figure 3.3-8).

Vernal Pools

Mitigation for impacts to vernal pools includes preservation of 100 percent of large or high value vernal pool complexes and 98 percent preservation of all other vernal pools. Restoration of disturbed vernal pool areas is required to offset the 2 percent impact. These preservation standards are consistent with the MSCP standards for vernal pool preservation. High value vernal pools are defined as those that contain sensitive species, a unique or diverse assemblage of species, or that occur within a mosaic of other identified sensitive habitats. The vernal pool complexes on Otay Ranch that are large or of high value and which require 100 percent preservation include J 23-24, J 25, J 29-30, and J 31+ on Otay Mesa; K 1 and K 15+ in Otay River Valley; M 2 near Poggi Canyon; R 1, R 2, and R 3 in Proctor Valley; K 6 and K 8 north of Lower Otay Reservoir; and K 12 in the San Ysidro Parcel.

Mitigation shall include project redesign to include, at the minimum, the above mentioned vernal pool complexes. The allowed 2 percent impact to any of the other vernal pool complexes shall be mitigated by restoration/enhancement of damaged vernal pool habitat within disturbed areas of the preserved vernal pool complexes such that no net loss of vernal pool habitat value or area occurs. Mitigation must be consistent with the requirements of Section 404 of the Clean Water Act. Restoration may include decompaction, sculpting and recontouring, and seeding of basins disturbed by dirt roads, trails, or scraped areas. Several such areas are available for restoration in the J 23-24, J 25, and J 29-30 vernal pool complexes such that no net loss of vernal pool habitat value or area occurs mitigation must be consistent with the requirements of Section 404 of the Clean Water Act. Enhancement of vernal pools through removal of exotic plant species also may be an appropriate mitigation measure. Reintroduction of greatly declining vernal pool species to suitable area for recolorization should also be considered. Vernal pool

restoration/enhancement shall include a four-year experimental phase and an eight-year maintenance and monitoring period. Impacts to vernal pool habitat will occur only after successful completion of the restoration program. Success criteria shall be based on established standards relative to undisturbed (i.e., least disturbed) vernal pools within the same vernal pool complex. Attributes to be used include water retention, percent cover of native vernal pool species, and diversity of native vernal pool and associated species. Restoration and enhancement methodologies shall be developed during the experimental phase and initially shall follow the strategies outlined in the RMP.

Potential indirect impacts shall be mitigated by providing a minimum 100-foot width buffer area around the vernal pools, their watershed, and critical habitat. A larger buffer area and implementation of other measures e.g., fencing educational signage, diversion of urban runoff, may be necessary to eliminate adverse effects of drainage, trampling, vehicles, dumping, and collecting and to provide sufficient resources to support appropriate pollinators and dispersal agents.

Sensitive Plants Mitigation

Mitigation to below a level of significance shall involve the following: 1) project redesign to obtain the species-specific preservation standards (Table 3.3.6-1), 2) restoration or transplantation, and/or 3) offsite acquisition and preservation. After the preservation standards are met, habitat restoration with sensitive plant species or introduction of sensitive plants into the appropriate micro-environment and soil type will be employed to offset remaining impacts. To avoid genetic mixing of distinct populations, species introductions will be made only into appropriate habitat that presently is not occupied by existing populations. All restoration or transplantation programs will require a 2-3 year experimental phase and a 5-8 year maintenance and monitoring period as appropriate for each species mitigation program. The time period needed will depend upon the species growth form, the body of knowledge regarding propagation, soil requirements, etc., and whether restoration of associated habitat is involved. Successful completion of the experimental phase and maintenance and monitoring period as defined by specific success criteria is required before impacts to the original site containing the sensitive species can occur. If success criteria are not met, the project shall be redesigned to retain the original sensitive resource, or offsite mitigation may be pursued.

The initial mitigation plan shall provide a research phase, experimental phase, implementation phase, and goals for long-term maintenance and monitoring. The final mitigation plantings and long-term maintenance and monitoring shall be based on the results of a minimum of ~~three~~ 2-3 years of data from species-specific experiments. The experimental phase shall include experiments which focus on the species growth requirements and management including methods of propagation, edaphic factors, hydrological and topographic requirements, weed competition, and maintenance practices. Species that have been propagated successfully will require less horticultural work; however, experimental work still may be needed upon introduction into the appropriate site and management of the established population. The research phase shall involve literature review and preliminary tests to aid in the experimental design. Some information can be extrapolated, to a degree, from closely-related species. Tests that are fairly easy to do (but for which sufficient lead time will be required) include germination tests, seed/pollen viability tests, and seed dormancy tests. Habitat information shall be determined from field studies, soil sampling, and literature review. Seed banking shall be included as a mitigation component (i.e., in addition to experimental design), particularly for the more sensitive species. This is a "contingency" measure - it ensures that the gene pool is preserved, at least for the short-term.

A botanist, soil scientist, and revegetation specialist each with at least 5 years of experience in the local flora and ecology shall design and implement the mitigation program including the research, experimental, implementation, and monitoring phases of the program.

Sensitive plant survey are required at the SPA level (see Table 3.3.6-1). A detailed mapping of areas occupied by sensitive species shall be provided and plant densities within occupied polygons shall be estimated in the field based on total population counts or counts within defined sub-areas. Thus the percent of a species to be impacted by a SPA shall be determined from a quantitative data base of acreages and sizes of populations. Mitigation shall be required for sensitive plant populations that were documented at the Program EIR level but that may not have been recorded in subsequent SPA level surveys.

Indirect impacts to preserved populations of all sensitive plant species shall be avoided or minimized to the extent possible by implementing the following mitigation measures:

- Provide buffers (i.e., set-backs from developed, landscaped, or other use areas) around the occupied and/or critical habitat (e.g., watershed for vernal pools, floodplain or drainage for willowy monardella) for all preserved populations. Buffers shall be of adequate size and configuration to eliminate adverse effects of trampling, vehicles, dumping, collecting, and adjacent construction, and, in conjunction with the preserved habitat, shall include sufficient resources to support appropriate pollinators. Buffer widths shall be a minimum of 50-100 feet for first, second, and third priority species and 25-100 feet for fourth priority species. Buffer widths shall be determined on a species-specific basis, and will be dependent on the sensitivity of the species, the susceptibility/tolerance of the species and/or its habitat to disturbance, and the adjacent land use. Additional measures, such as fencing and/or educational signage, may be required in some cases to ensure protection of preserved, buffered populations. The extent of occupied habitat for annual species shall be determined at the SPA level in several ways: 1) through multiple season surveys, including at least one survey during a year of optimal climatic conditions for the species of concern, 2) by delineating the extent of the habitat or microhabitat (e.g., clay lens), or 3) by calculating the occupied habitat during a single season survey, then adding 25% of additional, adjacent, in-kind habitat. This additional acreage is considered separate from the buffer, and is intended to allow for yearly fluctuations or shifts in population size and location that characterize many annual species. Occupied habitat for bulbous herbaceous perennials can be delineated in a similar fashion, although non-impactive digging (for dormant bulbs or corms) can also be employed to determine the extent of the population.

- For sensitive species occurring within seasonal streams, the water runoff from surrounding development shall be diverted and controlled to retain the same amount and seasonality of water input existing before development. A study to determine existing hydrological conditions and a hydrological analysis of the streams within the proposed development that contain sensitive plant species shall be required at the SPA level of analysis. The results of these studies shall be used to engineer the storm drain system to reflect pre-impact hydrological conditions over the long-term. A low-flow diversion shall be designed in such a way that normal daily nuisance flow shall stay in the storm drain system. Flow from rainstorms beyond the normal nuisance flow would be diverted into the sensitive resource area up to a designated rate of flow to be determined by the hydrological studies in concert with species specific parameters.

Such a system would keep the nuisance flow out of the sensitive resource area to prevent the conversion of the drainage into a perennial stream and prevent habitat alteration to the detriment of the identified sensitive species. It also would protect the drainage from the increased storm flows that often accompany development and sometimes damage downstream habitat through increased erosion, or sedimentation. Species occurring in intermittent streams for which the above mitigation would apply include willowy monardella, Otay manzanita, Orcutt's brodiaea, summer-holly, Tecate cypress, San Diego sagewort, Orcutt's bird-beak, San Diego marsh-elder, spiny rush, and potentially Campo clarkia, San Miguel savory, and Engelmann oak.

- A fire management plan shall be developed in accordance with the RMP to protect and appropriately manage populations of sensitive plant species. A fire management plan also shall be a requirement of the subsequent EIR's conducted at the SPA level. Published papers and current research involving the effects of fire and fire management on specific habitats and sensitive species occurring on Otay Ranch, e.g., coastal sage scrub, southern interior tecate cypress forest, Otay manzanita, Gander's pitcher-sage, etc. shall be used to develop the fire management plan.

Mitigation recommendations for each of the sensitive plants impacted by the Phase I-Progress Plan are presented in Table 4.2.4-9. ~~Refer to Section 3.3.3 under "Sensitive Plants" for general guidelines on mitigation for sensitive plant species.~~

Sensitive Animals Mitigation

Implementation of the Phase I-Progress Plan Alternative would significantly impact one endangered species, five petitioned for endangered status, and six wildlife species with at least federal candidacy or State Species of Special Concern Status. ~~at least 25 sensitive wildlife species. Nine species with at least federal candidacy or CDFG Species of Special Concern Status would be significantly impacted.~~ Another ~~26~~ 31 species with state, federal, or local sensitivity status have varying potentials for impacts from this alternative. The overall level of impacts would be lower in the Phase I-Progress Plan than in the New Town Plan. Impacts to Cooper's hawk, least Bell's vireo, tricolored blackbird, San Diego horned lizard and orange-throated whiptail are mitigable. Impacts to *Streptocephalus woottoni*, *Branchinecta sandiegensis*, California gnatcatcher, cactus wren, northern harrier, and golden eagle are not mitigable without major modifications of the existing Phase I-Progress Plan. General mitigation for the Phase I-Progress Plan follows that presented in Section 3.3.3 for sensitive animals in the New Town Plan. Specific recommendations for changes in design and for mitigation for each impacted species are presented in Table 4.2.4-5.

Open Space Design

Wildlife Corridors

Specific recommendations for wildlife corridors ~~will~~ shall follow recommendations for regional and important local corridors given in the Baldwin Otay Ranch Wildlife Corridor study (Ogden 1992b). General recommendations to mitigate for wildlife corridor impacts are presented below.

Specific recommendations to reduce cumulative impacts to wildlife and to specific species such as the California gnatcatcher and cactus wren also ~~are as~~ follows (EIR Proposed):

Table 4.2.4-9 (Revised)

SUMMARY OF SIGNIFICANCE OF IMPACTS TO SENSITIVE PLANT SPECIES AND RECOMMENDED MITIGATION FOR PHASE I-PROGRESS PLAN

Species	Significance of Impacts	Required Mitigation[1,2]
High Priority Species (State-listed Endangered)		
San Diego Thorn-mint (*Acanthomintha ilicifolia*)	Significant	• Project redesign to preserve both populations with adequate buffer north of Otay Lakes Road, or • Redesign to preserve largest population (95% of species onsite), including watershed, any associated critical habitat, and a minimum 100-foot width buffer zone; **and** introduce the species on appropriate soils on the ranch; creation of artificial population shall involve seed salvage of impacted population; nursery propagation to increase seed; sowing of seed; mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required. • A clay soil lens suitable for San Diego thorn-mint that is not presently occupied by this species must be used for the mitigation. If no such area is available, as determined by the plant ecologist and soil scientist during the experimental phase, acquisition and long-term protection of an offsite population shall be required.
Dunn's Mariposa Lily (*Calochortus dunnii*)	Not Significant	No mitigation required.
Slender-pod Caulanthus (*Caulanthus stenocarpus*)	Not Significant	No mitigation required.
San Diego Button-celery (*Eryngium aristulatum* var. *parishii*)	Significant	• Project redesign to preserve 98 percent of this psecies onsite; preserve 100 percent where occurring with other vernal pool indictor species; and

Table 4.2.4-9 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS TO SENSITIVE PLANT SPECIES AND RECOMMENDED MITIGATION FOR PHASE I-PROGRESS PLAN

Species	Significance of Impacts	Required Mitigation[1,2]
		• Mitigate allowed 2 percent impact through vernal pool restoration and re-introduction of species into disturbed or historical vernal pool areas. Detailed mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required.
Mexican Flannelbush (*Fremontodendron mexicanum*)	Not Significant	No mitigation required.
Otay Tarweed (*Hemizonia conjugens*)	Significant	• Project redesign to include at least 80 percent of species in open space and introduction of species in areas with appropriate soils, including seed salvage and nursery propagation to increase seed sowing. Mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required.
Willowy Monardella (*Monardella linoides* ssp. *viminea*)	Significant	• Preserve 100 percent of species; minor redesign by set-back of development from canyon in western San Ysidro Parcel; design canyon crossing with bridge at SPA level to avoid all direct and indirect impacts; • Regulation of water input to prevent significant indirect impacts from increased or decreased water flow from development; refer to buffer requirements and pre-impact hydrological studies and design of low-flow diversion system described in text of this section; • Five-year monitoring of intact population to: a) identify significant indirect impacts of development (e.g., trampling, dumping, hydrological alterations) and b) implement remedial measures (e.g., restoration, trash removal, repair fencing etc.).

Table 4.2.4-9 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS TO SENSITIVE PLANT SPECIES AND RECOMMENDED MITIGATION FOR PHASE I-PROGRESS PLAN

Species	Significance of Impacts	Required Mitigation[1,2]
California Orcutt Grass (*Orcuttia californica*)	Potentially Significant	• Additional surveys in a "wet year" and seed bank studies during any year to determine if extirpated from the ranch. "Wet year" is defined as any year with average or greater than average precipitation, preceded by one or more such years. Collect soil samples from area of historical occurrence and propagate under various conditions of inundation. • If found to be present in seed bank, project should be redesigned to avoid impacts.
Otay Mesa-mint (*Pogogyne nudiuscula*)	Significant	• Minor project redesign to include the one impacted pool with this species (on edge of proposed development) in the J29-J30 preserve (100% preservation).
Second Priority Species (Federal C2; CNPS List 1B)		
Otay Manzanita (*Arctostaphylos otayensis*)	Significant	• Redesign of project to preserve at least 80 percent of species onsite (preserve populations in northern Jamul Mountains); and • Propagation and re-establishment of any impacted plants to suitable slopes; this mitigation is untried but the genus commonly is grown as a horticultural species; would involve restoration of high elevation chaparral community; develop mitigation plan including a 2-4 year experimental phase and a 5-8 year maintenance and monitoring program.
Orcutt's Brodiaea (*Brodiaea orcuttii*)	Potentially Significant	• Refer to text in this section for mitigation requirements for indirect impacts.
Dense Reed Grass (*Calamagrostis densa*)	Not Significant	No mitigation required.

Table 4.2.4-9 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS TO SENSITIVE PLANT SPECIES AND RECOMMENDED MITIGATION FOR PHASE I-PROGRESS PLAN

Species	Significance of Impacts	Required Mitigation[1,2]
San Miguel Savory (*Calamintha chandleri*)	Not Significant	No mitigation required.
Summer-holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)	Not Significant	No mitigation required.
Tecate Cypress (*Cupressus forbesii*)	Not Significant	No mitigation required.
Variegated Hasseanthus (*Dudleya variegata*)	Significant	• Project redesign to preserve at least 75 percent, including representative populations from each of the three parcels; **and** • Transplant impacted plants or otherwise establish species in appropriate habitat and clay soils within same parcel; detailed mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required.
San Diego Coast Barrel Cactus (*Ferocactus viridescens*)	Significant	• Project redesign to preserve at least 75 percent, including representative populations from each of the three parcels; **and** • Transplant impacted plants to appropriate habitat within same parcel; detailed mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required.
San Diego Goldenstar (*Muilla clevelandii*)	Significant	• Project redesign to preserve at least 75 percent, including representative populations from each of the three parcels; **and** • Salvage corms and soil and introduce species in appropriate soils and habitat within same parcel; detailed mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required.

Table 4.2.4-9 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS TO SENSITIVE PLANT SPECIES AND RECOMMENDED MITIGATION FOR PHASE I-PROGRESS PLAN

Species	Significance of Impacts	Required Mitigation[1,2]
Little Mousetail (*Myosurus minimus* var. *apus*)	Potentially Significant	• Additional surveys of historical location on Otay Mesa in a "wet year" and seed bank studies to determine if extirpated from that location. Collect soil samples from area of historical occurrence and propagate under various conditions of inundation. • If found to be present on Otay Mesa, project should be redesigned to avoid all impacts.
San Diego Navarretia (*Navarretia fossalis*)	Significant	• Project redesign to retain J29 pools with *Navarretia* (100% preservation) to prevent loss of species from the ranch.
Snake Cholla (*Opuntia parryi* var. *serpentina*)	Significant	• Redesign to preserve at least 80 percent; **and** • Transplant impacted plants to restored coastal sage scrub in open space; would require detailed mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program.
Narrow-leaved Nightshade (*Solanum tenuilobatum*)	Significant	• Redesign to preserve at least 75 percent; **and** • Re-establish this species in impacted areas with suitable soils or introduce in suitable open space; this species has not been propagated before, so success is less certain, perhaps, than other species, detailed mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program would be required.
Gander's Pitcher-sage (*Lepechinia ganderi*)	Not Significant	No mitigation required.
Third Priority Species (CNPS List 2 and 3)		
California Spinebush *Adolphia californica*	Not Significant	No mitigation required.
San Diego Bur-sage (*Ambrosia chenopodiifolia*)	Not Significant	No mitigation required.

Table 4.2.4-9 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS TO SENSITIVE PLANT SPECIES AND RECOMMENDED MITIGATION FOR PHASE I-PROGRESS PLAN

Species	Significance of Impacts	Required Mitigation[1,2]
San Diego Sagewort (*Artemisia palmeri*)	Not Significant	No mitigation required.
Delicate Clarkia (*Clarkia delicata*)	Significant	• Minor project redesign to avoid all impacts to population in canyon in northeastern Jamul Mountains (75% preservation of populations required).
Orcutt's Bird-beak (*Cordylanthus orcuttianus*)	Significant	• Minor project redesign to avoid all impacts to population in canyon south of San Diego Air Sport Center (75% preservation of populations required); include canyon slopes in open space to avoid significant indirect impacts.
Palmer's Grappling-hook (*Harpagonella palmeri* var. *palmeri*)	Not Significant	No mitigation required.
San Diego Marsh-elder (*Iva hayesiana*)	Significant	• Redesign project to retain at least 75 percent; **and** • Revegetate at approximately 2:1 with this species in intermittent drainages that are impacted; or in previously disturbed alkali meadow; propagate container plants with seed collected from the ranch; include in restoration of alkali meadow habitat. Would require detailed mitigation plan including 2-4 year experimental phase and 5-8 year maintenance and monitoring program.
Munz's Sage (*Salvia munzii*)	Significant	• Redesign project to retain at least 75 percent; **and** • Restore Munz's sage-dominated coastal sage scrub at approximately 2:1 using seed and container plants from the ranch. Would require detailed mitigation plan including 2-4 year experimental phase and 5-8 year maintenance and monitoring program.

Table 4.2.4-9 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS TO SENSITIVE PLANT SPECIES AND RECOMMENDED MITIGATION FOR PHASE I-PROGRESS PLAN

Species	Significance of Impacts	Required Mitigation[1,2]
Greene's Ground-cherry (*Physalis greenei*)	Significant	• Additional survey work to verify presence of this species.
Greene's Ground-cherry (*Physalis greenei*) (Continued)		• If present, redesign project to preserve at least 75 percent of speices; **and** re-establish or introduce this species into suitable habitat, including seed salvage and nursery propagation to increase seed source. Detailed mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program would be required.
San Diego County Stipa (*Stipa diegoensis*)	Significant	• Redesign to preserve at least 75 percent; **and** • Re-establish this species in impacted areas or introduce in suitable open space; salvage seed, nursery propagate plugs, plant plugs and seed. Initial establishment may not be successful; phased plantings over several years is recommended. Detailed mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program would be required.
San Diego Sunflower (*Viguiera laciniata*)	Significant	• Redesign project to retain at least 75 percent; **and** • Restore *Viguiera*-dominated coastal sage scrub at approximately 2:1, using seed from the ranch. Mitigation plan including 2-4 year experimental phase and 5-8 year maintenance and monitoring program would be required.
Fourth Priority Species (CNPS List 4)		
Southern Mountain Misery (*Chamaebatia australis*)	Not Significant	No mitigation required.
Western Dichondra (*Dichondra occidentalis*)	Not Significant	No mitigation required.

Table 4.2.4-9 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS TO SENSITIVE PLANT SPECIES AND RECOMMENDED MITIGATION FOR PHASE I-PROGRESS PLAN

Species	Significance of Impacts	Required Mitigation[1,2]
Spiny Rush (*Juncus acutus* var. *sphaerocarpus*)	Not Significant	No mitigation required. Recommendation to salvage seed and revegetate impacted drainages. Use seed in alkali meadow restoration.
Chaparral Pea (*Pickeringia montana* ssp. *tomentosa*)	Not Significant	No mitigation required.
California Adder's-tongue Fern (*Ophioglossum lusitanicum* ssp. *californicum*)	Significant	• Redesign to preserve at least 50 percent of species onsite; increase set-back from Proctor Valley Creek to include the largest population in R2 vernal pool group within open space. This species is the least likely to be successfully introduced and attempts to do so probably would not mitigate impact.
Engelmann Oak (*Quercus engelmannii*)	Not Significant	No mitigation required.
Coulter's Matilija Poppy (*Romneya coulteri*)	Significant	Minor redesign to preserve at least 50 percent of species.
Ashy Spike-moss (*Selaginella cinerascens*)	Not Significant	No mitigation required. Recommendation to retain the highest concentrations of *Selaginella* with *Ferocactus*, *Salvia munzii*, and *Viguiera*, such as north of Otay Lakes Road and in western San Ysidro parcel.

1 Refer to Table 3.3-6.1 and text within this section for survey requirements at the SPA level.
2 Refer to text within this section for mitigation requirements for indirect impacts; applies to all species in this table.

- Provide for a wildlife corridor between Poggi and Wolf canyons. Two alternative alignments are proposed for this corridor in the Baldwin Otay Ranch Wildlife Corridor Study (1992b ~~in preparation~~). The minimum width of this corridor is 500 feet along its entire length. Where feasible this corridor should be wider (e.g., 1000 feet). The potential alignment within the western boundaries of the property would need to be preserved in natural open space and revegetated in coastal sage scrub vegetation. The alternative alignment through the northeast corner of the adjacent landfill would be feasible if the corridor and recommended buffer zones were retained in a natural open space easement. This alternative alignment to the proposed Poggi to Wolf Canyon corridors would also have to be revegetated in coastal sage scrub.

- Single family development bordering the north and east side of the quarry shall be pulled back from the property boundaries at Rock Mountain to allow for a minimum 500 foot wide gnatcatcher and cactus wren corridor. Any road crossings of this corridor shall be less than 100 feet wide or shall be appropriately bridged as recommended in the corridor study. Where feasible, roads should also be below-grade at gnatcatcher and cactus wren corridor crossings.

- Widen the entrance to Wolf Canyon by setting back adjacent single-family development or expand the width of the corridor as part of the evaluation of the adjacent Special Study Area (quarry). ~~Bridge~~ Provide a 12-foot high drainage culvert for an underpass at the Otay Valley Road crossing at the south end of the corridor with a 12 foot high drainage pipe as recommended in the Baldwin Wildlife Corridor Study.

- Otay Valley Road - Reroute Otay Valley Road out of open space on Rock Mountain. If possible, this roadway should be positioned further north so as to bridge the canyon and run north of the quarry site. Wherever this road crosses wildlife corridors, it shall be provided with underpasses recommended in the Wildlife Corridor Study.

- Maintain at least a 500 foot wide gnatcatcher and cactus corridor on the north slope of the Otay River Valley. Development should be set back at least 500 feet from the bottom of the slope. All road crossings of this corridor shall follow design criteria recommended in the wildlife corridor study (e.g., be less than 100 feet wide or be appropriately bridged.

- La Media Road and Alta Road - Both of these roadways should be eliminated, if possible, to reduce sectioning of the river valley. Alta Road is considered most impactive due to its adverse effect on O'Neal Canyon. It should not be aligned within the rim to rim topography of O'Neal Canyon. It should also not constrain the mouth of Salt Creek Canyon. If it is infeasible to eliminate the La Media Road crossing of the Otay River Valley, then all corridor crossings by this alignment shall be appropriately bridged (see Baldwin Otay Ranch Wildlife Corridor Study). La Media should include ~~an~~ bridge underpass, preferably a bridge to accommodate wildlife and hiking/biking trails. If possible, a consolidation of one or both of these roads with SR-125 would reduce the number of river valley crossings (with the potential for adverse traffic impacts). All road crossings of the Otay River Corridor shall be bridged following further study at the SPA Level.

- ~~University Site (Special Study Area) - This siting of this facility would create significant unmitigable effects. This area is a core habitat for the California gnatcatcher and cactus wren on Otay Ranch. This facility designation should be removed from consideration in Salt Creek.~~

- Proctor Valley Road - Provide a bridge crossing of ~~the proposed wildlife~~ local corridor 4 in upper Proctor Valley and where it crosses regional Corridor 1. Provide multiple underpasses~~/oversize culverts~~ over drainages in lower Proctor Valley on City of San Diego land. See Baldwin Otay Ranch Wildlife Corridor Study for underpass requirements for these road crossings.

- Single family housing along the northern edge of regional Corridor 1 should be set back to retain in natural open space the wildlife corridor and appropriate buffers. Development needs to be pulled south at the north end of the disjunct inverted L-parcel so that the corridor and buffer are at least 1300 feet wide. See the wildlife corridor study for specific design requirements. A 2200 foot wide corridor is required on the east side of Proctor Valley. There shall also be no development within the rim-to-rim topography of the canyon east of Proctor Valley (see Wildlife Corridor Study). Parts of this corridor require revegetation as well as screening from adjacent development.

- ~~Conference Center - This siting of this facility would affect a number of key resources and eliminate one of two regional wildlife corridors between Jamul and San Miguel Mountains. It is recommended that This facility shall be relocated to avoid significant impacts. The entire rim to rim topography of this canyon shall be preserved in open space to allow Corridor 1 to function effectively.~~

- Corridor 2 is constrained at the south end by development. This corridor needs to encompass rim to rim topography and development needs to be pulled back onto the ridge tops. Corridor 2 is approximately 1600 feet wide for much of its length. Proper screening from development and a bridge underpasses at the two Otay Lakes Road crossings are required (see Wildlife Corridor Study).

- Single-family residential west of regional corridors 6 and local corridor 9 at the western end of the San Ysidro parcel should be redesigned to provide ~~be removed to ensure maintenance of California gnatcatcher and an~~ effective wildlife movement corridor to the lake. At the north end of corridor 6 the entire rim to rim topography should be included within the corridor and it should be no narrower than approximately 800 feet. Local Corridor 9 should include rim to rim topography through development areas. This corridor varies in width from 800 to 1600 feet. Development should be screened from the view of animals within these corridors. See Baldwin Otay Ranch Wildlife Corridor for specific criteria for these corridors.

- Pull development west of Corridor 11 at Little Cedar Canyon to avoid impacts to wildlife movement. This corridor should be 1100 to 1600 feet wide along its length and screened from adjacent development. An appropriate bridge underpass should be provided for Otay Lakes Road. See Wildlife Corridor Study for details.

- ~~Eliminate the finger of development across~~ Provide a bridge at the road crossing of Corridor 8 to allow movement of animals on this important local corridor.

- Hubbard Spring - It is recommended that the proposed housing on the ridge southwest of Hubbard Spring be removed from the plan.

4.2.4.3 Analysis of Significance

The Phase I-Progress Plan would impact 52 percent of existing open space on Otay Ranch. Sensitive upland habitats would be reduced by 37 percent and wetland habitats by 9 percent. Vernal pool impacts are estimated at 8 percent. These impacts to sensitive habitats are significant and will require a combination of mitigation approaches including redesign of portions of the project and habitat restoration. Of 18 regional wildlife corridors identified on Otay Ranch, five would be impacted significantly and 11 would be potentially impacted by implementation of the Phase I-Progress Plan. Recommendations to mitigate these impacts include redesign of some of the proposed developments and roadway alignments and habitat restoration. Sensitive plant and animal species are also impacted significantly by this alternative, including the following highest priority species: San Diego thorn-mint, San Diego button-celery, Otay tarweed, willowy monardella, Otay Mesa-mint, least Bell's vireo, California gnatcatcher, cactus wren, and potentially California Orcutt grass, Riverside fairy shrimp, and Quino checkerspot. Adequate mitigation of impacts to these species would necessitate a combination of project redesign, habitat restoration, and species reestablishment.

Impacts to the following sensitive habitats are considered significant but mitigable to below a level of significance through minor project redesign and habitat restoration:

Coast live oak woodland
Southern live oak riparian forest
Southern interior cypress forest
Southern willow scrub
Floodplain scrub
Coastal freshwater marsh/Aquatic

Impacts to the following sensitive habitats are considered significant and unmitigable without major redesign of the project:

Diegan coastal sage scrub
Maritime succulent scrub
Vernal pools
Valley needlegrass grassland
Alkali meadow

Impacts to the following sensitive plant species are considered significant but mitigable to below a level of significance though minor project redesign and restoration:

San Diego thorn-mint (*Acanthomintha ilicifolia*)
Willowy monardella (*Monardella linoides* ssp. *viminea*)
Otay Mesa-mint (*Pogogyne nudiuscula*)
California Orcutt grass (*Orcuttia californica*)
San Diego Button-Celery (*Eryngium aristulatum* var. *parishii*)
Orcutt's brodiaea (*Brodiaea orcuttii*)
Variegated hasseanthus (*Dudleya variegata*)
San Diego coast barrel cactus (*Ferocactus viridescens*)
Little mousetail (*Myosurus minimus* var. *apus*)
San Diego navarretia (*Navarretia fossalis*)
Narrow-leaved nightshade (*Solanum tenuilobatum*)

Delicate clarkia (*Clarkia delicata*)
Orcutt's bird-beak (*Cordylanthus orcuttianus*)
San Diego marsh-elder (*Iva hayesiana*)
Greene's ground-cherry (*Physalis greenei*)
San Diego County Stipa (*Stipa diegoensis*)
Coulter's Matilija Poppy (*Romneya coulteri*)
California adder's-tongue fern (*Ophioglossum lusitanicum* spp. *californicum*)

Impacts to the following sensitive plant species are considered significant and unmitigable without major redesign of the project:

Otay tarweed (*Hemizonia conjugens*)
Otay manzanita (*Arctostaphylos otayensis*)
San Diego goldenstar (*Muilla clevelandii*)
Snake cholla (*Opuntia parryi* var. *serpentina*)
San Diego sunflower (*Viguiera laciniata*)
Munz's sage (*Salvia munzii*)

At this level of review, impacts to the following sensitive animal species are considered significant but mitigable to below a level of significance through minor project redesign and other mitigation measures:

~~San Diego horned lizard~~
~~Orange-throated whiptail~~
Cooper's hawk
Least Bell's vireo
Tricolored blackbird

Impacts to the following sensitive animal species are considered significant and unmitigable without major project redesign:

Streptocephalus woottoni
Branchinecta Sandiegensis
San Diego horned lizard
Orange-throated shiptail
~~Coastal~~ Cactus wren
California gnatcatcher
Northern harrier
Golden eagle
Burrowing owl

Thirty-~~seven~~ nine sensitive animal species in the impact analysis that are potentially significant based on available data are ~~not~~ considered significantly impacted at this level of review impacts to these species are considered unmitigable without major project redesign.

At this level of review, impacts to regional raptor populations are considered significant and unmitigable without major project redesign.

Impacts to wildlife movement are considered significant and unmitigable without major project redesign. ~~but mitigable to a level below significance if recommended mitigation measures are implemented.~~

4.2.5 Cultural Resources

4.2.5.1 Impacts to Prehistoric Resources

Approximately 1,368 acres (19 percent) of the 7,915 acre Proctor Valley parcel have been intensively surveyed for cultural resources. Because approximately 4,200 acres (or more than 50 percent) of this parcel in the Phase I-Progress Plan is consigned to Open Space, and nearly all of the intensively surveyed portions are in areas to be developed, this figure may be considered low in relation to the actual area to be developed (Figure 4.2.5-1). The impact assessments made here, therefore, actually reflect a larger percentage (about 35 percent) of the parcel that is proposed for development. Of the 9,618-acre Otay River parcel, approximately 4,339 acres (i.e., approximately 45 percent of the property) have been intensively surveyed for cultural resources. Most of the surveyed area is slated for development. Consequently, impact assessments made for this parcel are the most accurate of the three parcels, and with less area proposed for development under this plan than under the New Town Plan, the accuracy is higher for this plan than for the New Town Plan. As with the New Town Plan, approximately 200 acres (4 percent) of the 5,555 acres of the San Ysidro parcel have been intensively surveyed for cultural resources.

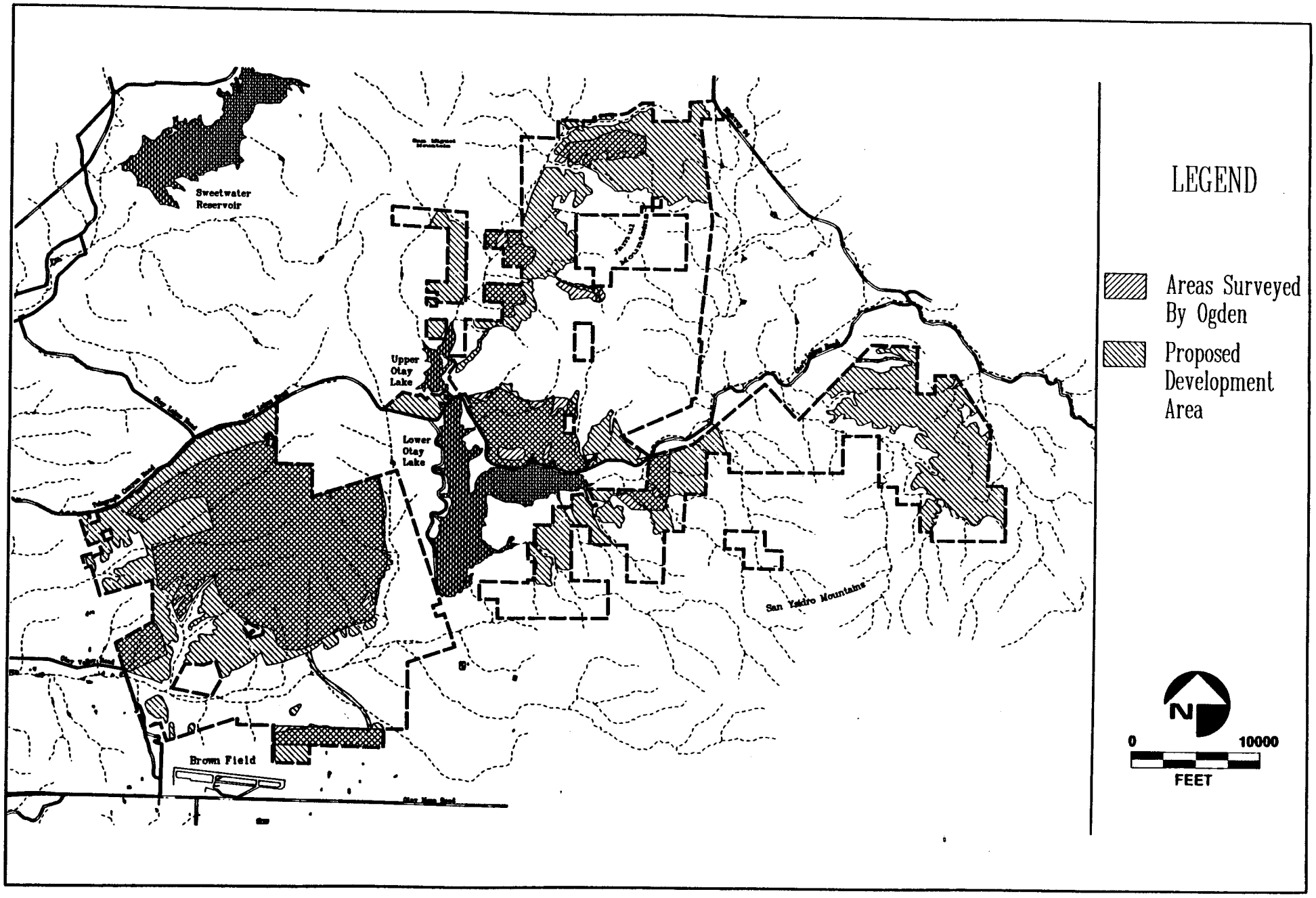
Impacts to prehistoric resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria; therefore, all of the 213 prehistoric sites currently known to be on the property are considered to be important at this stage of planning. With this assumption of importance, the Phase I-Progress Plan Alternative is assessed for potential impacts to prehistoric resources based on the proposed land use, with areas proposed for development (as defined previously) assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture. Table 4.2.5-1 indicates, by parcel, the land uses proposed for the Phase I-Progress Plan Alternative, the prehistoric site types, and the occurrences of the sites in the various land uses.

When compared to the other development plan alternatives, the Phase I-Progress Plan has the second highest incidence of prehistoric sites occurring all or partially within areas to be developed. Over the the entire Otay Ranch property, 150 prehistoric sites fall all or partially within areas proposed for development. This figure is exceeded only by the New Town Plan with 186. With 63 prehistoric sites falling completely into open space, parks, or agricultural areas, the Phase I-Progress Plan Alternative has 15 fewer than the next closest plan, the Project Team Alternative, with 78.

4.2.5.2 Impacts to Historic Resources

As with the prehistoric sites, impacts to historic resources can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 49 historic sites currently known to be present on the property are considered to be important at this stage of planning. With this assumption, the Phase I-Progress Plan is assessed for impacts to historic sites based on the proposed land use, with areas proposed for development (as defined above) assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks or, agriculture. Table 4.2.5-2 indicates, by parcel, the land uses proposed for the Phase I-Progress Plan Alternative, the historic site types, and the occurrences of the sites in the various land uses.

The Phase I-Progress Plan has a ratio of 24/25 historic sites, occurring all or partially within areas to be developed to those lying completely within areas proposed for non-construction oriented land use such as open space, parks, or agricultural. This ratio is



OGDEN

Ogden Cultural Resource Survey Areas Overlaid with Phase I - Progress Plan

FIGURE 4.2.5-1

Table 4.2.5-1

PHASE I-PROGRESS PLAN
PREHISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-10,452	OS/PQ	Temporary Camp	CA-SDi-4,741	(OS)/SF	Lithic Scatter
CA-SDi-10,622	OS/OA	Lithic Scatter	CA-SDi-4,742	SF	Lithic Scatter
CA-SDi-10,875	OS	Lithic Scatter	CA-SDi-4,743	OS	Lithic Scatter
CA-SDi-11,157	SF	Temporary Camp	CA-SDi-4,789/SDi-4,988	OS	Temporary Camp
CA-SDi-11,158	OA/(OS)	Temporary Camp	CA-SDi-4,790	OS	Temporary Camp
CA-SDi-11,210	ISD/OS	Lithic Scatter	CA-SDi-4,989	OS	Temporary Camp
CA-SDi-11,211	ISD/OS	Lithic Scatter	CA-SDi-5,352	FI/ISD/(OS)/OA	Temporary Camp
CA-SDi-11,212	ISD	Lithic Scatter	CA-SDi-7,212	OS	Habitation Site
CA-SDi-11,213	ISD	Temporary Camp	CA-SDi-7,217 A-E	CP/OS	Temporary Camp
CA-SDi-11,214	ISD/OA/OS	Lithic Scatter	CA-SDi-8,649	OS	Temporary Camp
CA-SDi-11,215	ISD/OA/OS	Lithic Scatter	CA-SDi-8,650	OS	Lithic Scatter
CA-SDi-11,216	OA/OS	Lithic Scatter	CA-SDi-8,651	HS/(OS)/SF	Lithic Scatter
CA-SDi-11,220	ISD/OS	Lithic Scatter	CA-SDi-9,970	OS/OA	Lithic Scatter
CA-SDi-11,362	OA/OS	Lithic Scatter	CA-SDi-9,974	ISD/OA	Lithic Scatter
CA-SDi-11,363	ISD/OS/(OS)	Lithic Scatter	CA-SDi-9,975	OS/OA	Quarry
CA-SDi-11,364	OS	Milling Station	CA-SDi-9,976	OS	Temporary Camp
CA-SDi-11,365	OS	Lithic Scatter	CA-SDi-9,977	OS	Quarry
CA-SDi-11,366	OS	Lithic Scatter	CA-SDi-9,978	OS	Quarry
CA-SDi-11,369/SDi-11,376/W-2391	OS/(OS)	Habitation Site	CA-SDi-9,979	OS/(OS)	Lithic Scatter
CA-SDi-11,372	MF	Lithic Scatter	CA-SDi-9,980	OS	Temporary Camp
CA-SDi-11,373	MF	Lithic Scatter	CA-SDi-9,981	OS	Temporary Camp
CA-SDi-11,378	OS/SF	Habitation Site	CA-SDi-12,465	SF	Temporary Camp
CA-SDi-11,379	OS	Lithic Scatter	CA-SDi-12,466	SF	Temporary Camp
CA-SDi-11,381	OS	Lithic Scatter	CA-SDi-12,467	SF	Lithic Scatter
CA-SDi-11,412	(OS)	Lithic Scatter	CA-SDi-12,276	CP/(OS)	Lithic Scatter
CA-SDi-11,951	ISD	Lithic Scatter	CA-SDi-12,285	SF	Temporary Camp
CA-SDi-11,952	OS	Lithic Scatter	CA-SDi-12,286	(OS)/SF	Temporary Camp
CA-SDi-11,967	SF/OA	Temporary Camp	CA-SDi-12,287	(OS)/SF	Temporary Camp
CA-SDi-11,968	BP/OA	Lithic Scatter	CA-SDi-12,288	HS/MF/JH/(OS)	Lithic Scatter
CA-SDi-4,726	OS/SF	Lithic Scatter	CA-SDi-12,289	SF	Temporary Camp
CA-SDi-4,727	OS/SF	Lithic Scatter	CA-SDi-12,290	SF	Lithic Scatter
CA-SDi-4,728 A & B	OS/SF	Lithic Scatter	CA-SDi-12,291	SF	Lithic Scatter
CA-SDi-4,729	OS/SF	Lithic Scatter	CA-SDi-12,292	BP/OA	Lithic Scatter
CA-SDi-4,730	OS/SF	Lithic Scatter	CA-SDi-12,293	MF/(OS)	Lithic Scatter
CA-SDi-4,731	FI/(OS)	Lithic Scatter	CA-SDi-12,277	SF	Lithic Scatter
CA-SDi-4,732	OS	Lithic Scatter	CA-SDi-12,278	OS/(OS)	Lithic Scatter
CA-SDi-4,733	OS	Lithic Scatter	CA-SDi-12,279	(OS)/SF	Lithic Scatter
CA-SDi-4,734	OS	Lithic Scatter	CA-SDi-12,280	(OS)/MF	Lithic Scatter
CA-SDi-4,735	OS	Lithic Scatter	CA-SDi-12,281	MF	Temporary Camp
CA-SDi-4,736	OS	Lithic Scatter	CA-SDi-12,282	SF	Temporary Camp
CA-SDi-4,737	OS	Lithic Scatter	CA-SDi-12,283	(OS)/SF	Lithic Scatter
CA-SDi-4,738	OS	Lithic Scatter	CA-SDi-12,284	JH	Lithic Scatter
CA-SDi-4,739	MF/OS/(OS)	Lithic Scatter	SDM-W-170	SFG	Habitation Site
CA-SDi-4,740	OS	Lithic Scatter	CA-SDi-12,656	(OS)/JH/MF	Temporary Camp

TOTALS:						
	(Business Park)	BP	2	(Multi Family Residential)	MF	8
	(Freeway Commercial)	CP	1	(Outside of Area)	OA	15
	(Community Park)	CP	1	(Open Space)	OS	50
	(Freeway Interchange)	FI	2	(Man-Made Open Space)	(OS)	20
	(High School)	HS	2	(Public and Quasi Public)	PQ	1
	(City of San Diego Industrial)	ISD	12	(Single Family Residential)	SF	24
	(Junior High School)	JH	3	(Special Grading Criteria Residential)	SFG	1

Table 4.2.5-1 (Continued)

PHASE I-PROGRESS PLAN
PREHISTORIC SITES

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-11,388	OA/OS/(OS)/SF	Quarry	CA-SDi-12,356	(OS)	Lithic Scatter
CA-SDi-11,389	OS/(OS)/SF	Lithic Scatter	CA-SDi-12,357	R	Lithic Scatter
CA-SDi-11,394	OS/SF/OA	Lithic Scatter	CA-SDi-12,358	SF	Lithic Scatter
CA-SDi-11,395	OS	Lithic Scatter	CA-SDi-12,359	(OS)/SF	Lithic Scatter
CA-SDi-11,401	(OS)/SF	Lithic Scatter	CA-SDi-12,316	MF	Lithic Scatter
CA-SDi-11,403 F	OS	Lithic Scatter/Milling Station/Quarry	CA-SDi-12,360	(OS)/R	Lithic Scatter
CA-SDi-11,404	(OS)/OA	Lithic Scatter	CA-SDi-12,361	(OS)/R	Lithic Scatter
CA-SDi-11,405	SF	Lithic Scatter	CA-SDi-12,363	MF/(OS)	Lithic Scatter
CA-SDi-11,406	SF	Quarry	CA-SDi-12,364	MF/OA/(OS)	Lithic Scatter
CA-SDi-11,407	(OS)/R	Lithic Scatter	CA-SDi-12,365	OS	Lithic Scatter
CA-SDi-11,408	SF	Lithic Scatter	CA-SDi-12,366	OS	Lithic Scatter
CA-SDi-11,410 A-E	OS	Habitation Site	CA-SDi-12,367	OS	Lithic Scatter
CA-SDi-11,414	OS/SF	Lithic Scatter	CA-SDi-12,368	OS	Quarry
CA-SDi-12,034	OS/OA	Milling Station	CA-SDi-12,369	SF	Lithic Scatter
CA-SDi-8,086 A-C	OA/OS/(OS)/SF	Lithic Scatter	CA-SDi-12,317	MF/(RD)/SF	Lithic Scatter
CA-SDi-12,313	MF	Lithic Scatter	CA-SDi-12,370	SF	Lithic Scatter
CA-SDi-12,321	MF/OA/(RD)	Lithic Scatter	CA-SDi-12,371	(OS)/SF	Lithic Scatter
CA-SDi-12,322	MF	Lithic Scatter	CA-SDi-12,372	SF	Lithic Scatter
CA-SDi-12,324	(RD)/SF	Lithic Scatter	CA-SDi-12,374	CC	Quarry
CA-SDi-12,326	SF	Lithic Scatter	CA-SDi-12,375	OS	Lithic Scatter
CA-SDi-12,327	SF/OA	Lithic Scatter	CA-SDi-12,377	SFG	Quarry
CA-SDi-12,329	(OS)/SF	Lithic Scatter	CA-SDi-12,378	SFG	Quarry/Lithic Scatter
CA-SDi-12,330	(OS)/SF	Lithic Scatter	CA-SDi-12,379	SFG	Lithic Scatter
CA-SDi-12,314	MF	Lithic Scatter	CA-SDi-12,381	SFG	Milling Station
CA-SDi-12,331	OS	Milling Station	CA-SDi-12,383	SFG	Lithic Scatter
CA-SDi-12,332	SF/OA	Lithic Scatter	CA-SDi-12,384	SFG	Milling Station
CA-SDi-12,333	OS	Lithic Scatter	CA-SDi-12,385	SFG	Milling Station
CA-SDi-12,334	OS	Habitation Site	CA-SDi-12,386	SFG	Lithic Scatter
CA-SDi-12,335	SF	Lithic Scatter	CA-SDi-12,387	SFG	Lithic Scatter
CA-SDi-12,336	(OS)/SF	Lithic Scatter	CA-SDi-12,388	SFG	Lithic Scatter
CA-SDi-12,338	OS/(OS)/SF	Milling Station	CA-SDi-12,319	MF	Lithic Scatter
CA-SDi-12,339 A & B	SF	Lithic Scatter	CA-SDi-12,389	SFG	Milling Station
CA-SDi-12,340	(OS)/R	Temporary Camp	CA-SDi-12,390	SFG	Lithic Scatter
CA-SDi-12,337/OR-I-3	MF/OA/(RD)	Lithic Scatter	CA-SDi-12,391	SFG	Milling Station
CA-SDi-12,341	OA/(OS)/R/VP	Lithic Scatter	CA-SDi-12,392	SFG	Milling Station/Lithic Scatter
CA-SDi-12,342	OS/SF	Quarry	CA-SDi-12,394	SFG	Milling Station
CA-SDi-12,343	OS	Quarry	CA-SDi-12,397	SFG/OS	Quarry/Lithic Scatter/Milling Station
CA-SDi-12,315	MF	Lithic Scatter	CA-SDi-12,398	SFG/OS	Quarry/Lithic Scatter/Milling Station
CA-SDi-12,353	(OS)/R	Lithic Scatter	CA-SDi-12,320	SF	Lithic Scatter
CA-SDi-12,355	(OS)/SF	Lithic Scatter	CA-SDi-12,635	OS	Lithic Scatter

TOTALS:		
(Condominium Center)	CC	1
(Multi Family Residential)	MF	11
(Outside of Area)	OA	11
(Open Space)	OS	23
(Man-made Open Space)	(OS)	21
(Resort)	R	7
(Restricted Development)	(RD)	4
(Single Family Residential)	SF	29
(Special Grading Criteria Residential)	SFG	17
(Village Center)	VP	1

Table 4.2.5-1 (Continued)

PHASE I-PROGRESS PLAN
PREHISTORIC SITES

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-10,027	MF/OS/(RD)/SF/OA	Quarry	CA-SDi-11,298	SFG	Lithic Scatter
CA-SDi-11,294	(RD)/SFG	Lithic Scatter	CA-SDi-11,302	SFG	Habitation Site
CA-SDi-11,300	OS	Lithic Scatter	CA-SDi-11,303	(RD)/SFG	Lithic Scatter
CA-SDi-11,304	OS	Lithic Scatter	CA-SDi-11,308	(RD)/SFG	Lithic Scatter
CA-SDi-11,307	OS	Lithic Scatter	CA-SDi-11,313	SFG	Lithic Scatter
CA-SDi-11,309	SFG	Lithic Scatter	CA-SDi-11,314	(RD)/SFG	Lithic Scatter
CA-SDi-11,311	OS	Lithic Scatter	CA-SDi-11,317	SFG	Quarry
CA-SDi-11,312	OS/(RD)	Lithic Scatter	CA-SDi-11,322	(RD)	Lithic Scatter
CA-SDi-11,315	(RD)	Lithic Scatter	CA-SDi-11,323	(RD)	Lithic Scatter
CA-SDi-11,321	(RD)	Lithic Scatter	CA-SDi-11,325	SFG	Lithic Scatter
CA-SDi-11,324	OS/(RD)	Lithic Scatter	CA-SDi-11,326	(RD)	Lithic Scatter
CA-SDi-11,344	OS	Lithic Scatter	CA-SDi-11,327	(RD)	Lithic Scatter
CA-SDi-11,346	OS	Quarry	CA-SDi-11,328	(RD)	Lithic Scatter
CA-SDi-11,349	OS	Lithic Scatter	CA-SDi-11,329	(RD)	Lithic Scatter
CA-SDi-11,350	OS	Lithic Scatter	CA-SDi-11,331	SFG	Temporary Camp
CA-SDi-11,351	OS	Quarry	CA-SDi-11,332	SFG	Temporary Camp
CA-SDi-11,352	(RD)	Lithic Scatter	CA-SDi-11,333	SFG	Temporary Camp
CA-SDi-11,353	OS/(RD)	Lithic Scatter	CA-SDi-11,334	(RD)	Habitation Site
CA-SDi-11,354	OS/(RD)	Lithic Scatter	CA-SDi-11,342	SF	Lithic Scatter
CA-SDi-12,147	SF	Milling Station	CA-SDi-11,345	SF	Milling Station
CA-SDi-12,345	MF/OS/SF	Milling Station	CA-SDi-12,148	SF	Lithic Scatter
CA-SDi-12,349	MF	Milling Station	CA-SDi-12,149	SF	Lithic Scatter
CA-SDi-12,344	MF	Lithic Scatter			

TOTALS:		
(Multi Family Residential)	MF	4
(Outside of Area)	OA	1
(Open Space)	OS	16
(Restricted Development)	(RD)	19
(Single Family Residential)	SF	7
(Special Grading Criteria Residential)	SFG	13

Table 4.2.5-2

PHASE I-PROGRESS PLAN
HISTORIC SITES

		OTAY RIVER PARCEL
Site Number	Proposed Land Use	Site Type
CA-SDi-10,155H	OS	Historic Rock Feature
CA-SDi-11,221	OS	Historic Refuse
CA-SDi-11,361H	OS	Historic Structure
CA-SDi-11,374	OS	Historic Refuse
CA-SDi-11,375H	SF	Historic Structure
CA-SDi-11,377H	SF	Historic Structure
CA-SDi-11,383H	OS/(OS)	Historic Structure
CA-SDi-11,384H	MF/(OS)/SF	Historic Complex
CA-SDi-11,385H	OS	Historic Archaeological Complex
CA-SDi-11,386H	OS	Historic Complex
CA-SDi-11,387H	OS	Historic Structure
CA-SDi-12,272H	MF	Historic Refuse
CA-SDi-12,273H	ISD	Historic Refuse
CA-SDi-12,274H A & B	ISD/FI	Historic Refuse
CA-SDi-12,271H	(OS)	Historic Refuse

TOTALS:

(Freeway Interchange)	FI	1
(City of San Diego Industrial)	ISD	2
(Multi Family Residential)	MF	2
(Open Space)	OS	8
(Man-Made Open Space)	(OS)	3
(Single Family Residential)	SF	3

Table 4.2.5-2 (Continued)

PHASE I-PROGRESS PLAN
HISTORIC SITES

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,390H (OR-98)	OA/(OS)/SF	Historic Structure
CA-SDi-11,393H	OS	Historic Structure
CA-SDi-11,418H	OS/SF	Historic Camp
CA-SDi-11,419H	OA/SS	Historic Complex
CA-SDi-11,420H	OS	Historic Camp
CA-SDi-11,421H (OR-133)	SF	Historic Structure
CA-SDi-11,422H	OS	Historic Structure/Historic Refuse
CA-SDi-6,723H	OS	Historic Structure
CA-SDi-6,968H	OS	Historic Structure
CA-SDi-12,323H	SF	Historic Rock Feature
CA-SDi-12,354H	(OS)	Historic Rock Feature
CA-SDi-12,376H	OS	Historic Rock Feature
CA-SDi-12,318H	MF	Historic Rock Feature
CA-SDi-12,395H	SFG	Historic Refuse/Historic Rock Feature
CA-SDi-12,396H	SFG	Historic Rock Feature

TOTALS:			
	(Open Space)	OS	7
	(Outside of Area)	OA	2
	(Multi Family Residential)	MF	1
	(Man-made Open Space)	(OS)	2
	(Single Family Residential)	SF	4
	(Special Grading Criteria Residential)	SFG	2
	(Special Study Area)	SS	1

Table 4.2.5-2 (Continued)

PHASE I-PROGRESS PLAN
HISTORIC SITES

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,299H	OS	Historic Structure
CA-SDi-11,301H	OS	Historic Camp
CA-SDi-11,305	OS	Historic Rock Feature
CA-SDi-11,306H	OS	Historic Camp
CA-SDi-11,310	(RD)	Historic Rock Feature
CA-SDi-11,316H	OS	Historic Refuse
CA-SDi-11,318	(RD)	Historic Rock Feature
CA-SDi-11,319	SFG	Historic Rock Feature
CA-SDi-11,320	SFG	Historic Rock Feature
CA-SDi-11,330H	(RD)/SFG	Historic Refuse
CA-SDi-11,340H	OS	Historic Structure
CA-SDi-11,341H	OS/(RD)	Historic Rock Feature
CA-SDi-11,343H	SF	Historic Structure
CA-SDi-11,347	SF	Historic Rock Feature
CA-SDi-11,348	OS	Historic Rock Feature
CA-SDi-11,357 (OR-57)	SF	Historic Rock Feature
CA-SDi-6,970	SFG	Historic Archaeological Complex
CA-SDi-12,351H	SF	Historic Rock Feature
CA-SDi-12,352H	OS	Historic Rock Feature

TOTALS:	(Open Space)	OS	10
	(Single Family Residential)	SF	4
	(Special Grading Criterial Residential)	SFG	4
	(Restricted Development)	(RD)	4

similar to ~~three~~ four of the other alternatives; the Fourth (25/24), the Project Team (25/24), the Phase II-Progress Plan (~~18/38~~ 12/26), and the Low Density (27/22), with only the Environmental (14/35), the Composite General Plans (9/40) and the New Town Plan (43/6) having dissimilar impacts.

4.2.5.3 Impacts to Prehistoric/Historic Resources

Impacts to prehistoric/historic resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 30 prehistoric/historic sites currently known to be on the property are considered to be important at this stage of planning. With this assumption of importance for all of the prehistoric/historic sites, the Phase I-Progress Plan is assessed below based on the proposed land use, with areas proposed for development (as defined above) assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture.

Of the 30 prehistoric/historic sites currently known to be on the Otay Ranch property, 4 are located on the Otay River parcel, 16 on the Proctor Valley parcel, and 10 on the San Ysidro parcel. Table 4.2.5-3 indicates, by parcel, the land use proposed for the Phase I-Progress Plan, the prehistoric/historic site types, and the occurrences of the sites in the various land uses.

When compared to the other development plan alternatives, the Phase I-Progress Plan has the highest incidence of prehistoric/historic sites occurring all or partially within areas to be developed and correspondingly, the lowest number of occurrences of historic sites in areas proposed for undeveloped land use such as open space, parks, or agricultural land use. Over the the entire Otay Ranch property, 28 of the 30 prehistoric/historic sites known to be present on the property fall all or partially within areas proposed for intense development, with only 2 prehistoric/historic sites located entirely within areas proposed for non-construction oriented land use, in the Phase I-Progress Plan. This ratio (28/2) is the same as the New Town Plan and only slightly different than four of the other plans: the Low Density Plan (27/3), the Project Team Plan (26/4), the Fourth Alternative Plan (24/6) and the Phase II-Progress Plan (22/8). All of these plans would impact a large percentage of the prehistoric/historic sites on the property, with the New Town and Phase I-Progress Plans impacting the most.

4.2.5.4 Proposed Mitigation

Prehistoric Resources

At this stage of planning, not all of the prehistoric resources have been identified; therefore, importance of the resources is assumed rather than verified. Impacts are still problematic rather than specific, and development plans are still highly conceptual; therefore, development of a comprehensive mitigation plan must be conceptual and necessarily programmatic rather than resource-specific. The following plan is a synopsis of a more detailed program presented in the Resource Management Plan (RMP) and in the cultural resources technical report. For conciseness, the mitigation plan is presented as a series of interrelated stages or phases (see Section 3.4.3 for additional detail).

- Stage 1: The applicant shall complete an intensive, systematic survey of the remaining 17,000 acres for cultural resources in compliance with the county's requirements. The applicant shall complete the survey as soon as feasible with the survey of the first SPA being completed no later than filing of the first SPA

Table 4.2.5-3

PHASE I-PROGRESS PLAN
PREHISTORIC/HISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,217	ISD	Lithic Scatter/Historic Structure
CA-SDI-11,218	ISD	Lithic Scatter/Historic Structure
CA-SDI-11,219	ISD	Lithic Scatter/Historic Structure
CA-SDI-11,367/CA-SDI-11,368	I/OS	Lithic Scatter/Historic Rock Feature

TOTALS:			
	(Open Space)	OS	1
	(City of San Diego Industrial)	ISD	3
	(Limited Manufacturing)	I	1

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,391 A-C	MF/OA/OS/(OS)/SF/VP	Historic Structure/Lithic Scatter/Milling Station/Temporary Camp
CA-SDI-11,396/H (OR-105)	MF/OA	Historic Structure/Lithic Scatter
CA-SDI-11,399H (OR-108)	SF	Historic Structure/Lithic Scatter
CA-SDI-11,409 (OR-119)	MF/OS/(OS)/SF	Lithic Scatter/Historic Rock Feature
CA-SDI-11,411 A-D	OS	Milling Station/Historic Refuse
CA-SDI-11,415	SF	Milling Station/Lithic Scatter/Historic Rock Feature
CA-SDI-11,417H	SFG/OS	Historic Structure/Lithic Scatter/Milling Station
CA-SDI-6,695 A-B	OS/(OS)/SF	Lithic Scatter/Historic Rock Feature
CA-SDI-6,965/CA-SDI-11,398H	OA/OS/(OS)/(RD)/SF	Historic Archaeological Complex/Lithic Scatter
CA-SDI-12,328/H	SF	Lithic Scatter/Historic Rock Feature
CA-SDI-12,362/H	MF/OA/(OS)	Lithic Scatter/ Historic Refuse
CA-SDI-12,373/H	OS/(RD)	Habitation Site/Historic Structure
CA-SDI-12,380/H	SFG	Lithic Scatter/Historic Rock Feature
CA-SDI-12,382/H	SFG	Historic Rock Feature/Lithic Scatter
CA-SDI-12,393/H	SFG	Lithic Scatter/Historic Rock Feature
SDM-W-1,932	(OS)/SF/SFG	Lithic Scatter/Historic Rock Feature/Milling Station

TOTALS:			
	(Open Space)	OS	7
	(Outside of Area)	OA	4
	(Multi Family Residential)	MF	4
	(Man-made Open Space)	(OS)	6
	(Restricted Development)	(RD)	2
	(Single Family Residential)	SF	8
	(Special Grading Criteria Residential)	SFG	5
	(Village Center)	VP	1

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,355 (OR-55)	MF	Lithic Scatter/Historic Rock Feature
CA-SDI-11,356 (OR-56)	MF/OA	Lithic Scatter/Historic Structure
CA-SDI-11,358 (OR-58)	CP/MF/OS/(OS)/OA	Lithic Scatter/Historic Rock Feature
CA-SDI-11,359H	SF	Lithic Scatter/Historic Refuse
CA-SDI-11,360H A-C	OS	Historic Structure
CA-SDI-12,150	SF	Historic Structure/Lithic Scatter
CA-SDI-12,346/H	MF/OS/(RD)/SF	Temporary Camp/Lithic Scatter/Historic Rock Feature
CA-SDI-12,347/H	OS/SF	Historic Structure/Lithic Scatter
CA-SDI-12,348/H	CP/MF/(OS)/(RD)	Lithic Scatter/Historic Rock Feature
CA-SDI-12,350/H	MF/OA/OS	Lithic Scatter/Historic Rock Feature

TOTALS:			
	(Community Park)	CP	2
	(Multi Family Residential)	MF	6
	(Outside of Area)	OA	3
	(Open Space)	OS	4
	(Man-made Open Space)	(OS)	2
	(Single Family Residential)	SF	4
	(Restricted Development)	(RD)	2

Plan application. The survey of the remaining portion of Otay Ranch shall be completed prior to ~~approval~~ public review of the first SPA Plan.

- Stage 2: The applicant shall complete importance and boundary testing for each resource identified within the first SPA and for a sample of site types beyond the SPA but within the overall project. All Stage 2 work must be in compliance with CEQA and local guidelines to include county policies.

- Stage 3: The applicant shall implement appropriate mitigation measures for resources determined as important during the Stage 2 importance evaluation phase. These forms of mitigation will include:

    1) Site avoidance by preservation of the site in open space easements.

    2) Site avoidance by preservation through capping the site and placing landscaping on top of the fill.

    3) Data recovery through implementation of an agency approved excavation and analysis data recovery program.

    4) A combination of one or more of the above measures.

Additionally, the applicant shall develop a plan for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This shall be accomplished through adaptive reuse of one of the historic structures within the project or through construction of a building within one of the parks or community centers. It is expected that this interpretive center will only be for temporary curation of those materials being actively used for interpretation and display, and that permanent curation of artifacts and data will be at a regional repository when one is established.

Historic Resources

Mitigating measures for historic resources are essentially the same as the measures for prehistoric resources described above. The same steps and stages shall be followed although, as described in the RMP, archival research and historical documentation shall be used to augment Stage 2 field testing programs. Mitigation of impacts to historic resources through preservation may be more feasible for historic sites than for prehistoric sites because they generally comprise a smaller area and can often be synthesized into a development plan. In the case of historic resources, Stage 3 data recovery programs shall be integrated with comprehensive programs of corresponding archival research to provide the context for, and make possible a full evaluation of, the material found on the sites. As indicated under the prehistoric mitigation measures, a plan shall also be developed for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This shall be accomplished through adaptive reuse of one of the historic structures within the project or through construction of a building within one of the parks or community centers.

Prehistoric/Historic Resources

Mitigating measures for prehistoric/historic resources are essentially the same as for prehistoric and historic resources as described above. The same steps and stages should be followed although, as described in the RMP, archival research and historical documentation may be used to augment field testing programs. Mitigation of impacts to historic components of prehistoric/historic resources through preservation may in some instances

be more feasible than for the prehistoric components because they generally comprise a smaller area and can often be synthesized into a development plan.

If in situ preservation is not possible, recovery of a representative amount or sample of information, both surface and subsurface, is the only other acceptable alternative. For historic components, the data recovery program will be integrated with a corresponding archival research program to fully assess the significance of the material found on the sites. By creating a complementary research program that fully incorporates the archival material with the field results, many important research questions can be addressed.

4.2.5.5 Analysis of Significance

At this program-level of analysis, all prehistoric, historic, and prehistoric/historic resources are considered significant (see Section 3.4.4).

4.2.6 Geology and Soils

4.2.6.1 Impact Analysis

Geologic Impacts

For the Phase I-Progress Plan, the geologic/soils impacts would generally be the same as the New Town Plan. The general types of geologic and soil impacts include slope instability (1226 acres of the Otay River and Proctor Valley parcels proposed for development are underlain by slopes with gradients of 15 percent or greater, composed of potentially unstable geologic formations), rippability, seismic ground shaking, expansive and erodable soils, liquefaction, and landslides.

4.2.6.2 Proposed Mitigation

The mitigation measures outlined in the geology and soils section concerning the New Town Plan (Section 3.5.3) would mitigate potential impacts to levels below significance. A brief summary of the proposed mitigation measures is as follows:

- Slope instability - Perform site-specific geotechnical investigation and slope stability analyses and implement appropriate design measures.

- Rippability - Perform site-specific geotechnical investigation. Where non-excavatable materials are encountered, blasting may be required to achieve proposed grades.

- Seismic ground shaking - Perform site-specific geotechnical investigation, incorporate seismic parameters into the design and construction of the project, design according to appropriate building codes.

- Expansive/erodable soils - Perform selective grading and design foundations in accordance with UBC standards. Incorporate erosion control measures into design and construction of the project.

- Liquefaction - Perform site-specific geotechnical investigation to evaluate liquefaction potential. Perform vibrofloatation or dynamic compaction techniques, or remove and recompact soils as appropriate to mitigate liquefaction potential.

- Landslides - Perform site-specific geotechnical investigation to delineate limits of landslides. Landslides may be completely removed or buttressed during site grading.

4.2.6.3 Analysis of Significance

Implementation of the proposed mitigation measures would reduce impacts to below a level of significance.

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4.2.7 Paleontological Resources

4.2.7.1 Impact Analysis

Impacts to paleontological resources most often occur when earth work activities cut into geological deposits (formations) within which fossils are buried. These impacts generally involve physical destruction of fossil remains. Other impacts might include burial of a fossiliferous locality by fill operations, casual fossil collecting by amateur collectors, or heavy landscaping of park areas.

Otay River Parcel

Development proposed under the Phase I-Progress Plan for this parcel involves a great deal of residential construction. Such construction typically requires large-scale mass excavation work which, if done in areas with highly sensitive paleontological resources, results in significant impacts. Since the majority of the Otay Mesa region is underlain by either the San Diego or Otay formations significant impacts are anticipated throughout the parcel. The few areas slated for inclusion in open space will preserve some portions of these formations (e.g., Salt Creek, Wolf Canyon, and Poggi Canyon).

Proctor Valley Parcel

Development proposed under the Phase I-Progress Plan for this region involves a great deal of open space with limited residential construction. The majority of this region (Jamul Mountains) is underlain by rocks with no resource sensitivity. Exceptions are areas immediately adjacent to Proctor Valley Road and along Otay Lake Road north of Lower Otay Lake. These areas are underlain by highly sensitive formations (e.g, Otay and Sweetwater formations). These are, nevertheless, the areas where extensive residential construction is planned. Significant impacts will result from this residential construction.

San Ysidro Parcel

Planned development of this parcel under the Phase I-Progress Plan involves large areas of open space and park land. The majority of these open space areas are underlain by rocks with no resource sensitivity and thus such development will have no significant impact. Moderately sensitive formations underlie a limited portion of this region and these areas are slated for residential construction. Impacts of moderate significance are expected in these latter areas.

An analysis of the disturbance of the paleontologically sensitive rock formations found onsite was completed for the Phase I-Progress Plan Alternative. This alternative would result in disturbance of approximately 770 acres of the highly sensitive San Diego formation, approximately 3,175 acres of the highly sensitive Otay formation, 2,547 acres of the highly sensitive Sweetwater formation, and 11 acres of the moderately sensitive Mission Valley formation. Total disturbance in high sensitivity formations would involve approximately 6,503 acres. The majority of the disturbance would occur on the Otay River parcel.

4.2.7.2 Proposed Mitigation

The mitigation measures outlined in the paleontology section concerning the New Town Plan (Section 3.6.3) would mitigate potential impacts to paleontological resources to levels below significance. The following general mitigation measures shall be implemented:

- A qualified paleontologist shall be retained. The paleontologist shall be present at all times during original cutting in highly sensitive formations and to a lesser extent in less sensitive formations.
- When fossils are discovered, the paleontologist shall be allowed to recover them.
- Prepared fossils and notes shall be given to a scientific institution, and a final summary report shall be prepared by the paleontologist at the end of excavation.
- Geologic/paleontologic preserves shall be created in designated areas not planned for mass excavation.

4.2.7.3 Analysis of Significance

Implementation of the Phase I-Progress Plan Alternative would result in adverse impacts to paleontological resources. The significance of these impacts would vary depending upon the paleontological resource sensitivity of individual formations. Implementation of the proposed mitigation measures would reduce impacts to below a level of significance.

4.2.8 Agricultural Resources

4.2.8.1 Impact Analysis

This alternative would decrease residential densities while increasing the amount of open space on Otay Ranch; conversion of suitable agricultural land to urban uses would not, however, be precluded under the Phase I-Progress Plan Alternative. Prime Farmland previously identified in Section 3.7-1 would either be converted to non-agricultural uses or ultimately impaired for agricultural activity. Approximately 737 acres of Prime Farmland are located throughout the site of which 408 acres are located within the Otay River parcel. Prime Farmland located along the Otay River Valley would be preserved as open space for the proposed park. No agricultural uses could occur in this area since this area is planned to be maintained as natural open space for passive recreational uses. Approximately 400 acres of the open space would be for active recreational uses. Small pockets of Prime Farmland (244 acres) located in the northern portion of the Proctor Valley parcel would be converted to low-density residential uses or retained as open space; however, no agricultural uses would be allowed within the open space. More Prime Farmland would be preserved under the Phase I-Progress Plan Alternative than the New Town Plan since less residential development would occur under this alternative. However, the conversion of Prime Farmland is considered to be a significant and irreversible impact, regardless of the amount of Prime Farmland which is lost.

An additional 8,977 acres of land designated as having Statewide and Local Important Farmland suitable for the agricultural production of coastal-dependent crops are located throughout the site. Land designated as having Statewide Important Farmland is primarily located in the central portion of the Otay River parcel of which 5,506 would be developed for residential uses of varying densities, or retained as open space by the Phase I-Progress Plan Alternative. Approximately 44 acres of Statewide and 1,230 acres of Local Important Farmland would be converted to urban uses while 200 acres of Local Important farmland would remain as open space in the Proctor Valley parcel. Development of the San Ysidro parcel, which contains less suitable agricultural land than the two other parcels, would convert approximately 10 acres of Prime and 787 acres of Local Important Farmland. Approximately 55 acres of Prime land and 180 acres of Local Important Farmland would be preserved as open space in the San Ysidro parcel. The Otay River parcel would also affect 1,031 acres of Local Important Farmland.

Of the 23,088 acres of land in the Otay Ranch property, approximately 9,714 acres were determined to be suitable for the cultivation of five principal crops (avocados, citrus, truck crops, tomatoes, and flowers) based on the SCS's soil survey ratings. Development of the site under the Phase I-Progress Plan Alternative would result in the loss of 5 percent of the county's agricultural land suitable for the production of coastal-dependent crops. There would also be a loss of San Diego County land in agricultural production since those areas on the Otay River parcel currently used for barley cultivation, would be converted to non-agricultural uses; grazing and agricultural production would be allowed on the Proctor Valley and San Ysidro parcels. The loss of agricultural land and land suitable for the potential production of coastal-dependent crops would be an incremental and irreversible significant impact of the Phase I-Progress Plan Alternative.

As indicated in the discussion of historical agricultural uses of the site (Section 3.7.1), tomatoes, celery, cucumbers, and other row crops were produced in the Otay Ranch site until the mid 1970s (JBF Associates 1989). Row crop production ceased due to the high cost of water for agricultural use. Although the site is suitable for production of coastal dependent crops, the high cost of water would not make this feasible. In addition to the high cost of importing water for agricultural uses, an adequate water storage supply is

needed since agriculture is the first use to have its water cut off during severe drought conditions because it is considered on "interruptable user" (OWD 1992). Water for urban uses is perceived to be more economically viable given the present economic and taxation system, which encourages intensification of uses to create additional economic activity and thus provide higher employment levels (San Diego Coast Regional Commission Report 1974).

Crop Production

For review purposes, it is estimated that approximately 2,400 to 3,000 tons of barley could be cultivated in any given year. Such production would generate an average gross income of approximately $230,000 to $288,000. These figures were based on the 1989 yield per acre ratio (0.60 tons/acre), the 1990 market value of barley (96.00/ton), and assume that 4,000 to 5,000 acres of the property were planted and harvested. The average gross value for cattle was estimated to be between $43,800 to $131,400 for 1990. As discussed in Section 3.7.2, the cost of production and the amount of property taxes paid exceeds the average gross income generated by barley and cattle production. According to the property's farming operation personnel, any net income from barley or cattle production is used towards the payment of property taxes, property security, and maintenance. Therefore, the loss of barley and cattle production at the Otay Ranch property would have a minimal impact on the county's overall production and value for these commodities. More important is the loss of resources for the potential production of coastal-dependent crops.

Applicable Agricultural Policies

Most of the Otay River parcel is designated as Intensive Agriculture, which allows 1 dwelling unit per 2-4-8 acres. The Proctor Valley and San Ysidro parcels are designated for Multiple Rural Use, allowing 1 dwelling unit per 4-8-20 acres. The Phase I-Progress Plan Alternative would change these existing land use designations allowing the conversion of agricultural land to urban uses. The area north of Otay Valley Road would be developed with residential uses of varying densities, commercial uses, village centers, and the Eastern Urban Center.

The Proctor Valley and San Ysidro parcels would be developed with less residential uses than the New Town Plan. However, the change in land use designations would allow residential uses to develop adjacent to existing offsite agriculture activities associated with Daley Ranch to the east. Potential interface land use impacts related to noise, dust, odors, and use of pesticides could occur between the proposed residences located on the east portion of the San Ysidro parcel and residences along the northeast section of the Proctor Valley parcel. No land use interface impacts related to agriculture would occur with the proposed land uses in the Otay River parcel since they are surrounded by existing and developing urban land uses to the north, east, and west.

The proposed land used use designations would allow the conversion of land currently in agricultural use to urban uses, which is a significant agricultural land use impact of the Phase I-Progress Plan Alternative due to the loss of a limited agricultural resource.

The Phase I-Progress Plan Alternative would result in similar indirect, growth-inducing impacts as the New Town Plan since it would extend roads and public infrastructure next to lands currently in agricultural use.

The northern portion of the Proctor Valley parcel is within the Jamul-Dulzura Subregional Planning area, and is designated as an "Estate Development Area" and as a "Rural Development Area" along the parcel's northern boundary. Existing grazing activities which

occur along the Proctor Valley parcel are consistent with the goals and polices of the subregional plan, which encourages agricultural activity to maintain the existing rural character of the community.

This alternative would replace ongoing cattle grazing activities with single-family homes along the northern portion of the Proctor Valley parcel, and natural open spaces to the east. Residential development would be allowed by the alternative's land use designations. These low-density, large lots would be adequate in size to allow agricultural activities such as the keeping of farm animals or the cultivation of vegetables and orchards. By allowing these agricultural uses, the Phase I-Progress Plan Alternative would be consistent with the Jamul-Dulzura Subregional Plan's goals. No significant policy inconsistency impacts would occur unless these agricultural activities are not allowed along the northern portions of the Proctor Valley parcel.

The Otay River parcel, San Ysidro parcel, and the lower portion of the Proctor Valley parcel lie within the Otay Mesa Subregional Planning Area. The Phase I-Progress Plan Alternative encourages agricultural production as an interim use on undeveloped lands planned for future urban use. This alternative, similar to the New Town Plan, would allow agricultural activities to occur as an interim use on the undeveloped areas of the Otay Ranch property. An agricultural plan would be developed to tie into the project's phasing plan. Areas not scheduled for development and which are currently used for cattle grazing or barley cultivation would continue to operate as agricultural land. The plan would require measures to mitigate potential internal interface impacts related to interim agricultural activities. The Phase I-Progress Plan Alternative would be consistent with the goals of the Otay Subregional Plan by allowing agricultural activity as an interim use.

The Phase I-Progress Plan Alternative, similar to the New Town Plan, would not be consistent with Goal 2 - Objective 5, Open Space and Conservation Element of the Chula Vista General Plan which calls for the maintenance of agriculture as a viable land use and the preservation of agricultural land which has the potential to be highly productive. The Phase I-Progress Plan Alternative would also result in the conversion of approximately 20,000 acres of land currently in agricultural production and 9,714 acres of potentially highly productive agricultural land, to urban uses. This is a significant open space and conservation policy inconsistency of the project. It should be noted that, contrary to the Open Space Element Alternative goals and objectives to preserve agricultural land, the City of Chula Vista General Plan map for the Eastern Territories does not include any agricultural designations within the Otay River parcel which would preserve agriculture as a viable land use.

The Local Agency Formation Commission (LAFCO) will review development plans for the Otay Ranch property to determine whether the project complies with their Agricultural Lands Preservation Policy when it considers the sphere of influence for the Otay River parcel. LAFCO's review and approval process is independent of this EIR analysis.

4.2.8.2 Proposed Mitigation

1. An Agricultural Plan shall be prepared by the project applicant prior to approval of any SPA Plans affecting agricultural resources and will be required for each subsequent development proposal. The plan shall indicate the type of agricultural activity that will be allowed as an interim use. Specifications shall include buffering guidelines designed to prevent potential land use interface impacts related to noise, odors, dust, insects, rodents, and chemicals that may accompany agricultural activities and operations. Adequate buffering shall be

provided between the proposed development area and the interim agricultural use. Buffering measures may include:

- a 200-foot distance between property boundaries and agricultural operations;
- if permitted interim agricultural uses require the use of pesticide, then limits shall be set as to the time of day and the type of pesticide application that may occur;
- use of vegetation along the field edges adjacent to development that can be used for shielding (i.e., corn); and
- notification of adjacent property owners of potential pesticide applications and use of fencing.

The plan shall be reviewed by the city or county planning department that has jurisdiction over these areas to verify that proposed guidelines are adequate to prevent significant interface impacts from occurring. This measure would partially mitigate the incremental loss of agricultural land.

2. Landscaping and buffering guidelines shall be included in the development plans at the SPA level for the areas planned adjacent to existing agricultural uses. These areas include the eastern edges of the Proctor Valley parcel and the northern edges of the San Ysidro parcel where low-density residential uses would be developed near the Daley Ranch agricultural activities (i.e., crop cultivation and cattle ranging).

3. The loss of prime agricultural land is an unmitigable impact. However, a small portion of the Otay River parcel where prime soils are located should be set aside for a community garden. A possible location for the community garden would be in the southwest portion of the Otay River parcel. This area is considered suitable since it contains prime agricultural soils and is designated as a park by the Phase I-Progress Plan. Development of this garden will depend on the feasibility of maintaining it within the proposed park. If the community garden is deemed feasible, its size and exact location will be determined at the SPA level. Schools proposed within the Otay Ranch property could promote educational activities in regard to agriculture through the use of the community garden.

4. Agricultural activity and the keeping of animals shall be allowed within the large, low-density lots planned along the northern edge of the Proctor Valley parcel, as recommended in the Jamul-Dulzura Subregional Plan. Development plans for this area shall contain landscaping and buffering guidelines designed to prevent potential nuisance impacts related to noise, odor, dust, and use of chemicals from occurring between adjacent internal residential uses.

4.2.8.3 Analysis of Significance

According to state, county, and city of Chula Vista policies and goals, the loss of an agricultural resource for the potential production of coastal dependent crops and the loss of prime agricultural soils, is considered to be a significant, unmitigable impact, regardless of the feasibility of maintaining the land in agricultural production (i.e., due to lack of an adequate water supply).

4.2.9 Mineral Resources

4.2.9.1 Impact Analysis

The Phase I-Progress Plan proposes natural open space land uses for the entire stretch of the Otay River Valley on the Otay River parcel. As discussed in Section 3.8, the Otay River Valley segment within the Otay River parcel is no longer considered to be a significant source of mineral resources. Therefore, development of this area would not result in a significant impact to mineral resources. Rock Mountain, which is designated as being regionally significant is proposed to be developed for single family residential development and open space land uses. The residential land uses would result in significant impacts to mineral resources by precluding their extraction. However, this impact would not occur if mineral extraction activities take place before the structures are built. Proposed residential land uses are planned to the north of the Otay River Valley, and are expected to be far enough away from any potential mineral extraction activities to preclude a conflict. As discussed in Section 3.8, the regional importance of onsite bentonite is not considered to be significant. Therefore, development in areas underlain by bentonite would not result in a significant impact to mineral resources.

The proposed development on the Proctor Valley and San Ysidro parcels includes more open space and less development with the Phase I-Progress Plan than the New Town Plan. The mineral resources known to exist on these parcels have not been designated as being significant by the CDMG, but have been placed in a resource conservation area by the County of San Diego. The state mineral surveys for significant aggregate minerals did not extend east of Lower Otay Lake. The eastern parcels of the Otay Ranch project have not been surveyed for the presence of significant resources because they lay beyond the expected to be urban boundary at the time of the CDMG surveys (both parcels are primarily underlain by the Santiago Peak Volcanics Formation, which is known to be an important source of crushed rock materials, and is the same material found on Rock Mountain, an area designated as MRZ-2)

The forthcoming Mineral Resources Management Plan of the San Diego County General Plan will provide an analysis of the significance of the mineral resources in the Proctor Valley and San Ysidro parcels. It cannot be determined at this time whether the mineral resources contained on these parcels are of regional importance. Therefore, any development that would preclude mineral extraction or would be considered to be an incompatible land use would be a potentially significant impact, until a determination of significance is made by the County of San Diego or the City of Chula Vista. If it is determined that no significant mineral resources exist on the two parcels, no impacts would occur.

4.2.9.2 Proposed Mitigation

The Otay River Valley segment within the Otay Ranch project is no longer considered to be a source of significant mineral resources (see Section 3.8, New Town Plan). Therefore, no impacts to mineral resources would result from the proposed development, and mitigation measures are not necessary.

The Phase I-Progress Plan shall include measures in its development plan to allow for mineral extraction on Rock Mountain and mineral extraction shall be designated as the primary land use. Rock Mountain shall be placed in a mineral extractive overlay designation or an RCA in accordance with the policies of the soon-to-be adopted Mineral Resources Management Plan.

Development of the San Ysidro and Proctor Valley parcels shall be phased, if possible, to allow for mineral extraction if the county's Mineral Resources Element determines that significant mineral resources are located on the Otay Ranch property. Where possible, compatible land uses shall be developed near the locations of future mineral extraction activities (EIR proposed). Should project phasing not be possible, the impact to mineral resources would be significant and unmitigable.

The bentonite deposits onsite are not considered to be regionally significant (see Section 3.8, New Town Plan). Therefore, no impacts to mineral resources would result from the proposed development and mitigation measures are not necessary.

4.2.9.3 Analysis of Significance

The phasing of development of the San Ysidro and Proctor Valley parcels to allow for the extraction of mineral resources before construction would effectively mitigate impacts to mineral resources. However, should this not be feasible, the impact to mineral resources would be significant and unmitigable. Actions that preclude the extraction of significant mineral resources would result in unmitigable adverse impacts.

4.2.10 Water Resources and Water Quality

4.2.10.1 Impact Analysis

The impacts of the Phase I-Progress Plan Alternative would be essentially the same as those of the New Town Plan; however, there would be a difference in the amount of impermeable acreage. The New Town Plan would involve the development of 13,053 acres, and would increase the impermeable surface area by 57 percent, while the Phase I-Progress Plan Alternative would involve the development of 9,678 acre, and would increase the impermeable surface area by 42 percent. This smaller area of impermeable surfaces would result in less surface water flow and a greater amount of ground-water recharge associated with the Phase I-Progress Plan in comparison to the New Town Plan.

The types of impacts anticipated for the Phase I-Progress Plan are generally similar to those of the New Town Plan and include inundation of project features, changes in surface water flow rates, surface water quality, and ground-water quality and quantity.

4.2.10.2 Proposed Mitigation

Mitigation for the Phase I-Progress Plan Alternative is essentially the same as for the New Town Plan (see Section 3.9.3). All future studies shall be conducted by a qualified hydrological engineer and meet the City of Chula Vista, County of San Diego, and Regional Water Quality Control Board standards for urban run-off, sedimentation, floodplain encroachment, and water quality, as appropriate. A brief summary of the proposed mitigation measures is as follows:

- Floodplain encroachment - determine floodplain/floodway width; avoid floodplain encroachment.
- Inundation of project features - perform appropriate detailed hydrologic and hydraulic studies and incorporate the findings, conclusions and recommendations into the design and construction of the project. Upgrade existing facilities or construct detention/retention basins, as appropriate, to contain surface flows, etc..
- Changes in surface water flow rates - perform appropriate detailed hydrologic and hydraulic studies and incorporate findings, conclusions, and recommendations into the design and construction of the project. Incorporate erosion control measures, siltation basins, etc. into project design.
- Ground-water quality - implement the plans provided in the Urban Runoff Reservoir study. Details on the study contents are provided in Section 3.9.3.
- Ground-water quantity - implement measures to enhance recharge to aquifer systems.
- Urban runoff to Lower Otay Lake - prepare and implement Urban Runoff Master Plan.

4.2.10.3 Analysis of Significance

At this level of analysis, impacts to ground-water and surface water resources and quality are considered significant upon development of the Phase I-Progress Plan Alternative.

Implementation of the recommended mitigation measures at the SPA and project design levels of review would reduce the ground-water and surface water impacts to below a level of significance.

4.2.11 Transportation, Circulation, and Access

4.2.11.1 Impact Analysis

This section documents the results of the impact analysis for the Phase I-Progress Plan Alternative. The following topics will be discussed in this section: trip generation, proposed circulation network, arterial segment and freeway impacts, and intersection impacts.

Appendix B of this document contains a detailed discussion of the impact analysis methodologies and threshold standards used to identify impacts of the Phase I-Progress Plan. In addition, Appendix B explains why the land uses, acreages, and residential dwelling units in the trip generation tables may not directly correspond to those land uses shown in the Phase I-Progress Plan description (Section 4.2.1). Finally, Appendix B contains information regarding local and regional transportation topics related to project impacts and mitigation.

Trip Generation

Table 4.2.11-1 summarizes the proposed land uses and daily trips for the Phase I-Progress Plan Alternative. It shows that under SANDAG trip generation standards, the proposed land uses for this alternative would generate approximately 736,883 daily trips on Otay Ranch.

Proposed Circulation Network

The Phase I-Progress Plan identifies a circulation system that is similar to the Adopted General Plan Circulation Element network. The most notable exception would be the inclusion of Alta Road and La Media Road in the Phase I-Progress Plan which provide connections from Otay Ranch to Otay Mesa across the Otay River Valley. These connections are consistent with the Adopted County of San Diego Circulation Plan. However, as discussed in Section 4.5.11, the Interjurisdictional Task Force determined that the Chula Vista General Plan would be used as the Composite General Plans Alternative. Two additional interchanges have been added to SR-125 at the northern and southern portion of the primary roadway serving the Eastern Urban Center.

The circulation system of the Phase I-Progress Plan also includes a series of internal loop roads within each of the individual villages included on the Otay River parcel. These internal village loop roadways are intended to provide access to the village and the town center to be located within each village. The carrying capacity of these village loop roads will be based upon the trip generation projected for each village during the subarea planning process. It is anticipated that this internal street network will discourage through trip potential within the villages and focus through trip activity on the periphery of the villages on the major arterial system.

This alternative includes four roads across the Otay River Valley (SR-125, Paseo Ranchero, La Media Road, and Alta Road). Figure 4.2.11-1 shows the proposed onsite and offsite circulation network for the study area under the Phase I-Progress Plan.

Village Design Benefits

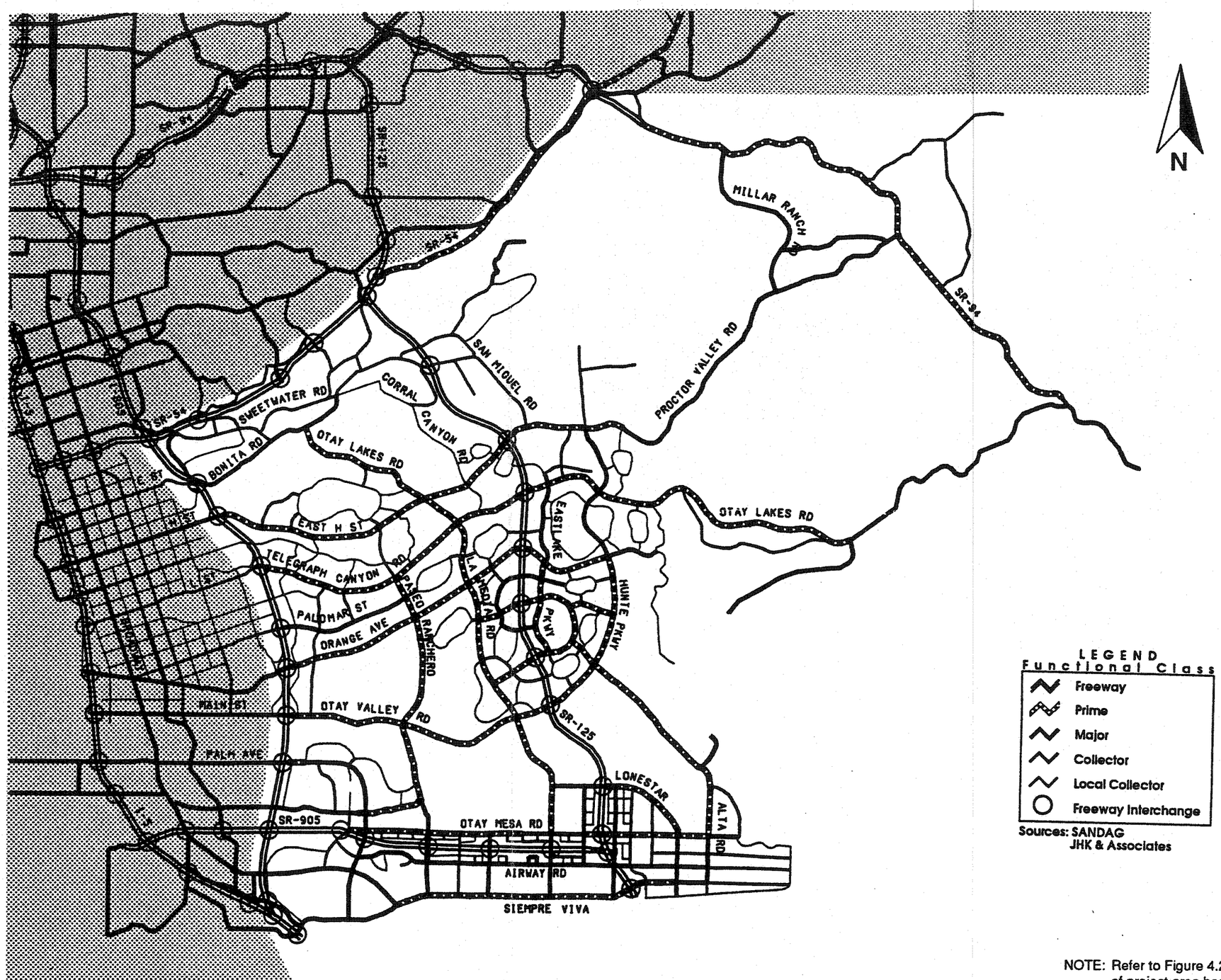
In order to assess the benefits of the transit-oriented village design strategies to be implemented on the Otay River parcel, a certain number of trips were removed from its trip generation potential. These modifications to the model reflect village design aspects of the

Table 4.2.11-1

LAND USE AND TRIP GENERATION SUMMARY
PHASE I-PROGRESS PLAN
OTAY RANCH TOTAL

Land Use	Land Use Intensity	Trip Rate	Daily Trips
Single-family Residential	17,117 du	10/du	171,170
Multifamily Residential	14,104 du	7/du	98,728
TOTAL DWELLING UNITS	29,351 du		
TOTAL RESIDENTIAL TRIPS			269,898
Office/Commercial			
General Office (Less than 100,000 sq. ft. each)	91 AC	300/AC	27,300
Freeway Commercial (30–60 acres ea.)	84 AC	500/AC	42,000
Freeway Commercial (10–30 acres ea.)	12 AC	650/AC	7,800
Industrial			
Limited Manufacturing (Light Industry)	219 AC	130/AC	28,470
Public/Quasi-public			
Elementary/Jr. High School	150 AC	40/AC	6,000
High School	84 AC	50/AC	4,200
Parks (Developed)	280 AC	50/AC	14,000
Parks (Undeveloped)	873 AC	5/AC	4,365
Eastern Urban Center (EUC)			
General Office	102 AC	300/AC	30,600
Multifamily Residential*	2,600 du		
Regional Shopping Center (30–60 acres each)	265 AC	500/AC	132,500
Parks (Developed)	15 AC	50/AC	750
Village Centers			
Regional Shopping Centers (Less than 10 acres each)	90 AC	1,000/AC	90,000
Regional Shopping Center (30–60 acres each)	30 AC	500/AC	15,000
Community Shopping Center (10–30 acres each)	12 AC	650/AC	7,800
Resort Commercial	150 AC	100/AC	15,000
Conference Center	19 AC	100/AC	1,900
University	12,500 student	3/student	37,500
Golf Course	3 courses	600/course	1,800
TOTAL NON-RESIDENTIAL TRIPS			466,985
TOTAL DAILY TRIPS			736,883

* The 10,390 trips that are generated by the multifamily dwelling units in the EUC are reflected in the total residential dwelling unit count and trip generation figures.



LEGEND
Functional Class
- Freeway
- Prime
- Major
- Collector
- Local Collector
- Freeway Interchange

Sources: SANDAG
JHK & Associates

NOTE: Refer to Figure 4.2-1 for an illustration of project area boundaries.

OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.2.11-1

PHASE I PROGRESS PLAN CIRCULATION NETWORK

jhk & associates

Otay Ranch placing shops in close and convenient proximity to residential land uses, thus reducing arterial use. The key modeling assumption utilized was that the commercial areas would generally satisfy a percentage of the shopping needs within a particular village. The village concept was incorporated into the design of the Phase I-Progress Plan to mitigate traffic impacts.

Based on these assumptions, a 10 percent reduction in residential trip generation (17 percent fewer shopping trips) was applied to those urban villages which contain mixed use development with the exception of the area referred to as the Eastern Urban Center. Nine villages were modified by this 10 percent reduction factor. Similarly, a 15 percent reduction in residential trip generation potential was applied in the Eastern Urban Center Village. The effect of these two types of reductions resulted in an overall reduction of approximately 16,000 residential shopping trips from the original cumulative trip generation for the Otay River parcel.

The following section details the circulation network impacts that would occur under the Phase I-Progress Plan under both standard and village design trip generation assumptions.

Arterial Segment and Freeway Impacts

Based on the intensity and density of development, this alternative represents the mid-range of impacts for the Otay Ranch development.

Phase I-Progress Plan with Standard Assumptions

Figure 4.2.11-2 shows the projected network LOS for the entire Otay Ranch study area as provided by SANDAG. Of the total 303 roadway miles within the total study area circulation network for the Phase I-Progress Plan Alternative, with standard trip generation assumptions 52 miles of roadway (approximately 17 percent) are predicted to operate above the maximum recommended ADT volumes, i.e., at LOS D or worse for arterials and LOS F for freeways.

A review of freeway impacts (excluding arterial segments) revealed that, of the 31 freeway miles in the study area, 13 miles (approximately 41 percent) are forecasted to experience ADT volumes in excess of the maximum recommended ADT volume (i.e., at LOS F) under the Phase I-Progress Plan with standard trip generation assumptions.

Of the total 271 arterial roadway miles that make up the study area arterial circulation network for the Phase I-Progress Plan, 39 miles of roadway (approximately 14 percent) are predicted to operate above the maximum recommended ADT volume at LOS D or worse under the Phase I-Progress Plan land use scenario and circulation network.

Table 4.2.11-2 summarizes the impacted roadway miles by LOS and facility class under the Phase I-Progress Plan with standard assumptions.

Phase I-Progress Plan with Village Design Assumptions

Figure 4.2.11-3 shows the projected network LOS for the entire Otay Ranch study area as provided by SANDAG.

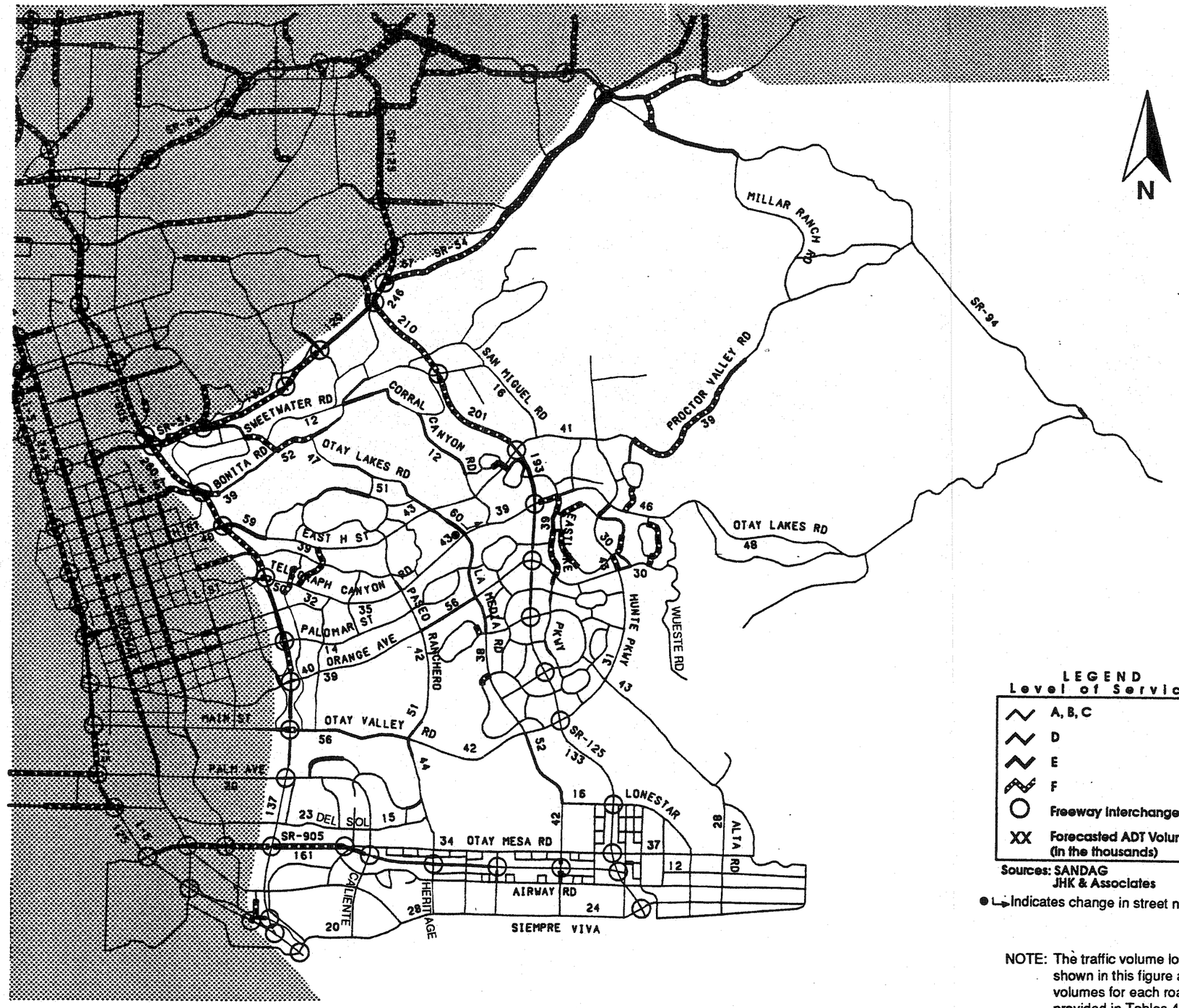
Of the total 303 roadway miles within the total study area circulation network for the Phase I-Progress Plan with village design assumptions, 49 miles of roadway (approximately 16 percent) are predicted to operate above the maximum recommended ADT

Table 4.2.11-2

IMPACTED ROADWAY MILES BY LEVEL OF SERVICE PHASE I-PROGRESS PLAN WITH STANDARD ASSUMPTIONS (Prior to Mitigation)

Facility Class (# of lanes)	LOS D	LOS E	LOS F	Total Miles
Onsite Impacts				
Local Collector (2)	0.00	0.00	0.35	0.35
Major (4)	0.00	0.00	0.56	0.56
Prime (6)	6.04	0.27	0.00	6.31
TOTAL	6.04	0.27	0.91	7.22
Offsite Impacts				
Local Collector (2)	3.59	2.92	4.38	10.89
Collector (4)	1.40	0.00	2.89	4.29
Major (4)	0.68	2.48	5.99	9.15
Prime (6)	4.45	2.69	0.31	7.45
Freeway	0.00	0.00	13.00	13.00
TOTAL	10.12	8.09	26.57	44.78
Combined Onsite/ Offsite Impacts				
Local Collector (2)	3.59	2.92	4.73	11.24
Collector (4)	1.40	0.00	2.89	4.29
Major (4)	0.68	2.48	6.55	9.71
Prime (6)	10.49	2.96	0.31	13.76
Freeway	0.00	0.00	13.00	13.00
TOTAL	16.16	8.36	27.48	52.00

Combined Onsite/Offsite Network	Total Roadway Miles	Total Impacted Roadway Miles	Percent Impacted Roadway Miles
Local Collector (2)	66.67	11.24	17%
Collector (4)	55.82	4.29	8%
Major (4)	69.06	9.71	14%
Prime (6)	79.71	13.76	17%
Freeway	31.36	13.00	41%
TOTAL	302.62	52.00	17%



NOTE: The traffic volume locations and numbers shown in this figure are approximate; actual volumes for each roadway segment are provided in Tables 4.12.13-1 and 4.12.13-2.

OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.2.11-2

PHASE I PROGRESS PLAN
CIRCULATION NETWORK LEVEL OF SERVICE
(Prior to Mitigation)

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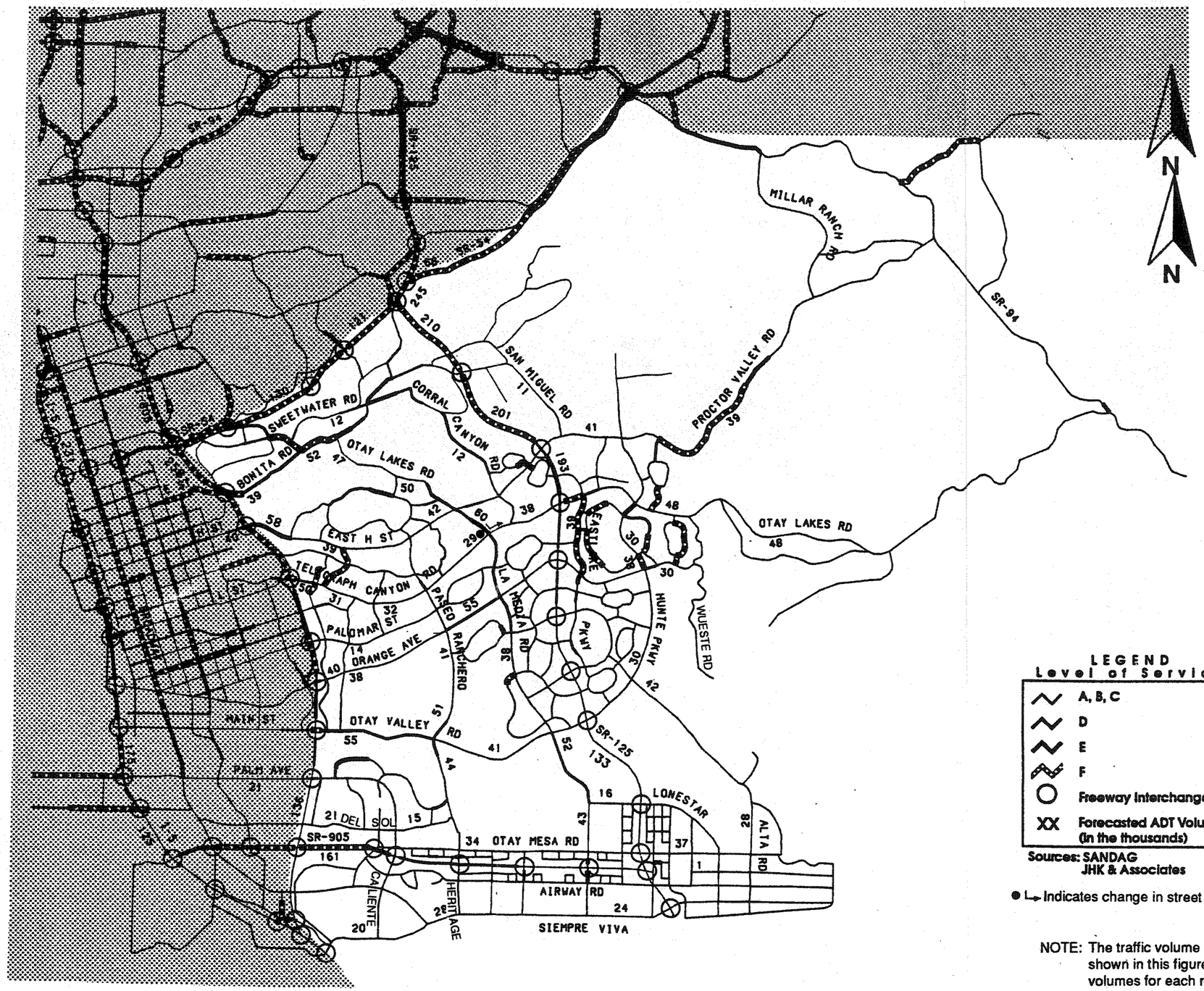


LEGEND
Level of Service

- A, B, C
- D
- E
- F
- Freeway Interchange
- XX Forecasted ADT Volumes (in the thousands)

Sources: SANDAG
JHK & Associates

● ↳ Indicates change in street name.

NOTE: The traffic volume locations and numbers shown in this figure are approximate; actual volumes for each roadway segment are provided in Tables 4.2.13-3 and 4.2.13-4.

OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.2.11-3

PHASE I PROGRESS PLAN WITH VILLAGE DESIGN ASSUMPTIONS CIRCULATION NETWORK LEVEL OF SERVICE (Prior to Mitigation)

jhk & associates

volumes for their facility class, i.e., at LOS D or worse for arterials and LOS F for freeways.

A review of the freeway impacts (excluding arterial segments) revealed that, of the 31 freeway miles in the study area, 13 miles (approximately 41 percent) are forecasted to experience ADT volumes in excess of the maximum recommended ADT volumes (i.e. at LOS F) under the Phase I-Progress Plan with village design assumptions.

Of the total 271 arterial roadway miles that make up the study area arterial roadway network for the Phase I-Progress Plan with village design assumptions, 39 miles of roadway (approximately 14 percent) are predicted to operate above the maximum recommended ADT volumes at LOS D or worse.

Table 4.2.11-3 summarizes the impacted roadway miles by LOS and facility class under the Phase I-Progress Plan with village design assumptions.

Intersection Impacts

Phase I-Progress Plan with Standard Assumptions

Figure 4.2.11-3 shows the location of critical intersections that would experience high total entering volumes in excess of 65,000 vpd; these intersections would typically require special treatment to provide acceptable peak hour operations. Table 4.2.11-4 summarizes these critical intersection locations and entering volumes. It shows that 15 intersections are predicted to experience high entering volumes in excess of 65,000 vpd under the Phase I-Progress Plan with standard trip generation assumptions. Of the 15 intersections identified, 10 are located within the project boundaries. The remaining five impacted intersections are located off the project site. Five intersections may require special at-grade design to accommodate expected demand. The intersections of Hunte Parkway/Otay Lakes Road may require special at-grade intersection enhancements or grade separation. The remaining nine intersections may require grade separation based on the expected entering volumes under this alternative. Detailed study of peak hour turn movement volumes is required at the SPA plan stage of development to determine the specific mitigation measures needed at these impacted intersections.

Phase I-Progress Plan with Village Design Assumptions

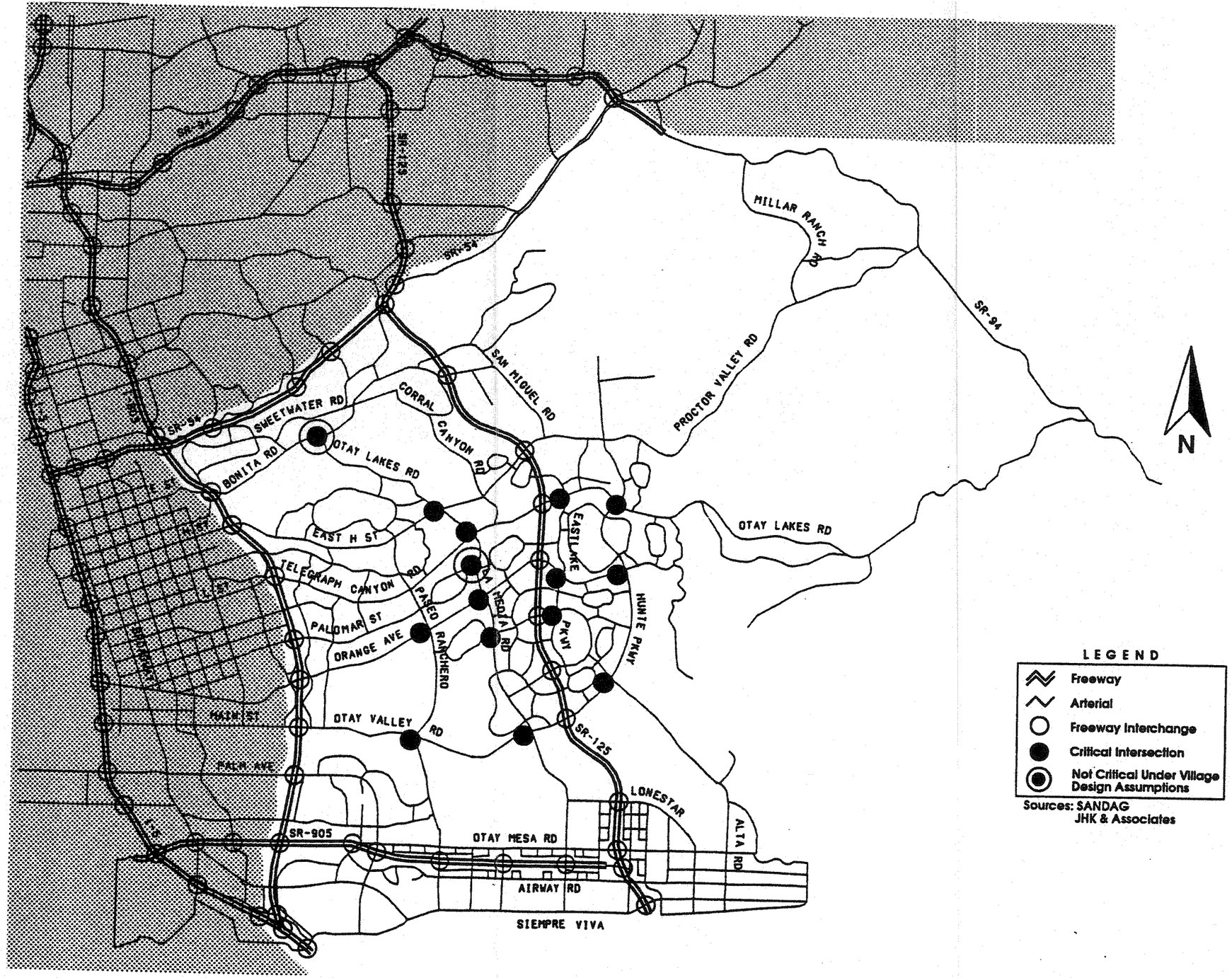
Figure 4.2.11-4 shows the location of critical intersections that would experience high total entering volumes in excess of 65,000 vpd; these intersections would typically require special treatment to provide acceptable peak hour operations. Table 4.2.11-5 summarizes these critical intersection locations and entering volumes. It shows that 13 intersections are predicted to experience high entering volumes in excess of 65,000 vpd under the Phase I-Progress Plan with village design trip generation assumptions. Of the 13 intersections identified, nine are located within project boundaries. The remaining four impacted intersections are located off the project site. Three intersections may require special at-grade design to accommodate expected demand. The intersections of Hunte Parkway/ Otay Lakes Road and La Media Road/Otay Valley Road may require special at-grade intersection enhancements or grade separation. The remaining eight intersections may require grade separation based on expected entering volumes under this alternative. Detailed study of peak hour turn movement volumes is required at the SPA plan stage of development to determine specific mitigation measures needed at these impacted intersections.

Table 4.2.11-3

IMPACTED ROADWAY MILES BY LEVEL OF SERVICE
PHASE I-PROGRESS PLAN ALTERNATIVE
WITH VILLAGE DESIGN ASSUMPTIONS
(Prior to Mitigation)

Facility Class (# of lanes)	LOS D	LOS E	LOS F	Total Miles
Onsite Impacts				
Local Collector (2)	0.00	0.14	0.21	0.35
Major (4)	0.00	0.00	0.56	0.56
Prime (6)	6.04	0.27	0.00	6.31
TOTAL	6.04	0.41	0.77	7.22
Offsite Impacts				
Local Collector (2)	2.38	2.87	6.10	11.35
Collector (4)	1.40	0.00	3.07	4.47
Major (4)	0.39	2.73	4.66	7.78
Prime (6)	4.76	2.69	0.31	7.76
Freeway	0.00	0.00	13.00	13.00
TOTAL	8.93	8.29	27.14	44.36
Combined Onsite/Offsite Impacts				
Local Collector (2)	2.38	3.01	6.31	11.70
Collector (4)	1.40	0.00	3.07	4.47
Major (4)	0.39	2.73	5.22	8.34
Prime (6)	10.80	2.96	0.31	14.07
Freeway	0.00	0.00	13.00	13.00
TOTAL	14.97	8.70	27.91	51.58

Combined Onsite/Offsite Network	Total Roadway Miles	Total Impacted Roadway Miles	Percent Impacted Roadway Miles
Local Collector (2)	66.67	11.70	18%
Collector (4)	55.82	4.47	8%
Major (4)	69.06	8.34	12%
Prime (6)	79.71	14.07	18%
Freeway	31.36	13.00	41%
TOTAL	302.62	51.58	17%



OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.2.11-4

PHASE I PROGRESS PLAN
CRITICAL INTERSECTION LOCATIONS
(Prior to Mitigation)

jhk & associates

Table 4.2.11-4

SUMMARY OF HIGH VOLUME INTERSECTION LOCATIONS
PHASE I-PROGRESS PLAN ALTERNATIVE
WITH STANDARD ASSUMPTIONS
(Prior to Mitigation)

Intersection	Total Entering Volume	Special At-grade Design Required		Special Grade Separated Design Required
Onsite Impacts				
Hunte Parkway/Alta Road	66,750	Yes		No
Otay Valley Road/La Media Road	85,100	N/A		Yes
EastLake Parkway/EUC Prime	87,250	N/A		Yes
EastLake Parkway/Orange Avenue	85,100	N/A		Yes
Paseo Ranchero/Orange Avenue	90,400	N/A		Yes
La Media Road/EUC Prime	65,900	Yes		No
La Media Road/Orange Avenue	104,250	N/A		Yes
La Media Road/Palomar Street	67,850	Yes		No
Hunte Parkway/Orange Avenue	70,850	Yes		No
Otay Valley Road/Paseo Ranchero	100,500	N/A		Yes
Offsite Impacts				
Otay Lakes Road/Hunte Parkway	77,750	Yes	or	Yes
Otay Lakes Road/EastLake Parkway	92,350	N/A		Yes
Otay Lakes Road/East H Street	91,400	N/A		Yes
Otay Lakes Road/Bonita Road	65,350	Yes		No
Otay Lakes Road/La Media Road	92,700	N/A		Yes

Table 4.2.11-5

SUMMARY OF HIGH VOLUME INTERSECTION LOCATIONS
PHASE I-PROGRESS PLAN ALTERNATIVE
WITH VILLAGE DESIGN ASSUMPTIONS
(Prior to Mitigation)

Intersection	Total Entering Volume	Special At-grade Design Required		Special Grade Separated Design Required
Onsite Impacts				
Hunte Parkway/Alta Road	66,000	Yes		No
Otay Valley Road/La Media Road	84,500	Yes	or	Yes
EastLake Parkway/EUC Prime	87,500	N/A		Yes
EastLake Parkway/Orange Avenue	90,000	N/A		Yes
Paseo Ranchero/Orange Avenue	88,500	N/A		Yes
La Media Road/EUC Prime	69,500	Yes		No
La Media Road/Orange Avenue	102,000	N/A		Yes
Hunte Parkway/Orange Avenue	70,500	Yes		No
Otay Valley Road/Paseo Ranchero	99,500	N/A		Yes
Offsite Impacts				
Otay Lakes Road/Hunte Parkway	77,500	Yes	or	Yes
Otay Lakes Road/EastLake Parkway	92,500	N/A		Yes
Otay Lakes Road/East H Street	90,500	N/A		Yes
Otay Lakes Road/La Media Road	91,500	N/A		Yes

Comparative Analysis of Impacts

It is important to note that the impacts to the Otay Ranch study area circulation network under any development alternative must be mitigated to achieve acceptable levels of service and conform to the adopted performance standards. For review purposes, the Phase I-Progress Plan impacts will be compared to those impacts occurring under the Composite General Plans Alternative. As discussed in Section 4.5.11, the Composite General Plans Alternative is a combination of the adopted general plans for each of the jurisdictions in the study area. As the Adopted Chula Vista General Plan contains the most detailed land use and circulation network information for the area of eastern Chula Vista on and adjacent to the project site, this general plan was used as the primary plan for analysis purposes. This direction was provided by the Interjurisdictional Task Force during the early states of the review process. This comparative analysis will enable the reviewer to clearly understand project and cumulative impacts resulting from a particular alternative. However, at this program level review, the definition of project-only impacts is not provided. Specific measures are recommended in the mitigation section to define precisely the process to be followed during development of the project, which will result in the accurate definition of project-only impacts associated with each phase of development.

Project-level impacts are impossible to fully identify and address at this stage of development because of uncertainty relating to the ultimate street system to be approved for the area. For example, will SR-125 be a freeway or a toll facility? Will there be two, three, or four river crossings? These major circulation issues significantly impact trips through the project area; consequently, project-level impacts cannot be adequately identified at this time. During the subsequent planning efforts and preparation of SPA plans, these issues can be quantified and mitigated.

Phase I-Progress Plan with Standard Assumptions

Table 4.2.11-6 provides a summary comparison of the circulation network impacts under the Phase I-Progress Plan with standard trip generating assumptions and the Composite General Plans Alternative. Approximately 10 miles of the onsite roadway network and 42 miles of the offsite roadway network would be impacted under the Phase I-Progress Plan. Under the Composite General Plans Alternative, 3 miles of the onsite roadway network and 24 miles of the offsite roadway network would be impacted. Thus, 7 additional miles of onsite roadway impacts and 18 additional miles of offsite roadway impacts would occur. Table 4.2.11-6 also compares the number of impacted major signalized intersections. As shown, eight additional onsite intersections and one less offsite intersection would be impacted under the Phase I-Progress Plan.

Phase I-Progress Plan with Village Design Assumptions

Table 4.2.11-7 provides a summary comparison of the circulation network impacts under the Phase I-Progress Plan with village design trip generation assumptions and the Composite General Plans Alternative. This table shows that approximately 7 miles of the onsite roadway network, and 44 miles of the offsite roadway network would be impacted under the Phase I-Progress Plan. This table also shows that under the Composite General Plans Alternative 3 miles of the onsite roadway network and 24 miles of the offsite roadway network would be impacted. Thus, 4 additional miles of onsite roadway impacts and 20 additional miles of offsite roadway impacts would occur under the Phase I-Progress Plan. Table 4.2.11-7 also compares the number of impacted major signalized intersections. As shown, seven additional onsite intersections and two less offsite intersections would be impacted under the Phase I-Progress Plan.

Table 4.2.11-6

COMPARATIVE ANALYSIS OF IMPACTS PRIOR TO MITIGATION PHASE I-PROGRESS PLAN (STANDARD ASSUMPTIONS) VERSUS COMPOSITE GENERAL PLANS ALTERNATIVE

Impacted Roadway Miles by Facility Class and Level of Service

	Phase I-Progress Plan				Composite General Plans Alternative			
Facility Class	**LOS D**	**LOS E**	**LOS F**	**TOTAL**	**LOS D**	**LOS E**	**LOS F**	**TOTAL**
On-Site Impacts								
Local Collector (2LN)	0.00	0.00	0.35	0.35	0.00	0.00	0.00	0.00
Collector (4LN)	0.00	0.00	0.00	0.00	0.00	0.58	0.00	0.58
Major (4LN)	0.00	0.00	0.56	0.56	0.55	0.00	1.25	1.80
Prime (6LN)	6.04	0.27	0.00	6.31	0.00	0.36	0.00	0.36
Total	**6.04**	**0.27**	**0.91**	**7.22**	**0.55**	**0.94**	**1.25**	**2.74**
Off-Site Impacts								
Local Collector (2LN)	3.22	2.92	4.38	10.52	0.00	1.63	3.79	5.42
Collector (4LN)	1.40	0.00	2.89	4.29	0.00	0.77	0.05	0.82
Major (4LN)	0.68	2.48	5.99	9.15	0.76	0.62	4.27	5.65
Prime (6LN)	4.45	2.69	0.31	7.45	3.69	1.92	0.00	5.61
Freeway	0.00	0.00	13.00	13.00	0.00	0.00	6.00	6.00
Total	**9.75**	**8.09**	**26.57**	**44.78**	**4.45**	**4.94**	**14.11**	**23.50**
Total Impacts	**15.79**	**8.36**	**27.48**	**52.00**	**5.00**	**5.88**	**15.36**	**26.24**

Impacted Major Signalized Intersections by Stage of Required Mitigation

On-Site Intersections	**Phase I-Progress Plan**	**Composite General Plans Alternative**
Stage 1	4	0
Stage 2	0	0
Stage 3	6	2
Total	**10**	**2**
Off-Site Intersections		
Stage 1	1	4
Stage 2	1	0
Stage 3	3	2
Total	5	6
Impacted Intersections	**15**	**8**

Table 4.2.11-7

COMPARATIVE ANALYSIS OF IMPACTS PRIOR TO MITIGATION PHASE I-PROGRESS PLAN (VILLAGE DESIGN ASSUMPTIONS) VERSUS COMPOSITE GENERAL PLANS ALTERNATIVE

Impacted Roadway Miles by Facility Class and Level of Service

	Phase I-Progress Plan				Composite General Plans Alternative			
Facility Class	**LOS D**	**LOS E**	**LOS F**	**TOTAL**	**LOS D**	**LOS E**	**LOS F**	**TOTAL**
On-Site Impacts								
Local Collector (2LN)	0.00	0.14	0.21	0.35	0.00	0.00	0.00	0.00
Collector (4LN)	0.00	0.00	0.00	0.00	0.00	0.58	0.00	0.58
Major (4LN)	0.00	0.00	0.56	0.56	0.55	0.00	1.25	1.80
Prime (6LN)	6.04	0.27	0.00	6.31	0.00	0.36	0.00	0.36
Total	**6.04**	**0.41**	**0.77**	**7.22**	**0.55**	**0.94**	**1.25**	**2.74**
Off-Site Impacts								
Local Collector (2LN)	2.38	2.87	6.10	11.35	0.00	1.63	3.79	5.42
Collector (4LN)	1.40	0.00	0.75	2.15	0.00	0.77	0.05	0.82
Major (4LN)	0.39	2.73	4.66	7.78	0.76	0.62	4.27	5.65
Prime (6LN)	4.76	2.69	0.31	7.76	3.69	1.92	0.00	5.61
Freeway	0.00	0.00	13.00	13.00	0.00	0.00	6.00	6.00
Total	**8.93**	**8.29**	**24.82**	**42.04**	**4.45**	**4.94**	**14.11**	**23.50**
Total Impacts	**14.97**	**8.70**	**25.59**	**49.26**	**5.00**	**5.88**	**15.36**	**26.24**

Impacted Major Signalized Intersections by Stage of Required Mitigation

On-Site Intersections	Phase I-Progress Plan	Composite General Plans Alternative
Stage 1	3	0
Stage 2	1	0
Stage 3	5	2
Total	**9**	**2**
Off-Site Intersections		
Stage 1	0	4
Stage 2	1	0
Stage 3	3	2
Total	**4**	**6**
Total Impacted Intersections	**13**	**8**

4.2.11.2 Proposed Mitigation

This section provides a detailed discussion of the proposed mitigation measures recommended for the Phase I-Progress Plan. These mitigation measures include specific geometric mitigation measures for both the study area arterial roadways and major intersections. The applicable mitigation measures have been divided into two separate categories: those which are required for the project and those in which the project proponent shall participate as a major developer in the Southbay region. Appendix B of this document contains a detailed discussion of the various forms of circulation system mitigation measures recommended for the Otay Ranch study area under all of the development alternatives. A separate section of Appendix B contains a detailed discussion of policy-related mitigation measures applicable to the Otay Ranch study area and the Southbay Region.

General Mitigation Measures

This section identifies the applicable measures from Appendix B which shall be applied to the Phase I-Progress Plan as required mitigation. The following table summarizes the specific and general mitigation measures from Appendix B which are applied to this alternative.

Required Mitigation Measures

	Participatory	Required
Overall Measures		
• Develop Transportation Demand Management (TDM) Mitigation Strategies	X	
• Update General Plans	X	X
• Prepare Transportation Phasing Plans	X	X
• Provide Parallel Arterial System	X	
• Improve Mode Split	X	
• Increase Local/Regional Trip Capture	X	
Regional Freeway System Mitigation		
• Increase Freeway Capacities	X	
Arterial Segment Mitigation		
• Increase Segment Capacities	X	
Arterial Intersection Mitigation		
• Increase Intersection Capacities	X	
Other Mitigation Strategies		
• Implement Transportation System Management Strategies	X	
• Implement Traffic Control Strategies	X	X

Potential Village Design and TDM Benefits

This section summarizes the findings of a traffic analysis which was performed on the Phase I-Progress Plan with village design assumptions to determine the cumulative potential for reductions in roadway segment and major signalized intersection impacts and geometric mitigation measures resulting from the successful implementation of village design concepts and TDM strategies. The following paragraphs summarize the process used and findings of these analyses.

The Combined Southbay Transportation Model was modified to assess the cumulative benefit of the transit-oriented village design strategy and the successful implementation of the Regional TDM Program. The underlying concept of the TDM model is the implementation of Regional Transportation Management strategies proposed by SANDAG and the Air Pollution Control District. Both of these plans strive to increase vehicle occupancy (passengers per vehicle) during commuter trips from the current level of less than 1.1 to at least 1.5 in the future.

Since the focus of the TDM strategies is on commuter trips, modifications were made to trips generated in the SANDAG Combined Southbay Transportation Model that related to commuting activities, reducing commuter trips by 17 percent. This figure was derived from recommendations from SANDAG staff familiar with the model and SANDAG TDM efforts. Because TDM is to be a regionally implemented strategy, the reductions were applied to all commuter trips within the model (both offsite and onsite). The results of the analysis indicate that a TDM strategy could reduce commuter trips by approximately 17 percent; however, this reduction would occur region-wide rather than over a limited area. The positive impacts of this trip reduction are enhanced by the fact that the majority of the reduction would occur during peak hours, when roads are usually operating at or near capacity.

The Phase I-Progress Plan with village design assumptions was remodeled and an analysis was conducted to determine the cumulative benefits of the village design and TDM strategies. Since all arterial and intersection impacts were calculated based on ADT volumes, it was important to define the total reduction in daily vehicle miles traveled (VMT) as a result of the TDM strategies applied to the peak commute hours. The model results revealed that the TDM strategies could lead to an overall reduction in total daily VMT of approximately 8 percent. This VMT reduction would result in benefits to arterial and intersection operations under the Phase I-Progress Plan Alternative with village design assumptions. This analysis revealed that 18 of the 49 impacted roadway miles (approximately 37 percent) were no longer significantly impacted (i.e., operation at LOS A-C) and that entering volumes at three of the 13 critical intersections (approximately 23 percent) were reduced to acceptable levels (less than 65,000 vpd) and no longer required mitigation under the Phase I-Progress Plan with village design assumptions and TDM strategies applied. The following onsite intersections would benefit from the implementation of TDM strategies as compared to the impacted intersections under the Phase I-Progress Plan Alternative with village design assumptions alone:

- Hunte Parkway/Alta Road
- Hunte Parkway/Orange Avenue
- EUC Prime/La Media Road

The remainder of this section details the required geometric mitigation measures for the Phase I-Progress Plan with standard and village design trip generation assumptions.

Transit System Mitigation

The proposed rail lines for the Southbay area are not included in MTDB's Long Range Rail Plan and, therefore, these lines and the supporting bus services are not funded at the present time. Otay Ranch shall contribute to the capital and operating costs associated with the new transit system. This shall be done through provisions in facility financing plans at the SPA level. Further, benefit assessment districts shall be established to fund new transit routes under MTDB Board Policy No. 40, Non Transit Funding of New Transit Services.

Summary

It is critical to note that the plans for Otay Ranch provide a comprehensive, efficient, and safe system for a variety of transportation modes. Automobile-oriented improvements do not entirely define the scope of these improvements. Rather, they are just one element of an integrated mobility system which includes bus, fixed guideway transit, carts, bicycles, pedestrian ways, and trails all linked to minimize or avoid automobile travel.

The next section details the project-specific mitigation measures to individual impacted segments and intersections identified in the impact analysis conducted for this alternative. These specific mitigation measures are defined in Appendix B and detailed below.

Project-specific Mitigation Measures

Introduction

This traffic analysis is oriented toward future traffic conditions at the full buildout of the project. However, buildout will occur over a number of years, and it will be necessary to provide an adequate transportation system for interim periods of development. The following paragraphs describe the recommendations to deal with the phasing of development and transportation improvements.

Primary regional transportation facilities which impact the project area are SR-125 and regional transit service (light rail or express bus). With these regional transportation facilities in place, it will be feasible to implement any major portion of development. If some of the development is proposed to occur before regional transportation facilities are implemented, project phasing will require that a local transportation traffic phasing analysis be conducted to identify alternative transportation mitigation measures which may be necessary.

Additional traffic analyses will be conducted to determine appropriate phasing of transportation improvements as interim phases of project development occur. As documented by the Transportation Phasing Plan (TPP) developed by Chula Vista for the Eastern Territories area, trip patterns and traffic impacts may change significantly in the course of project development. Thus, it will be important to adequately assess the impacts of the Otay Ranch Project at various phases of development. This will require the development of a comprehensive transportation phasing program which will be coordinated with each phase of land use development. This Otay Ranch Transportation Phasing Program will be coordinated with the TPP conducted by the City of Chula Vista. The development and implementation of each SPA or village will receive a site-specific traffic impact evaluation to identify the potential impacts to the current transportation network and recommend appropriate mitigation to maintain high quality service to the local system.

Phase I-Progress Plan with Standard Assumptions

Table 4.2.11-8 summarizes the required mitigation measures for network arterial segments to accommodate expected demand. Table 4.2.11-9 summarizes the required arterial intersection mitigation under this alternative. Figure 4.2.11-5 shows the location of all arterial impacts under this alternative. Impacted arterial segments are coded with letters that correspond to those in Table 4.2.11-8. Impacted intersections are coded with numbers that correspond with those found in Table 4.2.11-9.

Phase I-Progress Plan with Village Design Assumptions

Although some ADT volumes on critical study area roadway segments improved under village design trip reduction assumptions, these incremental improvements were not sufficient to raise operating LOS to acceptable levels on any of the impacted segments under the Phase I-Progress Plan with standard assumptions. Therefore, the same mitigation measures for network arterial segments as shown in Table 4.2.11-8 would be required under village design assumptions. However, sufficient improvements to the entering volumes at the intersections of Otay Lakes Road/Bonita Road and La Media Road/Palomar Street were achieved under the village design scenario as to no longer require mitigation for these intersections. In addition, the entering volume at the intersection of La Media Road/Otay Valley Road would require Stage 2 rather than Stage 3 intersection mitigation under village design assumptions, based on forecasted ADT entering volumes. The remaining 12 intersections would require the same mitigation measures as under the standard assumptions shown in Table 4.2.11-9 to achieve acceptable operations under the Phase I-Progress Plan with village design assumptions.

The information shown ~~on~~ in the mitigation figure and tables for these alternatives indicate that the following facilities will require special attention during final review:

Critical East/West Roadway Facilities

- Bonita Road - I-805 to San Miguel Road
- Otay Valley Road - I-805 to Paseo Ranchero

Critical North/South Roadway Facilities

- Otay Lakes Road - Bonita Road to Telgraph Canyon Road
- Corral Canyon Road - Central Avenue to East H Street
- EastLake Parkway - Otay Lakes Road to Palomar Street

These critical arterial facilities would be heavily impacted by the anticipated traffic operations at the major signalized intersections located along their lengths. As shown on Figure 4.2.11-5 and Table 4.2.11-8, both segment and intersection mitigation measures are required to achieve acceptable LOS where possible.

Mitigation Implementation Review

In order to clearly identify potential difficulties in implementing the required mitigation measures for critical offsite segments and intersections under the Phase I-Progress Plan with standard and village design assumptions, additional research has been conducted to identify existing circulation system constraints which may consist of the following factors:

- Existing residential or commercial development
- Previous general plan roadway classification

Table 4.2.11-8

PHASE I PROGRESS PLAN (STANDARD AND VILLAGE DESIGN ASSUMPTIONS)
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED ARTERIAL SEGMENTS

SEGMENT MITIGATION			DESCRIPTION OF SEGMENT MITIGATION					
No.	Segment	From - To	Increase Segment Capacity *	Require Enhanced Intersection Capacity**	Increase Regional/ Local Trip Capture	Improve Mode Split	Level of Significance***	Comments
On-Site Network								
A.	Eastlake Parkway	Palomar Street - Orange Avenue	X	X (Stage 3)			1	(1) Major (4LN) - Prime (6LN)
B.	Eastlake Parkway	Orange Avenue - Circular Major		X (Stage 3)	X	X	1	Provide Grade Separation
C.	Eastlake Parkway	Circular Major - EUC Prime		X (Stage 3)	X	X	1	Provide Grade Separation
D.	La Media Road	Otay Lakes Road - Palomar Street		X (Stage 3,1)	X	X	1	Provide Grade Separation
E.	La Media Road	Palomar Street - Orange Avenue		X (Stage 1,3)	X	X	1	Provide Grade Separation
F.	La Media Road	Orange Avenue - EUC Prime		X (Stage 3,1)	X	X	1	Provide Grade Separation
G.	La Media Road	Otay Valley Parkway - Lone Star Rd.		X (Stage 2)	X	X	1	Maximum Segment Classification
H.	Orange Avenue	Paseo Ranchero - La Media Road	X	X (Stage 3,3)			1	(1) Prime (6LN) - Expressway (6LN)
I.	Paseo Ranchero	Village 2 Collector - Otay Valley Road		X (Stage 3)	X	X	1	Provide Grade Separation
J.	Paseo Ranchero	Otay Valley Road - Palm Ave Connector		X (Stage 3)	X	X	1	Provide Grade Separation
K.	Proctor Valley Road	Salt Creek Ranch - Millar Ranch Rd.	X				1	(1) Major (4LN) - Major (6LN)
L.	Village 2 Local	N/O Village 2 Collector	X				1	(1) Local Street (2LN) - Collector (3LN)
M.	Village 9 Local	W/O La Media Road	X				1	(1) Local Street (2LN) - Collector (3LN)
BI.	Eastlake Parkway	Circular Major - UEI E/W Major			X	X	2	Maximum Segment Classification
Off-Site Network								
N.	Bonita Road	I-805 - Plaza Bonita Road	X		X	X	2	(1) Major (4LN) - Prime (6LN)
O.	Bonita Road	Plaza Bonita Road - Willow Street	X		X	X	2	(1) Major (4LN) - Major (6LN)
P.	Bonita Road	Willow Street - Otay Lakes Road	X		X	X	3	(1) Major (4LN) - Prime (6LN)
Q.	Bonita Road	Otay Lakes Road - Central Avenue	X		X	X	2	(1) Major (4LN) - Major (6LN)
R.	Bonita Road	Central Avenue - San Miguel Road	X		X	X	2	(1) Collector (4LN) - Major (4LN)
S.	Bonita Mesa Road	Sweetwater Road - Reo Drive	X				1	(1) Collector (4LN) - Major (4LN)
T.	Brittania Boulevard	SR 905 - Airway Road	X				1	(1) Major (4LN) - Major (6LN)
U.	Central Avenue	Bonita Road - Corral Canyon Road	X				1	(1) Local Collector (2LN) - Collector (4LN)
V.	Corral Canyon Road	Central Avenue - Blacksmith Drive	X				1	(1) Local Collector (2LN) - Collector (4LN)
W.	Corral Canyon Road	Blacksmith Drive - Eastlake Drive	X				1	(1) Local Collector (2LN) - Collector (4LN)
X.	Crest Drive	East J Street - Telegraph Canyon Rd.	X		X	X	1	(1) †
Y.	Eastlake Parkway	Otay Lakes Rd. - Eastlake Greens Dr.	X	X (Stage 3)	X	X	3	(1) Major (4LN) - Prime (6LN)
Z.	Eastlake Parkway	Eastlake Greens Drive - Palomar St.	X	X (Stage 3)	X	X	3	(1) Major (4LN) - Major (6LN)
AA.	East H Street	I-805 - Terra Nova Road	X				1	(1) Prime (6LN) - Prime (8LN)
AB.	Hun[illegible]ay	Otay Lakes Road - Orange Avenue	X	X (Stage 3)			1	(1) Major (4LN) - Major (6LN)

Table 4.2.11-8 (Continued)

PHASE I PROGRESS PLAN (STANDARD AND VILLAGE DESIGN ASSUMPTIONS)
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED ARTERIAL SEGMENTS

SEGMENT MITIGATION			DESCRIPTION OF SEGMENT MITIGATION					
No.	Segment	From - To	Increase Segment Capacity *	Require Enhanced Intersection Capacity**	Increase Regional/ Local Trip Capture	Improve Mode Split	Level of Significance***	Comments
Off-Site Network (Continued)								
AC.	Oleander Avenue	Telegraph Canyon Road - Naples Ave.	X				1	(1) Local Collector (2LN) - Collector (3LN)
AD.	Orange Avenue	Hunte Parkway - Eastlake Trails	X	X (Stage 1)			1	(1) Major (4LN) - Major (6LN)
AE.	Otay Lakes Road	Bonita Road - East H Street		X (Stage 3)	X	X	2	Maximum Segment Classification
AF.	Otay Lakes Road	East H Street - Telegraph Canyon Rd.		X (Stage 3,3)	X	X	2	Maximum Segment Classification
AG.	Otay Lakes Road	SR 125 - Eastlake Parkway	X	X (Stage 3)	X	X	2	(1) Prime (6LN) - Prime (8LN)
AH.	Otay Lakes Road	Eastlake Parkway - Lane Avenue		X (Stage 3)	X	X	1	Provide Grade Separation
AI.	Otay Valley Road	I-805 - Oleander Avenue	X		X	X	3	(1) Prime (6LN) - Prime (8LN)
AJ.	Otay Valley Road	Oleander Avenue - Brandywine Ave.			X	X	2	Maximum Segment Classification
AK.	Otay Valley Road	Brandywine Avenue - Paseo Ranchero			X	X	2	Maximum Segment Classification
AL.	Paseo Del Rey	East H Street - East J Street	X				1	(1) Local Collector (2LN) - Collector (4LN)
AM.	Paseo Del Rey	East J Street - Telegraph Canyon Rd.	X				1	(1) Local Collector (2LN) - Collector (4LN)
AN.	Paseo Ranchero	East J Street - Telegraph Canyon Road	X				1	(1) Collector (4LN) - Major (4LN)
AO.	State Route 94	Campo Road - Millar Ranch Road			X	X	2	Maximum Segment Classification
AP.	State Route 94	N/O Otay Lakes Road	X				1	(1) Major (2LN) - Major (4LN)
AQ.	Sweetwater Road	SR 54 - Bonita Mesa Road	X		X	X	2	(1) Collector (4LN) - Major (6LN)
AR.	Sweetwater Road	W/O Willow Street	X		X	X	2	(1) Collector (4LN) - Major (6LN)
AS.	Willow Street	Sweetwater Road - Bonita Road	X				1	(1) Collector (4LN) - Major (6LN)
AT.	Otay Mesa Road	Harvest Road - Sanyo Road	X				1	(1) Major (4LN) - Prime (6LN)
AU.	Otay Mesa Road	Sanyo Road - Enrico Fermi	X				1	(1) Major (4LN) - Prime (6LN)
AV.	Siempre Viva Road	SR 125 - Paseo De Los Americas	X				1	(1) Major (4LN) - Prime (6LN)
AW.	Siempre Viva Road	Paseo De Los Americas - Enrico Fermi	X				1	(1) Major (4LN) - Major (6LN)
AX.	Ranchero Del Rey Parkway	E/O Terra Nova Road	X				1	(1) Local Collector (2LN) - Collector (3LN)
AY.	Unnamed Otay	N/O Palm Avenue	X				1	(1) Local Collector (2LN) - Collector (3LN)
AZ.	Unnamed Otay	W/O Paseo Ranchero	X				1	(1) Local Collector (2LN) - Collector (3LN)
BA.	Camino Maquiladora	W/O Heritage Road	X				1	(1) Local Collector (2LN) - Collector (4LN)
BB.	La Media Road	SR 905 - Airway Road	X				1	(1) Major (4LN) - Prime (6LN)
BC.	La Media Road	Otay Mesa Road - SR 905	X				1	(1) Major (4LN) - Major (6LN)
BD.	Eastlake Vista	Otay Lakes Road - Orange Avenue	X				1	(1) Local Collector (2LN) - Collector (3LN)
BE.	Eastlake Trails	Hunte Parkway - Orange Avenue	X				1	(1) Local Collector (2LN) - Collector (3LN)
BF.	Eastlake Greens	Eastlake Parkway - Hunte Parkway	X				1	(1) Local Collector (2LN) - Collector (4LN)

Table 4.2.11-8 (Continued)

PHASE I PROGRESS PLAN (STANDARD AND VILLAGE DESIGN ASSUMPTIONS)
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED ARTERIAL SEGMENTS

SEGMENT MITIGATION			DESCRIPTION OF SEGMENT MITIGATION					
No.	Segment	From - To	Increase Segment Capacity *	Require Enhanced Intersection Capacity**	Increase Regional/ Local Trip Capture	Improve Mode Split	Level of Significance***	Comments
Off-Site Network (Continued)								
BG.	Salt Creek Ranch Road	Fenton Ranch Road -Otay Lakes Rd	X				1	(1) Local Collector (2LN) - Collector (3LN)
BH.	Salt Creek Ranch Road	Fenton Ranch Road -Proctor Valley Rd	X				1	(1) Local Collector (2LN) - Collector (3LN)
BI.	Millar Ranch Road	SR 94 - Proctor Valley Rd	X		X	X	3	(1) Local Collector(4LN) - Major (4LN)

Notes:

* See Comment (1) - The description under this column details the required change in roadway capacity and facility classification which is necessary to achieve acceptable performance on the referenced arterial segment.

**Stages of Intersection Mitigation

Stage 1 - Special At-Grade Intersection Design Required
Stage 2 - Special At-Grade or Grade Separated Intersection Design Required
Stage 3 - Grade Separated Intersection Design Required

***Level of Significance

1 - Significant and Mitigable
2 - Significant and Not Mitigable at the GDP Level Due to Lack of Design Information
3 - Significant and Not Mitigable

† The City of Chula Vista considers the identification of this roadway segment as impacted represents an anomaly of the model; therefore, a Significant and Mitigable impact is defined for this segment.

See A· ·ix B for more information.

Table 4.2.11-9

PHASE I-PROGRESS PLAN ALTERNATIVE (STANDARD AND VILLAGE DESIGN ASSUMPTIONS)
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED SIGNALIZED INTERSECTIONS

INTERSECTION MITIGATION		DESCRIPTION OF INTERSECTION MITIGATION					
No.	Intersection Location	Special At-Grade Design Required	Special At-Grade or Grade Separated Design Required	Special Grade Separated Design Required	Increase Regional/ Local Trip Capture	Reduce Development Intensity	Level of Significance*
On-Site Intersections							
1.	Hunte Parkway/Alta Road	X					1
2.	La Media Road/Otay Valley Road **			X	X		1
3.	Eastlake Parkway/EUC Prime			X	X		1
4.	Eastlake Parkway/Orange Avenue			X	X		1
5.	La Media Road/EUC Prime	X			X		1
6.	La Media Road/Orange Avenue			X	X		1
7.	**La Media Road/Palomar Street ****	X					1
8.	Hunte Parkway/Orange Avenue	X					1
9.	Paseo Ranchero/Orange Avenue			X	X		1
10.	Paseo Ranchero/Otay Valley Road			X	X		1
Off-Site Intersections							
11.	Eastlake Parkway/Otay Lakes Road			X	X		2
12.	Otay Lakes Road/East H Street			X	X		2
13.	**Otay Lakes Road/Bonita Road ****	X					1
14.	La Media Road/Otay Lakes Road			X	X		2
15.	Hunte Parkway/Otay Lakes Road		X		X		2

Notes: *Level of Significance

**The intersections in bold type (Nos. 7 and 13) would not be critical or require mitigation under the Phase I Progress Plan with Village Design Assumptions. In addition, the intersection of La Media Road/Otay Valley Road may or may not require grade separation under Village Design assumptions based on forecasted ADT entering volumes.

See Appendix B for more information

- Limited ability to acquire additional rights-of-way
- Non-conformance with existing community character

Utilizing data compiled by the County of San Diego and the City of Chula Vista Public Works Departments relating to constraints on existing or planned offsite circulation facilities, Table 4.2.11-10 summarizes the anticipated difficulties which may occur if recommended mitigation measures are implemented for a given alternative. This preliminary review of potential constraints is intended to provide insight into the feasibility of implementing a particular mitigation measure. The information provided at this General Plan level project review is also intended to provide citizens, staff, and decision-makers with adequate data on which to base project findings.

Table 4.2.11-10 indicates that certain offsite roadway segments would require upgrading of their classification and a charge in the circulation element in order to mitigate significant traffic impacts of the Phase I-Progress Plan; the offsite road segments would require a General Plan Amendment as indicated in Table 4.2.11-10.

Indirect Impacts of Offsite Roadway Improvements

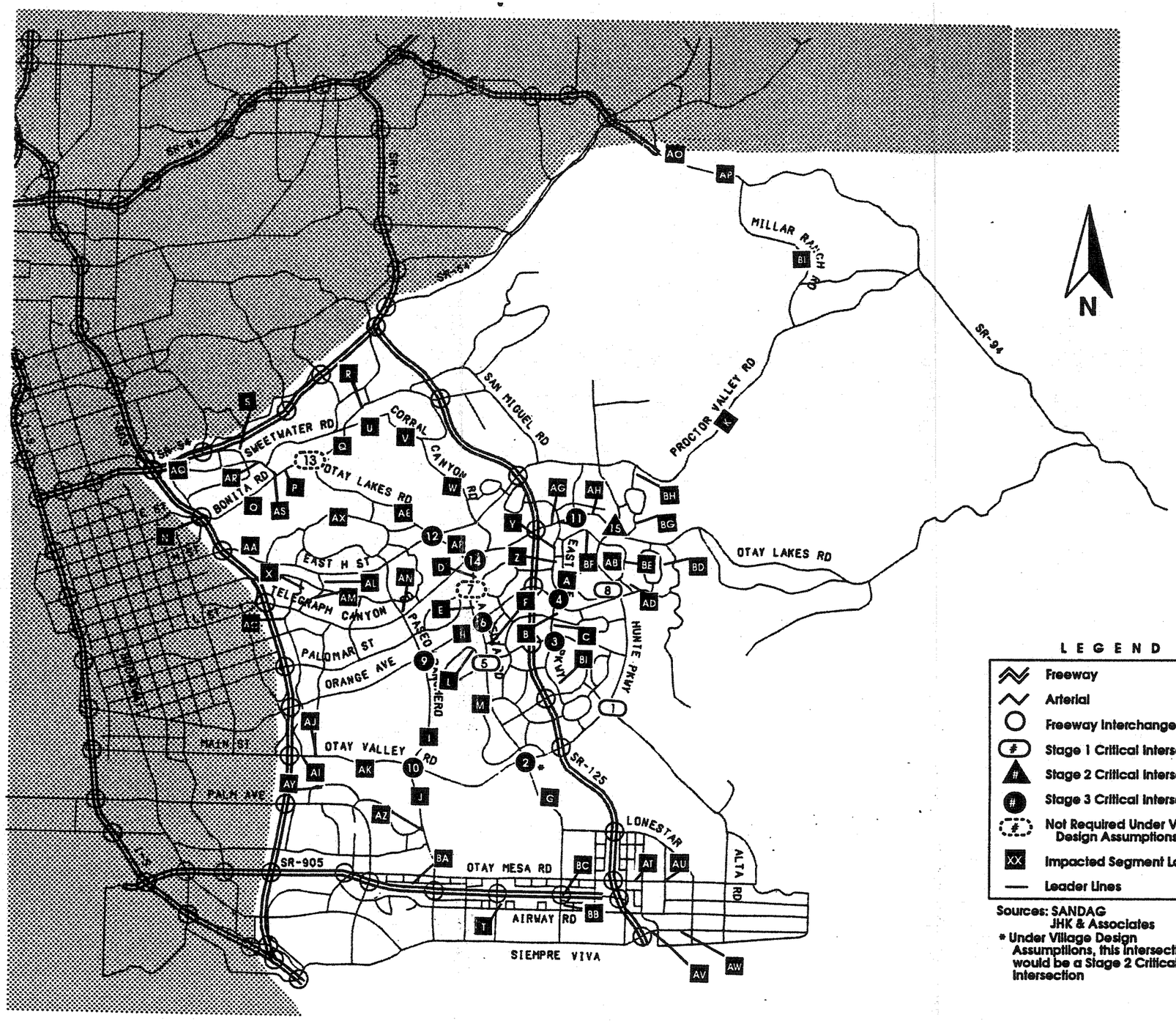
Additional impacts to the environment that could occur as a result of roadway improvements to mitigate traffic impacts of the Phase I-Progress Plan include biological impacts, land use impacts, landform alteration/visual resources impacts, impacts to water quality, and geological hazards. (Based on a literature and record search, no known cultural resources would be impacted. However, surveys may be required once the actual road alignments are known.) Potential impacts have been summarized in Table 4.2.11-11. Noise impacts would also occur as a result of the increase in average daily traffic as discussed in Section 4.2.13. In all cases, actual impacts and mitigation for the impacts would need to be determined on a segment-by-segment basis as the actual widening is proposed and the specific alignments are known.

4.2.11.3 Analysis of Significance

This section provides a discussion of the analysis of significance of unmitigable impacts under the Phase I-Progress Plan with both standard and village design assumptions. The methodology used to define the significance of these impacts is defined in Appendix B of this document. Based on the level of significance column shown on the mitigation tables and the review of mitigation implementation tables, those impacts which have a Level 2 (not mitigable at the GDP level due to lack of design information) or a Level 3 (not mitigable) are summarized in this section.

Table 4.2.11-12 shows the remaining impacts to the study area circulation network after the implementation of the recommended mitigation measures for this alternative under both standard and village design trip generation assumptions. It shows that, of the 82 roadway miles that make up the onsite circulation network for this alternative and the 7 roadway miles (approximately 9 percent) that would be impacted by this alternative before mitigation, 0.23 miles (approximately 0.3 percent) remain significant after mitigation.

Of the 222 offsite roadway miles in this alternative circulation network, 42 miles (approximately 19 percent) would be impacted by this alternative. A total of 13.59 miles (approximately 6 percent) would remain significant after mitigation.



Sources: SANDAG
JHK & Associates
* Under Village Design Assumptions, this intersection would be a Stage 2 Critical Intersection

OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.2.11-5

PHASE I PROGRESS PLAN REQUIRED MITIGATION MEASURES

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Table 4.2.11-10

MITIGATION IMPLEMENTATION REVIEW
PHASE I-PROGRESS PLAN (STANDARD AND VILLAGE DESIGN ASSUMPTIONS)

Segment	From - To	Jurisdiction	Adopted Circulation Plan Class (1)	Recommended Circulation Plan Class Mitigation	Difficulty of Implementation (2)	Level of Significance (3)	Comments (4)
Off-Site Network							
Bonita Road	I-805 - Plaza Bonita Road	County of San Diego/ City of Chula Vista/ Caltrans	Major (4LN)	Prime (6LN)	2	2	GPA, C, B
Bonita Road	Plaza Bonita Road - Willow Street	County of San Diego/ City of Chula Vista	Major (4LN)	Major (6LN)	2	2	GPA, C, B
Bonita Road	Willow Street - Otay Lakes Road	City of Chula Vista	Major (4LN)	Prime (6LN)	3	3	GPA
Bonita Road	Otay Lakes Road - Central Avenue	County of San Diego/ City of Chula Vista	Major (4LN)	Major (6LN)	2	2	GPA, B
Bonita Road	Central Avenue - San Miguel Road	County of San Diego	Class 1 Collector	Major (6LN)	2	2	GPA, B
Eastlake Parkway	Otay Lakes Rd. - Eastlake Greens Dr.	City of Chula Vista	Major (4LN)	Prime (6LN)	3	3	GPA
Eastlake Parkway	Eastlake Greens Dr. - Palomar St.	City of Chula Vista	Major (4LN)	Major (6LN)	3	3	GPA
Otay Lakes Road	Bonita Road - East H Street	City of Chula Vista	Prime (6LN)	Prime (6LN)	2	2	
Otay Lakes Road	East H Street - Telegraph Canyon Rd.	City of Chula Vista	Prime (6LN)	Prime (6LN)	2	2	
Otay Lakes Road	SR 125 - Eastlake Parkway	City of Chula Vista	Prime (6LN)	Prime (8LN)	2	2	GPA
Otay Valley Road	I-805 - Oleander Avenue	City of Chula Vista	Prime (6LN)	Prime (8LN)	3	3	GPA
Otay Valley Road	Oleander Ave. - Brandywine Ave.	City of Chula Vista	Prime (6LN)	Prime (6LN)	2	2	
Otay Valley Road	Brandywine Ave. - Paseo Ranchero	City of Chula Vista/ County of San Diego	Prime (6LN)	Prime (6LN)	2	2	
State Route 94	Campo Road - Millar Ranch Road	County of San Diego/ Caltrans	Prime	Prime (6LN)	2	2	
Sweetwater Road	State Route 54 - Bonita Mesa Road	County of San Diego	Class 1 Collector	Major (6LN)	2	2	GPA, C, B
Sweetwater Road	Bonita Mesa Road - Willow Street	County of San Diego	Class 1 Collector	Major (6LN)	2	2	GPA, C, B
Millar Ranch Road	SR 94 - Proctor Valley Road	County of San Diego	Class 1 Collector	Major (4LN)	3	3	GPA, C, B

Notes:

1. Adopted Circulation Plan Classification
   N/C Not Classified as a Circulation Element Facility
   N/A - Not Included in Circulation Element Plans
2. Difficulty of Implementation
   1 - Achievable
   2 - Moderate Level of Difficulty
   3 - High Level of Difficulty
3. Level of Significance
   1 - Significant and Mitigable
   2 - Significant and Not Mitigable at the GDP Level Due to Lack of Design Information
   3 - Significant and Not Mitigable
4. Comment
   GPA - General Plan Amendment Required
   B - Right of Way Acquisition Required
   C - Facility Constructed to Adopted Classification

See Appendix B for more information.

Table 4.2.11-11

IMPACTS OF THE PHASE I-PROGRESS PLAN OFFSITE ROADWAY IMPROVEMENTS

	IMPACT SIGNIFICANCE				
Road Segment	Biological Resources	Cultural Resources	Land Use	Landform Alteration/Visual Resources	Other
<u>Bonita Road</u>					
I-805 to Willow Street	Significant - Southern willow scrub habitat in Sweetwater Regional Park could be impacted.	Not Significant - Based on a literature and record search. A survey may be required when an actual alignment is known.	Significant - Displacement of existing commercial, residential, or recreational land uses may be necessary.	Significant - Extensive grading and construction of retaining walls may be necessary in several locations along this segment.	
Willow Street to Otay Lakes Road	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - This area is already disturbed and developed with urban uses.	Significant - Displacement of existing commercial and office buildings and/or recreational land uses may be necessary.	Not Significant (although existing landscaping along the street frontage would need to be replaced.)	
Otay Lakes Road to Sweetwater Road	Significant - Southern willow scrub habitat in Sweetwater Regional Park could be impacted.	Not Significant - Based on a literature and record search. A survey may be required when an actual alignment is known.	Significant - Displacement of existing commercial, residential, or recreational land uses may be necessary.	Significant - Construction of a new 6-lane bridge across Sweetwater River could have visual impacts.	Significant water quality impacts could occur due to construction of a new bridge.

Table 4.2.11-11 (Continued)

IMPACTS OF THE PHASE I-PROGRESS PLAN OFFSITE ROADWAY IMPROVEMENTS

	IMPACT SIGNIFICANCE				
Road Segment	Biological Resources	Cultural Resources	Land Use	Landform Alteration/Visual Resources	Other
East H Street I-805 to Terra Nova Road	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant	Significant - Extensive grading and construction of retaining walls may be necessary. Landscaping along the street frontage would be removed.	
EastLake Parkway Palomar Street to Orange Avenue	Not Significant - Impacts have already been addressed by this EIR as part of the overall development proposal.	Not Significant - Impacts have already been addressed by this EIR as part of the overall development proposal.	Not Significant - This segment would be constructed as part of the Otay Ranch project.	Not Significant	

Table 4.2.11-11 (Continued)

IMPACTS OF THE PHASE I-PROGRESS PLAN OFFSITE ROADWAY IMPROVEMENTS

	IMPACT SIGNIFICANCE				
Road Segment	Biological Resources	Cultural Resources	Land Use	Landform Alteration/Visual Resources	Other
Hunte Parkway					
Otay Lakes Road to Orange Avenue	Not Significant - Development has already been approved along this segment as part of EastLake Greens.	Not Significant - Development has already been approved along this segment as part of EastLake Greens.	Significant - Widening could adversely affect EastLake Green's planned residential land uses along this segment.	Significant - Extensive grading and/or construction of retaining walls may be necessary along portions of this segment.	
Otay Lakes Road					
Bonita Road to East H Street	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - Widening would only affect landscaping and manufactured slopes.	Significant - Construction of retaining walls may be necessary.	
East H Street to Telegraph Canyon Road	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - This area is already disturbed and developed with urban uses.	Significant - Displacement of existing single-family houses that front along the street may be necessary.	Significant - Extensive grading and/or construction of retaining walls may be necessary.	

Table 4.2.11-11 (Continued)

IMPACTS OF THE PHASE I-PROGRESS PLAN OFFSITE ROADWAY IMPROVEMENTS

	IMPACT SIGNIFICANCE				
Road Segment	Biological Resources	Cultural Resources	Land Use	Landform Alteration/Visual Resources	Other
SR 125 to East-Lake Parkway	Not Significant - This area is already graded for urban development.	Not Significant - This area is already graded for urban development.	Significant - Planned commercial development of EastLake Green's could be adversely affected.	Not Significant	
Willow Street Sweetwater Road to Bonita Road	Significant - Disturbed southern willow scrub habitat could be affected.	Not Significant - Based on a literature and record search. A survey may be required when an actual alignment is known.	Significant- Widening could displace existing commercial, office and recreational land uses.	Significant - Construction of a new 6-lane bridge across Sweetwater River could have visual impacts.	Significant water quality impacts could occur due to construction of a new bridge.

Table 4.2.11-11 (Continued)

IMPACTS OF THE PHASE I-PROGRESS PLAN OFFSITE ROADWAY IMPROVEMENTS

	IMPACT SIGNIFICANCE				
Road Segment	Biological Resources	Cultural Resources	Land Use	Landform Alteration/Visual Resources	Other
Millar Ranch Road SR 94 to Proctor Valley Road	Not Significant - Development has already been approved along this segment as part of Hidden Valley Estates.	Not Significant - Development has already been approved along this segment as part of Hidden Valley Estates.	Significant - Widening could adversely affect Hidden Valley Estate's planned residential land uses along this segment.	Significant - Extensive grading and the construction of retaining walls may be necessary, especially if the road is constructed prior to the development of Hidden Valley Estates.	Significant geological impacts could occur due to the presence of rock outcroppings and oversized materials as well as the potential for landslides.
Sweetwater Road SR 54 to Plaza Bonita Road	Significant - Disturbed southern willow scrub could be impacted.	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - Widening would only affect landscaping and manufactured slopes.	Significant - Extensive grading and/or construction of retaining walls may be necessary.	

Table 4.2.11-11 (Continued)

IMPACTS OF THE PHASE I-PROGRESS PLAN OFFSITE ROADWAY IMPROVEMENTS

	IMPACT SIGNIFICANCE				
Road Segment	Biological Resources	Cultural Resources	Land Use	Landform Alteration/Visual Resources	Other
Plaza Bonita Road to Willow Street	Significant - Small areas of freshwater marsh could be impacted.	Not Significant - Based on a literature and record search. A survey may be required when an actual alignment is known.	Significant - Displacement of existing single-family houses may be necessary.	Significant - Extensive grading, construction of retaining walls, and the removal of eucalyptus and other mature trees that line the road may be necessary.	

Table 4.2.11-12

SIGNIFICANT UNMITIGABLE IMPACTS AFTER MITIGATION STUDY AREA CIRCULATION NETWORK PHASE I-PROGRESS PLAN (WITH STANDARD AND VILLAGE DESIGN ASSUMPTIONS)

Arterial Segment	From	To	Distance
Onsite Residual Impacts			
EastLake Parkway	Circular Major	UEI E/W Major	0.23 miles
Total Significant Impacts Onsite Roadway Miles			0.23 miles
Offsite Impacted Roadway Miles			
Bonita Road	I-805	San Miguel Road	3.34 miles
EastLake Parkway	Otay Lakes Road	Palomar Street	0.76 miles
Otay Lakes Road	Bonita Road	Telegraph Canyon Road	3.02 miles
Otay Lakes Road	SR-125	EastLake Parkway	0.31 miles
Otay Valley Road	I-805	Paseo Ranchero	1.81 miles
State Route 94	Campo Road	Millar Ranch Road	1.39 miles
Sweetwater Road	SR-54	Willow Street	0.64 miles
Millar Ranch Road	SR-94	Proctor Valley Road	2.32 miles
Total Significant Impacts Offsite Roadway Miles			13.59 miles
Offsite Freeway Miles			13.00 miles
Total Significant Impacts - Otay Ranch Study Area Roadway Miles			26.82 miles

Intersection	Stage of Mitigation Required
Offsite Impacted Intersections	
EastLake Parkway/Otay Lakes Road	3
East H Street/Otay Lakes Road	3
La Media Road/Otay Lakes Road	3
Hunte Parkway/Otay Lakes Road	2

Of the 303 total roadway miles within the study area circulation network under this alternative, 52 miles (approximately 17 percent) would be impacted by the project. After mitigation, 27 miles (approximately 9 percent) would remain significant.

Figure 4.2.11-6 shows the location of the remaining significant circulation network impacts after mitigation.

Of the 15 (13 with village design assumptions) critically impacted intersections, four offsite intersections (Otay Lakes Road/East H Street, Otay Lakes Road/La Media Road, Otay Lakes Road/EastLake Parkway and Otay Lakes Road/Hunte Parkway) were found to be significant at the General Plan level after mitigation.

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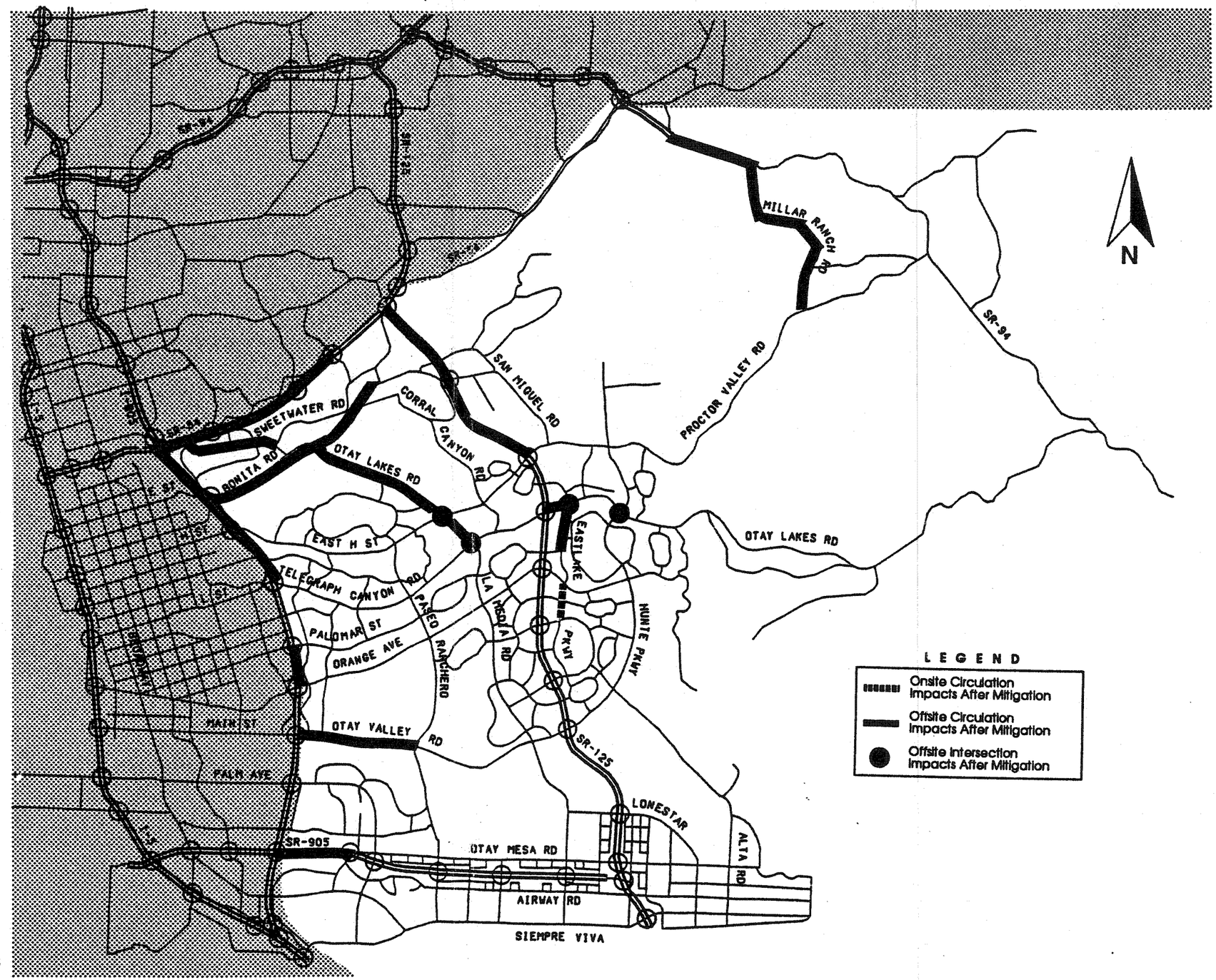

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Figure 4.2.11-6

PHASE I PROGRESS PLAN LOCATION OF SIGNIFICANT IMPACTS AFTER MITIGATION

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4.2.12 Air Quality

4.2.12.1 Impact Analysis

Construction Impacts

Construction impacts for the Phase I-Progress Plan Alternative would consist of fugitive dust generated during grading activities and by vehicular traffic on unpaved surfaces, and tailpipe pollutant emissions produced by construction equipment and workers' vehicles. Emission rates are not quantifiable at this time, but the emissions would be less than those associated with New Town Plan, as there would be less development under the Phase I-Progress Plan Alternative. The SPA Plan EIRs for the development will address construction emissions.

Vehicular Impacts

The URBEMIS3 model and San Diego County vehicle burden mix were used to estimate emission rates of the five main vehicular pollutants from traffic associated with the Phase I-Progress Plan Alternative. The methodology used is explained in Section 3.11.2.2. The output data from the URBEMIS3 model runs are provided in Appendix C-1. The emission rates are summarized in Table 4.2.12-1.

Stationary Source Impacts

The method used to calculate emissions from the stationary sources of the Phase I-Progress Plan Alternative is the same as that used for the New Town Plan calculations, as described in Section 3.11.2.3. Spreadsheets showing the calculations of natural gas consumption and emission rates are provided in Appendix C-2.

Predicted Emissions From Stationary Sources (Year 2000)

For the year 2000, the Phase I-Progress Plan housing units would include 148 estates, 720 semi-custom homes, 1,080 large lot homes, 2,070 tract/small homes, 2,408 tract/patio homes, 984 duplex/patio homes, 900 townhomes, 450 condos, and approximately 1,155 swimming pools (Baldwin Vista 1991). No offices, hotels, and shopping malls would be developed during the year 2000. Areas of 146,362, 428,000, and 87,120 square feet would be absorbed by industrial buildings, resorts, and retail stores, respectively. Four elementary schools, 2 junior high schools, and 19 other community facilities would also be included in the year 2000. The annual natural gas usages for space heating and water heating of different house categories were determined by equations (2) and (3) in Section 3.11.2.3, and the results are summarized in Table 4.2.12-2. The emission rates for NO_x, PM_{10}, SO_x, CO, and ROG are also shown in the table.

Predicted Emissions From Stationary Sources (Year 2010)

In year 2010, 508 estates, 2,048 semi-custom homes, 2,758 large lot homes, 3,326 tract/small homes, 4,250 tract/patio, 2,879 duplex/patio, 2,560 townhomes, 1,990 condos, and 800 condo midrises would be located in residential areas (Baldwin Vista 1991). These areas were also estimated to have 3,188 swimming pools. Under the proposed land use designations of the Phase I-Progress Plan Alternative, 1,126,009 square feet would be constructed for industrial buildings, 696,960 square feet for offices, 428,000 square feet for resorts, 407,000 square feet for hotels, and 784,080 square feet for other retail facilities. Ten elementary schools, 6 junior high schools, and 44 community

Table 4.2.12-1

VEHICULAR POLLUTANT EMISSIONS, PHASE I-PROGRESS PLAN ALTERNATIVE (TONS/YEAR)

Year	ROC	CO	NO_x	PM_{10}[a]	SO_x[b]
2000	245.2	2,981.8	326.7	97.2	23.7
2010	609.9	7,570.7	887.7	452.8	63.0
2020	1,308.1	15,884.3	1,952.9	987.1	137.4

(a) As explained in Table 3.11-3, PM_{10} model results for year 2020 are thought to be erroneous. Therefore, the PM_{10} result reported in in the table for year 2020 was obtained by multiplying the 2010 value by the factor increase in fuel useage between the two years (in this case, a factor of 2.2).

(b) Similar to the 2020 PM_{10} results, the URBEMIS3 model predicted anomalously high SO_2 values in the years 2010 and 2020. As explained in Table 3.11-3, SO_2 emissions for 2010 and 2020 were scaled from the 2000 result using a factor equal to the increase in fuel use for the two time periods (i.e., 2.7 for year 2010 and 2.2 for year 2020).

Table 4.2.12-2

STATIONARY SOURCE EMISSIONS, PHASE I-PROGRESS PLAN ALTERNATIVE

Year	Natural Gas Combusted (Cu.ft/yr)	Emissions NO_x (T/yr)	PM_{10} (T/yr)	SO_x (T/yr)	CO (T/yr)	ROG (T/yr)
2000	677×10^6	33.8	1.0	0.2	6.7	1.7
2010	$1{,}589 \times 10^6$	79.4	2.2	0.4	15.9	4.3
2020	$2{,}092 \times 10^6$	104.8	3.1	0.7	21.1	5.8

facilities would also be constructed. The results of the calculations for the natural gas consumption and pollutant emissions are given in Table 4.2.12-2.

Predicted Emissions From Stationary Sources (Year 2020)

The dwelling units for the Phase I-Progress Plan Alternative in year 2020 would increase to 882 estates, 3,488 semi-custom homes, 2,758 large lots, 3,326 tract/small homes, 4,250 tract/patio homes, 3,948 duplex/patio homes, 3,248 townhomes, 3,622 condos, 1,600 condo midrises, and 4,723 swimming pools (Baldwin Vista 1991). The land uses for commercial activities would expand to 2,352,240 square feet for offices, 856,000 square feet for resorts, 1,000,000 square feet for regional malls, 522,720 square feet for auto malls, and 1,655,280 square feet for other retail units. The industrial and hotel land uses would stay the same as those in 2010 with 1,126,009 and 407,000 square feet, respectively. Community facilities would increase to 13 elementary schools, 5 junior high schools, and 57 other community facilities. Total annual natural gas consumption for all of the activities in year 2020 is shown in Table 4.2.12-2, as are the predicted NO_x, PM_{10}, SO_x, CO, and ROG emissions from stationary sources associated with this alternative.

Emissions from Existing Sources

The Otay Landfill generates fugitive dust emissions associated with waste hauling and disposal and waste covering operations, but is expected to close by 1999. The Nelson and Sloan quarry and Daley quarry (if reactivated) operations emit fugitive dust which may impact adjacent land uses. Site-specific analyses of fugitive dust emissions from these sources are necessary, prior to development of adjacent lands, to determine the potential air quality impacts and any health hazards of these operations. Since the proposed development would remove agricultural lands from production, fugitive dust emissions associated with farming operations would decrease, as would dust emissions from the landfill once it is closed.

Power Plant Emissions

Pollutant emissions associated with electrical power generation in response to demand under the Phase I-Progress Plan Alternative are summarized in Table 4.2.12-3. The predicted emissions for this alternative are about 83 percent of those under the New Town Plan.

Energy Analysis

Using the same methodology to calculate energy consumption for the New Town Plan Alternative (Section 3.11.2.4), energy usage under the Phase I-Progress Plan Alternative was estimated. The following changes to the assumptions in the New Town Plan calculations were made:

- About 409 acres of commercial development are planned. An average acreage of 1.1 acres per establishment was assumed, resulting in a projection of 372 new commercial establishments at buildout.

- The 91 acres of planned industrial development were assumed to be divided among 5 new establishments, based on an average plot size of about 20 acres per facility.

Table 4.2.12-3

ESTIMATED POLLUTANT EMISSIONS FROM LOCAL POWER PLANTS TO PROVIDE ELECTRIC POWER FOR THE PHASE I-PROGRESS PLAN ALTERNATIVE

Year	Estimated Electricity Demand for Proposed Otay Ranch Development (10^6 kw-hr/year)	Natural Gas Burned at Local Power Plants to Produce Required Electricity (10^6 cu ft/year)[1]	Pollutant Emissions For Power Generation (tons/year)[2]				
			CO	NO_x	ROG	PM_{10}	SO_x
2000	59.6	357	7.1	31.2	0.2	0.9	0.1
2010	168.2	1009	20.2	88.3	0.7	2.5	0.3
2020	218.3	1310	26.2	114.6	0.9	3.3	0.4

1 Assume 60 percent of incremental electricity demand is generated locally; assume 10,500 Btu of fuel input per kw/hr generated and 1,050 Btu/cu ft for natural gas.

2 Emission factors taken from U.S. EPA document AP-42, except for NO_x. Since the San Diego APCD's regulations disallow NO_x emissions above 175 lb/10^6 ft^3, this maximum figure was used.

- For transportation facilities, the projected vehicle miles traveled (VMT) in the study area for the No Project Alternative were subtracted from the VMT expected for the Phase I-Progress Plan Alternative at buildout to yield a VMT associated with the alternative.

The results in Table 4.2.12-4 show that transportation is the largest energy usage category, representing about 60 percent of the total. Note that the projection for transportation is based on VMT levels calculated for a vehicle mix that does not specifically include mass transit, such as light rail transit (LRT). As noted in the project description, plans do exist to include such transportation systems in the long term. Previous studies (Kornblatt 1989, ERCE 1990a, ERCE 1991c) for various LRT projects in San Diego have shown that substantial energy savings can be realized by mass transit systems; thus, actual project energy consumption could be lessened significantly if LRT is included in the project.

Total energy consumption for this alternative is predicted to be about half that of the New Town Plan in the year 2020.

Summary of Impacts

As indicated earlier, construction impacts will be quantified at the Specific Plan or SPA Plan level. Because construction activities add air pollutants to the regional pollution background, they are considered significant, temporary impacts and require mitigation measures.

Table 4.2.12-5 summarizes pollutant emissions from stationary and mobile sources associated with development under the Phase I-Progress Plan Alternative. All pollutants are estimated to be lower than those under the New Town Plan. The two most critical pollutants in ozone formation, NO_x and ROG, are about 66 percent and 80 percent, respectively, of the New Town Plan levels for the same pollutants. Nonetheless, these emissions are not consistent with the RAQS because they result from a greater growth in population than was assumed in the development of the strategy.

San Diego County does not presently meet ambient air quality standards, and the projected growth under this alternative exceeds the assumptions in the county's RAQS. Therefore, air pollutant emissions from sources in the Phase I-Progress Plan Alternative represent a significant adverse impact.

4.2.12.2 Proposed Mitigation

The mitigation measures listed in Table 4.2.12-6 would minimize air pollution impacts from the Phase I-Progress Plan Alternative. Several of these measures have already been included in the design. For example, this alternative would include more urban villages, with a connecting transit loop. However, the siting of commercial establishments and parks appears to be less conducive to pedestrian access than the New Town Plan design, in that the distances between residential units at the edges of the development and these facilities are greater (see Figures 2.3-1 and 4.2-1). The percentage of roads with poor LOS is also relatively high, although it is lower than that for the New Town Plan (see Figures 3.10-3 and 4.2.11-2).

Table 4.2.12-4

ESTIMATED ANNUAL ENERGY CONSUMPTION FOR PHASE I-PROGRESS PLAN ALTERNATIVE AT BUILDOUT

Project Development Category	Energy Usage Type	Unit Consumption Factor	Projected Units at Buildout	Total Energy Consumption	Total Energy Consumption in 10^{11} Btu/year
Residential	Electricity	5,580 kw-hr/dwelling/year	29,773 dwellings	166.13 million kw hr//year.	5.67
	Nat. Gas	522 therms/dwelling/year		15.54 million therms/year.	15.54
Commercial	Electricity	51,066 kw-hr/ establishment/year.	372 establishments	18.99 million kw/year.	0.65
	Nat. Gas	4,281 therms/ establishment/year.		1.59 million therms/year.	1.59
Industrial	Electricity	4.9 million kw-hr/ establishment/year	5 establishments	24.5 million kw hr/year.	0.84
	Nat. Gas	0.95 million therms/ establishment/year.		4.75 million therms.	4.75
Street Lighting	Electricity	70 kw-hr/residential unit/year	29,773 dwellings	2.08 million kw hr/year	0.07
Transportation		6,034 Btu/vehicle mile	772.34 million miles per year	47.45 x 10^{11} Btu/year	47.54
TOTAL					76.56

Table 4.2.12-5

SUMMARY OF POLLUTANT EMISSIONS, PHASE I-PROGRESS PLAN ALTERNATIVE

		Emissions				
Source	Year	NOx (T/yr)	PM_{10} (a) (T/yr)	SO_x (b) (T/yr)	CO (T/yr)	ROG (T/yr)
Vehicles	2000	326.7	97.2	23.7	2,981.8	245.2
Stationary Sources	2000	33.8	1.0	0.2	6.7	1.7
Power Plants	2000	31.2	0.9	0.1	7.1	0.2
Year 2000 Total		391.7	99.1	24.0	2,995.6	247.1
Vehicles	2010	887.7	452.8	63.0	7,570.7	609.9
Stationary Sources	2010	79.4	2.2	0.4	15.9	4.3
Power Plants	2010	88.3	2.5	0.3	20.2	0.7
Year 2010 Total		1,055.4	457.5	63.7	7,606.8	6.4.9
Vehicles	2020	1,952.9	987.1	137.4	15,884.3	1,308.1
Stationary Sources	2020	104.8	3.1	0.7	21.1	5.8
Power Plants	2020	114.6	3.3	0.4	26.2	0.9
Year 2020 Total		2,172.3	993.5	138.5	15,931.6	1,314.8

(a) As explained in Table 3.11-3, PM_{10} model results for Year 2020 are thought to be erroneous Therefore, the PM_{10} result reported in in the table for Year 2020 was obtained by multiplying the 2010 value by the factor increase in fuel useage between the two years (in this case, a factor of 2.2).

(b) Similar to the 2020 PM_{10} results, the URBEMIS3 model predicted anomalously high SO_2 values in the years 2010 and 2020. As explained in Table 3.11-3, SO_2 emissions for 2010 and 2020 were scaled off the 2000 result using a factor equal to the increase in fuel use for the two time periods (i.e., 2.7 for Year 2010 and 2.2 for Year 2020).

Table 4.2.12-6 (Revised)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Construction Sources

- minimize simultaneous operation of multiple construction equipment units (i.e., phase construction to minimize impacts)
- use low pollutant-emitting construction equipment
- use electrical construction equipment as practical
- use catalytic reduction for gasoline-powered equipment
- use injection timing retard for diesel-powered equipment
- water the construction area to minimize fugitive dust
- stabilize (for example, hydroseed) graded areas as quickly as possible to minimize fugitive dust
- pave permanent roads as quickly as possible to minimize dust

Land Use Policies

- Provide neighborhood shopping and personal services adjacent to residential areas to minimize auto trips and reduce mileage travelled to service areas.
- Provide open space and recreational facilities within or adjacent to the residential areas.*
- Provide employee services within walking distance (i.e., banking, childcare, restaurants, etc.).
- Provide a balanced mix of housing and employment possibilities to reduce trips and vehicle miles traveled.

Siting/Design Policies

- Site-specific analysis for potentially incompatible projects (for example, a residential development near one of the quarries or the landfill) shall be reviewed in the SPA Plan.
- Provide dedicated bike lanes to encourage use of bicycles.
- Provide bicycle storage facilities at employment and retail centers.
- Provide shower and locker facilities at offices to encourage bicycle use.

Table 4.2.12-6 (Revised) (Continued)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Siting/Design Policies (Continued)

- Provide sidewalks and curbs to ensure safe pedestrian travel within residential areas and to commercial centers.*
- Provide street designs that promote pedestrian safety (i.e., safe islands in center of major arterials, "Walk" signals, night lighting, etc.).*
- Orient shopping centers to promote use by mass transit (i.e., provide bus turnouts), pedestrians, and bicyclists.
- Design parking lots to promote use of mass transit and car pools.
- Control emissions of NO_x by installing heat transfer modules on gas-fired furnaces.
- Utilize solar heating technology as practical. Generally, solar panels can be cost-effectively used to heat water for domestic use and for swimming pools. Advances in solar technology in the future may make other applications appropriate.
- Utilize low-NO_x residential and commercial water heaters.
- Enhance energy efficiency in building designs and landscaping plans.
- Minimize "drive-through" establishments to reduce emissions from idling vehicles.**
- Minimize on-street parking to reduce congestion and avoid back-up and idling of vehicles.**
- Identify an environmental coordinator to be responsible for education and disseminating information on ridesharing and/or mass transit opportunities, recycling, energy conservation programs, etc.

Transportation-related Management Actions

The City of Chula Vista is responsible for the transportation-related management actions in which they shall coordinate these development plans with the Metropolitan Transit Development Board (MTDB).

Table 4.2.12-6 (Revised) (Continued)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Transportation-related Management Actions (Continued)

- Provide land for transit support facilities such as bus stops, park-n-ride lots, etc.*
- Provide amenities to increase convenience and attractiveness of transit stops (i.e., passenger staging areas, waiting shelters, etc.).*
- Provide minibus, jitney, or other para-transit service to provide access from residential areas to commercial areas.**
- Require major employers to provide ridesharing or mass transit incentives.
- Provide demand-responsive traffic signals.
- Achieve transit agency agreement to institute new routes or express bus service, or to expand existing service, related to the demand caused by the proposed project.

* Measure is feasible in areas with relatively high residential densities.

** Measure is infeasible because: 1) few of these land use combinations are proposed for this alternative, or 2) conflicts with village design concept. As the density of development decreases, the distance to commercial and recreation facilities will increase.

4.2.12.3 Analysis of Significance

Because the county currently exceeds ambient air quality standards and population growth under the Phase I-Progress Plan exceeds Series 7 projections, the mitigation measures will not reduce emissions to a point where there is no net increase in the regional pollution background. Therefore, mitigated impacts would remain significant.

4.2.13 Noise

4.2.13.1 Impact Analysis

Roadways

The primary noise source throughout the project area at full buildout of the Phase I-Progress Plan would be vehicular traffic. Onsite noise impacts would occur as development is completed on Otay Ranch, whereas offsite impacts would be realized as regional traffic volumes increase due to area growth and roadway segments are widened to accommodate the increased traffic. Additional noise impacts are anticipated when existing roadways are re-aligned in accordance with planned or proposed circulation element improvements. The degree of the impact would depend on the location of the noise-sensitive receptors in relation to roadways as well as the project design. The FHWA Stamina 2.0 Vehicle Noise Prediction Model was used to assess potential noise impacts. The roadways were modeled in a similar manner as the New Town Plan. The modeling results and roadway parameters used in the analysis of onsite and offsite vehicular noise impacts are summarized in Tables 4.2.13-1 through 4.2.13-4. Review of the tables shows that the sound level within 100 feet of the centerline of all roadways exceeds 60 CNEL. The 60 CNEL contours along many of the roadways are significantly farther than 100 feet from the centerline. Residential land uses located within the 60 CNEL contour would be significantly impacted by vehicular traffic noise.

Some of the residential land uses along East H Street, Orange Avenue, Otay Lakes Road, Otay Mesa Road, SR-54 and SR-94 may be impacted by sound levels greater than 75 CNEL. Sound levels greater than 75 CNEL are incompatible with residential development. In general, vehicular traffic noise impacts from this alternative would be similar to the New Town Plan; this alternative proposes a greater number of residences along Otay Lakes Road, north of Otay Lakes.

Noise generated by project-related traffic is expected to increase the noise level at the existing sensitive receptors located along the offsite access roadways. Based on the transportation analysis in Section 4.2.11, the project-generated traffic would impact a maximum of approximately 19 percent (or 42 miles) of offsite roadway mileage, under the village design scenario. In comparison to buildout under the Composite General Plans, the Phase-I Progress Plan traffic contributes to 18.5 additional miles of impacted roadway (refer to Tables 4.2.11-6 and 4.2.11-7 for details on impacted roadway miles). Although there is not a direct correspondence between impacted mileage and noise impacts, comparison with the Composite General Plans Alternative should provide a general degree of vehicular noise impacts. The amount of the noise increase is dependent on such factors as roadway design, ADT, distance from the roadway, the orientation of the usable outdoor living areas to the roadway, and intervening topography. In general, a doubling of the traffic volume would be expected to increase the sound level by 3 dBA. This is considered significant if usable outdoor living areas such as balconies, patios, children's playing areas, and swimming pools are affected. Major roadways which may impact existing residences include East H Street, Otay Valley Road, East Orange Avenue, Palomar Street, and Telegraph Canyon Road. There may be other smaller roadways which may cause a noise impact.

At this level of analysis, noise from onsite and offsite roadways is considered to be a significant and potentially unmitigable impact within 1250 feet of the facility. A site-specific acoustical study will be required during the SPA Plan review and prior to adoption of any circulation element General Plan Amendments. The study shall provide a description of the proposed project, the existing noise environment, the future

Table 4.2.13-1

PHASE I-PROGRESS PLAN STANDARD ASSUMPTIONS ONSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Alta Road												
EUC Prime-Hunte Pkwy	Prime	6	23,228	96	2	2	55	–	–	130	250	780
Hunte Pkwy-SA 1107	Prime	6	42,786	96	2	2	55	–	–	145	470	1440
Circular Major												
Village Connector-EastLake Pkwy	Major	4	11,030	96	2	2	45	–	–	–	90	290
EastLake Pkwy-EUC Prime	Major	4	12,713	96	2	2	45	–	–	–	110	230
EUC Prime-EastLake Pkwy	Major	4	24,731	96	2	2	45	–	–	100	200	640
EUC Prime												
La Media-Circular Major	Prime	6	33,353	96	2	2	55	–	–	180	360	1140
Circular Major-SR 125	Prime	6	30,945	96	2	2	55	–	50	160	330	1050
SR 125-EastLake Pkwy	Prime	6	39,948	96	2	2	55	–	60	210	430	1360
EastLake Pkwy-E/W Prime 1	Prime	6	35,962	96	2	2	55	–	50	190	390	1220
E/W Prime 1-Alta	Prime	6	15,120	96	2	2	55	–	–	70	170	520
E/W Prime 1												
EUC Prime-Hunte Pkwy	Prime	6	20,183	96	2	2	55	–	–	130	270	840
EastLake Parkway												
Otay Lakes-Palomar	Major	4	41,968	96	2	2	45	–	50	170	350	1090
Palomar-Orange	Major	4	41,862	96	2	2	45	–	50	170	350	1090
Orange-Circular Major	Prime	6	60,028	96	2	2	55	–	100	320	630	2050
Circular Major-EUC Prime	Prime	6	49,355	96	2	2	55	–	70	260	540	1730
EUC Prime-Circular Major	Prime	6	49,018	96	2	2	55	–	80	260	540	1700
Circular Major-UEI E/W Major	Prime	6	52,113	96	2	2	55	–	60	210	430	1350
UEI E/W Major-Village 9 Local	Prime	6	24,532	96	2	2	55	–	–	110	220	700
Village 9 Local-Hunte Pkwy	Collector	4	8,663	96	2	2	45	–	–	–	70	220
Hunte Pkwy												
Orange-Alta	Prime	6	43,082	96	2	2	55	–	80	230	470	1470
Alta-SR 125	Prime	6	40,392	96	2	2	55	–	60	210	444	1380
La Media Road												
Otay Lakes-Palomar	Prime	6	53,666	96	2	2	55	–	90	183	580	1820
Palomar-Orange	Prime	6	51,248	96	2	2	55	–	80	175	560	1730

Table 4.2.13-1 (Continued)

PHASE I-PROGRESS PLAN STANDARD ASSUMPTIONS ONSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Orange-EUC Prime	Prime	6	54,698	96	2	2	55	–	90	290	590	1850
EUC Prime-UEI E/W Major	Prime	6	38,083	96	2	2	55	–	50	170	350	1090
UEI E/W Major-Otay Valley Rd	Prime	6	39,126	96	2	2	55	–	50	170	350	1090
Otay Valley Rd-Lonestar Rd	Prime	6	51,993	96	2	2	55	–	90	260	560	1780
Lonestar-Otay Mesa	Prime	6	42,816	96	2	2	55	–	80	230	460	1460
Lonestar Road												
La Media-SR 125	Major	4	21,327	96	2	2	45	–	–	80	180	550
SR 125-Harvest	Prime	6	20,606	96	2	2	55	–	–	110	230	700
Orange Avenue												
Medical Center-Paseo Ranchero	Prime	6	39,136	96	2	2	55	–	50	170	350	1090
Paseo Ranchero-La Media	Prime	6	55,964	96	2	2	55	–	60	190	600	1900
La Media-Village Connector	Prime	6	46,539	96	2	2	55	–	60	210	420	1330
Village Connector-SR 125	Prime	6	38,553	96	2	2	55	–	50	170	350	1090
SR 125-EastLake Pkwy	Prime	6	45,683	96	2	2	55	–	50	200	410	1300
EastLake Pkwy-Hunte Pkwy	Prime	6	33,249	96	2	2	55	–	–	150	300	950
Hunte Pkwy-Wueste	Major	4	32,445	96	2	2	45	–	–	150	300	950
Otay Lakes Road												
La Media-Rutgers	Prime	6	40,750	96	2	2	55	–	50	170	370	1150
Rutgers-SR 125	Prime	6	39,691	96	2	2	55	–	50	170	360	1130
Hunte Pkwy-Wueste	Prime	6	49,892	96	2	2	55	–	80	270	540	1700
Wueste-Lower Lakes Rd West	Prime	6	48,043	96	2	2	55	–	70	260	520	1660
Lower Lakes Rd West-Old Otay Lakes	Prime	6	24,567	96	2	2	55	–	80	270	540	1700
Otay Valley Road												
Medical Center-Paseo Ranchero	Prime	6	55,544	96	2	2	55	–	70	270	500	1590
Paseo Ranchero-La Media	Prime	6	42,105	96	2	2	55	–	–	120	380	1200
La Media-SR 125	Prime	6	37,519	96	2	2	55	–	–	160	340	1070
Palomar Street												
Eagle Ridge-Paseo Ranchero	Major	4	12,648	96	2	2	45	–	–	–	110	330
Paseo Ranchero-Village 1	Collector	4	14,882	96	2	2	45	–	–	–	120	320
Village 1-La Media	Collector	4	15,124	96	2	2	45	–	–	–	130	390

Table 4.2.13-1 (Continued)

PHASE I-PROGRESS PLAN STANDARD ASSUMPTIONS ONSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
La Media-Village 5	Collector	4	15,581	96	2	2	45	–	–	–	125	400
Village 5-EastLake Pkwy	Collector	4	10,656	96	2	2	45	–	–	–	90	280
Paseo Ranchero												
Telegraph Canyon-Palomar	Prime	6	41,606	96	2	2	55	–	70	220	450	1420
Palomar-Orange	Prime	6	43,651	96	2	2	55	–	70	240	470	1490
Orange-Village 2	Prime	6	42,040	96	2	2	55	–	–	230	460	1450
Village 2-Otay Valley Rd	Prime	6	50,847	96	2	2	55	–	80	270	580	1830
Otay Valley-Del Sol	Prime	6	53,534	96	2	2	55	–	80	270	580	1830
Proctor Valley Road												
Old Proctor Valley Road-Miller Ranch Road	Major	4	29,039	96	2	2	45	–	–	120	240	760
Miller Ranch Road-SR 94	Major	4	26,284	96	2	2	45	–	–	100	220	680
State Route 125												
SR 125	Freeway	10	*179,900	96	2	2	55	100	320	1010	2040	5710
Telegraph Canyon Road												
Eagle Ridge-Paseo Ranchero	Prime	6	31,500	96	2	2	55	–	–	140	280	900
Paseo Ranchero-La Media	Prime	6	29,149	96	2	2	55	–	–	130	260	830
UEI E/W Major												
La Media-SR 125	Prime	6	18,330	96	2	2	55	–	–	90	200	630
SR 125-EastLake Pkwy	Prime	6	39,865	96	2	2	55	–	60	210	430	1050
EastLake Pkwy-Alta	Prime	6	15,478	96	2	2	55	–	–	60	170	530

*Maximum volume projected for SR 125 along the project area.

Table 4.2.13-2

PHASE I-PROGRESS PLAN STANDARD ASSUMPTIONS OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Airway Road												
Otay Mesa-Heritage	Major	4	18,398	96	2	2	45	–	–	–	150	480
Heritage-La Media	Major	4	21,468	96	2	2	45	–	–	70	180	560
La Media-Harvest	Major	4	11,548	96	2	2	45	–	–	–	100	310
Alta Road												
SA 1107-Otay Mesa	Prime	6	31,899	96	2	2	55	–	50	170	340	1090
Otay Mesa-Airway	Major	6	19,811	96	2	2	45	–	–	60	160	510
Airway-Siempre Viva	Major	6	11,718	96	2	2	45	–	–	–	100	310
Bonita Road												
I 805-Willow	Major	4	46,564	96	2	2	45	–	60	190	380	1210
Willow-Otay Lakes	Major	4	52,421	96	2	2	45	–	70	210	430	1360
Otay Lakes-Corral Canyon	Major	4	34,012	96	2	2	45	–	–	130	280	880
Caliente												
Otay Mesa-Airway	Major	6	29,759	96	2	2	45	–	–	120	250	770
Airway-Siempre Viva	Major	4	19,953	96	2	2	45	–	–	60	170	520
Corral Canyon Road												
Bonita-East H	Local Collector	2	13,661	98	1	1	35	–	–	–	60	200
Crest Drive												
East J-Telegraph Canyon	Local Collector	2	9,987	98	1	1	35	–	–	–	–	140
Del Sol Boulevard												
I 805-Palm	Major	4	23,534	96	2	2	45	–	–	90	190	610
East H Street												
I 805-Ridgeback	Prime	6	59,393	96	2	2	55	–	100	310	640	2000
Ridgeback-Paseo Ranchero	Prime	6	42,595	96	2	2	55	–	70	230	460	1450
Paseo Ranchero-Otay Lakes	Prime	6	43,380	96	2	2	55	–	70	230	460	1480
Otay Lakes-Rutgers	Prime	6	34,853	96	2	2	55	–	50	180	380	1200
Rutgers-SR 125	Prime	6	39,077	96	2	2	55	–	70	210	460	1330

Table 4.2.13-2 (Continued)

PHASE I-PROGRESS PLAN STANDARD ASSUMPTIONS OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
East J Street												
I 805-Paseo Ranchero	Local Collector	2	4,555	98	1	1	35	–	–	–	–	70
Harvest Road												
Lonestar-Otay Mesa	Major	4	7,089	96	2	2	45	–	–	–	60	180
Otay Mesa-SR 905	Major	4	24,955	96	2	2	45	–	–	100	205	650
SR 905-Airway	Major	4	26,599	96	2	2	45	–	–	110	220	690
Airway-Siempre Viva	Major	4	14,930	96	2	2	45	–	–	–	120	390
Heritage Road												
Palm-Otay Mesa	Major	6	34,999	96	2	2	45	–	–	140	290	910
Otay Mesa-SR 905	Prime	6	23,642	96	2	2	55	–	–	120	260	810
SR 905-Airway	Prime	6	33,209	96	2	2	55	–	50	180	360	1140
Airway-Siempre Viva	Major	6	24,982	96	2	2	45	–	–	130	270	850
Hunte Parkway												
Proctor Valley-Otay Lakes	Major	4	25,699	96	2	2	45	–	–	100	210	660
Otay Lakes-Orange	Major	4	38,104	96	2	2	45	–	–	150	310	980
Interstate 805												
SR 54-East H	Freeway	10	259,434	96	2	2	55	140	450	1450	2900	6700
East H-Telegraph Canyon	Freeway	10	225,760	96	2	2	55	120	400	1280	2550	6400
Telegraph Canyon-Orange	Freeway	10	201,016	96	2	2	55	110	350	1110	2240	5920
Orange-Otay Valley Road	Freeway	10	181,179	96	2	2	55	100	330	1060	2120	5900
Otay Valley-Palm	Freeway	10	168,406	96	2	2	55	90	300	950	1900	5660
Palm-SR 905	Freeway	10	136,751	96	2	2	55	70	23	730	1460	4500
La Media												
Otay Mesa-SR 905	Major	4	33,804	96	2	2	45	–	–	130	280	870
SR 905-Airway	Major	4	45,702	96	2	2	45	–	–	180	370	1190
Airway-Siempre Viva	Major	4	26,344	96	2	2	45	–	–	100	220	680
Lonestar Road												
Harvest-Sanyo	Prime	6	15,463	96	2	2	55	–	–	80	170	530

Table 4.2.13-2 (Continued)

PHASE I-PROGRESS PLAN STANDARD ASSUMPTIONS OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Medical Center												
Telegraph Canyon-Naples	Collector	4	8,793	96	2	2	45	–	–	–	70	230
Naples-Palomar	Collector	4	9,339	96	2	2	45	–	–	–	80	240
Palomar-Orange	Collector	4	10,364	96	2	2	45	–	–	–	90	270
Orange-Otay Valley Road	Collector	4	11,422	96	2	2	45	–	–	–	90	300
Naples												
I 805-Oleander	Local Collector	2	6,669	98	1	1	35	–	–	–	–	100
Oleander-Medical Center	Local Collector	2	3,781	98	1	1	35	–	–	–	–	50
Oleander												
Telegraph Canyon-Naples	Local Collector	2	11,250	98	1	1	35	–	–	–	50	160
Naples-Palomar	Local Collector	2	5,572	98	1	1	35	–	–	–	–	80
Palomar-Orange	Local Collector	2	5,447	98	1	1	35	–	–	–	–	80
Orange-Otay Valley	Local Collector	2	5,353	98	1	1	35	–	–	–	–	80
Orange Avenue												
I 805-Oleander	Prime	6	46,781	96	2	2	55	–	70	250	505	1600
Oleander-Medical Center	Prime	6	40,414	96	2	2	55	–	60	210	440	1380
Otay Lakes Road												
Bonita-East H	Prime	6	53,083	96	2	2	55	–	80	280	570	1800
East H-La Media	Prime	6	62,431	96	2	2	55	–	100	340	680	2130
SR 125-EastLake Pkwy	Prime	6	65,139	96	2	2	55	–	110	350	700	2200
EastLake Pkwy-Hunte Pkwy	Prime	6	50,833	96	2	2	55	–	80	270	550	1730
Old Otay Lakes-SR 94	Major	4	14,370	96	2	2	45	–	–	–	120	370
Otay Mesa Road												
SR 905-Caliente	Prime	6	19,835	96	2	2	55	–	–	100	220	680
Caliente-Heritage	Prime	6	37,397	96	2	2	55	–	60	200	410	1280
Heritage-La Media	Prime	6	34,250	96	2	2	55	–	–	180	370	1170
La Media-SR 125	Major	6	27,051	96	2	2	45	–	–	140	290	930
SR 125-Harvest	Major	6	28,805	96	2	2	45	–	–	150	310	980
Harvest-Sanyo	Major	4	39,067	96	2	2	45	–	60	210	420	1330
Sanyo-Enrico Fermi	Major	4	36,852	96	2	2	45	–	60	200	400	1250

Table 4.2.13-2 (Continued)

PHASE I-PROGRESS PLAN STANDARD ASSUMPTIONS OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Otay Valley Road												
I 805-Oleander	Prime	6	53,218	96	2	2	55	–	80	280	580	1810
Oleander-Medical Center	Prime	6	53,158	96	2	2	55	–	80	280	580	1810
Palm Avenue												
I 805-Caliente	Prime	6	39,159	96	2	2	55	–	–	150	320	1020
Caliente-Paseo Ranchero	Prime	6	22,523	96	2	2	55	–	–	80	190	580
Palomar Street												
Oleander-Medical Center	Major	4	14,525	96	2	2	45	–	–	–	120	380
Medical Center-Eagle Ridge	Major	4	13,925	96	2	2	45	–	–	–	110	360
Paseo del Rey												
East H-Telegraph Canyon	Local Collector	2	15,160	98	1	1	35	–	–	–	130	390
Paseo Ranchero												
East H-East J	Collector	4	18,784	96	2	2	45	–	–	–	160	480
East J-Telegraph Canyon	Collector	4	22,252	96	2	2	45	–	–	80	190	570
Del Sol-Palm	Prime	6	44,083	96	2	2	55	–	70	240	480	1510
Proctor Valley Road												
SR 125-San Miguel	Prime	6	47,986	96	2	2	55	–	70	250	520	1630
San Miguel-Hunte Pkwy	Prime	6	41,350	96	2	2	55	–	70	220	550	1420
Hunte Pkwy-Salt Creek Ranch	Prime	6	43,211	96	2	2	55	–	70	230	460	1480
Salt Creek Ranch-Old Proctor Valley	Major	4	39,785	96	2	2	45	–	60	210	420	1330
Rutgers Avenue												
East H-Otay Lakes	Local Collector	2	8,674	98	1	1	35	–	–	–	–	120
Siempre Viva												
East Beyer-Caliente	Major	4	19,811	96	2	2	45	–	–	70	190	510
Caliente-Heritage	Prime	6	38,389	96	2	2	55	–	60	200	410	1310
Heritage-La Media	Prime	6	34,614	96	2	2	55	–	60	180	370	1180
La Media-SR 125	Prime	6	29,865	96	2	2	55	–	–	150	320	1020
SR 125-Paseo de las Americas	Major	4	44,088	96	2	2	45	–	60	180	360	1140
P[illegible] las Americas-Enrico Fermi	Major	4	35,965	96	2	2	45	–	–	150	290	[illegible]

Table 4.2.13-2 (Continued)

PHASE I-PROGRESS PLAN STANDARD ASSUMPTIONS OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
State Route 54												
I 805-Woodman	Freeway	6	141,835	96	2	2	55	70	260	820	1640	5450
Woodman-SR 125	Freeway	6	120,731	96	2	2	55	70	210	660	1340	4310
SR 125-SR 94	Prime	6	77,928	96	2	2	55	–	120	390	800	2530
State Route 94												
SR 54-Jamacha Blvd	Freeway	4	51,575	96	2	2	55	–	80	260	550	1730
Jamacha-Miller Ranch	Prime	6	61,661	96	2	2	55	–	100	330	670	2100
Miller Ranch-Proctor Valley	Prime	6	26,012	96	2	2	55	–	–	140	280	890
Proctor Valley-Otay Lakes	Prime	6	15,894	96	2	2	55	–	–	80	170	540
State Route 125												
n/o Otay Lakes Road	Freeway	10	*246,249	96	2	2	55	130	420	1350	2720	6500
s/o Lonestar	Freeway	10	*120,271	96	2	2	55	70	200	632	1270	4000
State Route 905 (formerly SR 117)												
I 805-Otay Mesa	Freeway	8	161,024	96	2	2	55	80	270	560	1770	5550
Otay Mesa-Caliente	Freeway	8	127,468	96	2	2	55	60	230	465	1460	4500
Caliente-Heritage	Freeway	8	140,788	96	2	2	55	70	260	520	1650	5450
Heritage-La Media	Freeway	8	134,369	96	2	2	55	–	240	480	1520	4710
La Media-SR 125	Freeway	8	117,087	96	2	2	55	70	200	400	1270	4000
SR 125-Harvest	Prime	6	47,429	96	2	2	55	–	70	165	510	1620
Telegraph Canyon Road												
I 805-Oleander	Prime	6	49,881	96	2	2	55	–	70	170	550	1700
Oleander-Medical Center	Prime	6	38,551	96	2	2	55	–	–	130	420	1330
Medical Center-Eagle Ridge	Prime	6	31,037	96	2	2	55	–	–	105	340	1070

*Maximum volume projected for SR 125 north and south of project site within study area.

Table 4.2.13-3

PHASE I-PROGRESS PLAN VILLAGE DESIGN ASSUMPTIONS
ONSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Alta Road												
EUC Prime-Hunte Pkwy	Prime	6	23,461	96	2	2	55	–	–	120	260	800
Hunte Pkwy-SA1107	Prime	6	42,409	96	2	2	55	–	70	230	460	1460
Circular Major												
Village Connector-EastLake Pkwy	Major	4	10,631	96	2	2	45	–	–	–	90	280
EastLake Pkwy-EUC Prime	Major	4	11,741	96	2	2	45	–	–	–	10	300
EUC Prime-EastLake Pkwy	Major	4	23,453	96	2	2	45	–	–	90	190	610
EUC Prime												
La Media-Circular Major	Prime	6	32,650	96	2	2	55	–	60	170	360	1110
Circular Major-SR 125	Prime	6	30,328	96	2	2	55	–	50	165	333	1040
SR 125-EastLake Pkwy	Prime	6	39,559	96	2	2	55	–	70	210	430	1360
EastLake Pkwy-E/W Prime 1	Prime	6	36,055	96	2	2	55	–	70	200	390	1230
E/W Prime 1-Alta	Prime	6	15,241	96	2	2	55	–	–	70	170	520
E/W Prime 1												
EUC Prime-Hunte Pkwy	Prime	6	20,595	96	2	2	55	–	–	110	230	700
EastLake Parkway												
Otay Lakes-Palomar	Major	4	39,274	96	2	2	45	–	50	150	330	1020
Palomar-Orange	Major	4	42,010	96	2	2	45	–	60	170	340	1090
Orange-Circular Major	Prime	6	59,978	96	2	2	55	–	100	205	650	2040
Circular Major-EUC Prime	Prime	6	50,637	96	2	2	55	–	80	175	550	1720
EUC Prime-Circular Major	Prime	6	49,338	96	2	2	55	–	80	175	550	1720
Circular Major-UEI E/W Major	Prime	6	50,876	96	2	2	55	–	80	175	550	1720
UEI E/W Major-Village 9 Local	Prime	6	23,858	96	2	2	55	–	–	80	560	810
Village 9 Local-Hunte Pkwy	Collector	4	7,939	96	2	2	45	–	–	–	70	210
Hunte Parkway												
Orange-Alta	Prime	6	43,023	96	2	2	55	–	70	230	460	1480
Alta-SR 125	Prime	6	40,371	96	2	2	55	–	70	210	430	1360
La Media												
Otay Lakes-Palomar	Prime	6	52,162	96	2	2	55	–	80	175	560	1800
Pa[illegible]-Orange	Prime	6	50,196	96	2	2	55	–	80	170	540	[illegible]

Table 4.2.13-3 (Continued)

PHASE I-PROGRESS PLAN VILLAGE DESIGN ASSUMPTIONS
ONSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Orange-EUC Prime	Prime	6	53,974	96	2	2	55	–	90	290	560	1840
EUC Prime-UEI E/W Major	Prime	6	37,578	96	2	2	55	–	60	200	410	1280
UEI E/W Major-Otay Valley	Prime	6	38,342	96	2	2	55	–	60	200	410	1280
Otay Valley Mesa-Lonestar	Prime	6	52,160	96	2	2	55	–	80	270	560	1800
Lonestar-Otay Mesa	Prime	6	42,799	96	2	2	55	–	–	230	460	1480
Lonestar Road												
La Media-SR 125	Major	4	21,639	96	2	2	45	–	–	80	180	560
SR 125-Harvest	Prime	6	20,893	96	2	2	55	–	–	110	230	710
Orange Avenue												
Medical Center-Paseo Ranchero	Prime	6	38,476	96	2	2	55	–	–	210	430	1340
Paseo Ranchero-La Media	Prime	6	55,083	96	2	2	55	–	90	270	600	1880
La Media-Village Connector	Prime	6	45,287	96	2	2	55	–	70	240	490	1540
Village Connector-SR 125	Prime	6	40,977	96	2	2	55	–	70	220	450	1400
SR 125-EastLake Pkwy	Prime	6	45,384	96	2	2	55	–	90	290	600	1880
EastLake Pkwy-Hunte Pkwy	Prime	6	32,849	96	2	2	55	–	60	170	360	1110
Hunte Pkwy-Wueste	Major	4	32,383	96	2	2	45	–	60	190	370	1180
Otay Lakes Road												
La Media-Rutgers	Prime	6	40,448	96	2	2	55	–	–	220	450	1400
Rutgers-SR 125	Prime	6	46,295	96	2	2	55	–	70	240	490	1540
Hunte Pkwy-Wueste	Prime	6	49,910	96	2	2	55	–	80	270	550	1720
Wueste-Lower Lakes Road West	Prime	6	47,917	96	2	2	55	–	70	250	520	1610
Lower Lakes Road West-Old Otay Lakes	Prime	6	24,485	96	2	2	55	–	–	130	270	830
Otay Valley Road												
Medical Center-Paseo Ranchero	Prime	6	55,220	96	2	2	55	–	90	290	600	1880
Paseo Ranchero-La Media	Prime	6	41,424	96	2	2	55	–	–	300	450	1400
La Media-SR 125	Prime	6	37,630	96	2	2	55	–	–	200	410	1280
Palomar Street												
Eagle Ridge-Paseo Ranchero	Major	4	12,200	96	2	2	45	–	–	–	100	330
Paseo Ranchero-Village 1	Collector	4	13,385	96	2	2	45	–	–	–	110	350
Village 1-La Media	Collector	4	13,375	96	2	2	45	–	–	–	110	350
La Media-Village 5	Collector	4	14,157	96	2	2	45	–	–	–	120	370
Village 5-EastLake Pkwy	Collector	4	9,627	96	2	2	45	–	–	–	80	260

Table 4.2.13-3 (Continued)

PHASE I-PROGRESS PLAN VILLAGE DESIGN ASSUMPTIONS ONSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Paseo Ranchero												
Telegraph Canyon-Palomar	Prime	6	40,897	96	2	2	55	–	70	220	450	1400
Palomar-Orange	Prime	6	42,975	96	2	2	55	–	70	230	460	1460
Orange-Village 2	Prime	6	41,263	96	2	2	55	–	70	220	450	1400
Village 2-Otay Valley	Prime	6	50,913	96	2	2	55	–	80	270	540	1720
Otay Valley-Del Sol	Prime	6	53,186	96	2	2	55	–	90	290	560	1840
Proctor Valley Road												
Old Proctor Valley-Miller Ranch	Major	4	28,936	96	2	2	45	–	–	120	240	760
State Route 125												
SR 125	Freeway	10	*179,589	96	2	2	55	100	310	990	1980	5710
Telegraph Canyon Road												
Eagle Ridge-Paseo Ranchero	Prime	6	31,664	96	2	2	55	–	50	165	340	1080
Paseo Ranchero-La Media	Prime	6	29,395	96	2	2	55	–	50	150	320	1000
UEI E/W Major												
La Media-SR 125	Prime	6	27,016	96	2	2	55	–	–	142	290	920
SR 125-EastLake Pkwy	Prime	6	38,424	96	2	2	55	–	70	210	430	1340
EastLake Pkwy-Alta	Prime	6	31,699	96	2	2	55	–	60	170	350	1080

*Maximum volume projected for SR 125 along project area.

Table 4.2.13-4

PHASE I-PROGRESS PLAN VILLAGE DESIGN ASSUMPTIONS OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Airway Road												
Otay Mesa-Heritage	Major	4	18,231	96	2	2	45	–	–	–	150	740
Heritage-La Media	Major	4	21,432	96	2	2	45	–	–	60	180	560
La Media-Harvest	Major	4	11,794	96	2	2	45	–	–	–	100	310
Alta Road												
SA 1107-Otay Mesa	Prime	6	31,730	96	2	2	55	–	50	165	340	1,080
Otay Mesa-Airway	Major	6	19,714	96	2	2	45	–	–	70	160	510
Airway-Siempre Viva	Major	6	11,701	96	2	2	45	–	–	–	100	310
Bonita Road												
I 805-Willow	Major	4	46,577	96	2	2	45	–	60	190	380	1200
Willow-Otay Lakes	Major	4	52,238	96	2	2	45	–	70	210	420	1350
Otay Lakes-Corral Canyon	Major	4	34,102	96	2	2	45	–	–	–	90	290
Caliente												
Otay Mesa-Airway	Major	6	29,998	96	2	2	45	–	–	120	250	780
Airway-Siempre Viva	Major	6	20,182	96	2	2	45	–	–	70	170	520
Corral Canyon Road												
Bonita-East H	Local Collector	2	13,602	98	1	1	35	–	–	–	60	190
Crest Drive												
East J-Telegraph Canyon	Local Collector	2	10,045	98	1	1	35	–	–	–	–	140
Del Sol Boulevard												
I 805-Palm	Major	4	24,351	96	2	2	45	–	–	120	260	810
East H Street												
I 805-Ridgeback	Prime	6	57,904	96	2	2	55	–	–	300	630	1980
Ridgeback-Paseo Ranchero	Prime	6	41,349	96	2	2	55	–	–	220	550	1400
Paseo Ranchero-Otay Lakes	Prime	6	42,139	96	2	2	55	–	–	230	460	1460
Otay Lakes-Rutgers	Prime	6	34,083	96	2	2	55	–	–	180	370	1170
Rutgers-SR 125	Prime	6	39,437	96	2	2	55	–	–	210	330	1360

Table 4.2.13-4 (Continued)

PHASE I-PROGRESS PLAN VILLAGE DESIGN ASSUMPTIONS OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
East J Street												
I 805-Paseo Ranchero	Local Collector	2	4,530	98	1	1	35	–	–	–	–	70
Harvest Road												
Lonestar-Otay Mesa	Major	4	7,134	96	2	2	45	–	–	–	60	190
Otay Mesa-SR 905	Major	4	25,044	96	2	2	45	–	–	100	215	650
SR 905-Airway	Major	4	26,599	96	2	2	45	–	–	110	225	690
Airway-Siempre Viva	Major	4	14,917	96	2	2	45	–	–	–	120	390
Heritage Road												
Palm-Otay Mesa	Major	6	34,782	96	2	2	45	–	–	140	285	900
Otay Mesa-SR 905	Prime	6	23,613	96	2	2	55	–	–	130	260	800
SR 905-Airway	Prime	6	33,775	96	2	2	55	–	60	180	365	1150
Airway-Siempre Viva	Major	6	25,588	96	2	2	45	–	–	100	210	660
Hunte Parkway												
Proctor Valley-Otay Lakes	Major	4	25,739	96	2	2	45	–	–	100	210	670
Otay Lakes-Orange	Major	4	38,042	96	2	2	45	–	50	173	345	1080
Interstate 805												
SR 54-East H	Freeway	10	258,239	96	2	2	55	142	450	920	2900	6700
East H-Telegraph Canyon	Freeway	10	226,184	96	2	2	55	130	400	810	2550	6400
Telegraph Canyon-Orange	Freeway	10	200,786	96	2	2	55	120	370	705	2235	5920
Orange-Otay Valley Road	Freeway	10	181,084	96	2	2	55	100	310	625	1980	5710
Otay Valley Road-Palm	Freeway	10	168,319	96	2	2	55	80	270	560	1770	5550
Palm-SR 905	Freeway	10	136,187	96	2	2	55	70	260	520	1640	5450
La Media												
Otay Mesa-SR 905	Major	4	33,947	98	2	2	45	–	60	180	365	1150
SR 905-Airway	Major	4	45,447	96	2	2	45	–	70	230	475	1500
Airway-Siempre Viva	Major	4	26,296	96	2	2	45	–	–	110	215	680
Lonestar Road												
Harvest-Sanyo	Prime	6	15,698	96	2	2	55	–	–	80	170	540
Medical Center												
Tel[illegible] Canyon-Naples	Collector	4	8,821	[illegible]	2	2	45	–	–	–	70	[illegible]

Table 4.2.13-4 (Continued)

PHASE I-PROGRESS PLAN VILLAGE DESIGN ASSUMPTIONS OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Naples-Palomar	Collector	4	9,343	96	2	2	45	–	–	–	80	240
Palomar-Orange	Collector	4	10,304	96	2	2	45	–	–	–	90	270
Orange-Otay Valley Rd	Collector	4	11,369	96	2	2	45	–	–	–	100	300
Naples												
I 805-Oleander	Local Collector	2	6,668	98	1	1	35	–	–	–	–	100
Oleander-Medical Center	Local Collector	2	3,804	98	1	1	35	–	–	–	–	60
Oleander												
Telegraph Canyon-Naples	Local Collector	2	11,134	98	1	1	35	–	–	-	70	160
Naples-Palomar	Local Collector	2	5,446	98	1	1	35	–	–	-	–	80
Palomar-Orange	Local Collector	2	5,423	98	1	1	35	–	–	-	–	80
Orange-Otay Valley	Local Collector	2	5,375	98	1	1	35	–	–	-	–	80
Orange Avenue												
I 805-Oleander	Prime	6	46,305	96	2	2	55	–	70	240	500	1580
Oleander-Medical Center	Prime	6	39,847	96	2	2	55	–	–	210	430	1360
Otay Lakes Road												
Bonita-East H	Prime	6	52,642	96	2	2	55	–	80	270	560	1800
East H-La Media	Prime	6	61,838	96	2	2	55	–	100	330	660	2110
SR 125-EastLake Pkwy	Prime	6	64,700	96	2	2	55	–	110	310	690	2210
EastLake Pkwy-Hunte Pkwy	Prime	6	50,693	96	2	2	55	–	80	270	555	1720
Old Otay Lakes Rd-SR 94	Major	4	11,925	96	2	2	45	–	–	–	100	310
Otay Mesa Road												
SR 905-Caliente	Prime	6	21,823	96	2	2	55	–	80	250	520	1610
Caliente-Heritage	Prime	6	37,636	96	2	2	55	–	60	200	410	1280
Heritage-La Media	Prime	6	34,308	96	2	2	55	–	60	180	370	1160
La Media-SR 125	Major	6	27,063	96	2	2	45	–	–	110	220	700
SR 125-Harvest	Major	6	28,643	96	2	2	45	–	–	120	240	960
Harvest-Sanyo	Major	4	39,003	96	2	2	45	–	50	160	330	1020
Sanyo-Enrico Fermi	Major	4	36,794	96	2	2	45	–	–	150	300	950
Otay Valley Road												
I 805-Oleander	Prime	6	52,913	96	2	2	55	–	80	270	560	1800
Oleander-Medical Center	Prime	6	52,862	96	2	2	55	–	80	270	560	1800

Table 4.2.13-4 (Continued)

PHASE I-PROGRESS PLAN VILLAGE DESIGN ASSUMPTIONS OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Palm Avenue												
I 805-Caliente	Prime	6	39,237	96	2	2	55	–	70	210	430	1360
Caliente-Paseo Ranchero	Prime	6	15,361	96	2	2	55	–	–	70	170	520
Palomar Street												
Oleander-Medical Center	Major	4	14,344	96	2	2	45	–	–	–	120	370
Medical Center-Eagle Ridge	Major	4	13,627	96	2	2	45	–	–	–	110	350
Paseo del Rey												
East H-Telegraph Canyon	Local Collector	2	15,248	98	1	1	35	–	–	–	70	220
Paseo Ranchero												
East H-East J	Collector	4	18,682	96	2	2	45	–	–	–	160	480
East J-Telegraph Canyon	Collector	4	22,048	96	2	2	45	–	–	80	180	570
Del Sol-Palm	Prime	6	43,820	96	2	2	55	–	70	230	480	1500
Proctor Valley Road												
SR 125-San Miguel	Prime	6	48,329	96	2	2	55	–	80	260	510	1610
San Miguel-Hunte Pkwy	Prime	6	41,497	96	2	2	55	–	70	220	450	1400
Hunte Pkwy-Salt Creek Ranch	Prime	6	43,084	96	2	2	55	–	70	230	460	1460
Salt Creek Ranch-Old Proctor Valley Road	Major	4	28,936	96	2	2	45	–	–	120	240	760
Rutgers Avenue												
East H-Otay Lakes	Local Collector	2	7,368	98	1	1	35	–	–	–	–	110
Siempre Viva												
East Beyer-Caliente	Major	4	19,758	96	2	2	45	–	–	70	160	510
Caliente-Heritage	Prime	6	38,304	96	2	2	55	–	70	210	430	1340
Heritage-La Media	Prime	6	34,049	96	2	2	55	–	60	180	370	1160
La Media-SR 125	Prime	6	29,795	96	2	2	55	–	50	160	330	1030
SR 125-Paseo de las Americas	Major	4	44,092	96	2	2	45	–	60	180	370	1150
Paseo de las Americas-Enrico Fermi	Major	4	35,415	96	2	2	45	–	–	140	290	910
State Route 54												
I 805-[illegible]an	Freeway	6	141,946		2	2	55	70	260	820	1640	545(

Table 4.2.13-4 (Continued)

PHASE I-PROGRESS PLAN VILLAGE DESIGN ASSUMPTIONS OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Woodman-SR 125	Freeway	6	122,264	96	2	2	55	60	230	730	1460	4500
SR 125-SR 94	Prime	6	77,738	96	2	2	55	–	130	400	840	2610
State Route 94												
SR 54-Jamacha Blvd	Freeway	4	52,054	96	2	2	55	–	90	290	590	1870
Jamacha-Miller Ranch	Prime	6	61,912	96	2	2	55	–	100	330	670	2100
Miller Ranch-Proctor Valley	Prime	6	30,796	96	2	2	55	–	50	165	330	1050
Proctor Valley-Otay Lakes	Prime	6	15,860	96	2	2	55	–	–	80	170	530
State Route 125												
n/o Otay Lakes Road	Freeway	10	*245,463	96	2	2	55	70	260	820	1,650	5450
s/o Lonestar	Freeway	10	*119,739	96	2	2	55	60	200	630	1270	400
State Route 905 (formerly SR 117)												
I 805-Otay Mesa	Freeway	8	160,606	96	2	2	55	80	270	880	1770	5550
Otay Mesa-Caliente	Freeway	8	127,069	96	2	2	55	60	230	730	1460	4500
Caliente-Heritage	Freeway	8	140,776	96	2	2	55	70	260	820	1640	5450
Heritage-La Media	Freeway	8	126,023	96	2	2	55	60	230	730	1460	4500
La Media-SR 125	Freeway	8	116,990	96	2	2	55	60	200	400	1270	4000
SR 125-Harvest	Prime	6	47,520	96	2	2	55	–	–	165	510	1610
Telegraph Canyon Road												
I 805-Oleander	Prime	6	50,149	96	2	2	55	–	80	260	540	1710
Oleander-Medical Center	Prime	6	38,660	96	2	2	55	–	–	150	330	1020
Medical Center-Eagle Ridge	Prime	6	30,884	96	2	2	55	–	50	165	330	1050

*Maximum volume projected for SR 125 north and south of project site within study area.

noise environment, noise impacts, and the required mitigation measures. If development within the effected area is phased in subsequent to the landfill closure, the impacts would be avoided.

Riparian vegetation is a potential habitat for the federally endangered least Bell's vireo. Elevated noise levels can potentially mask song of the least Bell's vireo which are used to attract mates and defend territories. The San Diego Association of Governments (SANDAG) in a 1989 study (SANDAG 1989,) theoretically estimated that noise levels above 60 dBA L_{eq} in vireo breeding areas may impact the reproductive success of this species during their breeding season which occurs from March 15 to September 15. At this level of analysis noise from roadways and construction is considered to be a significant and unmitigated impact (see Section 3.3, Biological Resources).

Gun Ranges

Two gun ranges are currently located on the project site. A small private shooting range is located north of the Otay River. Target Tossers Gun Club, a public shooting range, is located at the western property boundary south of the Otay River. It is assumed that both gun ranges would be relocated prior to development and would not result in an adverse impact.

Rock Quarries

The Phase I-Progress Plan proposes residential land uses immediately to the west, east, and north of the Nelson and Sloan mining operation and to the south of the Daley quarry. Compliance with applicable property line noise ordinances is the responsibility of the quarry operator. The county noise ordinance permits extractive industries to generate one-hour average sound levels as high as 75 dBA at the property line, regardless of the adjacent land use. As discussed for the New Town Plan, calculations show that a 9300-foot buffer from the quarry property line would be required to achieve the residential noise standard of 45 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume that the receiver is in direct line-of-sight with the noise source. No consideration was given to the noise attenuating effects of intervening topography. The 45 dBA residential standard assumes that quarry operations begin prior to 7:00 a.m. Even if the Nelson and Sloan Mining Operation and the Daley Quarry can comply with the applicable noise ordinances, noise at residential receptors within 9300 feet of the quarry may still be sufficiently audible to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Nelson and Sloan Mining Operation and Daley Quarry is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during the SPA Plan review. The study shall provide a description of the proposed project, the existing noise environment, the future noise environment, noise impacts, and the required mitigation measures. The study shall consider the effects of intervening topography which may tend to attenuate sound.

Recycling Center

A small wood recycling center is in operation at the west end of the Otay River parcel on Otay Valley Road. The recycling center would be relocated prior to project development and would not result in significant impacts.

Landfills

The Phase I-Progress Plan proposes residential development immediately to the north of the Otay Landfill and several hundred feet to the east. Based on a measured sound level of 72 dBA at 100 feet from the active work surface (ERCE 1991), similar operations would result in a sound level of 75 dBA at 70 feet. Based on a 70-foot reference distance, calculations show that a 1250-foot buffer from the landfill property line would be required to achieve the daytime residential noise standard of 50 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume that the receiver is in direct line-of-sight with the noise source. No consideration was given to the noise attenuating effects of intervening topography. The 50 dBA residential standard assumes that landfill operations are limited to the hours of 7:00 a.m. to 7:00 p.m. Compliance with the County of San Diego Noise ordinance is the responsibility of the landfill operator. Even if the landfill can comply with the applicable noise ordinances, noise at residential receptors within 1250 feet of the landfill may still be sufficiently audible to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Otay Landfill is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during SPA Plan review. The study shall provide a description of the proposed project, the existing noise environment, the future acoustical environment, noise impacts, and the required mitigation measures. The study will consider the effects of intervening topography which may tend to attenuate sound.

Industrial Activities

There are numerous industrial land uses adjacent to the Otay River parcel along Otay Valley Road. Auto wrecking yards are located in this area along with other types of industrial activity. Noise associated with each industry is specific to the type of activity. The permitted sound level at an industrial property line would be the arithmetic mean of the permitted sound level of the business and the adjacent properties zones. The result would permit higher sound levels at adjacent residences than would be permitted in a strictly residential neighborhood. Assuming that each business can comply with applicable noise ordinances, noise may still be sufficiently audible at the residential receptors to result in a significant impact. A site-specific analysis will be required during SPA Plan review. The study will provide a description of the proposed project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation measures.

Airfields

Brown Field

Brown Field is located immediately south of the Otay River parcel. The existing noise contours depicted in the Brown Field Municipal Airport Master Plan, adopted in 1978, and the more current noise contours in the updated Draft Brown Field Master Plan (unadopted), show that the project site lies outside of the 60 CNEL noise contour. Noise from Brown Field aircraft operations is not expected to cause a significant impact.

San Diego Air Sports Center

The Phase I-Progress Plan proposes to develop residential land uses immediately to the north, south, and east of the San Diego Air Sports Center. FAA guidelines prohibit skydiving and ultralight flying over congested areas. Therefore, the plan may result in a

potentially incompatible land use. Since noise contours are not currently available, this analysis assumes that residential land use within one mile of the Sports Center may be significantly impacted by aircraft noise. A site-specific analysis will be required during SPA Plan review. At this level of analysis, noise from the Air Sports Center is considered to be a significant and potentially unmitigable impact.

Regional Airport

The City of San Diego is currently studying the concept of constructing a regional/binational airport in Otay Valley south of the project site. The proposal is in the very preliminary planning stages, and potential noise impacts from the proposed airport are currently unknown.

Light Rail Transit

The San Diego Metropolitan Transit Development Board (MTDB) is currently studying the concept of constructing a light rail transit (trolley) expansion into the study area. The proposal is in the preliminary planning stages, and potential noise impacts are unknown.

4.2.13.2 Proposed Mitigation

Site-specific Noise Studies

Potentially significant noise impacts have been identified from onsite and offsite roadways, the Nelson and Sloan Mining Operation, the Daley Quarry, the Otay Landfill, the San Diego Air Sports Center, and various industrial activities in close proximity to the project site. Site-specific acoustical analyses will be required during SPA Plan review. The study will provide a description of the proposed project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation measures. A "D" designator for noise shall be created to identify areas where a site-specific study is required. The impact area shall include the following:

- All areas within 9300 feet of the Nelson and Sloan Mining Operation and the Daley Quarry;
- All areas within the 60 CNEL noise contour of onsite and offsite roadways, which shall include all roadways on the Otay River parcel and all roadways assigned a future ADT of 3,000 trips or greater on the Valley and San Ysidro parcels;
- All areas with 1250 feet of the landfill;
- All areas within one mile of the San Diego Air Sports Center; and
- All areas adjacent to least Bell's vireo habitat.

Residential development within the impact area may be allowed if the site-specific noise study shows that mitigation to below a level of significance is feasible.

Potentially significant noise impacts have been identified from offsite roadways. Site-specific acoustical analyses will be required for all areas adjacent to roadways proposed for widening, realignment, and/or an upgrade in roadway classification through a General Plan Amendment.

Noise Mitigation Measures

Vehicular Traffic

Noise mitigation is required for all residential land uses located in areas where the CNEL from vehicular traffic exceeds 60 dBA. The estimated 60 CNEL contour is located approximately 120 feet from the roadway centerline for collector streets, 400 to 2400 feet from the roadway centerline for major and prime arterials, and over 4000 feet from the centerline of the freeways. The modeled contours are considered a worst-case condition because the roadways were modeled at grade with the surrounding area, and the effects of intervening topography were not considered.

Onsite. In general, roadway noise impacts can be mitigated by setbacks, by the construction of barriers, or a combination of both. However, depending on the roadway design and surrounding topography, barriers such as noise walls and earthen berms in excess of 10 feet high may be necessary and are often not considered to be feasible or aesthetically desirable. The setback distance necessary to lower the wall height can be considerable, possibly several hundred to more than a thousand feet. Therefore, noise impacts from vehicular traffic are considered to be potentially unmitigable at residences proposed closest to the roadways. The required setbacks may result in lower residential densities.

Offsite. Mitigation of noise impacts resulting from project-related vehicular traffic on offsite roadways may require construction of barriers on public or private property to mitigate exterior noise impacts, and possibly retrofitting residences with noise insulation for interior noise impacts. In areas were the residences have been built along the roadway, mitigation to below a level of significance may not be possible.

Noise from vehicular traffic and construction is considered to be a significant impact to the least Bells' vireo. In areas where major roadways are located or construction will be undertaken in close proximity to least Bell's vireo habitat, mitigation to below a level of significance may not be possible.

Rock Quarries

Noise associated with the Nelson and Sloan Mining Operation and the Daley Quarry is considered to be a significant impact. Based on the County of San Diego Noise Ordinance, sound levels from the quarries are permitted to be as high as 75 dBA Leq at the source property line. Compliance with the noise ordinance is the responsibility of the quarry operator. Sound levels were calculated to be 45 dBA Leq at approximately 9300 feet from the source property line. Mitigation of noise impacts may not be feasible at residences within 9300 feet and in direct line-of-sight of the quarry. However, mitigation may be possible as a result of intervening topography such as fills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate the impacts to below a level of significance. Residential development within 9300 feet of the quarries should be staged such that construction not take place unless the quarries have been mined-out and mining operations have ceased or noise impacts can be mitigated as demonstrated in the site-specific noise study.

Otay Landfill

Noise associated with the Otay Landfill is considered to be a significant impact. Sound levels were calculated to meet the 50 dBA Leq daytime noise standard at approximately 1250 feet from the landfill property line. Mitigation of noise impacts may not be feasible at residences within 1250 feet and in direct line-of-sight of the landfill. However, mitigation may be possible as a result of intervening topography such as hills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate the impacts to below a level of significance. Residential development within 1250 feet of the landfill should be staged such that construction not take place unless the landfill has undergone closure or noise impacts can be mitigated as demonstrated in the site-specific noise study.

San Diego Air Sports Center

Noise associated with the San Diego Air Sports Center is considered to be a significant impact. As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate impacts to below a level of significance. Residential development within one mile of the Air Sports Center should be staged such that construction not take place unless the Air Sports Center has closed or noise impacts can be mitigated as demonstrated in the site-specific noise study.

4.2.13.3 Analysis of Significance

Significant noise impacts have been identified from roadways, the Nelson and Sloan Mining Operation, the Daley Quarry, the Otay Landfill, the San Diego Air Sports Center, and the various industrial activities in close proximity to the project site. Reduction of noise impacts from all of these noise sources to below a level of significance may not be feasible. At this level of analysis, noise from these sources are considered to be a significant and unmitigated impact.

4.2.14 Public Services and Utilities

4.2.14.1 Impact Analysis

The public services and utilities analysis for the Phase I-Progress Plan Alternative is based on a population figure of 2.96 persons per dwelling unit (du). This figure is based on the assumption that 56 percent of the dwelling units would be detached single-family units, housing 3.2 persons per unit, and 44 percent of the dwelling units would be attached multifamily units, housing 2.55 persons per unit. Therefore, the Phase I-Progress Plan Alternative would result in the development of 29,773 homes and a population of 86,456 (Baldwin Vista 1991). The following analysis of public services and utilities is based on the same generation/demand rates utilized in Section 3.13 for the New Town Plan.

Water Availability and Demand

Demand Generated

Based on the water demand rate utilized in Section 3.13.1 for the New Town Plan, total water demand for this alternative is estimated at 22.6 million gallons per day (mgd) for average day use. Water conservation measures would reduce the potable demand 121 gpd per dwelling unit, for a savings of 3.6 mgd or 16 percent. Water service and attendant facilities are proposed for all pressure zones. Storage capacity and filtration plant capacity would be purchased from the City of San Diego. Facility phasing would require construction on the Otay River parcel first, followed by incremental system expansion.

Reclaimed Water. The estimated reclaimed water demand for this alternative is 2.90 mgd. The demand was estimated for the Otay River parcel only, because the two eastern parcels drain into the Lower Otay Reservoir which is a potable water supply. This alternative would require a system of distribution reservoirs and transmission mains similar to the proposed project; however, this alternative would require less capacity in the wastewater reclamation facility.

Significant impacts would occur under the Phase I-Progress Plan Alternative similar to the proposed project. These impacts include the unanswered question of which water jurisdiction will ultimately serve the project, the provision of facilities sufficient to serve the project, and the issues of water reclamation and future water availability. Due to the lack of detailed development and facility plans at this time, the Phase I-Progress Plan Alternative would require further environmental review at the SPA Plan level similar to the proposed project.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- Annexation of land to the appropriate water jurisdiction.
- The preparation of a Water Master Plan by the project applicant in accordance with the standards of the appropriate water jurisdiction. Required contents of the master plan are contained in Section 3.13.1.3.

- If required by the appropriate water district, written verification from the water district that water will be adequately provided.

Wastewater and Sewer Service

Demand Generated

Based on the sewage generation rate utilized in Section 3.13.2 for the New Town Plan, the total sewage generation for this alternative is estimated at 10.69 mgd for average flows. This alternative would provide gravity flow through Poggi and Telegraph Canyon drainage basins. The estimated flow from Poggi and Telegraph Canyon drainage basins is 2.35 mgd. Under this alternative, approximately 8.4 million gpd of wastewater flow would be conveyed to the Otay River Valley. Less capacity in the wastewater reclamation facility would be required for this alternative than would be required to serve the New Town Plan. The interceptor sewers and treatment for this alternative plant would also require reduced capacity. Phasing of sewerage facilities would require construction to begin on the Otay River parcel. Initial phases of development would begin in the Telegraph and Poggi Canyon basins to utilize existing City of Chula Vista interceptors.

Significant wastewater and sewer service impacts would occur under the Phase I-Progress Plan Alternative similar to the proposed project. These impacts include the unanswered questions of which sewer jurisdiction would serve the project, where the project's wastewater would be treated, and how facilities would be funded. Further environmental review at the SPA Plan level would be required under this alternative, similar to the proposed project, to ensure that adequate facilities are provided.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- Annexation of land to the appropriate sewer jurisdiction.
- The preparation of a Sewer Master Plan by the project applicant in accordance with the engineering and facility siting standards of the appropriate jurisdiction. Details on the required master plan contents are contained in Section 3.13.2.3.
- If required by the appropriate sewer district, written verification shall be obtained from the appropriate sewer district that service will be adequately provided.

Integrated Waste Management

Demand Generated

The approximate total waste generation for the Phase I-Progress Plan Alternative is estimated at 113,694 tons per year (tpy). Through the use of integrated waste management techniques, it is anticipated that the amount of waste which would ultimately require landfill disposal would be approximately 155 tpd, or 56,575 tpy. This additional solid waste, generated by the 29,773 units and the additional population of 86,456 would result in potentially significant impacts to solid waste management in South County. This

alternative would require an integrated waste management system similar to the proposed project, although the Materials Recovery Facility (MRF) and composting facility may be scaled back to serve the projected demand. Further environmental analysis of this issue would be required at the SPA Plan level.

Policy Consequences

No policy inconsistences would occur under this alternative.

Proposed Mitigation

Mitigation measures required under the Phase I-Progress Plan Alternative include the preparation of an Integrated Waste Management Program by the project applicant prior to SPA plan approval, ~~and~~ the project's participation in this program during all phases of SPA development, and compliance with County and City programs and regulations concerning long-term solid waste capacity. The required program contents are detailed in Section 3.13.3.3.

Police Protection

Demand Generated

To determine the demand for law enforcement facilities under the Phase I-Progress Plan Alternative, a proportional calculation based on population was used. This calculation results in a demand for 120 law enforcement personnel and 24,389 square feet of office space. The specific facility locations and siting criteria would be determined at the SPA Plan level. Due to the fact that detailed development and facility plans are not available at this time, the project-specific impacts of the Phase I-Progress Plan Alternative cannot be determined. Further environmental review would be required at the SPA Plan level, similar to the proposed project, to ensure adequate facilities and staff are available to serve the project. At this stage of review, it has been determined that the unresolved issues with respect to the provision and funding of services and facilities constitute significant impacts.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to the approval of any SPA Plan under the alternative include:

- The preparation of a comprehensive Law Enforcement Master Plan by the project applicant in accordance with the law enforcement standards regarding staffing and response time of the appropriate service provider. Master plan contents are detailed in Section 3.13.4.3.

Fire Protection and Emergency Medical Service

Demand Generated

Fire and emergency service demand is determined by response time which is affected by roadway conditions, facility site location, and intensity of development. The Phase I-Progress Plan would require provision of four fire facilities, the same number of facilities

required to serve the New Town Plan. Two stations would be provided on the Otay River parcel, and two stations would be located within the eastern parcels, one located in western San Ysidro and another in central Proctor Valley. Emergency service would be provided through two facilities. The emergency service facilities are proposed to be co-located with the fire facilities, one on the Otay River parcel and one on either the Proctor Valley or San Ysidro parcel.

The Phase I-Progress Plan Alternative would result in significant impacts to the provision of fire protection and emergency medical service. This determination has been made due to the current lack of detailed development and facility plans which would be made available during the SPA Plan review process. Further environmental review of fire protection service would be required at the SPA Plan level to ensure adequate facilities and staff are provided to serve the project.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to any SPA Plan approval under this alternative include the preparation of a comprehensive Fire Master Plan in accordance with the appropriate service provider requirements. The master plan shall demonstrate that the City of Chula Vista and County of San Diego fire service standards will be achieved and provisions for emergency medical service are included in the plan. Details on the master plan contents re contained in Sections 3.13.5.3 and 3.13.6.3.

Schools

Demand Generated

The estimated 86,456 total population under the Phase I-Progress Plan would generate a demand for facilities necessary to serve 18,576 students. Approximately 19 schools on approximately 321 acres would be required under this alternative.

Although 19 schools are proposed under the Phase I-Progress Plan Alternative, the lack of detailed development and facility plans at this stage of analysis make it difficult to determine the project-specific impacts on schools. Further environmental review is required prior to SPA Plan approval to ensure the adequate provision of school facilities. Until that time, this alternative is considered to have potentially significant impacts on schools.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include the preparation of a Schools Master Plan by the project applicant in close coordination with the affected school districts. Details on the master plan contents are contained in Section 3.13.7.3. The project applicant shall also provide documentation to the appropriate jurisdiction confirming school district satisfaction of facility funding.

Library Service

Demand Generated

The estimated 86,456 total population under the Phase I-Progress Plan would generate a demand for 43,228 square feet of library space. The following geographic demand for library space is based on the population distribution:

• Otay River Parcel	30,212 square feet
• Proctor Valley Parcel	9,474 square feet
• San Ysidro Parcel	3,542 square feet
Total	42,228 square feet

An additional 259,368 books would be required for the residents of Otay Ranch under this alternative.

Although a total of 43,228 square feet of library space is proposed under the Phase I-Progress Plan Alternative, the lack of detailed development and facility plans at this stage of analysis make it difficult to determine the full extent of the project's impact on libraries. Further environmental review would be required prior to SPA Plan approval to ensure the adequate provision of library facilities. Until that time, this alternative is considered to have potentially significant impacts on libraries with respect to the siting and funding of proposed facilities.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- The preparation of a Library Master Plan by the project applicant in accordance with the criteria of the applicable jurisdiction.

Parks, Recreation, and Open Space

Demand Generated

Based on the required 3 acres per 1,000 population, the demand for neighborhood and community parks for the Phase I-Progress Plan is:

• Otay River Parcel	181 acres
• Proctor Valley Parcel	57 acres
• San Ysidro Parcel	21 acres
Total Otay Ranch	259 acres

Based on the ~~required~~ goal of 15 acres per 1,000 population, the regional park demand is for 1,305 acres.

Several community and neighborhood parks, totaling 208 acres, would supplement the natural open space and trail system with active recreation areas. Plans for the proposed Otay Valley Regional Park would continue to evolve. The proposed park is currently the subject of a Joint Exercise of Power Agreement (JEPA) intended to acquire property and

develop a regional park in southern San Diego County. The park is the subject of a planning and environmental review process independent of Otay Ranch. Man-made open space, composed of parkway and greenbelts, would be integrated into the trail system. The Phase I-Progress Plan Alternative proposes the preservation of 10,984 acres of undeveloped open space encompassing the Otay River Valley, San Ysidro Mountains, and Jamul Mountains. Parkland and open space would be provided in compliance with the Otay Ranch Resource Management Plan (RMP).

The proposed 208 acres of community and neighborhood parkland is 51 acres short of the 259 acre requirement.

The lack of detailed development and facility plans at this stage of analysis make the full extent of this alternative's impact on parks, recreation, and open space difficult to determine. Further environmental review would be required prior to SPA Plan approval to ensure the provision of adequate parks, recreation, and open space. Until that time, this alternative is considered to have potentially significant impacts on parks, recreation and open space with respect to siting, funding and phasing.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval include the preparation of a Parks, Recreation and Open Space Master Plan by the project applicant in accordance with applicable standards for parkland acreage and facility needs of the appropriate jurisdiction(s). ~~City of Chula Vista and County of San Diego~~. Details on the required contents of the master plan are contained in Section 3.13.9.3. Dedication of land in accordance with requirements or payment of fees in lieu of dedication would mitigate any impacts to below a level of significance.

Electricity and Gas

Demand Generated

Additional substations and associated distribution lines would be required to serve development under the Phase I-Progress Plan Alternative; placement of these facilities and associated impacts would be determined at the SPA Plan level.

SDG&E does not anticipate any significant impacts associated with the provision of electric and gas facilities for Otay Ranch, provided the following mitigation measures are implemented.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

- The project applicant shall work with SDG&E during all stages of electrical and gas facilities planning to minimize disturbance to sensitive resources (EIR proposed).

- Land uses adjacent to the SDG&E transmission lines shall be subject to review and comment by SDG&E (EIR proposed).

Health and Medical Facilities

Demand Generated

Based on the same methodology utilized in Section 3.13.11, it was estimated that the following health and medical facilities would be required under the Phase I-Progress Plan:

- 1 public health satellite office
- 2.4 99-bed nursing homes
- 2 commercial home health care offices
- 5 public and private community meeting spaces
- 2 ambulatory pavilions
- 147 commercial physician, dentist, chiropractic, mental health, therapeutic, laboratory, and medical services and supply offices

Otay Ranch would be served by Kaiser Permanente (planned for EastLake), Chula Vista Community Hospital and Scripps Memorial Hospital of Chula Vista. No new hospitals, in-patient mental health facilities or community clinics would be required to serve the residents of Otay Ranch under this alternative.

Although there are currently no statutory requirements for the provision of health and medical services, it is expected that development of the proposed project would have significant impacts on the provision of these services as the population continues to increase and the demand for health and medical services in the region continues to grow. Further environmental review of this issue is required at the SPA Plan level to ensure that adequate facilities are available to serve Otay Ranch.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures under this alternative include the involvement of appropriate governmental agencies and service providers during all stages of planning. Specific needs and siting of appropriate facilities shall be be identified by the project applicant in conjunction with input from the health care service providers prior to SPA Plan approval.

Senior and Social Service Facilities

Demand Generated

Demand for senior and social service facilities is dependent upon the number, location and demographics of the proposed project's population. Although there are currently no statutory requirements for the provision of senior and social services, it is expected that the Phase I-Progress Plan Alternative would have significant impacts on the provision of these services as the proportion of the population over the age of sixty continues to increase and the demand for social services in the region continues to grow. Further environmental review of this issue is required at the SPA Plan level to ensure that adequate facilities are available to serve Otay Ranch.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures under this alternative include the involvement of appropriate governmental agencies and service providers during all stages of planning. Specific needs and siting of appropriate facilities shall be be identified by the project applicant in cooperation with service providers prior to SPA Plan approval.

Cemeteries

Demand Generated

The Phase I-Progress Plan would not generate enough demand to warrant the development of additional cemetery facilities, and existing facilities would be adequate; therefore, no impacts would occur and no mitigation would be necessary.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Child Care

Demand Generated

The estimated population of 86,456 residents would generate a demand for 3,451 formal child care slots. It is estimated that 52 percent of the needed child care would be provided by large group facilities with an average capacity of 90 children. Therefore, the Phase I-Progress Plan would generate a demand for twenty 90-slot child care facilities.

Although there are currently no mandated requirements for the provision of child care facilities, the development of the proposed project is expected to have significant impacts on the provision of these services as the population increases in the project area. Further environmental review of this issue is required at the SPA Plan level to ensure that adequate child care facilities are available to serve Otay Ranch.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures include the provision of child care facilities by the project applicant as deemed necessary during the policy development process.

Animal Control

Demand Generated

The additional population in the South County area generated by the development under the Phase I-Progress Plan Alternative would increase the demand for animal control facilities, resulting in a significant impact.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures require that the project applicant participate in programs to equitably share the funding of animal control facilities and designate animal control facilities sufficient to provide adequate square footage of shelter space per dwelling unit to the satisfaction of the appropriate jurisdiction.

4.2.14.2 Analysis of Significance

At this level of analysis, the Phase I-Progress Plan Alternative would have significant impacts on the provision of public services and utilities. Implementation of the mitigation measures outlined above at the SPA level would mitigate project-specific public service and utility impacts to below a level of significance.

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4.2.15 Risk of Upset

4.2.15.1 Impact Analysis

The potential risks of upset associated with the Phase I-Progress Plan would be similar to the risks associated with the New Town Plan. Soils contaminated with petroleum hydrocarbons and pesticides have been identified in the area of the ranch operations center on the Otay River Parcel (Woodward-Clyde 1989). The Phase I-Progress Plan proposes single family and multifamily residential development in the area of the ranch operations center; therefore, the potential exists for exposure to contaminated material in excess of State of California standards.

The area in the southern part of the Otay River parcel, previously used as the Brown Field Bombing Range, would be allocated to open space under the Phase I-Progress Plan. There is potential danger of an accident occurring due to disturbance of any unexploded ordnance in this area.

The areas adjacent to the Otay Landfill would be developed for single-family and multifamily residential use as well as a business park and community park. The potential exists for exposure to contaminated material in these areas as a result of previous use of the landfill for hazardous waste disposal. Potential air quality and noise impacts associated with the existing landfill operation are addressed in Sections 4.2.12 and 4.2.13, respectively.

4.2.15.2 Proposed Mitigation

The mitigation measures proposed for the New Town Plan (Section 3.14.3) would also be applicable to the Phase I-Progress Plan. These measures include:

1. Soil and ground-water testing shall occur in the ranch operations center area potentially affected by the previous disposal of hazardous waste or historic pesticide use. The purpose of the testing shall be to identify areas of contamination in excess of federal and state standards. Should areas of excess contamination be identified, remediation shall occur prior to residential development. (EIR proposed.)

2. The applicant shall notify prospective buyers and the California Department of Health Services (DHS) as required, regarding their intention to develop the area adjacent to the Otay Landfill. (EIR proposed.)

3. A survey shall be conducted of the Brown Field Bombing Range by the Army to identify the presence of any unexploded ammunition. Should unexploded ordnance be located on the property, appropriate measures shall be taken for removal of the material. (EIR proposed.)

4. The transport of hazardous waste on existing and future roadways shall be conducted in accordance with the California Code of Regulations (CCR) and the Code of Federal Resolution (CFR). These regulations identify Department of Transportation (DOT) approved methods for packaging and containerizing hazardous waste and site appropriate options and procedures relative to the handling and transportation of these wastes. (EIR proposed.)

4.2.15.3 Analysis of Significance

Implementation of the measures identified above would mitigate health risks to below a level of significance.

4.3 FOURTH ALTERNATIVE

4.3.1 Description

The Fourth Alternative developed for the Otay Ranch represents a more moderate overall level of development than the New Town Plan and Phase I-Progress Plan alternatives (Table 4.3-1). The "Fourth" Alternative was so named because it was the fourth alternative to be developed by the Otay Ranch Project Team for analysis in the EIR. Development under the Fourth Alternative would result in a maximum of 27,418 residential units on 7,120 acres of land, resulting in a population increase of approximately 80,408 persons. Approximately 50.7 percent of the housing would be single-family detached units, while the remaining 49.3 percent would be attached multifamily units. As illustrated in Figure 4.3-1, the majority of the residences (16,691 units), including those in medium-high and high density categories, would be situated on the Otay River parcel. Approximately two-thirds of the residential development would be multifamily housing. This alternative would not include a university. There would be four roads across the Otay River Valley.

Under the Fourth Alternative, the Proctor Valley and San Ysidro parcels would devote most of this residential acreage to the low density category, resulting in an average net density of 2.63 du/ac and 1.43 du/ac, respectively. On the Proctor Valley parcel, clusters of higher density residential development would occur in a village center, near the center of Proctor Valley and the northwestern property boundary, and in a village center above the northern shore of Lower Otay Lake. Larger residential lots (0.25 to 0.5 dwelling units per acre) would be situated in the vicinity of Jamul. Only a small amount of acreage, 55 acres on the San Ysidro parcel, would be planned for medium density residential. Otherwise, large lots (0.25 to 0.5 dwelling units per acre) would predominate in the eastern portions of the property.

In addition to the residential component of the project, approximately 1,539 acres of the property would contain commercial, industrial, and public/quasi-public uses such as schools and parks. As in the other project alternatives, four special plan areas are defined under the Fourth Alternative: the Eastern Urban Center, Proctor Valley resort along northern Lower Otay Lake, Proctor Valley conference centers at the Ranch House and in the foothills of the Jamul Mountains, and various village centers. Commercial uses would be distributed throughout the Otay River parcel and concentrated in the Eastern Urban Center, where a regional shopping center is planned. Two small areas of commercial development are planned, one near the center of the Proctor Valley parcel to service the nearby residents and the other to service the residential development north of the lakeshore. Commercial acreage in the San Ysidro parcel is limited to the high density cluster near the eastern arm of the lake. Twelve elementary school sites, two junior high school sites, and a single high school site are proposed under this alternative, the majority of which would be situated on the Otay River parcel. A second high school site has been identified for an outparcel owned by the FAA. No university site occurs under this alternative.

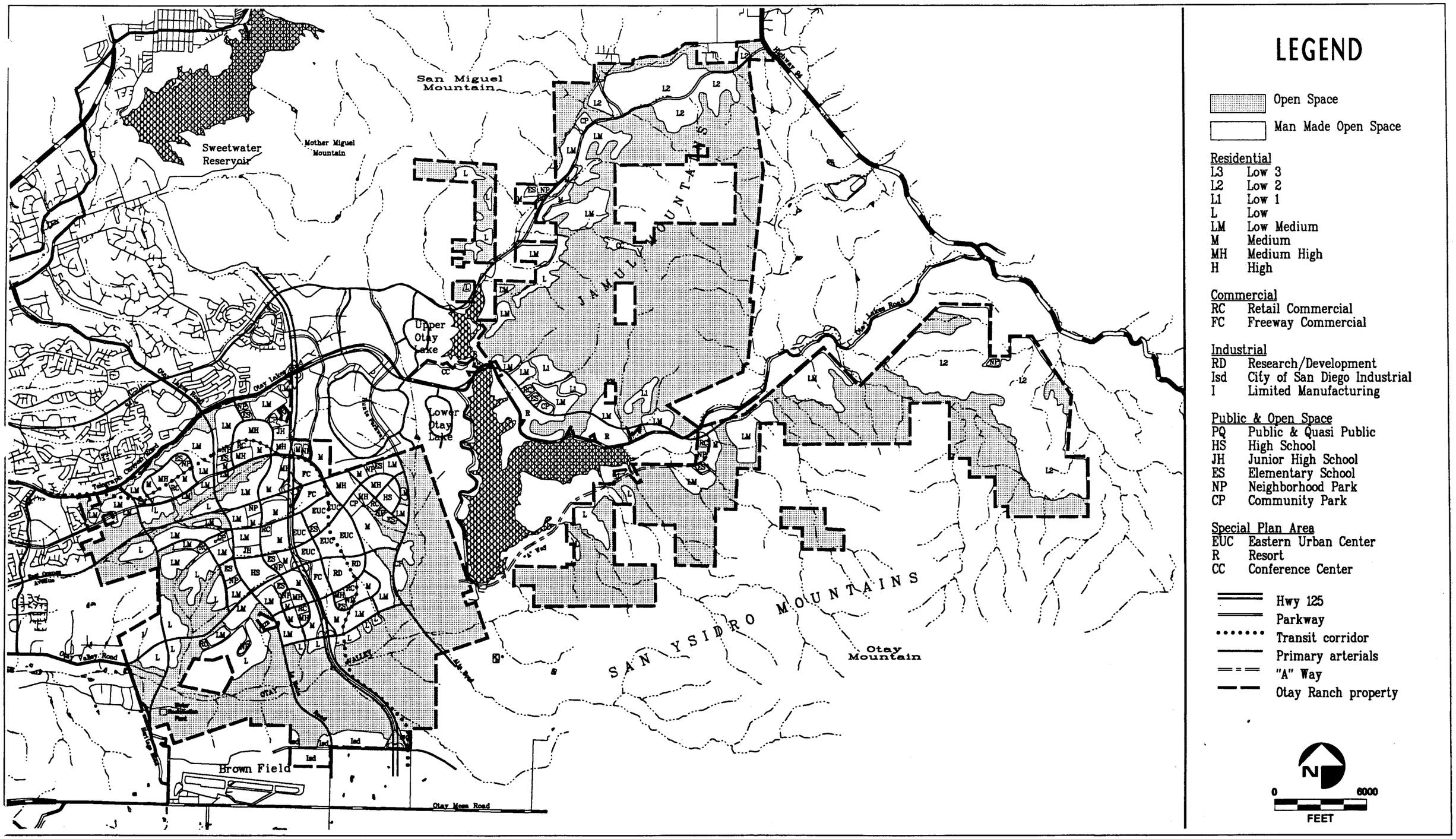
The remaining 13,273 acres of the Otay Ranch property, (over one-half of the site) would be retained as open space, featuring passive recreation and resource management areas in the Otay River Valley, Jamul Mountains, and San Ysidro Mountains. A resource management plan would be implemented for this alternative. All greenbelt areas between land uses and connecting open space areas, recreation facilities, and villages would be approximately 300 feet in width. Several community and neighborhood parks would supplement the natural open space and trail system with active recreation facilities in close proximity to the villages.

Table 4.3-1

LAND USE STATISTICS FOR FOURTH ALTERNATIVE

Land Use Designation	Residential Density (du/ac)	Otay River Parcel Acres	Otay River Parcel Dwelling Units	Proctor Valley Parcel Acres	Proctor Valley Parcel Dwelling Units	San Ysidro Parcel Acres	San Ysidro Parcel Dwelling Units	Otay Ranch Total Acres	Otay Ranch Total Dwelling Units
RESIDENTIAL									
Low	0 to 3	681	1,292	967	834	1,623	980	3,271	3,106
Low Medium	3 to 6	1,361	5,391	727	3,438	416	1,962	2,504	10,791
Medium	6 to 11	774	4,768	83	697	55	416	912	5,881
Medium High	11 to 18	433	5,240	--		--		433	5,240
High	18-27	--		--		--		--	
Total Residential		3,249	16,691	1,777	4,969	2,094	3,358	7,120	25,018
COMMERCIAL									
Retail		90		20		12	--	122	
Freeway		165		--		--	--	165	
INDUSTRIAL									
General Industrial		324		--		--	--	324	
Research Industrial		112		--		--	--	112	
PUBLIC/QUASI-PUBLIC									
Public Facilities/Schools		318		25		10		353	
PARKS/SQUARES		240		50		25		315	
EASTERN URBAN CENTER									
Residential		175	2,400	--		--		175	2,400
Retail Commercial		148		--		--		148	
RESORT		--		222		--	--	222	
CONFERENCE CENTER		--		154		--	--	154	
OPEN SPACE									
Natural		4,441		5,562		3,270		13,273	
Manufactured		270		105		144		519	
Freeway		86		--		--		86	
TOTALS		9,618	19,091	7,915	4,969	5,555	3,358	23,088	27,418

Source: Robert Bein, William Frost & Associates, Project Team Land Use Alternatives - Otay Ranch, 1990; as revised by Ogden, 1992.



OGDEN

Fourth Alternative

FIGURE 4.3-1

The circulation network would be composed of a series of primary, major, and collector roadways and the southern extension of SR-125, which would form four interchanges with the freeway and four north-south crossings of the Otay River. The four proposed river crossings are SR-125, Otay Lakes Road, Hunte Parkway, and Alta Road. In addition to the eastern extensions of East "H" Street, East Orange Avenue, and Otay Valley Road, Otay Lakes Road would be realigned under this alternative and an existing segment along the northern lakeshore would be closed to automobile traffic and maintained for pedestrian use only. The alignment of Proctor Valley Road would be adjusted slightly. An access road around the southern tip of Lower Otay Lake, South Dam Road, is preliminarily proposed and may only be constructed if warranted by the traffic analysis. The regional transit corridor would extend from the City of Chula Vista along Telegraph Canyon Road, and would circulate east and south along the local street network, linking the various villages, commercial uses, industrial development, and Eastern Urban Center on the Otay River parcel. The transit corridor would only parallel the freeway near the southern edge of the Otay River Valley; a transit-oriented village is proposed along this corridor.

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4.3.2 Land Use, Planning, and Zoning

4.3.2.1 Impact Analysis

The Fourth Alternative would result in a significant change in the character of the site from open space to urban and semi-rural development. Potential adverse impacts could occur due to residential land uses planned in proximity to the Otay Landfill, onsite industrially-designated land, the Nelson and Sloan quarry, the San Diego Air Sports Center, SR-125, the Daley quarry site, and adjacent to the EastLake Greens project. No land use impacts would occur near Sunbow since the Fourth Alternative proposes open space and low-medium density of residential development, which would be consistent with the low-medium residential development planned as part of Sunbow. Impacts to rural lands north and east of the Proctor Valley and San Ysidro parcels may occur indirectly due to growth induced by the extension of infrastructure and the Urban Limit Line (see Section 7, Growth Inducement).

This alternative is not consistent with County of San Diego policies to preserve the rural atmosphere of existing rural county lands including Goal 1, Jamul-Dulzura Subregional Plan; Overall Goal 1.1, Land Use Goals 2.2, 2.3, and 2.4 of the Regional Land Use Element. The Proctor Valley parcel would be developed with 810 acres of medium or low-medium density residential development while the San Ysidro parcel would be developed with another 471 acres of medium or low-medium density residential development. This alternative also proposes development within several of the county's Resource Conservation Areas (RCAs). While development within RCA's is not prohibited by the county, the overlay requires that special attention be given to avoiding impacts to sensitive resources. The same special consideration should be required by the new Subregional Plan for the area to preserve the intent of the county RCAs to protect sensitive resources.

No significant inconsistencies with City of San Diego industrial policies would occur with this alternative.

This alternative is inconsistent with City of Chula Vista Land Use Element Goal 3, Objective 4 to develop the Eastern Territories primarily with low-medium density residential development since the Fourth Alternative proposes 35 percent of the residential acreage and 2/3 of the total units in the Otay River parcel to be developed at medium, medium-high, or high densities. This alternative is not consistent with City of Chula Vista plans to develop the Eastern Territories with a four-year college or university.

4.3.2.2 Proposed Mitigation

Mitigation for land use impacts of the Fourth Alternative are required at the GDP/Subregional Plan level and will be implemented at the SPA plan level, including: the implementation of landscaping, grading, buffering, and/or phasing guidelines to be developed for areas of the project near EastLake Greens, areas onsite where industrially-designated land is adjacent to residentially designated land, and the Otay Landfill; coordination with the FAA and implementation of their required measures to avoid impacts to the San Diego Sports Air Center (through the year 2002); mitigation as described in the noise section for areas near the Nelson and Sloan and Daley quarries; and the addition of overlays or other restrictions on the Subregional Plan map (or an adopted RCA map) to protect biological, cultural, and scenic resources currently protected by county RCAs. (Refer to Section 3.1.3 for more details on the above mitigation.)

4.3.2.3 Analysis of Significance

The Fourth Alternative would significantly change the character of the site from open space to urban and semi-rural land, especially in or adjacent to Jamul, Proctor Valley, Lower Otay Lake and the San Ysidro Mountains. Significant land use impacts due to inconsistency with county policies to preserve rural lands and with City of Chula Vista goals for development of the Eastern Territories primarily with low-medium density residential development and with a four-year college or university would also occur.

4.3.3 Landform Alteration/Aesthetics

4.3.3.1 Impact Analysis

From a visual standpoint, the Fourth Alternative would result in a significant and unavoidable change in the overall character of the site from open space to development. Night lighting impacts would be less than significant since the project would have to comply with the county's Dark Sky Ordinance or similar city ordinances.

The short-term visual impacts of grading would be adverse, but less than significant. Long-term visual impacts of development may result from grading on the top of the mesa to the northeast of Lower Otay Lakes for the resort and moderate density residential development, and from grading for low and low-medium residential development within the southwestern part of the San Ysidro parcel. Impacts to visual resources in the southwestern part of the San Ysidro parcel could be less significant than those of either the New Town Plan or the Phase I-Progress Plan Alternative since fewer dwelling units and lower densities are proposed for this area. However, some of the residential development would be situated atop minor ridgelines, thus increasing visibility and impact. In addition, "A" Way could be extended along the broad terrace between the lakeshore and residences. The combination of development, roadway extension, and introduction of night lighting would contrast with the adjacent open space and represent a significant degradation of visual resources along the lake. Assuming that the site planning and grading policies proposed in the New Town Plan would be applied to this alternative, no other long-term visual impacts of development would occur.

Development of the site under the Fourth Alternative will encroach on steep slopes within the project site including those associated with Wolf Canyon, Poggi Canyon, Salt Creek Canyon, Otay River Valley, Telegraph Canyon, Proctor Valley, and several areas within the San Ysidro parcel. It has not been specified whether or not grading would occur in the Otay River Valley to remediate previous mining operations; however, if necessary, the grading would alter the steep northern slopes of the valley. Therefore, adoption of the Fourth Alternative would result in significant landform alteration impacts in all of these areas.

Much of the actual development proposed under this alternative is similar in character to that proposed under the Phase I-Progress Plan Alternative, particularly on the Otay River parcel. Visual impacts to existing views could occur from development proposed along Proctor Valley Road and around Lower Otay Lake. The alteration of open space would significantly impact the visual character around the lake. No university would be constructed on the southwest lakeshore; thus significant visual impacts related to building scale would be eliminated from this alternative. Impacts in the southwestern part of the San Ysidro parcel would be less significant than those of either the New Town Plan or the Phase I-Progress Plan Alternative since lower density development is proposed for this area. The Fourth Alternative does propose additional low to medium-density residential development near the central portion of San Ysidro parcel along Otay Lakes Road between Lower Otay Lake and Highway 94. Views of this development would be afforded to motorists on Otay Lakes Road and would contrast sharply with the natural open space character of the area, constituting a potentially significant impact.

Otay Lakes Road would be relocated from along the lake's northeastern shoreline to an alignment internal to the Otay Ranch project under the Fourth Alternative. This would also have significant visual resource and visual policy impacts since the scenic aspects of the road may be reduced due to the re-alignment and adjacent resort development.

4.3.3.2 Proposed Mitigation

Mitigation for the Fourth Alternative would be similar to measures required of the New Town Plan and Phase-I Progress Plan as detailed in Section 3.2.3. No measures are available to mitigate the unavoidable effects of open space conversion.

Measures to reduce landform alteration impacts include controls on grading of minor ridgelines, steep slopes and highly visible mesas; sensitive design of roadways on hillsides; and preparation of grading plans by a certified engineer. Grading for the resort shall conform to the natural contours of the existing terrain, and large manufactured slopes and encroachment into steep terrain shall be avoided.

To reduce impacts on existing views around Lower Otay Lake and of the San Ysidro and Jamul foothills, the project shall limit building and landscaping heights immediately adjacent to Proctor Valley and Otay Lakes roads or provide view corridors to avoid obstruction of open space views. Without a university, the resort on Proctor Valley parcel will be the most visually prominent development; therefore, a detailed review of the resort building bulk, architectural treatments, and development scale shall be conducted. Buildings heights of the resort shall be limited to three-story structures. Stepped building pads and clustered development shall be utilized to the maximum extent possible in the site plan design. The realignment of Otay Lakes Road shall integrate vistas and pedestrian viewing areas into the plans in order to promote views of the lake and surrounding hillsides.

4.3.3.3 Analysis of Significance

Assuming the proposed mitigation measures are implemented, significant impacts to sensitive landforms (i.e., steep slopes) due to grading for residential and resort development, views around Lower Otay Lake and of the San Ysidro and Jamul foothills, and the scenic corridor of Otay Lakes Road would be avoided. Effects to the existing character of the site would remain significant and unmitigated.

4.3.4 Biological Resources

4.3.4.1 Impact Analysis

Reduction of Vegetative Communities/Habitats

The Fourth Alternative would reduce current open space overall by approximately 41 percent (9,383 acres). By parcel, open space is reduced by approximately 52 percent (5,000 acres) in the Otay River parcel, 28 percent (2,242 acres) in the Proctor Valley parcel, and 39 percent (2,141 acres) in the San Ysidro parcel. These estimates are provided at a General Plan level and would be refined at the SPA level of analysis.

Reduction of Sensitive Habitats

The Fourth Alternative would reduce sensitive coastal scrub habitats by an estimated 32 percent; the exact acreages of sensitive habitats impacted were not calculated. This impact to coastal sage scrub and maritime succulent scrub habitats would be significant. Undisturbed and disturbed Valley needlegrass grasslands are significantly reduced by an estimated 65 percent with the Fourth Alternative. Wetland habitats would be reduced approximately 5 to 10 percent (probably less than 9 percent); the impact would be considered significant. Industrial development in the southern portion of J31+ on Otay Mesa and in Proctor Valley would significantly impact vernal pool habitat (less than 8 percent). Native woodlands including southern live oak riparian forest, southern interior cypress forest and sycamore alluvial woodland would also be impacted significantly.

Reduction of Sensitive Plants

This alternative would significantly impact four of nine high priority state or federally-listed threatened/endangered plant species identified onsite. A fifth species has the potential for indirect impacts from development.

San Diego Thorn-mint (*Acanthomintha ilicifolia*)

The two populations found on Otay Ranch (100 percent) would be lost to development in the Proctor Valley parcel near Lower Otay Lake. This would be a significant impact.

Dunn's Mariposa Lily (*Calochortus dunnii*)

Two of 16 (12.5 percent) points of occurrence of this species would be impacted. This would be a significant impact.

San Diego Button-celery (*Eryngium aristulatum* var. *parishii*)

Approximately ~~10~~ 16 (~~7.0~~ 10.0 percent) of the vernal pools supporting populations of this species would be developed by the Fourth Alternative. This would be a significant impact to San Diego button-celery populations on Otay Ranch.

Otay Tarweed (*Hemizonia conjugens*)

Approximately 25 percent of the points of occurrence of this species would be developed. Impacts would occur at Poggi Canyon, Wolf Canyon, on the north slope of Rock Mountain, the northwest end of Salt Creek, and in the disjunct parcel north of Upper Otay Lake. These impacts would be significant.

Willowy Monardella (*Monardella linoides* ssp. *viminea*)

This species would not be affected directly by implementation of the Fourth Alternative. However, development of the canyon at the west end of the San Ysidro parcel could indirectly impact this species. Alterations in the amount of water input to the canyon and disturbance from human activities could pose a significant threat to the continued survival of this population.

The following high priority plant species would not be affected by the fourth alternative:

Slender-pod Caulanthus (*Caulanthus stenocarpus*)
Mexican Flannelbush (*Fremontodendron mexicanum*)
California Orcutt Grass (*Orcuttia californica*)
Otay Mesa-mint (*Pogogyne nudiuscula*)

The numbers of second, third, and fourth priority sensitive plant species significantly affected by the Fourth Alternative would be 6, ~~4~~ 5, and ~~1~~ 2, respectively; they include the following: second priority – Orcutt's brodiaea, variegated dudleya, San Diego barrel cactus, San Diego golden star, snake cholla, narrow-leaved nightshade; third priority – Munz's sage, Greene's ground-cherry, San Diego sunflower, San Diego marsh elder, San Diego County stipa; fourth priority – California adder's-tongue fern, Coulter's Matilija poppy.

The following sensitive species would be adversely but not significantly affected by this alternative: San Diego sagewort, Palmer's grappling-hook, ~~San Diego marsh elder,~~ Tecate cypress, ~~San Diego County stipa,~~ western dichondra, spiny rush, ~~Coulter's Matilija poppy,~~ and ashy spike-moss.

Reduction of Sensitive Animals

The Fourth Alternative would significantly impact sensitive wildlife species inhabiting sensitive upland scrub communities through an approximate 32 percent reduction in existing habitat. Development within key raptor foraging areas in Proctor Valley (especially the northern end), on the southwest slope of the Jamul Mountains, south of Dulzura Creek in the San Ysidro parcel, and on Otay Mesa could be considered significant impacts. Vernal pool species would be significantly impacted through the development of less than 8 percent of the vernal pools on Otay Mesa. All of the highest priority wildlife species would be significantly impacted or have the potential for significant impact through implementation of the Fourth Alternative.

First Priority Species

Endangered Species

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

If this species occurs onsite it could be impacted by road construction in the Otay River Valley. It could also be indirectly affected by adjacent development if it occurs in Dulzura Creek. Information on the status of this species onsite is required to determine the significance of any potential impacts.

Least Bell's Vireo (*Vireo bellii pusillus*)

This species would be significantly impacted by road construction in the Otay River Valley. Direct impacts would occur to recently occupied vireo habitat at La Media Road and Heritage Road crossings of the Otay River. Road construction across Dulzura Creek adjacent to the San Ysidro parcel is also likely to directly affect this species. Indirect impacts from road construction in the Otay River Valley (SR-125, transit corridor, and Alta Road), and development of the San Ysidro parcel adjacent to Dulzura Creek may also occur and would need to be addressed at the next level of review.

Species Petitioned for State and/or Federal Listing

Invertebrates

Under the Fourth Alternative ~~two~~ three vernal pool invertebrates, Riverside fairy shrimp (*Streptocephalus woottoni*), San Diego fairy shrimp (*Branchinecta sandiegensis*), and Quino checkerspot (*Euphydryas editha quino*), could be impacted by development of vernal pool habitat. Further information on their distribution and abundance is necessary to assess the significance of impacts. Harbison's dun skipper (*Euphyes vestris harbisoni*) could be impacted by development of approximately 5 percent of southern live oak riparian forest. Hermes copper (*Lycaena hermes*) could be impacted by a loss of approximately 32 percent of coastal sage scrub habitats. Thorne's hairstreak (*Mitoura thornei*) could also be impacted by an approximate 5 percent loss of onsite Tecate cypress habitat. Information is required for all of these species to assess impacts from implementation of the Fourth Alternative.

Reptiles and Amphibians

Both the California red-legged frog (*Rana aurora draytonii*) and the southwestern pond turtle (*Clemmys marmorata pallida*) could be impacted by the loss of 5 to 10 percent of wetland habitat if they occur onsite.

Birds

~~Coastal~~ Cactus Wren (*Campylorhynchus brunneicapillus ~~cousei~~*)

A total of 38 percent of 60 cactus wren locations would be impacted by road construction or development with implementation of the Fourth Alternative. This species would be directly impacted by development at approximately 25 percent of the points of occurrence ~~by the Fourth Alternative~~. An additional 13 percent of cactus wren sighting locations could be impacted by road construction. Impacts would occur at the same development locations and road alignments as described ~~above~~ below for the California gnatcatcher in the Otay River parcel.

California Gnatcatcher (*Polioptila californica*)

A total of 60 of 144 estimated California gnatcatcher pairs would be impacted by either road construction or residential and commercial development under the Fourth Alternative. An estimated 32 percent of the Otay Ranch California gnatcatcher population would be directly impacted by development ~~of~~ under the Fourth Alternative. Greatest impacts would occur in the Otay River parcel from development adjacent to Salt Creek, on the north slope of Rock Mountain, and along the edges of Poggi and Wolf Canyons. In the Proctor Valley parcel impacts would occur on the lower south slopes of Jamul Mountain, to the south and east of Lower Otay Lake, and in ravines along the east side of Proctor Valley. The proposed

conference center would directly impact at least one to two pairs of California gnatcatcher. Impacts to gnatcatchers in the San Ysidro parcel would be greatest south of Lower Otay Lake and the Borderland Air Sports Center. Road construction could directly impact California gnatcatchers on all three parcels through loss of habitat and restriction of movement. An estimated 10% of gnatcatcher locations would be impacted by road development. Road alignments of concern in the Otay River parcel include: Otay Valley Road (across Wolf Canyon), Heritage Road (across Poggi Canyon and through a potential gnatcatcher corridor), East Orange Avenue (through Poggi Canyon), SR-125 and the transit corridor (on the north side of the Otay River Valley and through Johnson Canyon), Hunte Parkway (on the west side of Salt Creek), and Alta Road (at O'Neal Canyon and Salt Creek). Proctor Valley Road could impact one to two pairs of gnatcatcher in the Proctor Valley parcel. The construction of "A" Way would significantly impact onsite and offsite gnatcatchers as the alignment passes through high occupancy habitat south of Lower Otay Lake in the San Ysidro parcel.

Tricolored Blackbird (*Agelaius tricolor*)

The tricolored blackbird would be significantly impacted by the development of SR-125 at the site of a large nesting colony in 1991. Reduction of agriculture fields and grasslands could also impact this species.

Reduction of Wildlife Corridors

Seventeen regional and major local wildlife corridors for the Otay Ranch area are included in Figure 3.3-7. Under the Fourth Alternative, three regional wildlife corridors would be significantly blocked by development. Another eight regional corridors would be potentially impacted from adjacent development or road construction and two regional corridors would not be impacted. Three major local wildlife corridors would be significantly blocked by development or roads, there would be no impacts to a fourth important local corridor. Significant impacts would occur from development of a potential corridor linking ~~Poggi and Wolf canyons,~~ Wolf Canyon to Salt Creek, and at corridors 1, 4, 5, 8, and 9. Potential impacts could occur at the ~~Wolf Canyon to Salt Creek,~~ Poggi to Wolf Canyon, Wolf Canyon to Otay River, Salt Creek to Otay River, and O'Neal Canyon corridors. Potential impacts could also occur at corridors 2, 6, 10, and 11. These impacts to wildlife movement would be considered significant.

4.3.4.2 Proposed Mitigation

Compliance of the Fourth Alternative with the RMP

The Fourth Alternative comes close to meeting the RMP goal of establishing an open space system in a Management Preserve that would protect and enhance biological resources on Otay Ranch. Refer to Table 4.10-1.1 (Section 4.10) for a comparison of the compliance of the Fourth Alternative with various RMP policies. With some modification, it could potentially allow the maintenance of long-term biological diversity and ensure the survival and recovery of native species and habitats within a Preserve. However, there are some RMP objectives, policies, and standards that are not achieved.

Sensitive Habitats

The Fourth Alternative probably does not preserve coastal sage scrub at the level required in the RMP. There may be insufficient acreage onsite for the combined restoration components required by the RMP for the various sensitive habitats. However, with some redesign and modification; the Fourth Alternative could potentially achieve RMP policies

and guidelines. The Fourth Alternative reduces coastal sage scrub habitats by less than 32 percent which could be greater than the 30 percent reduction allowed by the RMP (Policy 2.2). Although there is some reduction in undisturbed Valley needlegrass grasslands, it is likely the Fourth Alternative meets RMP minimum preservation requirements of 25 percent. Wetlands are reduced by less than 9 percent under the Fourth Alternative. This alternative has the potential to retain 90 percent of onsite wetlands in a Preserve and to restore sufficient wetlands to achieve no net loss as required by the RMP (Policy 2.10). Under the Fourth Alternative vernal pools on Otay Mesa would be preserved according to RMP Policy 2.9. There would be impacts to southern live oak riparian forest, southern interior cypress forest, and sycamore alluvial woodland. The RMP requires 100 percent preservation of these sensitive woodlands (Policy 2.4).

Sensitive Plants

The Fourth Alternative would not meet RMP standards (Policy 2.6) for the following state and federally listed plant species: San Diego thorn-mint and Dunn's Mariposa lily. There is also the potential for San Diego button celery to be impacted beyond the level allowed by the RMP. Several federal Category 2 and California Native Plant Society sensitive species could also be reduced by levels greater than allowed in the RMP (Policies 2.7 and 2.8).

Sensitive Animals

Construction of roads for the Fourth Alternative could impact the state and federally endangered least Bell's vireo at a higher level than allowed by the RMP (Policy 2.6). Further information on the distribution and abundance of this species is necessary to determine the level of impacts under this alternative. California gnatcatcher and coastal cactus wrens would be impacted at higher levels than allowed by the RMP (Policy 2.5). Based on distribution of sighting locations and estimated habitat loss, at least seven federal candidate species could be reduced below the 25 percent level allowed by the RMP (Policy 2.8). These federal candidate species include San Diego horned lizard, orange-throated whiptail, two-striped garter snake, ferruginous hawk, loggerhead shrike, Bell's sage sparrow, and tricolored blackbird. Another 22 federal candidate species could also be impacted at higher levels than allowed by the RMP, depending on the species distribution and abundance onsite.

Wildlife Corridors

Six of 17 regional and major local wildlife corridors would be blocked under the Fourth Alternative and another eight have the potential to be constrained or impacted by roads and adjacent development. These impacts to wildlife movement do not meet the requirements for linkage and wildlife corridors set forth by the RMP (Policy 4.1).

Sensitive Habitats Mitigation

Mitigation recommendations for the Fourth Alternative generally follow those for the Phase I-Progress Plan (see Section 4.2.4.2) except where noted below.

Proctor Valley Parcel

Mitigation measure 1.a. in Table 4.2.4-8 to redesign central Proctor Valley and to relocate the conference center is applicable to the Fourth Alternative. The latter part of mitigation measure 1.a, however, to eliminate single-family housing west of Proctor Valley in the eastern portion of the L-shaped parcel and the isolated parcel south of the L-shaped parcel is not completely applicable, because much of that area is retained in the ~~Project Team~~

Fourth Alternative. The area retained in these parcels contains disturbed coastal sage scrub which can be enhanced. Substantial impacts to valley needlegrass grassland and Otay tarplant would still occur within these detached parcels under the Fourth Alternative and alterations to the plan to reduce those impacts are recommended.

The vernal pool complex identified as R2 in Proctor Valley is planned for residential and public uses. These uses should be relocated in order to preserve the R2 vernal pool complex. Impacts to the R4 vernal pool complex can be mitigated through vernal pool restoration.

The northern potential local wildlife corridor between San Miguel Mountain and the Jamul Mountains is partially constrained by residential (L2) development. Recommendation is to set development north of the tributary to Proctor Valley back from the potential northern wildlife corridor.

San Ysidro Parcel

Mitigation measures 1.b. and 1.c. in Table 4.2.4-8 to eliminate development on the ridgeline adjacent to Hubbard Springs and at the westernmost area of development in this parcel (southwest of Buschalaugh Canyon) are not applicable because these areas are retained under the Fourth Alternative.

Additional mitigation recommendation is to set the eastern portion of the residential development between Cedar and Little Cedar Canyons back to reduce coastal sage scrub impacts. This also would preserve the Dunn's mariposa lily and San Diego goldenstar populations. It also is recommended to set the proposed development back from the canyon that extends east from Hubbard Springs to reduce impacts to wetlands.

Otay River Parcel

Mitigation measures 1.d. and 1.e. in Table 4.2.4-8 have been partially accomplished by the Fourth Alternative. Otay Valley Road has been relocated northward to retain coastal sage scrub along the edge of Otay River Valley and coastal sage scrub at the mouth of Wolf Canyon and a portion of the maritime succulent scrub in central Wolf Canyon are retained.

Additional vernal pool habitat on Otay Mesa (J31+ and J29) is preserved including the historical locations for San Diego navarretia, little mousetail, and California Orcutt grass. Under the Fourth Alternative, although some vernal pool habitat is still impacted in J31+, more habitat is available for vernal pool restoration, primarily within the J31+, J29, and J30 vernal pool complexes.

Sensitive Plants Mitigation

Mitigation recommendations for the Fourth Alternative follow those for the Phase I-Progress Plan (see Section 4.2.4.2) except where noted below. Impacts and mitigation to second, third, and fourth priority sensitive plants were addressed qualitatively only.

Dunn's mariposa lily mitigation ~~should~~ shall include minor project redesign to preserve the population in the canyon east of Little Cedar Canyon, thus avoiding all impacts.

California Orcutt grass and Otay Mesa-mint would not be impacted and therefore would not require mitigation under the Fourth Alternative.

Sensitive Animals Mitigation

Mitigation recommendations for the Fourth Alternative follow those for the Phase I-Progress Alternative (see Section 4.2.4.2) and the General Mitigation Requirements section for sensitive animals in Section 3.3.3 except where noted below:

First Priority Species

Endangered Species

Southwestern Willow Flycatcher

Refer to least Bell's vireo mitigation below.

Least Bell's Vireo

See measures ~~1 and 2~~ 1–3 for the Phase I-Progress Plan (Table 4.2.4-5). Mitigation of Heritage Road impacts could involve realignment of the Otay River crossing west of a historic least Bell's vireo sighting. This decision needs to be based on additional information obtained at the next level of review. Indirect impacts from residential and commercial development should be studied and addressed in the same manner as in the Phase I-Progress Plan assessment of the Village Center ~~(measure 2g and 2h)~~.

Species Proposed for Listing

Invertebrates

Streptocephalus woottoni and *Branchinecta sandiegensis*

See measures 7–10 for the New Town Plan (Table 3.3-7).

Branchinecta sandiegensis

See measures 7–10 for the New Town Plan (Table 3.3-7).

Harbison's Dun Skipper

See measure 11 for the New Town Plan (Table 3.3-7).

Hermes Copper

See measure 12 for the New Town Plan (Table 3.3-7).

Thorne's Hairstreak

See measure 13 for the New Town Plan (Table 3.3-7).

Quino Checkerspot

See measures ~~13 and~~ 14 for the New Town Plan (Table 3.3-7).

Reptiles and Amphibians

California Red-legged Frog

See measure 15 for New Town Plan (Table 3.3-7).

Southwestern Pond Turtle

See measure 15 for New Town Plan (Table 3.3-7). Also see additional mitigation text under southwestern pond turtle.

Birds

~~Coastal~~ Cactus Wren

See measures ~~3-7~~ 4-6 for Phase I-Progress Plan (Table 4.2.4-5). An alternative alignment for the transit corridor within the SR-125 corridor should be further evaluated to determine if this would impact the species less than the current alignment in the Fourth Alternative. Whichever alignment causes the least impact should be implemented. In the Fourth Alternative, Otay Valley Road would not have to be aligned further north as in the Phase I-Progress Plan since it is already set back to the north.

California Gnatcatcher

See measures ~~8-10~~ 7-8 for Phase I-Progress Plan (Table 4.2.4-5). Potential mitigation for "A" Way could involve realignment at the east end to avoid high occupancy habitat and termination of the alignment at the most westerly low density development in the San Ysidro parcel. Impacts from continuing the alignment west below the dam are potentially unmitigable to the offsite population of California gnatcatchers, depending on the number of pairs directly impacted. Impacts from disruption of movement and noise could potentially be mitigated for in design of the road. Further evaluation is required at the next level of review.

~~Riverside Fairy Shrimp~~

~~See measures 13 and 14 for the New Town Plan (Table 3.3-7).~~

Wildlife Corridors

Appropriate wildlife corridor mitigation recommendations for the Fourth Alternative are presented in the Phase I-Progress Plan Open Space Design discussion (see Section 4.2.4.2). Specific corridor design requirements are presented in the Baldwin Otay Ranch Wildlife Corridor Studies (Ogden 1992b). Additional mitigation would involve pulling back development from the ravine at the mouth of corridors 6 and 8 in the western San Ysidro parcel. The Corridor should encompass rim-to-rim topography. Development should also be pulled back onto the ridgetop north of corridor 10, and away from the mouth of Little Cedar Canyon in the San Ysidro parcel. Corridor 10 should include rim-to-rim topography. Corridor 11 should not be constrained at the mouth of Little Cedar Canyon. It is recommended that development be drawn back to the north, away from the northwest section of corridor 3 in the Proctor Valley parcel so that the entire ravine is preserved from rim to rim. In the Fourth Alternative, Corridor 11 is not constrained at the north end as in Phase II so it is only necessary to screen the corridor.

4.3.4.3 Analysis of Significance

The Fourth Alternative would impact 41 percent of existing open space on Otay Ranch. Sensitive coastal sage scrub habitats would be reduced by an estimated 32 percent and wetland habitats by 5 to 10 percent. Vernal pool impacts are estimated at an estimated 8 percent. These impacts to sensitive habitats are significant and will require a combination of mitigation approaches including redesign of portions of the project and habitat restoration. Of 18 major regional wildlife corridors identified on Otay Ranch, six would be impacted significantly and nine would be potentially impacted by implementation of the Fourth Alternative. Mitigation of these impacts would include redesign of some of the proposed developments and roadway alignments and habitat restoration. Sensitive plant and animal species are impacted significantly by the Fourth Alternative, including the following highest priority species: San Diego thorn-mint, Dunn's mariposa lily, San Diego button-celery, Otay tarweed, least Bell's vireo, California gnatcatcher, coastal cactus wren, and potentially willowy monardella, Riverside fairy shrimp, and Quino checkerspot. Mitigation of impacts to these species would necessitate a combination of project redesign, habitat restoration, and species reestablishment

Impacts to the following sensitive habitats are considered significant but mitigable to below a level of significance with minor project redesign and habitat restoration:

Southern live oak riparian forest
Southern interior cypress forest
Sycamore alluvial woodland
Southern willow scrub
Floodplain scrub
Coastal freshwater marsh/Aquatic
Vernal pools

Impacts to the following sensitive habitats are considered significant and potentially unmitigable:

Diegan coastal sage scrub
Maritime succulent scrub
Valley needlegrass grassland
Alkali meadow

Impacts to the following sensitive plant species are considered potentially significant but mitigable to below a level of significance with minor project redesign and restoration:

San Diego thorn-mint (*Acanthomintha ilicifolia*)
Dunn's mariposa lily (*Calochortus dunnii*)
San Diego button-celery (*Eryngium aristulatum* var. *parishii*)
Willowy monardella (*Monardella linoides* ssp. *viminea*)
Orcutt's brodiaea (*Brodiaea orcuttii*)
Variegated hasseanthus (*Dudleya variegata*)
San Diego coast barrel cactus (*Ferocactus viridescens*)
Narrow-leaved nightshade (*Solanum tenuilobatum*)
~~Munz's sage (*Salvia munzii*)~~
San Diego County stipa (*Stipa diegoensis*)
San Diego marsh elder (*Iva hayesiana*)
Coulter's Matilija poppy (*Romneya coulteri*)
Greene's ground-cherry (*Physalis greenei*)

San Diego sunflower (*Viguiera laciniata*)
California adder's-tongue fern (*Ophioglossum lusitanicum* spp. *californicum*)

Impacts to the following sensitive plant species are considered significant and unmitigable without considerable project redesign:

Otay tarweed (*Hemizonia conjugens*)
San Diego goldenstar (*Muilla clevelandii*)
Snake cholla (*Opuntia parryi* var. *serpentina*)
Munz's sage (*Salvia munzii*)

~~Impacts to two highest priority, animal species, *Streptocephalus woottoni* and Quino checkerspot are not considered significant at this level of review.~~

At this level of review, impacts to the following highest priority sensitive animal species are considered significant but mitigable to below a level of significance through minor project redesign and other mitigation measures:

Streptocephalus woottoni
Branchinecta sandiegensis
Southwestern willow flycatcher
Harbison's dun skipper
Thorne's hairstreak
Quino checkerspot
California red-legged frog
Southwestern pond turtle
Least Bell's vireo
Tricolored blackbird

At this level of review, impacts to the following highest priority sensitive animal species are considered significant and unmitigable without major project redesign.

Coastal cactus wren
California gnatcatcher

The following species, which in the impact analysis are potentially significant based on available data, are considered significantly impacted at this level of review. Impacts to these species are considered unmitigable without major project redesign.

Hermes copper

The significance of impacts to 45 second priority sensitive animal species were not evaluated at this qualitative level of review.

At this level of review, impacts to regional raptor populations are considered significant and unmitigable without major project redesign.

Impacts to wildlife movement are considered significant but mitigable to a level below significance with minor project redesign.

4.3.5 Cultural Resources

4.3.5.1 Impacts to Prehistoric Resources

Impacts to prehistoric resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria; therefore, all of the 213 prehistoric sites currently known to be on the property are considered to be important at this stage of planning. With this assumption of importance, the Fourth Alternative is assessed for potential impacts to prehistoric resources based on the proposed land use, with areas proposed for development assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture. Table 4.3.5-1 indicates, by parcel, the land uses proposed for the Fourth Alternative, the prehistoric site types, and the occurrences of the sites in the various land uses.

Based on the land use plan for the Fourth Alternative, 134 of the 213 prehistoric sites on the property are located all or partially within a land use proposed for development. With 79 prehistoric sites falling completely into open space, parks, or agricultural areas, the Fourth Alternative has a comparable ratio (134/79) of prehistoric resources in developed to undeveloped land use areas to three of the other plans considered: the Phase II-Progress Plan Alternative (~~133/80~~ 130/83), the Low Density Alternative (131/82), and the Project Team Alternative (135/78). Dissimilar to these ratios are the Phase I-Progress Plan (150/63), the New Town Plan (186/27), the Environmental Alternative (82/131), and the Composite General Plans Alternative (51/162).

4.3.5.2 Impacts to Historic Resources

As with the prehistoric sites, impacts to historic resources can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 49 prehistoric sites currently known to be present on the property are considered to be important at this stage of planning. With this assumption, the Fourth Alternative is assessed for impacts to historic sites based on the proposed land use, with areas proposed for development assumed to have greater potential for impacts to resources than undeveloped land usages, such as Open Space, Parks, or Agriculture. Table 4.3.5-2 indicates, by parcel, the land use proposed for the Fourth Alternative, the historic site types, and the occurrences of the sites in the various land uses.

When compared to the other development plan alternatives, the Fourth Alternative has similar number of historic sites, 25, occurring, all or partially, within areas to be developed to three other alternatives. The ratio (25/24) of sites in developed areas to those in undeveloped land uses such as open space, parks, or agriculture, is also comparable to the the Project Team (25/24), Phase II-Progress Plan (~~38/18~~ 23/26), Phase I-Progress Plan (24/25), and Low Density (27/22) alternatives; only the New Town Plan (43/6), Environmental Alternative (14/35) and Composite General Plans Alternative (9/40) deviate from it substantially.

4.3.5.3 Impacts to Prehistoric/Historic Resources

Impacts to prehistoric/historic resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 30 prehistoric/historic sites currently known to be on the property are considered to be important at this stage of planning. With this assumption of importance for all of the prehistoric/historic sites, the Fourth Alternative is assessed below based on the proposed land use, with areas proposed for development (as defined

Table 4.3.5-1

FOURTH ALTERNATIVE
PREHISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-10,452	OS	Temporary Camp	CA-SDi-4,741	L/OS	Lithic Scatter
CA-SDi-10,622	OS/OA	Lithic Scatter	CA-SDi-4,742	OS	Lithic Scatter
CA-SDi-10,875	OS/(OS)	Lithic Scatter	CA-SDi-4,743	OS	Lithic Scatter
CA-SDi-11,157	JRHS	Temporary Camp	CA-SDi-4,789/SDi-4,988	OS	Temporary Camp
CA-SDi-11,158	JRHS/OA	Temporary Camp	CA-SDi-4,790	OS	Temporary Camp
CA-SDi-11,210	OS	Lithic Scatter	CA-SDi-4,989	OS	Temporary Camp
CA-SDi-11,211	OS/(OS)	Lithic Scatter	CA-SDi-5,352	I/FI/(OS)/OA	Temporary Camp
CA-SDi-11,212	OS	Lithic Scatter	CA-SDi-7,212	OS	Habitation Site
CA-SDi-11,213	OS	Temporary Camp	CA-SDi-7,217 A-E	CP/OS	Temporary Camp
CA-SDi-11,214	I/(OS)/OA	Lithic Scatter	CA-SDi-8,649	OS	Temporary Camp
CA-SDi-11,215	I/(OS)/OA	Lithic Scatter	CA-SDi-8,650	OS	Lithic Scatter
CA-SDi-11,216	I/(OS)/OA	Lithic Scatter	CA-SDi-8,651	C/NP/(OS)	Lithic Scatter
CA-SDi-11,220	I/OS	Lithic Scatter	CA-SDi-9,970	OS/OA	Lithic Scatter
CA-SDi-11,362	OS/OA	Lithic Scatter	CA-SDi-9,974	OS/OA	Lithic Scatter
CA-SDi-11,363	OS	Lithic Scatter	CA-SDi-9,975	OS/OA	Quarry
CA-SDi-11,364	OS	Milling Station	CA-SDi-9,976	OS	Temporary Camp
CA-SDi-11,365	OS	Lithic Scatter	CA-SDi-9,977 A & B	OS	Quarry
CA-SDi-11,366	OS	Lithic Scatter	CA-SDi-9,978	OS	Quarry
CA-SDi-11,369/SDi-11,376	OS/(OS)	Habitation Site	CA-SDi-9,979	OS	Lithic Scatter
CA-SDi-11,372	LM	Lithic Scatter	CA-SDi-9,980	OS	Temporary Camp
CA-SDi-11,373	(OS)	Lithic Scatter	CA-SDi-9,981	OS	Temporary Camp
CA-SDi-11,378	OS	Habitation Site	CA-SDi-12,465	M	Temporary Camp
CA-SDi-11,379	OS	Lithic Scatter	CA-SDi-12,466	(OS)/MH	Temporary Camp
CA-SDi-11,381	OS/(OS)	Lithic Scatter	CA-SDi-12,467	M	Lithic Scatter
CA-SDi-11,412	FI	Lithic Scatter	CA-SDi-12,276	NP/(OS)	Lithic Scatter
CA-SDi-11,951	OS/(OS)	Lithic Scatter	CA-SDi-12,285	M/(OS)	Temporary Camp
CA-SDi-11,952	OS/(OS)	Lithic Scatter	CA-SDi-12,286	LM/(OS)	Temporary Camp
CA-SDi-11,967	OS/OA	Temporary Camp	CA-SDi-12,287	LM/(OS)	Temporary Camp
CA-SDi-11,968	I/(OS)/OA	Lithic Scatter	CA-SDi-12,288	(OS)	Lithic Scatter
CA-SDi-4,726	L/OS	Lithic Scatter	CA-SDi-12,289	LM/(OS)	Temporary Camp
CA-SDi-4,727	OS	Lithic Scatter	CA-SDi-12,290	L/(OS)	Lithic Scatter
CA-SDi-4,728 A & B	OS	Lithic Scatter	CA-SDi-12,291	OS	Lithic Scatter
CA-SDi-4,729	OS	Lithic Scatter	CA-SDi-12,292	I/(OS)/OA	Lithic Scatter
CA-SDi-4,730	OS	Lithic Scatter	CA-SDi-12,293	L/(OS)/OS	Lithic Scatter
CA-SDi-4,731	(OS)	Lithic Scatter	CA-SDi-12,277	LM	Lithic Scatter
CA-SDi-4,732	OS	Lithic Scatter	CA-SDi-12,278	M	Lithic Scatter
CA-SDi-4,733	OS	Lithic Scatter	CA-SDi-12,279	C	Lithic Scatter
CA-SDi-4,734	OS	Lithic Scatter	CA-SDi-12,280	MH	Lithic Scatter
CA-SDi-4,735	OS	Lithic Scatter	CA-SDi-12,281	M/MH/(OS)	Temporary Camp
CA-SDi-4,736	OS	Lithic Scatter	CA-SDi-12,282	(OS)	Temporary Camp
CA-SDi-4,737	OS	Lithic Scatter	CA-SDi-12,283	(OS)	Lithic Scatter
CA-SDi-4,738	OS	Lithic Scatter	CA-SDi-12,284	M/(OS)	Lithic Scatter
CA-SDi-4,739	L/OS	Lithic Scatter	SDM-W-170	OS	Habitation Site
CA-SDi-4,740	OS	Lithic Scatter	CA-SDi-12,656	HS	Temporary Camp

TOTALS:		
(Retail Commercial)	C	2
(Community Park)	CP	1
(Freeway Interchange)	FI	2
(High School)	HS	1
(Industrial Limited Manufacturing)	I	7
(Junior High School)	JRHS	2
(Low Density Residential (0-3 du/ac))	L	5
(Low-Medium Density Residential (3-6 du/ac))	LM	5
(Medium Density Residential (6-11 du/ac))	M	6
(Medium-High Density Residential (11-18 du/ac))	MH	3
(Neighborhood Park)	NP	2
(Outside of Area)	OA	13
(Open Space)	OS	56
(Man-made Open Space)	(OS)	28

Table 4.3.5-1 (Continued)

FOURTH ALTERNATIVE
PREHISTORIC SITES

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-11,388	LM/OS/(OS)/OA	Quarry	CA-SDi-12,356	LM	Lithic Scatter
CA-SDi-11,389	LM/(OS)	Lithic Scatter	CA-SDi-12,357	CP/LM/(OS)	Lithic Scatter
CA-SDi-11,394	M/(OS)/OA	Lithic Scatter	CA-SDi-12,358	LM/(OS)	Lithic Scatter
CA-SDi-11,395	OS	Lithic Scatter	CA-SDi-12,359	L1	Lithic Scatter
CA-SDi-11,401	OS	Lithic Scatter	CA-SDi-12,316	LM	Lithic Scatter
CA-SDi-11,403 Locus F	OS	Lithic Scatter/Milling Station/Quarry	CA-SDi-12,360	CP/R/(OS)	Lithic Scatter
CA-SDi-11,404	(OS)/R/OA	Lithic Scatter	CA-SDi-12,361	(OS)/R	Lithic Scatter
CA-SDi-11,405	L1	Lithic Scatter	CA-SDi-12,363	LM/(OS)	Lithic Scatter
CA-SDi-11,406	L1/OS	Quarry	CA-SDi-12,364	OA/(OS)	Lithic Scatter
CA-SDi-11,407	C/ES/CP/LM/R/(OS)	Lithic Scatter	CA-SDi-12,365	LM/OS	Lithic Scatter
CA-SDi-11,408	L1/LM/(OS)	Lithic Scatter	CA-SDi-12,366	LM/OS	Lithic Scatter
CA-SDi-11,410 A-E	OS/(OS)	Habitation Site	CA-SDi-12,367	OS	Lithic Scatter
CA-SDi-11,414	L1/OS	Lithic Scatter	CA-SDi-12,368	LM/OS	Quarry
CA-SDi-12,034	L/OS/OA	Milling Station	CA-SDi-12,369	L1	Lithic Scatter
CA-SDi-8,086 A, B & C	LM/OS/(OS)/OA	Lithic Scatter	CA-SDi-12,317	L/LM/(OS)	Lithic Scatter
CA-SDi-12,313	LM	Lithic Scatter	CA-SDi-12,370	L1	Lithic Scatter
CA-SDi-12,321	L/LM/(OS)/OA	Lithic Scatter	CA-SDi-12,371	L1/(OS)	Lithic Scatter
CA-SDi-12,322	LM	Lithic Scatter	CA-SDi-12,372	L1	Lithic Scatter
CA-SDi-12,324	L	Lithic Scatter	CA-SDi-12,374	CC	Quarry
CA-SDi-12,326	LM	Lithic Scatter	CA-SDi-12,375	OS	Lithic Scatter
CA-SDi-12,327	M/OA	Lithic Scatter	CA-SDi-12,377	L2	Quarry
CA-SDi-12,329	M/(OS)	Lithic Scatter	CA-SDi-12,378	L2	Quarry/Lithic Scatter
CA-SDi-12,330	(OS)	Lithic Scatter	CA-SDi-12,379	L2	Lithic Scatter
CA-SDi-12,314	LM	Lithic Scatter	CA-SDi-12,381	L2	Milling Station
CA-SDi-12,331	C/ES/M/(OS)	Milling Station	CA-SDi-12,383	L2	Lithic Scatter
CA-SDi-12,332	NP/(OS)/OA	Lithic Scatter	CA-SDi-12,384	L2	Milling Station
CA-SDi-12,333	NP	Lithic Scatter	CA-SDi-12,385	L2	Milling Station
CA-SDi-12,334	ES	Habitation Site	CA-SDi-12,386	L2	Lithic Scatter
CA-SDi-12,335	M	Lithic Scatter	CA-SDi-12,387	L2	Lithic Scatter
CA-SDi-12,336	L1/LM/(OS)	Lithic Scatter	CA-SDi-12,388	L2	Lithic Scatter
CA-SDi-12,338	LM	Milling Station	CA-SDi-12,319	LM	Lithic Scatter
CA-SDi-12,339 A & B	LM/OS	Lithic Scatter	CA-SDi-12,389	(OS)	Milling Station
CA-SDi-12,340	C/LM/R/(OS)	Temporary Camp	CA-SDi-12,390	L2	Lithic Scatter
CA-SDi-12,337/OR-I-3	L/LM/(OS)/OA	Lithic Scatter	CA-SDi-12,391	L2	Milling Station
CA-SDi-12,341	OS/R/(OS)/OA	Lithic Scatter	CA-SDi-12,392	L2	Milling Station/Lithic Scatter
CA-SDi-12,342	L1/OS	Quarry	CA-SDi-12,394	L2	Milling Station
CA-SDi-12,343	L1/OS	Quarry	CA-SDi-12,397	L2	Quarry/Lithic Scatter/Milling Station
CA-SDi-12,315	LM	Lithic Scatter	CA-SDi-12,398	L2/OS	Quarry/Lithic Scatter/Milling Station
CA-SDi-12,353	LM/R/OS/(OS)	Lithic Scatter	CA-SDi-12,320	L/OS/(OS)/LM	Lithic Scatter
CA-SDi-12,355	LM/OS	Lithic Scatter	CA-SDi-12,635	L2/OS	Lithic Scatter

TOTALS:		
(Retail Commercial)	C	3
(Conference Center)	CC	1
(Community Park)	CP	3
(Elementary School)	ES	3
(Low Density Residential (0-3 du/ac))	L	6
(Low Density Residential 1 (.5-1 du/ac))	L1	12
(Low Density Residential 2 (.25-.5 du/ac))	L2	17
(Low-Medium Density Residential (3-6 du/acre))	LM	29
(Medium Density Residential (6-11 du/acre))	M	5
(Neighborhood Park)	NP	2
(Outside of Area)	OA	11
(Open Space)	OS	25
(Man-made Open Space)	(OS)	27
(Resort)	R	7

Table 4.3.5-1 (Continued)

FOURTH ALTERNATIVE
PREHISTORIC SITES

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-11,298	L2	Lithic Scatter	CA-SDi-10,027	LM/M/OS/(OS)/OA	Quarry
CA-SDi-11,303	L2	Lithic Scatter	CA-SDi-11,294	L2	Lithic Scatter
CA-SDi-11,308	L2	Lithic Scatter	CA-SDi-11,300	OS	Lithic Scatter
CA-SDi-11,309	L2	Lithic Scatter	CA-SDi-11,302	L2/OS	Habitation Site
CA-SDi-11,314	L2	Lithic Scatter	CA-SDi-11,304	OS	Lithic Scatter
CA-SDi-11,315	L2	Lithic Scatter	CA-SDi-11,307	OS	Lithic Scatter
CA-SDi-11,317	L2	Quarry	CA-SDi-11,311	OS	Lithic Scatter
CA-SDi-11,321	L2	Lithic Scatter	CA-SDi-11,312	OS	Lithic Scatter
CA-SDi-11,322	L2	Lithic Scatter	CA-SDi-11,313	OS	Lithic Scatter
CA-SDi-11,323	L2	Lithic Scatter	CA-SDi-11,334	L2	Habitation Site
CA-SDi-11,324	L2	Lithic Scatter	CA-SDi-11,342	LM	Lithic Scatter
CA-SDi-11,325	L2	Lithic Scatter	CA-SDi-11,344	OS	Lithic Scatter
CA-SDi-11,326	L2	Lithic Scatter	CA-SDi-11,345	OS	Milling Station
CA-SDi-11,327	L2	Lithic Scatter	CA-SDi-11,350	LM	Lithic Scatter
CA-SDi-11,328	L2	Lithic Scatter	CA-SDi-11,351	LM	Quarry
CA-SDi-11,329	L2	Lithic Scatter	CA-SDi-11,352	L2	Lithic Scatter
CA-SDi-11,331	L2	Temporary Camp	CA-SDi-11,353	L2	Lithic Scatter
CA-SDi-11,332	L2	Temporary Camp	CA-SDi-11,354	L2	Lithic Scatter
CA-SDi-11,333	L2	Temporary Camp	CA-SDi-12,147	LM/(OS)	Milling Station
CA-SDi-11,346	OS	Quarry	CA-SDi-12,149	LM/(OS)	Lithic Scatter
CA-SDi-11,349	OS	Lithic Scatter	CA-SDi-12,345	LM/OS	Milling Station
CA-SDi-12,148	(OS)	Lithic Scatter	CA-SDi-12,349	LM/(OS)	Milling Station
			CA-SDi-12,344	M	Lithic Scatter

TOTALS:		
(Low Density Residential 2 (.25-.5 du/ac))	L2	25
(Low-Medium Density Residential (3-6 du/ac))	LM	8
(Medium Density Residential (6-11 du/acre))	M	2
(Outside of Area)	OA	1
(Open Space)	OS	13
(Man-made Open Space)	(OS)	5

Table 4.3.5-2

FOURTH ALTERNATIVE
HISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-10,155H	OS/(OS)	Historic Rock Feature
CA-SDi-11,221	I/OS	Historic Refuse
CA-SDi-11,361H	OS	Historic Structure
CA-SDi-11,374	OS	Historic Refuse
CA-SDi-11,375H	L	Historic Structure
CA-SDi-11,377H	LM/(OS)	Historic Structure
CA-SDi-11,383H	OS	Historic Structure
CA-SDi-11,384H	CP/LM/(OS)	Historic Complex
CA-SDi-11,385H	OS	Historic Archaeological Complex
CA-SDi-11,386H	OS	Historic Complex
CA-SDi-11,387H	OS	Historic Structure
CA-SDi-12,272H	LM	Historic Refuse
CA-SDi-12,273H	I	Historic Refuse
CA-SDi-12,274H A & B	I/FI	Historic Refuse
CA-SDi-12,271H	M	Historic Refuse

TOTALS:	(Community Park)	CP	1
	(Freeway Interchange)	FI	1
	(Industrial Limited Manufacturing)	I	3
	(Low-Medium Density Residential (3-6 du/ac))	LM	3
	(Medium Density Residential (6-11 du/acre))	M	1
	(Open Space)	OS	8
	(Man-made Open Space)	(OS)	3

Table 4.3.5-2 (Continued)

FOURTH ALTERNATIVE
HISTORIC SITES

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,390H	LM/OA/OS	Historic Structure
CA-SDi-11,393H	OS	Historic Structure
CA-SDi-11,418H	OS	Historic Camp
CA-SDi-11,419H	OS/OA	Historic Complex
CA-SDi-11,420H	OS	Historic Camp
CA-SDi-11,421H	OS	Historic Structure
CA-SDi-11,422H	(OS)	Historic Structure/Historic Refuse
CA-SDi-6,723H	OS	Historic Structure
CA-SDi-6,968H	OS	Historic Structure
CA-SDi-12,323H	L	Historic Rock Feature
CA-SDi-12,354H	OS	Historic Rock Feature
CA-SDi-12,376H	OS	Historic Rock Feature
CA-SDi-12,318H	LM	Historic Rock Feature
CA-SDi-12,395H	L2	Historic Refuse/Historic Rock Feature
CA-SDi-12,396H	L2	Historic Rock Feature

TOTALS:	(Open Space)	OS	10
	(Low Density Residential (0-3 du/ac))	L	1
	(Low Density Residential 2 (.25-.5 du/ac))	L2	2
	(Low-Medium Density Residential (3-6 du/acre))	LM	2
	(Outside of Area)	OA	2
	(Man-made Open Space)	(OS)	1

Table 4.3.5-2 (Continued)

FOURTH ALTERNATIVE
HISTORIC SITES

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,299H	OS	Historic Structure
CA-SDi-11,301H	OS	Historic Camp
CA-SDi-11,305	OS	Historic Rock Feature
CA-SDi-11,306H	L2	Historic Camp
CA-SDi-11,310	L2/(OS)	Historic Rock Feature
CA-SDi-11,316H	L2	Historic Refuse
CA-SDi-11,318	L2	Historic Rock Feature
CA-SDi-11,319	L2	Historic Rock Feature
CA-SDi-11,320	L2	Historic Rock Feature
CA-SDi-11,330H	L2	Historic Refuse
CA-SDi-11,340H	L	Historic Structure
CA-SDi-11,341H	OS	Historic Rock Feature
CA-SDi-11,343H	OS	Historic Structure
CA-SDi-11,347	OS	Historic Rock Feature
CA-SDi-11,348	OS	Historic Rock Feature
CA-SDi-11,357	M	Historic Rock Feature
CA-SDi-6,970	L2	Historic Archaeological Complex
CA-SDi-12,351H	LM/OS	Historic Rock Feature
CA-SDi-12,352H	LM	Historic Rock Feature

TOTALS:

(Low Density Residential (0-3 du/ac))	L	1
(Low Density Residential 2 (.25-.5 du/ac))	L2	8
(Low-Medium Density Residential (3-6 du/acre))	LM	2
(Medium Density Residential (6-11 du/acre))	M	1
(Open Space)	OS	8
(Man-made Open Space)	(OS)	1

above) assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture. Table 4.3.5-3 indicates, by parcel, the land use proposed for the Fourth Alternative, the prehistoric/historic site types, and the occurrences of the sites in the various land uses.

Over the the entire Otay Ranch property, 24 of the 30 prehistoric/historic sites known to be present on the property fall all or partially within areas proposed for intense development, with only 6 prehistoric/historic sites located entirely within areas proposed for non-construction oriented land use, in the Fourth Alternative. This ratio (24/6) is only slightly different than five of the other plans: the New Town Plan (28/2), the Phase I-Progress Plan (28/2), the Low Density Alternative (27/3), the Project Team Alternative (26/4), and the Phase II-Progress Plan (22/8). While the Fourth Alternative would not impact the most, it would still impact a large percentage of the prehistoric/historic sites on the property.

4.3.5.4 Proposed Mitigation

Prehistoric Resources

At this stage of planning, not all of the prehistoric resources have been identified; therefore, importance of the resources is assumed rather than verified. Impacts are still problematic rather than specific, and development plans are still highly conceptual; therefore, development of a comprehensive mitigation plan must be conceptual and necessarily programmatic rather than resource-specific. The following plan is a synopsis of a more detailed program presented in the Resource Management Plan (RMP) and in the cultural resources technical report. For conciseness, the mitigation plan is presented as a series of interrelated stages or phases (see Section 3.4.3 for additional detail).

- Stage 1: The applicant shall complete an intensive, systematic survey of the remaining 17,000 acres for cultural resources in compliance with the county's requirements. Completion of the survey shall occur as soon as feasible with the survey of the first SPA being completed no later than filing of the first SPA Plan application. The survey of the remaining portion of Otay Ranch shall be completed prior to ~~approval~~ public review of the first SPA Plan.

- Stage 2: The applicant shall complete importance and boundary testing for each resource identified within the first SPA and for a sample of site types beyond the SPA but within the overall project. All Stage 2 work must be in compliance with CEQA and local guidelines to include county policies.

- Stage 3: The applicant shall implement appropriate mitigation measures for resources determined as important during the Stage 2 importance evaluation phase. These forms of mitigation would include:

    1) Site avoidance by preservation of the site in open space easements.

    2) Site avoidance by preservation through capping the site and placing landscaping on top of the fill.

    3) Data recovery through implementation of an agency-approved excavation and analysis data recovery program.

    4) A combination of one or more of the above measures.

Table 4.3.5-3

FOURTH ALTERNATIVE
PREHISTORIC/HISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,217	I/(OS)	Lithic Scatter/Historic Structure
CA-SDI-11,218	I/(OS)	Lithic Scatter/Historic Structure
CA-SDI-11,219	I/(OS)	Lithic Scatter/Historic Structure
CA-SDI-11,367/11,368	OS/(OS)	Lithic Scatter/Historic Rock Feature

TOTALS:			
	(Limited Manufacturing)	I	3
	(Man-made Open Space)	(OS)	4
	(Open Space)	OS	1

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,391 A- C	LM/R/OS/(OS)/OA	Historic Structure/Lithic Scatter/Milling Station/Temporary Camp
CA-SDI-11,396/H	OS/OA	Historic Structure/Lithic Scatter
CA-SDI-11,399H	OS	Historic Structure/Lithic Scatter
CA-SDI-11,409	LM/OS/(OS)	Lithic Scatter/Historic Rock Feature
CA-SDI-11,411 A-D	L2/(OS)/OS	Milling Station/Historic Refuse
CA-SDI-11,415	L/OS	Milling Station/Lithic Scatter/Historic Rock Feature
CA-SDI-11,417H	L2(OS)	Historic Structure/Lithic Scatter/Milling Station
CA-SDI-6,695 A & B	C/LM/M/ES/(OS)	Lithic Scatter/Historic Rock Feature
CA-SDI-6,965/11,398H	L/(OS)/OA	Historic Archaeological Complex/Lithic Scatter
CA-SDI-12,328/H	OS	Lithic Scatter/Historic Rock Feature
CA-SDI-12,362/H	OA/R/(OS)	Lithic Scatter/ Historic Refuse
CA-SDI-12,373/H	CC/OS	Habitation Site/Historic Structure
CA-SDI-12,380/H	L2	Lithic Scatter/Historic Rock Feature
CA-SDI-12,382/H	L2	Historic Rock Feature/Lithic Scatter
CA-SDI-12,393/H	L2	Lithic Scatter/Historic Rock Feature
SDM-W-1,932	L2/OS	Lithic Scatter/Historic Rock Feature

TOTALS:			
	(Retail Commercial)	C	1
	(Conference Center)	CC	1
	(Elementary School)	ES	1
	(Low Density Residential (0-3 du/ac))	L	2
	(Low Density Residential 2 (.25-.5 du/ac))	L2	6
	(Low-Medium Density Residential (3-6 du/acre))	LM	3
	(Medium Density Residential (6-11 du/acre))	M	1
	(Outside of Area)	OA	4
	(Open Space)	OS	9
	(Man-made Open Space)	(OS)	7
	(Resort)	R	2

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,355	M	Lithic Scatter/Historic Rock Feature
CA-SDI-11,356	M/(OS)/OA	Lithic Scatter/Historic Structure
CA-SDI-11,358	M/NP/(OS)/OA	Lithic Scatter/Historic Rock Feature
CA-SDI-11,359H	L/(OS)	Lithic Scatter/Historic Refuse
CA-SDI-11,360H A-C	OS	Historic Structure/Lithic Scatter
CA-SDI-12,150	(OS)/OS	Historic Structure/Lithic Scatter
CA-SDI-12,346/H	LM/OS/(OS)	Temporary Camp/Lithic Scatter/Historic Rock Feature
CA-SDI-12,347/H	LM/OS	Historic Structure/Lithic Scatter
CA-SDI-12,348/H	C/M/(OS)	Lithic Scatter/Historic Rock Feature
CA-SDI-12,350/H	ES/LM/(OS)/OA	Lithic Scatter/Historic Rock Feature

TOTALS:			
	(Retail Commercial)	C	1
	(Elementary School)	ES	1
	(Low Density Residential (0-3 du/ac))	L	1
	(Low-Medium Density Residential (3-6 du/acre))	LM	3
	(Medium Density Residential (6-11 du/acre))	M	4
	(Neighborhood Park)	NP	1
	(Outside of Area)	OA	3
	(Open Space)	OS	4
	(Man-made Open Space)	(OS)	7

Additionally, a plan shall be developed for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This shall be accomplished through adaptive reuse of one of the historic structures within the project or through construction of a building within one of the parks or community centers. It is expected that this interpretive center will only be for temporary curation of those materials being actively used for interpretation or display, and that permanent curation of artifacts and data will be at a regional repository when one is established.

Historic Resources

Mitigating measures for historic resources are essentially the same as the measures for prehistoric resources described above. The same steps and stages should be followed although, as described in the RMP, archival research and historical documentation shall be used to augment Stage 2 field testing programs. Mitigation of impacts to historic resources through preservation may be more feasible for historic sites than for prehistoric sites because they generally comprise a smaller area and can often be synthesized into a development plan. In the case of historic resources, Stage 3 data recovery programs shall be integrated with compensative programs of corresponding archival research to provide the context for, and make possible a full evaluation of, the material found on the sites. As indicated under the prehistoric mitigation measures, a plan shall also be developed for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This shall be accomplished through adaptive reuse of one of the historic structures within the project or through construction of a building within one of the parks or community centers.

Prehistoric/Historic Resources

Mitigating measures for prehistoric/historic resources are essentially the same as for prehistoric and historic resources as described above. The same steps and stages should be followed although, as described in the RMP, archival research and historical documentation may be used to augment field testing programs. Mitigation of impacts to historic components of prehistoric/historic resources through preservation may in some instances be more feasible than for the prehistoric components because they generally comprise a smaller area and can often be synthesized into a development plan.

If in situ preservation is not possible, recovery of a representative amount or sample of information, both surface and subsurface, is the only other acceptable alternative. For historic components, the data recovery program will be integrated with a corresponding archival research program to fully assess the significance of the material found on the sites. By creating a complementary research program that fully incorporates the archival material with the field results, many important research questions can be addressed.

4.3.5.5 Analysis of Significance

At this program-level of analysis, all prehistoric, historic, and prehistoric/historic resources are considered significant (see Section 3.4.4).

4.3.6 Geology and Soils

4.3.6.1 Impact Analysis

The Fourth Alternative proposes 2000 fewer units than the Phase I-Progress Plan and 20,000 fewer units than the New Town Plan. The reduced development would, therefore, impact less area potentially underlain by adverse geologic conditions (landslides, unstable slopes, etc.). The general types of geologic and soil impacts include slope instability, rippability seismic ground shaking, expansive and erodable soils, liquefaction, and landslides.

4.3.6.2 Proposed Mitigation

The mitigation measures outlined in the geology and soils section concerning the New Town Plan (see Section 3.5.3) would mitigate potential impacts to levels below significance. A brief summary of the proposed mitigation measures is as follows:

- Slope instability - Perform site-specific geotechnical investigation and slope stability analyses and implement appropriate design measures.
- Rippability - Perform site-specific geotechnical investigation. Where non-excavatable materials are encountered, blasting may be required to achieve proposed grades.
- Seismic ground shaking - Perform site-specific geotechnical investigation, incorporate seismic parameters into the design and construction of the project, design according to appropriate building codes.
- Expansive/erodable soils - Perform selective grading and design foundations in accordance with UBC standards. Incorporate erosion control measures into design and construction of the project.
- Liquefaction - Perform site-specific geotechnical investigation to evaluate liquefaction potential. Perform vibrofloatation or dynamic compaction techniques, or remove and recompact soils as appropriate to mitigate liquefaction potential.
- Landslides - Perform site-specific geotechnical investigation to delineate limits of landslides. Landslides may be completely removed or buttressed during site grading.

4.3.6.3 Analysis of Significance

Implementation of the recommended mitigation measures would reduce impacts to below a level of significance.

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4.3.7 Paleontological Resources

4.3.7.1 Impact Analysis

The Fourth Alternative proposes less development (9,383 acres) than the New Town Plan or the Phase I-Progress Plan. Generally similar impacts would occur on the Otay River parcel, but reduced impacts would occur on the San Ysidro and Proctor Valley parcels with reduced development. Although less development would occur, substantial development is proposed in areas with potentially significant paleontological resources. Significant impacts would result.

4.3.7.2 Proposed Mitigation

The mitigation measures outlined in the paleontology section concerning the New Town Plan (Section 3.6.3) would mitigate potential impacts to paleontological resources to levels below significance. The following general mitigation measures shall be implemented.

- A qualified paleontologist shall be retained. The paleontologist shall be present at all times during original cutting in highly sensitive formations and to a lesser extent in less sensitive formations.
- When fossils are discovered, the paleontologist shall be allowed to recover them.
- Prepared fossils and notes shall be given to a scientific institution, and a final summary report shall be prepared by the paleontologist at the end of excavation.
- Geologic/paleontologic preserves shall be created in designated areas not planned for mass excavation.

4.3.7.3 Analysis of Significance

Implementation of the Fourth Alternative would result in adverse impacts to paleontological resources. The significance of these impacts would vary depending upon the paleontological resource sensitivity of individual affected formations. Implementation of the proposed mitigation measures would reduce impacts to below a level of significance.

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4.3.8 Agricultural Resources

4.3.8.1 Impact Analysis

The Fourth Alternative proposes more open space and less single/multifamily development than the New Town Plan. However, development under this alternative would convert or impair agricultural activity on soils classified as Prime Farmland. Approximately 737 acres of Prime Farmland are located within the Otay River and Proctor Valley parcels. Most of the Prime Farmland is concentrated along the Otay River Valley, and small pockets near the northern border of the Proctor Valley parcel. The loss or impairment of Prime Farmland per CEQA Guidelines, Appendix G (y), is considered to be a significant and irreversible impact.

Land designated as having Statewide and Local Farmland Importance is located throughout the Otay River, Proctor Valley, and San Ysidro parcels. The Fourth Alternative would also result in the conversion of these lands to non-agricultural uses. More natural open space would be retained in the southern portion of the Otay River parcel preserving most of the Prime Farmland, as well as land with Statewide and Local Farmland Importance designations. However, no agricultural activity would be allowed within the natural open space areas.

Approximately 20,000 acres of the Otay Ranch property are used for cattle grazing activities. Within the 20,000 acres, approximately 4,000 to 5,000 acres are used for barley cultivation. This represents 3 percent of the county's agricultural land (total countywide agricultural land is 173,317 acres with the addition of 4,000 to 5,000 acres of Otay Ranch agricultural land). The Otay Ranch property has approximately 9,714 acres of land with soil suitable for the production of coastal-dependent crops such as avocados, citrus, truck crops, tomatoes, and flowers. Conversion of the Otay Ranch property to non-agricultural uses would result in the loss or impairment of five percent of the county's agricultural land which is suitable for the potential production of coastal-dependent crops. The loss of existing agricultural land and soils suitable for growing coastal-dependent crops would result in a significant and irreversible impact of the Fourth Alternative.

As indicated in the discussion of historical agricultural uses of the site (Section 3.7.1), tomatoes, celery, cucumbers, and other row crops were produced in the Otay Ranch site until the mid 1970s (JBF Associates 1989). Row crop production ceased due to the high cost of water for agricultural use. Although the site is suitable for production of coastal-dependent crops, the high cost of water would not make this feasible. In addition to the high cost of importing water for agricultural uses, an adequate water storage supply is needed since agriculture is the first use to have its water cut off during severe drought conditions because it is considered on "interruptable user" (OWD 1992). Water for urban uses is perceived to be more economically viable given the present economic and taxation system, which encourages intensification of uses to create additional economic activity and thus provide higher employment levels. (San Diego Coast Regional Commission Report 1974).

It is estimated that approximately 2,400 to 3,000 tons of barley could have been cultivated in 1990 with Otay Ranch generating an average gross income of approximately $230,000 to $288,000. These figures were based on the 1989 yield per acre ratio (0.60 tons/acre), the 1990 market value of barley (96.00/ton), and assumed that 4,000 to 5,000 acres of the property were planted and harvested. The average gross value for cattle was estimated to be between $43,800 to $131,400 for 1990. As discussed in Section 3.7.2, the cost of production and the amount of property taxes paid would exceed the average gross income generated by barley and cattle production. According to the property's farming operation

personnel, any net income from barley or cattle production is used towards the payment of property taxes, property security, and maintenance. Therefore, the loss of barley and cattle production at the Otay Ranch property would have a minimal impact on the county's overall production and value for these commodities. More important is the loss of resources for the potential production of coastal-dependent crops.

Applicable Agricultural Policies

Most of the Otay River parcel is designated as Intensive Agriculture, which allows 1 dwelling unit per 2-4-8 acres. The Proctor Valley and San Ysidro parcels are designated for Multiple Rural Use, allowing 1 dwelling unit per 4-8-20 acres. The Fourth Alternative would change these existing land use designations allowing the conversion of agricultural land to urban uses. The area north of the Otay River Valley would be developed with low to medium density residential uses, commercial uses, parks, schools, and the East Urban Center.

The Proctor Valley and San Ysidro parcels would be developed with less residential uses than the New Town Plan. However, the change in land use designations would allow residential uses to develop adjacent to offsite, existing agriculture activities associated with Daley Ranch to the east. Potential interface land use impacts related to noise, dust, odors, and use of pesticides could occur between the proposed residences located on the east portion of the San Ysidro parcel and residences close to the northeast boundary of the Proctor Valley parcel. No land use interface impacts related to agriculture would occur with the proposed land uses in the Otay River parcel since they would be surrounded by existing and developing urban land uses to the north, south, east, and west.

The land use designations proposed by the Fourth Alternative would allow the conversion of land currently in agricultural use to urban uses, which is a significant agricultural land use impact of the alternative due to the loss of a limited agricultural resource.

The Fourth Alternative would result in similar indirect, growth-inducing impacts as the New Town Plan since it would extend roads and public infrastructure next to lands currently in agricultural use. These include the San Ysidro parcel, where residential uses would be developed in proximity to Daley Ranch, which is a property under an agricultural preserve contract.

The northern portion of the Proctor Valley parcel is within the Jamul-Dulzura Subregional Planning area, and is designated as an "Estate Development Area" and as a "Rural Development Area" along the parcel's northern boundary. Existing grazing activities which occur along the Proctor Valley parcel are consistent with the goals and polices of the Subregional Plan, which encourages agricultural activity to maintain the existing rural character of the community.

This alternative would replace ongoing cattle grazing activities with single-family homes along the northern portion of the Proctor Valley parcel, and natural open spaces to the east. Residential development of 0.25-0.50 dwelling units per acre would be allowed by the alternative's land use designations. These low-density, large lots would be adequate in size to allow agricultural activities such as the keeping of farm animals and the cultivation of vegetables and orchards. By allowing these agricultural uses, the Fourth Alternative would be consistent with the Jamul-Dulzura Subregional Plan's goals. No significant policy inconsistency impacts would occur unless these agricultural activities are not allowed along the northern portions of the Proctor Valley parcel.

The Otay River parcel, San Ysidro parcel, and the lower portion of the Proctor Valley parcel lie within the Otay Mesa Subregional Planning area. The plan encourages agricultural production as an interim use on undeveloped lands planned for future urban use. The Fourth Alternative, similar to the New Town Plan, would allow agricultural activities to occur as an interim use on undeveloped lands planned for future urban use on the Otay Ranch property. An Agricultural Plan would be developed to tie into the project's phasing plan. Areas not scheduled for development and which are currently used for cattle grazing or barley cultivation would continue to operate as agricultural land. The plan would require measures to mitigate potential internal interface impacts related to interim agricultural activities. The Fourth Alternative would be consistent with the goals of the Otay Subregional Plan by allowing agricultural activity as an interim use.

The Fourth Alternative, similar to the New Town Plan, would not be consistent with Goal 2 - Objective 5, Open Space and Conservation Element of the Chula Vista General Plan which calls for the maintenance of agriculture as a viable land use and the preservation of highly productive agricultural land. The Fourth Alternative would also result in the conversion of approximately 20,000 acres of land currently in agricultural production and 9,714 acres of land with the potential to be highly productive, to urban uses. This is a significant open space and conservation policy inconsistency of the project. It should be noted that, contrary to the Open Space Element's goals and objectives to preserve agricultural land, the City of Chula Vista General Plan map for the Eastern Territories does not include any agricultural designations within the Otay River parcel which would preserve agriculture as a viable land use.

The Local Agency Formation Commission (LAFCO) will review development plans for the Otay Ranch property to determine whether the project complies with their Agricultural Lands Preservation Policy when it considers the sphere of influence for the Otay River parcel. LAFCO's review and approval process is independent of this EIR analysis.

The 390 acres of land located in the Otay Mesa Community Plan area are not designated for agricultural use. Therefore, residential and open space land uses proposed by the Fourth Alternative would not conflict with the land use designations of the Otay Mesa Community Plan.

4.3.8.2 Proposed Mitigation

The mitigation measures proposed for the New Town Plan would be applicable to the Fourth Alternative. They are as follows:

1. An agricultural plan shall be prepared by the project applicant prior to approval of any SPA Plans affecting agricultural resources and will be required for each subsequent development proposal (i.e., village centers, the Eastern Urban Center, resort area, and conference center). The plan shall indicate the type of agricultural activity that will be allowed as an interim use. Specifications shall include buffering guidelines designed to prevent potential land use interface impacts related to noise, odors, dust, insects, rodents, and chemicals that may accompany agricultural activities and operations. Adequate buffering shall be provided between the proposed development area and the interim agricultural use. Buffering measures may include:

    - a 200-foot distance between property boundaries and agricultural operations;

- if permitted interim agricultural uses require the use of pesticide, then limits shall be set as to the time of day and the type of pesticide application that may occur;

- use of vegetation along the field edges adjacent to development that can be used for shielding (i.e., corn); and

- notification of adjacent property owners of potential pesticide applications and use of fencing.

The plan shall be reviewed by the city or county planning department that has jurisdiction over these areas to verify that proposed guidelines are adequate to prevent significant interface impacts from occurring. This measure would partially mitigate the incremental loss of agricultural land.

2. Landscaping and buffering guidelines shall be included in the development plans at the SPA level for the areas planned adjacent to existing agricultural uses. These include the areas near the northeastern edges of the Proctor Valley parcel and the areas along the northern edges of the San Ysidro parcel where low-density residential uses would be developed near existing Daley Ranch agricultural activities (i.e., crop cultivation and cattle ranging).

3. The loss or impairment of prime agricultural land for agricultural activity is an unmitigable impact. However, a small portion of the Otay River parcel where prime soils are located should be set aside for a community garden. A possible location for the community garden would be in the southwest portion of the Otay River parcel. This area is considered suitable since it contains prime agricultural soils and is designated as a park by the Fourth Alternative plan. Development of this garden will depend on the feasibility of maintaining it within the proposed park. If the community garden is deemed feasible its size and exact location will be determined at the SPA level. Schools proposed within the Otay Ranch property could promote educational activities in regard to agriculture through the use of the community garden.

4. Agricultural activity and the keeping of animals shall be allowed within the large, low density lots planned along the northern edge of the Proctor Valley parcel, as recommended in the Jamul-Dulzura Subregional Plan. Development plans for this area shall contain landscaping and buffering guidelines designed to prevent potential nuisance impacts related to noise, odor, dust, and use of chemicals from occurring between adjacent internal residential uses.

4.3.8.3 Analysis of Significance

Implementation of the Fourth Alternative would result in significant impacts to agricultural resources. These impacts would not be as significant as the New Town Plan or the Phase I-Progress Plan Alternative since less land would be developed.

According to state, county, and city of Chula Vista policies and goals, the loss of an agricultural resource for the potential production of coastal-dependent crops and the loss of prime agricultural soils, is considered to be a significant, unmitigable impact, regardless of the feasibility of maintaining the land in agricultural production (i.e., due to the lack of an adequate water supply).

4.3.9 Mineral Resources

4.3.9.1 Impact Analysis

The Fourth Alternative proposes open space land uses for the Otay River Valley. However, planned residential land uses are proposed closer to the river valley than in the Phase I-Progress Plan Alternative. Aggregate minerals and bentonite clay are not considered to be significant mineral resources within the project site. Therefore the proposed land uses would not result in a significant impact to mineral resources within the Otay River Valley. The Fourth Alternative proposes low density residential development and a neighborhood park on Rock Mountain, which has been designated by the state as containing significant mineral resources. These proposed residential land uses would result in significant impacts to mineral resources. However, this impact would not occur if the mineral extraction takes place before any structures are built.

Generally similar land use intensities are proposed for the Proctor Valley and San Ysidro parcels as proposed in the Phase I-Progress Plan; therefore, the impacts would be similar.

4.3.9.2 Proposed Mitigation

The Otay River Valley segment within the Otay Ranch project is no longer considered to be a source of significant mineral resources (see Section 3.8, New Town Plan). Therefore, no impacts to mineral resources would result from the proposed development, and mitigation measures are not necessary.

The Fourth Alternative should include measures in its development plan to allow for mineral extraction on Rock Mountain and mineral extraction should be designated as the primary land use. Rock Mountain shall be placed in a mineral extractive overlay designation or an RCA in accordance with the policies of the soon-to-be adopted Mineral Resource Management Plan.

Development of the San Ysidro and Proctor Valley parcels shall be phased, if possible, to allow for mineral extraction if the county's Mineral Resources Element determines that significant mineral resources are located on the Otay Ranch property. Where possible, compatible land uses shall be developed near the locations of future mineral extraction activities (EIR proposed). Should project phasing not be possible, the impact to mineral resources would be significant and unmitigable.

The bentonite deposits onsite are not considered to be regionally significant (see Section 3.8, New Town Plan). Therefore, no impacts to mineral resources would result from the proposed development and mitigation measures are not necessary.

4.3.9.3 Analysis of Significance

The phasing of development of the San Ysidro and Proctor Valley parcels to allow for the extraction of mineral resources before construction would effectively mitigate impacts to mineral resources. However, should this not be feasible, the impact to mineral resources would be significant and unmitigable. Actions that preclude the extraction of significant mineral resources would be significant and would result in unmitigable adverse impacts.

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4.3.10 Water Resources and Water Quality

4.3.10.1 Impact Analysis

The implementation of the Fourth Alternative would potentially disturb fewer floodplains than other alternatives. It includes four crossings of the Otay River Valley, but minimal disturbance would occur to other watersheds.

The types of impacts that can be anticipated are generally similar to those of the New Town Plan and include inundation of project features, changes in surface water flow rates, surface water quality, and ground-water quality and quantity.

4.3.10.2 Proposed Mitigation

Further analysis is necessary to determine the magnitude of the impacts and to identify measures appropriate to mitigate significant effects. All future studies shall be conducted by a qualified hydrologic engineer and meet the City of Chula Vista, County of San Diego, and Regional Water Quality Control Board standards for urban runoff, sedimentation, floodplain encroachment, and water quality, as appropriate. A brief summary of the proposed mitigation measures is as follows:

- Floodplain encroachment - determine floodplain/floodway width; avoid floodplain encroachment.

- Inundation of project features - perform appropriate detailed hydrologic and hydraulic studies and incorporate the findings, conclusions, and recommendations into the design and construction of the project. Upgrade existing facilities or install retention/detention basins, as appropriate, to contain surface flows, etc.

- Changes in surface water flow rates - perform appropriate detailed hydrologic and hydraulic studies and incorporate findings, conclusions, and recommendations into the design and construction of the project. Incorporate erosion control measures, siltation basins, etc. into project design.

- Ground-water quality - implement the improvements and plans provided in the Urban Runoff Reservoir study. Details on the study contents are provided in Section 3.9.3.

- Ground-water quantity - implement measures to enhance recharge to aquifer systems.

- Urban runoff to Lower Otay Lake - prepare and implement Urban Runoff Master Plan.

4.3.10.3 Analysis of Significance

At this level of analysis, impacts to ground-water and surface water resources and quality are considered significant upon development of the Fourth Alternative. Implementation of the recommended mitigation measures at the SPA and project design levels of review would reduce the ground-water and surface water impacts to below a level of significance.

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4.3.11 Transportation, Circulation, and Access

4.3.11.1 Impact Analysis

This section documents the results of the impact analysis for the Fourth Alternative. The following topics will be discussed in this section: trip generation, proposed circulation network, and transportation and circulation impacts.

Trip Generation

This alternative was originally designed to provide a land use plan that was between the submitted New Town Plan and the Project Team Alternative. It also provides an alternative that does not include a university. The alternative was based on the Project Team Alternative, but includes some major differences. Features of this alternative include the following:

- four crossings of the Otay River Valley to more evenly distribute traffic;
- a transit oriented village in place of a university site located west of Salt Creek;
- more even distribution of densities resulting in fewer units on the Otay River parcel and increased units with rural village centers on the eastern parcels; and
- a more balanced split in the proportions of attached and detached homes.

Table 4.3.11-1 summarizes the proposed land uses and daily trips under this alternative. It shows that under SANDAG trip generation standards, the proposed land uses for this alternative would generate approximately 673,947 daily trips on Otay Ranch.

Proposed Circulation Network

The proposed circulation network for the Fourth Alternative would be identical to that proposed for the Environmental Alternative, including the four river valley crossings of Paseo Ranchero/Heritage Road, Otay Lakes Road/La Media Road, SR-125, and Hunte Parkway/Alta Road. The Fourth Alternative also would include a modified grid pattern of streets and loop collector roads around villages and the Palomar Street loop around the Eastern Urban Center.

Transportation and Circulation Impacts

The impact analysis for the Fourth Alternative was conducted in a qualitative manner in accordance with directives from the Project Team and the EIR subcommittee. Thus, the qualitative impact analysis does not include a specific listing of impacted arterials or signalized intersections. The Fourth Alternative would generate approximately 673,947 total daily trips. This alternative would generate 25 percent fewer daily trips than the 901,025 trips estimated for the New Town Plan, 9 percent fewer trips than the 736,883 trips estimated for the Phase I-Progress Plan and 90 percent more trips than the 397,551 trips estimated for the Composite General Plans Alternative.

Thus, the basis for determining the impacts associated with the Fourth Alternative in a qualitative manner involved the review of the project impacts (under qualitative analysis) associated with the next-higher density of development (Phase I-Progress Plan) and the next-lower density (Composite General Plans) alternative. Table 4.3.11-2 provides an estimated comparison of the anticipated impacts to the Otay Ranch study area circulation network under these alternatives.

Table 4.3.11-1

LAND USE AND TRIP GENERATION SUMMARY
FOURTH ALTERNATIVE
OTAY RANCH TOTAL

Land Use	Land Use Intensity	Trip Rate	Daily Trips
Single-family Residential	13,897 du	10/du	138,970
Multifamily Residential	13,521 du	7/du	94,647
TOTAL DWELLING UNITS	27,418 du		
TOTAL RESIDENTIAL TRIPS			233,617
Commercial			
Retail Commercial	122 AC	**	104,000
Freeway Commercial (10–30 acres ea.)	173 AC	650/AC	112,450
Industrial			
General Industrial	324 AC	130/AC	42,120
Research Industrial	112 AC	130/AC	14,560
Public/Quasi-public			
Public Facilities/Schools	353 AC	50/AC	17,650
Parks (Developed)	315 AC	50/AC	15,750
Eastern Urban Center (EUC)			
Multifamily Residential*	*2,400 AC		
Retail Commercial (30–60 acres each)	163 AC	500/AC	81,500
Resort	217 AC	100/AC	21,700
Conference Center (Hotel)	153 AC	200/AC	30,600
TOTAL NON-RESIDENTIAL TRIPS			440,330
TOTAL DAILY TRIPS			673,947

* The 16,800 trips that are generated by the multifamily dwelling units in the EUC are reflected in the total residential dwelling unit count and trip generation figures.

** This trip generation figure is based on the various classes of non-EUC retail commercial uses included in the Otay Ranch Project (i.e., 800 trips per acre on the Otay River Parcel and 1,000 trips per acre on the Proctor Valley and San Ysidro parcels).

Table 4.3.11-2

TRAFFIC IMPACTS OF THREE ALTERNATIVE DEVELOPMENT SCENARIOS (Prior to Mitigation)

Alternative	Impacted Roadway Miles		
	Total Network	Freeway	Arterial
Phase I-Progress Plan	50	13	37
Fourth	44	9	34
Composite General Plans	26	6	20

Alternative	Impacted Intersections		
	Special At-grade Design Required	Special At-grade or Grade Separated Design Required	Special Grade Separated Design Required
Phase I-Progress Plan	5	1	9
Fourth	4	1	6
Composite General Plans	4	0	4

Comparative Analysis of Impacts

It is important to note that the impacts to the Otay Ranch study area circulation network under any development alternative must be mitigated to achieve acceptable levels of service and conform to the adopted performance standards. For review purposes, the estimated Fourth Alternative impacts are compared to those impacts that would occur under the Composite General Plans Alternative. As discussed in Section 4.5.11, the Composite General Plans Alternative is a combination of the adopted general plans for each of the jurisdictions in the study area. As the Adopted Chula Vista General Plan contains the most detailed land use and circulation network information for the area of eastern Chula Vista on and adjacent to the project site, this general plan was used as the primary plan for analysis purposes. This direction was provided by the Interjurisdictional Task Force during the early states of the review process. This comparative analysis will enable the reviewer to clearly understand project and cumulative impacts that would result from a particular alternative. However, at this program level review, the definition of project-only impacts is not provided and specific measures are recommended in the mitigation section to define precisely the process to be followed during the development process of the project, which will result in the accurate definition of project-only impacts associated with each phase of development.

Project-level impacts are impossible to fully identify and address at this stage of development because of uncertainty relating to the ultimate street system to be approved for the area. For example, will SR-125 be a freeway or a toll facility? Will there be two, three, or four river crossings? These major circulation issues significantly impact trips through the project area; consequently, project-level impacts cannot be adequately identified at this time. During the subsequent planning efforts and preparation of SPA plans, these issues can be quantified and mitigated.

As shown in the previous section, the Fourth Alternative is estimated to have a total of 44 impacted roadway miles and 11 impacted major signalized intersections. The Composite General Plans Alterative is expected to have 26 impacted roadway miles and eight impacted major signalized intersections. Thus, 18 additional miles of roadway and three additional intersections would be impacted under the Fourth Alternative.

4.3.11.2 Proposed Mitigation

The mitigation analysis for the Fourth Alternative was conducted in a qualitative manner. The Otay Ranch Project Team determined that no modeling would be conducted on this alternative, as it is expected to create impacts within the range of impacts of the Phase I-Progress Plan and the Composite General Plans alternatives. Thus, there is no precise information available to determine the extent and location of estimated segment and intersection impacts, nor is it possible to identify specific mitigation measures that will be required under this alternative. The comparative impact analysis conducted for this alternative revealed that approximately 44 miles of roadway network and 11 major signalized intersections within the project study area would require some form of mitigation. In order to determine specific mitigation requirements for this alternative, the proposed land uses and circulation network would have to be analyzed in detail using the Combined Southbay Transportation Model.

Potential Transportation Demand Management Benefits

This section summarizes the potential benefits to circulation system operations with the successful implementation of Transportation Demand Management (TDM) strategies proposed by SANDAG and the Air Pollution Control District. Both of these plans would

increase average vehicle occupancy (passengers per vehicle) during commute trips from the current level of less than 1.1 to at least 1.5 in the future.

SANDAG estimates that through TDM, commuting trips region-wide could be reduced by 17 percent. As a regional program, implementation of an aggressive TDM program clearly has a significant positive impact on peak hour operating LOS on the regional circulation system, when roads are usually operating at or near capacity.

Based on the modeled results using the Phase I-Progress Plan Alternative, with TDM benefits included in the model, it can be expected that the TDM policies would decrease total vehicle miles traveled (VMT) by approximately 8 percent. This reduction in traffic activity could potentially reduce both arterial and intersection impacts by one third. A peak hour analysis will be conducted on the conceptually approved plan under TDM and non-TDM conditions prior to each SPA Plan approval. This analysis will more precisely define the extent and location of impacts and identify specific mitigation measures that will be required under the selected development scenario for the Otay Ranch.

4.3.11.3 Analysis of Significance

A detailed analysis of actual impacts and required mitigation would be necessary to provide an accurate analysis of significance for the unmitigable impacts that would occur under this alternative. However, based on the analysis of significance conducted for the Phase I-Progress Plan and the Composite General Plans alternatives, which formed the range for determining impacts that would occur under the Fourth Alternative, it is anticipated that this alternative would have some significant arterial and freeway impacts and no more than four significant offsite intersection impacts after mitigation.

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4.3.12 Air Quality

4.3.12.1 Impact Analysis

The Fourth Alternative represents a lower population increase to the area than either the New Town Plan or Phase I-Progress Plan Alternative; therefore, local air quality impacts would be lower for this alternative. The project design emphasizes transportation alternatives and pedestrian access. San Diego County does not presently meet ambient air quality standards, and the Fourth Alternative provides for a greater increase in population than the Existing General Plans on which the SANDAG Series 7 growth projections are based (see Section 3.11.1.1 for a discussion of Series 8 projections). Consequently, impacts are expected to be significant.

4.3.12.2 Proposed Mitigation

The mitigation measures listed in Table 4.3.12-1 would minimize air pollution impacts.

4.3.12.3 Analysis of Significance

Assuming that growth in the remainder of the county equals or exceeds the Series 7 projections, mitigation measures (summarized in Table 4.3.12-1) applied to this alternative would not reduce impacts to below a level of significance.

Table 4.3.12-1 (Revised)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Construction Sources

- minimize simultaneous operation of multiple construction equipment units (i.e., phase construction to minimize impacts)
- use low pollutant-emitting construction equipment
- use electrical construction equipment as practical
- use catalytic reduction for gasoline-powered equipment
- use injection timing retard for diesel-powered equipment
- water the construction area to minimize fugitive dust
- stabilize (for example, hydroseed) graded areas as quickly as possible to minimize fugitive dust
- pave permanent roads as quickly as possible to minimize dust

Land Use Policies

- Provide neighborhood shopping and personal services adjacent to residential areas to minimize auto trips and reduce mileage travelled to service areas.
- Provide open space and recreational facilities within or adjacent to the residential areas.*
- Provide employee services within walking distance (i.e., banking, childcare, restaurants, etc.).
- Provide a balanced mix of housing and employment possibilities to reduce trips and vehicle miles traveled.

Siting/Design Policies

- Site-specific analysis for potentially incompatible projects (for example, a residential development near one of the quarries or the landfill) shall be reviewed in the SPA Plan.
- Provide dedicated bike lanes to encourage use of bicycles.
- Provide bicycle storage facilities at employment and retail centers.
- Provide shower and locker facilities at offices to encourage bicycle use.

Table 4.3.12-1 (Revised) (Continued)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Siting/Design Policies (Continued)

- Provide sidewalks and curbs to ensure safe pedestrian travel within residential areas and to commercial centers.*
- Provide street designs that promote pedestrian safety (i.e., safe islands in center of major arterials, "Walk" signals, night lighting, etc.).*
- Orient shopping centers to promote use by mass transit (i.e., provide bus turnouts), pedestrians, and bicyclists.
- Design parking lots to promote use of mass transit and car pools.
- Control emissions of NO_x by installing heat transfer modules on gas-fired furnaces.
- Utilize solar heating technology as practical. Generally, solar panels can be cost-effectively used to heat water for domestic use and for swimming pools. Advances in solar technology in the future may make other applications appropriate.
- Utilize low-NO_x residential and commercial water heaters.
- Enhance energy efficiency in building designs and landscaping plans.
- Minimize "drive-through" establishments to reduce emissions from idling vehicles.**
- Minimize on-street parking to reduce congestion and avoid back-up and idling of vehicles.**
- Identify an environmental coordinator to be responsible for education and disseminating information on ridesharing and/or mass transit opportunities, recycling, energy conservation programs, etc.

Transportation-related Management Actions

The City of Chula Vista is responsible for the transportation-related management actions in which they shall coordinate these development plans with the Metropolitan Transit Development Board (MTDB).

Table 4.3.12-1 (Revised) (Continued)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Transportation-related Management Actions (Continued)

- Provide land for transit support facilities such as bus stops, park-n-ride lots, etc.*
- Provide amenities to increase convenience and attractiveness of transit stops (i.e., passenger staging areas, waiting shelters, etc.).*
- Provide minibus, jitney, or other para-transit service to provide access from residential areas to commercial areas.**
- Require major employers to provide ridesharing or mass transit incentives.
- Provide demand-responsive traffic signals.
- Achieve transit agency agreement to institute new routes or express bus service, or to expand existing service, related to the demand caused by the proposed project.

* Measure is feasible in areas with relatively high residential densities.
** Measure is infeasible because: 1) few of these land use combinations are proposed for this alternative or 2) conflicts with village design concept.

4.3.13 Noise

4.3.13.1 Impact Analysis

Roadways

The primary noise source throughout the project area at full buildout of the Fourth Alternative would be from vehicular traffic. Onsite noise impacts would occur as development is completed on Otay Ranch, whereas offsite impacts would be realized as regional traffic volumes increase due to area growth and roadway segments are widened to accommodate the increased traffic. Additional noise impacts are anticipated when existing roadways are re-aligned in accordance with planned or proposed circulation element improvements. The degree of the impact would depend on the location of the noise-sensitive receptors in relation to the roadways as well as the project design. In general, noise-sensitive receptors located along major arterials and collector streets may be impacted by sound levels exceeding 60 CNEL and result in a significant impact. In general, vehicular traffic noise impacts from this alternative would be similar to the New Town Plan. However, the fourth alternative appears to have more open space proposed along Telegraph Canyon Road, Otay Lakes Road and other roadways, which may buffer noise impacts to the residential receptors.

Noise generated by project-related traffic is expected to increase the noise level at the existing sensitive receptors located along the offsite access roadways. Based on the transportation analysis in Section 4.4.11, the project-generated traffic would impact approximately 15 percent (or 44 miles) of the roadway miles. No distinction has been made between impacts to onsite and offsite roadway segments under the Fourth Alternative. However, in comparison to buildout under the Composite General Plan, the Fourth Alternative traffic contributes 18 additional miles of impacted roadways (refer to Table 4.3.11-2 for details on impacted roadway miles). Although there is not a direct correspondence between impacted mileage and noise impacts, comparison with the Composite General Plans Alternative should provide a general degree of vehicular noise impacts. The amount of the noise increase is dependent on such factors as roadway design, ADT, distance from the roadway, the orientation of the usable outdoor living areas to the roadway, and intervening topography. In general, a doubling of the traffic volume would be expected to increase the sound level by 3 dBA. This is considered significant if usable outdoor living areas such as balconies, patios, children's playing areas, and swimming pools are affected. Major roadways which may impact existing residences include East H Street, Otay Valley Road, East Orange Avenue, Palomar Street, and Telegraph Canyon Road. There may be other smaller roadways which may cause a noise impact.

At this level of analysis, noise from onsite and offsite roadways is considered to be a significant and potentially unmitigable impact within 1250 feet of the facility. A site-specific acoustical study will be required during the SPA Plan review and prior to adoption of any circulation element General Plan Amendments.. The study shall provide a description of the proposed project, the existing noise environment, the future noise environment, noise impacts, and the required mitigation measures. If development within the effected area is phased in subsequent to the landfill closure, the impacts would be avoided.

Riparian vegetation is a potential habitat for the federally endangered least Bell's vireo. Elevated noise levels can potentially mask the song of the least Bell's vireo which is used to attract mates and defend territories. The San Diego Association of Governments (SANDAG) in a 1989 study (SANDAG 1989,) theoretically estimated that noise levels

above 60 dBA L_{eq} in vireo breeding areas may impact the reproductive success of this species during their breeding season which occurs from March 15 to September 15. At this level of analysis noise from roadways and construction is considered to be a significant and unmitigated impact (see Section 3.3, Biological Resources).

Gun Ranges

Two gun ranges are currently located on the project site. A small private shooting range is located north of the Otay River. Target Tossers Gun Club, a public shooting range, is located at the western property boundary south of the Otay River. It is assumed that both gun ranges would be relocated prior to development and would not result in an adverse impact.

Rock Quarries

The Fourth Alternative proposes residential land uses to the west, east, and north of the Nelson and Sloan Mining Operation and to the south of the Daley Quarry. Compliance with applicable property line noise ordinances is the responsibility of the quarry operator. The county noise ordinance permits extractive industries to generate one-hour average sound levels as high as 75 dBA at the property line, regardless of the adjacent land use. As discussed for the New Town Plan, calculations show that a 9300-foot buffer from the quarry property line would be required to achieve the residential noise standard of 45 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume that the receiver is in direct line-of-sight with the noise source. No consideration was given to the noise attenuating effects of intervening topography. The intervening knolls and ridges will tend to block sound transmission which may result in a reduced buffer area. The 45 dBA residential standard assumes that quarry operations begin prior to 7:00 a.m. Even if the Nelson and Sloan Mining Operation and the Daley Quarry can comply with the applicable noise ordinances, noise at residential receptors within 9300 feet of the quarry may still be sufficiently audible to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Nelson and Sloan Mining Operation and Daley Quarry is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during the specific plan amendment. The study must provide a description of the proposed project, the existing noise environment, the future noise environment, noise impacts, and the required mitigation measures. The study should consider the effects of intervening topography which may tend to attenuate sound.

Recycling Center

A small wood recycling center is in operation at the west end of the Otay River parcel on Otay Valley Road. The recycling center would be relocated prior to project development and would not result in significant impacts.

Landfills

The Fourth Alternative proposes residential development immediately to the east of the Otay Landfill and at least 600 feet to the north. Based on a measured sound level of 72 dBA at 100 feet from the active work surface (ERCE 1991), similar operations would result in a sound level of 75 dBA at 70 feet. Based on a 70-foot reference distance, calculations show that a 1250-foot buffer from the landfill property line would be required to achieve the daytime residential noise standard of 50 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume that the receiver is in direct

line-of-sight with the noise source. No consideration was given to the noise attenuating effects of intervening topography. The 50 dBA residential standard assumes that landfill operations are limited to the hours of 7:00 a.m. to 7:00 p.m. Compliance with the County of San Diego Noise ordinance is the responsibility of the landfill operator. Even if the landfill can comply with the applicable noise ordinances, noise at residential receptors within 1250 feet of the landfill may still be sufficiently audible to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Otay Landfill is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during SPA Plan review. The study shall provide a description of the proposed project, the existing noise environment, the future acoustical environment, noise impacts, and the required mitigation measures. The study will consider the effects of intervening topography which may tend to attenuate sound.

Industrial Activities

There are numerous industrial land uses adjacent to the Otay River parcel along Otay Valley Road. Auto wrecking yards are located in this area along with other types of industrial activities. Noise associated with each industry is specific to the type of activity. The permitted sound level at an industrial property line would be the arithmetic mean of the permitted sound level of the business and the adjacent properties zones. The result would permit higher sound levels at adjacent residences than would be permitted in a strictly residential neighborhood. Assuming that each business can comply with applicable noise ordinances, noise may still be sufficiently audible at the residential receptors to result in a significant impact. A site-specific analysis will be required during SPA Plan review. The study must provide a description of the proposed project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation measures.

Airfields

Brown Field

Brown Field is located immediately south of the Otay River parcel. The existing noise contours depicted in the Brown Field Municipal Airport Master Plan, adopted in 1978, and the more current noise contours in the updated Draft Brown Field Master Plan (unadopted), show that the project site lies outside of the 60 CNEL noise contour. Noise from Brown Field aircraft operations is not expected to cause a significant impact.

San Diego Air Sports Center

The Fourth Alternative proposes to develop residential land uses immediately to the north, south, and east of the San Diego Air Sports Center. FAA guidelines prohibit skydiving and ultralight flying over congested areas. Therefore, the plan may result in a potentially incompatible land use. Since noise contours are not currently available, this analysis assumes that residential land use within one mile of the Sports Center may be significantly impacted by aircraft noise. A site-specific analysis will be required during SPA Plan review. At this level of analysis, noise from the Air Sports Center is considered to be a significant and potentially unmitigable impact.

Regional Airport

The City of San Diego is currently studying the concept of constructing a regional/binational airport in Otay Valley south of the project site. The proposal is in the very preliminary planning stages, and potential noise impacts from the proposed airport are currently unknown.

Light Rail Transit

The San Diego Metropolitan Transit Development Board (MTDB) is currently studying the concept of constructing a light rail transit (trolley) expansion into the study area. The proposal is in the preliminary planning stages, and potential noise impacts are unknown.

4.3.13.2 Proposed Mitigation

Site-specific Noise Studies

Potentially significant noise impacts have been identified from onsite roadways, the Nelson and Sloan Mining Operation, the Daley Quarry, the Otay Landfill, the San Diego Air Sports Center, and various industrial activities in close proximity to the project site. Site-specific acoustical analyses will be required during SPA Plan review. The study will provide a description of the proposed project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation measures. A "D" designator for noise shall be created to identify areas where a site-specific study is required. The "D" designator impact area shall include the following:

- All areas within 9300 feet of the Nelson and Sloan Mining Operation and the Daley Quarry;
- All areas within the 60 CNEL noise contour of onsite and offsite roadways, which shall include all roadways on the Otay River parcel and all roadways assigned a future ADT of 3000 trips or greater on the Proctor Valley and San Ysidro parcels;
- All areas within 1250 feet of the landfill; and
- All areas within one mile of the San Diego Air Sports Center.
- All areas adjacent to the least Bell's vireo habitat.

Residential development within the impact area may be allowed if the site-specific noise study shows that mitigation to below a level of significance is feasible.

Potentially significant noise impacts have been identified from offsite roadways. Site-specific acoustical analyses will be required for all areas adjacent to roadways proposed for widening, realignment, and/or an upgrade in roadway classification through a General Plan Amendment.

Noise Mitigation Measures

Vehicular Traffic

Noise mitigation is required for all residential land uses located in areas where the CNEL from vehicular traffic exceeds 60 dBA. The estimated 60 CNEL contour is located

approximately 120 feet from the roadway centerline for collector streets, 400 to 2400 feet from the roadway centerline for major and prime arterials, and over 4000 feet from the centerline of the freeways. The modeled contours are considered a worst-case condition because the roadways were modeled at grade with the surrounding area, and the effects of intervening topography were not considered.

Onsite. In general, roadway noise impacts can be mitigated by setbacks, by the construction of barriers, or a combination of both. However, depending on the roadway design and surrounding topography, barriers such as noise walls and earthen berms in excess of 10 feet high may be necessary and are often not considered to be feasible or aesthetically desirable. The setback distance necessary to lower the wall height can be considerable, possibly several hundred to more than a thousand feet. Therefore, noise impacts from vehicular traffic are considered to be potentially unmitigable at residences proposed closest to the roadways. The required setbacks may result in lower residential densities.

Offsite. Mitigation of noise impacts resulting from project-related vehicular traffic on offsite roadways may require construction of barriers on public or private property to mitigate exterior noise impacts, and possibly retrofitting residences with noise insulation for interior noise impacts. In areas were the residences have been built along the roadway, mitigation to below a level of significance may not be possible.

Noise from vehicular traffic and construction is considered to be a significant impact to the least Bells' vireo. In areas where major roadways are located or construction will be undertaken in close proximity to least Bell's vireo habitat, mitigation to below a level of significance may not be possible.

Rock Quarries

Noise associated with the Nelson and Sloan Mining Operation and the Daley Quarry is considered to be a significant impact. Based on the County of San Diego Noise Ordinance, sound levels from the quarries are permitted to be as high as 75 dBA Leq at the source property line. Compliance with the noise ordinance is the responsibility of the quarry operator. Sound levels were calculated to be 45 dBA Leq at approximately 9300 feet from the source property line. Mitigation of noise impacts may not be feasible at residences within 9300 feet and in direct line-of-sight of the quarry. However, mitigation may be possible as a result of intervening topography such as fills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate the impacts to below a level of significance. Residential development within 9300 feet of the quarries should be staged such that construction not take place unless the quarries have been mined-out and mining operations have ceased or noise impacts can be mitigated as demonstrated in the site-specific noise study.

Otay Landfill

Noise associated with the Otay Landfill is considered to be a significant impact. Sound levels were calculated to meet the 50 dBA Leq daytime noise standard at approximately 1250 feet from the landfill property line. Mitigation of noise impacts may not be feasible at residences within 1250 feet and in direct line-of-sight of the landfill. However, mitigation may be possible as a result of intervening topography such as hills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate the impacts to below a level of significance. Residential development within 1250 feet of the landfill should be staged such that construction not take place unless the landfill has undergone closure or noise impacts can be mitigated as demonstrated in the site-specific noise study.

San Diego Air Sports Center

Noise associated with the San Diego Air Sports Center is considered to be a significant impact. As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate impacts to below a level of significance. Residential development within one mile of the Air Sports Center should be staged such that construction not take place unless the Air Sports Center has closed or noise impacts can be mitigated as demonstrated in the site-specific noise study.

4.3.13.3 Analysis of Significance

Significant noise impacts have been identified from roadways, the Nelson and Sloan Mining Operation, the Daley Quarry, the Otay Landfill, the San Diego Air Sports Center, and the various industrial activities in proximity to the project site. Reduction of noise impacts from all of these noise sources to below a level of significance may not be feasible. At this level of analysis, noise from these sources are considered to be a significant and unmitigated impact.

4.3.14 Public Services and Utilities

4.3.14.1 Impact Analysis

The Fourth Alternative would result in the development of 27,418 homes and a population of 80,408 residents (Baldwin Vista 1991). The following analysis is based on the same generation/demand rates utilized in Section 3.13 for the New Town Plan.

Water Availability and Demand

Demand Generated

The total water demand for this alternative is estimated at 21.4 mgd for average day use. Water conservation measures would reduce the potable demand 121 gallons per day per dwelling unit, for a savings of 3.3 mgd or 15 percent. Water service and attendant facilities are proposed for all pressure zones. Storage capacity and filtration plant capacity would be purchased from the City of San Diego. Facility phasing would require construction on the Otay River parcel first, followed by incremental system expansion.

Reclaimed Water. The reclaimed water demand for the Otay River parcel is 2.80 mgd under the Fourth Alternative. A distribution and delivery system similar to the proposed project would be required; however, this alternative would require less capacity in the wastewater reclamation facility.

Significant impacts would occur under the Fourth Alternative similar to the proposed project. These impacts include the unanswered question of which water jurisdiction will ultimately serve the project, the provision of facilities sufficient to serve the project, and the issues of water reclamation and future water availability. Due to the lack of detailed development and facility plans at this time, the Fourth Alternative would require further environmental review at the SPA Plan level similar to the proposed project.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- Annexation of land to the appropriate water jurisdiction.
- The preparation of a Water Master Plan by the project applicant in accordance with the standards of the appropriate water jurisdiction. Details on the required contents of the master plan are contained in Section 3.13.1.3.
- If required by the appropriate water district, written verification shall be obtained from the water district that water will be adequately provided.

Wastewater and Sewer Service

Demand Generated

The total sewage generation for this alternative is estimated at 10.02 mgd for average flows. This alternative would provide gravity flow through Poggi and Telegraph Canyon

drainage basins. The estimated flow from Poggi and Telegraph Canyon drainage basins is 2.20 million gallons per day. Under this alternative, approximately 7.8 mgd of wastewater flow would be conveyed to the Otay River Valley. Capacity in the wastewater reclamation facility would be required for this alternative, in order to utilize reclaimed water for irrigation. The interceptor sewers and treatment plant would require less capacity than the proposed project. The initial phases of development would begin in the Telegraph and Poggi Canyon basins to utilize existing City of Chula Vista interceptors.

Significant wastewater and sewer service impacts would occur under the Fourth Alternative similar to the proposed project. These impacts include the unanswered questions of which sewer jurisdiction would serve the project, where the project's wastewater would be treated, and how facilities would be funded. Further environmental review at the SPA Plan level would be required under this alternative, similar to the proposed project, to ensure that adequate facilities are provided.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- Annexation of land to the appropriate sewer jurisdiction.
- The preparation of a Sewer Master Plan by the project applicant in accordance with the standards of the appropriate jurisdiction. Details on the required contents of the master plan are contained in Section 3.13.2.3.
- If a requirement of the appropriate sewer district, written verification shall be obtained from the sewer district prior to SPA Plan approval that sewer service will be adequately provided.

Integrated Waste Management

Demand Generated

The approximate total waste generation for the Fourth Alternative is estimated at 286 tpd, or 104,530 tpy. Through the use of integrated waste management techniques, it is anticipated that the amount of waste which would ultimately require landfill disposal would be approximately 143 tpd, or 52,195 tpy. This demand, generated by the 27,418 units and the additional population of 80,408, would result in potentially significant impacts to solid waste management in South County. This alternative would require an integrated waste management system similar to the proposed project, although the MRF and composting facility may be scaled back to serve the projected demand. Further environmental analysis of this issue would be required at the SPA Plan level.

Policy Consequences

No policy inconsistences would occur under this alternative.

Proposed Mitigation

Mitigation measures required under the Fourth Alternative include the preparation of an Integrated Waste Management program by the project applicant prior to SPA plan approval, ~~and~~ the project's participation in this program during all phases of SPA development, and compliance with County and City programs and regulations concerning long-term solid waste capacity. The program contents are detailed in Section 3.13.3.3.

Police Protection

Demand Generated

A proportional calculation based on population was used to determine the demand for law enforcement facilities under the Fourth Alternative. This results in a demand for 111 law enforcement personnel and 22,683 square feet of office space. Under this alternative, 22,683 square feet of space is proposed. However, due to the fact that detailed development and facility plans are not available at this time, the project-specific impacts of the Fourth Alternative cannot be determined. Further environmental review would be required at the SPA Plan level, similar to the proposed project, to ensure adequate facilities and staff are available to serve the project. At this stage of review, it has been determined that the unresolved issues with respect to the provision and funding of services and facilities constitute significant impacts.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to the approval of any SPA Plan under the alternative include:

- The preparation of a comprehensive Law Enforcement Master Plan by the project applicant in accordance with the standards of the appropriate service provider.

Fire Protection and Emergency Medical Service

Demand Generated

The Fourth Alternative would require provision of four fire facilities, the same number of facilities required to serve the New Town Plan. Two stations would be provided on the Otay River parcel, and two stations would be located within the eastern parcels, one located in southern San Ysidro and another in central Proctor Valley. Emergency service would be provided through two facilities. The emergency service facilities are proposed be co-located with the fire facilities; one on the Otay River parcel and one on either the Proctor Valley or San Ysidro parcel.

The Fourth Alternative would result in potentially significant impacts to the provision of fire protection and emergency medical service. This determination has been made due to the current lack of detailed development and facility plans which would be made available during the SPA Plan review process. Further environmental review of fire protection service would be required at the SPA Plan level to ensure adequate facilities and staff are provided to serve the project.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to any SPA Plan approval under this alternative include the preparation of a comprehensive Fire Master Plan by the project applicant in accordance with the appropriate service provider requirements. The master plan shall demonstrate compliance with City of Chula Vista and County of San Diego fire equipment and response time provisions for emergency medical service.

Schools

Demand Generated

The estimated 80,408 total population under the Fourth Alternative would generate demand for facilities necessary to serve 16,840 students. Approximately 18 schools on approximately 291 acres would be required. Thirteen elementary schools sites, two junior high schools sites, and two high school sites are proposed under this alternative, for a total of 17 schools. The majority of these schools would be situated on the Otay River parcel. This alternative is, therefore, one school short of meeting the requirement of 18 schools, resulting in a significant impact.

Although 17 schools are proposed under the Fourth Alternative, the lack of detailed development and facility plans at this stage of analysis make it difficult to determine the project-specific impacts on schools. Further environmental review is required prior to SPA Plan approval to ensure the adequate provision of school facilities. Until that time, this alternative is considered to have potentially significant impacts on schools.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include the preparation of a Schools Master Plan by the project applicant in close coordination with the affected school districts. Details on the master plan contents are contained in Section 3.13.7.3. The project applicant shall also provide documentation to the appropriate jurisdiction confirming school district satisfaction of facility funding.

Library Service

Demand Generated

The estimated 80,408 total population under the Fourth Alternative would generate demand for 40,204 square feet of library space. The population distribution projects the following geographic demand:

• Otay River Parcel	27,048 square feet
• Proctor Valley Parcel	7,846 square feet
• San Ysidro Parcel	5,310 square feet
Total	40, 204 square feet

An additional 241,224 books would also be required for the residents of Otay Ranch under this alternative.

The implementation plan identifies a total of 40,204 square feet of library space to be provided on Otay Ranch located within the EUC. Although a total of 40,204 square feet of library space is proposed under the Fourth Alternative, the lack of detailed development and facility plans at this stage of analysis make the project-specific impacts under this alternative difficult to determine. Further environmental review would be required at the SPA Plan level, similar to the proposed project, to ensure adequate facilities and staff would be available to serve the proposed project. At this stage of review, it has been determined that the unresolved issues with respect to the provision and funding of services and facilities constitute significant impacts.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- The preparation of a Library Master Plan by the project applicant in accordance with the criteria of the applicable jurisdiction.

Parks, Recreation, and Open Space

Demand Generated

The demand for neighborhood and community parks under this alternative would be for approximately 241 acres. Based on the ~~required~~ goal of 15 acres per 1,000 population, the demand for regional parks would be 1,206 acres.

Under the Fourth Alternative, 13,273 acres of the Otay Ranch property (over one-half of the site) would be retained as open space, featuring passive recreation and resource management areas in the Otay River Valley, Jamul Mountains, and San Ysidro Mountains. Greenbelt areas between land uses and connecting open space areas, recreation facilities, and villages would be provided. Community and neighborhood parks totaling 315 acres would supplement the natural open space and trail system with active recreation facilities near the villages. Parkland and open space would be provided in compliance with the Otay Ranch Resource Management Plan (RMP).

The proposed 315 acres of parkland is in excess of the requirement for neighborhood and community parks.

The lack of detailed development and facility plans at this stage of analysis make the full extent of this alternative's impact on parks, recreation, and open space difficult to determine. Further environmental review would be required prior to SPA Plan approval to ensure the provision of adequate parks, recreation, and open space. Until that time, this alternative is considered to have potentially significant impacts on parks, recreation and open space with respect to siting, funding and phasing.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval include the preparation of a Parks, Recreation and Open Space Master Plan by the project applicant in accordance with applicable standards for parkland acreage and recreation facilities. Dedication of land in accordance with requirements or payment of fees in lieu of dedication would mitigate any impacts to below a level of significance.

Electricity and Gas

Demand Generated

Additional substations and associated distribution lines would be required to serve development under the Fourth Alternative; placement of these facilities and associated impacts would be determined at the SPA Plan level.

SDG&E does not anticipate any significant impacts associated with the provision of electric and gas facilities for Otay Ranch, provided the following mitigation measures are implemented.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

- The project applicant shall work with SDG&E during all stages of electrical and gas facilities planning to minimize disturbance to sensitive resources (EIR proposed).

- Land uses adjacent to the SDG&E transmission lines shall be subject to review and comment by SDG&E (EIR proposed).

Health and Medical Facilities

Demand Generated

Based on the same methodology utilized in Section 3.13.11, it was estimated that the following health and medical facilities would be required under the Fourth Alternative:

- 1 public health satellite office
- 2.2 99-bed nursing homes
- 1.6 commercial home health care offices
- 5 public and private community meeting spaces
- 2 ambulatory pavilions
- 137 commercial physician, dentist, chiropractic, mental health, therapeutic, laboratory, and medical services and supply offices

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures under this alternative include the involvement of appropriate governmental agencies and service providers during all stages of planning. Specific needs and siting of appropriate facilities shall be be identified by the project applicant in corporation with health care providers prior to SPA Plan approval.

Senior and Social Service Facilities

Demand Generated

Demand for senior and social service facilities is dependent upon the number, location and demographics of the proposed project's population. Although there are currently no statutory requirements for the provision of senior and social services, it is expected that the Fourth Alternative would have significant impacts on the provision of these services as the proportion of the population over the age of sixty continues to increase and the demand for social services in the region continues to grow.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures under this alternative include the involvement of appropriate governmental agencies and service providers during all stages of planning. Specific needs and siting of appropriate facilities shall be identified by the project applicant in cooperation with service providers prior to SPA Plan approval.

Cemeteries

Demand Generated

The Fourth Alternative would not generate enough demand to warrant the development of cemetery facilities, and the existing facilities would be adequate; therefore, no impacts would occur and no mitigation would be required.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Child Care

Demand Generated

The estimated population of 80,408 residents would generate demand for 3,210 formal child care slots. It is estimated that 52 percent of the needed child care would be provided by large group facilities with an average capacity of 90 children. Therefore, the Fourth Alternative would generate a demand for nineteen 90-slot child care facilities. Assuming adequate child care facilities are provided as deemed necessary, no impacts would occur.

Although there are currently no mandated requirements for the provision of child care facilities, the development of the proposed project is expected to have significant impacts on the provision of these services as the population increases in the project area. Further environmental review of this issue is required at the SPA Plan level to ensure that adequate child care facilities are available to serve Otay Ranch.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures include the provision of child care facilities as deemed necessary during the policy development process.

Animal Control

Demand Generated

The additional population in the South County area generated by development under the Fourth Alternative would increase the demand for animal control facilities, resulting in a potentially significant impact.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures require that the project applicant participate in programs to equitably share the funding of animal control facilities and designate animal control facilities to provide adequate square footage of shelter space per dwelling unit to the satisfaction of the appropriate jurisdiction.

4.3.14.2 Analysis of Significance

At this level of analysis, the additional 27,418 homes and associated population of 80,408 residents as a result of the Fourth Alternative would result in significant impacts on the provision of public services and utilities. Implementation of the mitigation measures outlined above at the SPA-level would mitigate project-specific impacts to below a level of significance.

4.3.15 Risk of Upset

4.3.15.1 Impact Analysis

The potential risks of upset associated with the Fourth Alternative would be similar to the risks associated with the New Town Plan. Soils contaminated with petroleum hydrocarbons and pesticides have been identified in the area of the ranch operations center on the Otay River parcel (Woodward-Clyde 1989). The Fourth Alternative proposes low-medium density residential development in the area of the ranch operations center; therefore, the potential exists for exposure to contaminated material in excess of State of California standards.

The area in the southern part of the Otay River parcel, previously used as the Brown Field Bombing Range, would be allocated to open space under the Fourth Alternative. There is potential danger of an accident occurring due to disturbance of any unexploded ordnance in this area.

4.3.15.2 Proposed Mitigation

The mitigation measures proposed for the New Town Plan (Section 3.14.3) would also be applicable to the Fourth Alternative. These measures include:

1. Soil and ground-water testing shall occur in the ranch operations center area potentially affected by the previous disposal of hazardous waste or historic pesticide use. The purpose of the testing shall be to identify areas of contamination in excess of federal and state standards. Should areas of excess contamination be identified, remediation shall occur prior to residential development. (EIR proposed.)

2. The applicant shall notify prospective buyers and the California Department of Health Services (DHS) as required, regarding their intention to develop the area adjacent to the Otay Landfill. (EIR proposed.)

3. A survey shall be conducted of the Brown Field Bombing Range by the Army to identify the presence of any unexploded ammunition. Should unexploded ordnance be located on the property, appropriate measures shall be taken for removal of the material. (EIR proposed.)

4. The transport of hazardous waste on existing and future roadways shall be conducted in accordance with the California Code of Regulations (CCR) and the Code of Federal Resolution (CFR). These regulations identify Department of Transportation (DOT) approved methods for packaging and containerizing hazardous waste and site appropriate options and procedures relative to the handling and transportation of these wastes. (EIR proposed.)

4.3.15.3 Analysis of Significance

Implementation of the measures identified above would mitigate health risks to below a level of significance.

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4.4 PROJECT TEAM ALTERNATIVE

4.4.1 Description

The Project Team Alternative also represents a moderate level of development on the Otay Ranch property. Approximately 6,317 acres of land would support the development of a maximum of 24,064 residential dwelling units for an estimated population increase of 67,046 residents. The Project Team Alternative differs from the others mainly on its emphasis on multifamily residences (i.e., 60.4 percent of the total) and reliance on clustering. Proportionally, this alternative places more dwelling units on the Otay River parcel and fewer on the two eastern parcels. Approximately 39.6 percent of the units proposed under this alternative would be single-family homes. In general, a full range of residential densities would occur on the Otay River parcel, density being higher there than on the other two parcels (Table 4.4-1). A majority of the Otay River parcel units would be located near SR-125, (Figure 4.4-1) and the net residential density on the Otay River parcel would average 8.04 du/ac. Residential uses would be arranged in villages, each with its own mixed use village center. Low density residential uses would surround the periphery of Wolf Canyon on the Otay River parcel, occur on the foothills of the Jamul Mountains on the Proctor Valley parcel, and in the foothills and eastern portions of the San Ysidro parcel. Large lots (2 to 4 acres) would be planned in the vicinity of the existing Jamul community (for a net residential density of 1.75 du/ac) and on the eastern portions of the San Ysidro parcel, near Dulzura (for a net residential density of 0.75 du/ac). A greenbelt area or wildlife corridor would separate the low density residential from the moderate use areas in both cases.

To complete the community under the Project Team Alternative, the land use plan proposes 2,355 acres of non-residential development, including commercial, industrial, and public/quasi-public uses (i.e., schools and park/recreation acreage). The majority of the commercial uses would be distributed among several village centers throughout the Otay River parcel and occur within two small parcels (approximately 10 acres each) on the Proctor Valley and San Ysidro parcels, respectively. In addition to the industrial area designated by the City of San Diego for property south of the Otay River Valley, the Otay River parcel would also support limited manufacturing/industrial land uses in the southwestern corner, adjacent to the Otay Landfill, and research and development uses in the central portion of the parcel. A 384-acre university site is proposed between the research industrial area and the northern edge of the Otay River Valley, west of Salt Creek. Public facilities proposed under this alternative include 11 elementary schools and 2 junior high schools. A high school site is planned on an outparcel which is currently owned by the FAA.

As noted in Table 4.4-1, 268 acres of this alternative are devoted to community and neighborhood parks, and approximately 14,028 acres to natural and man-made open space uses, including passive recreation areas. The majority of the open space proposed under this alternative (13,442 acres) would be placed in a managed preserve with implementation of a resource management plan. A botanical garden would be developed in the community park alongside the Salt Creek open space. An extensive greenbelt system (composed of man-made open space and parkways) along most of the arterial roadways would link all portions of the Otay River parcel and open space areas.

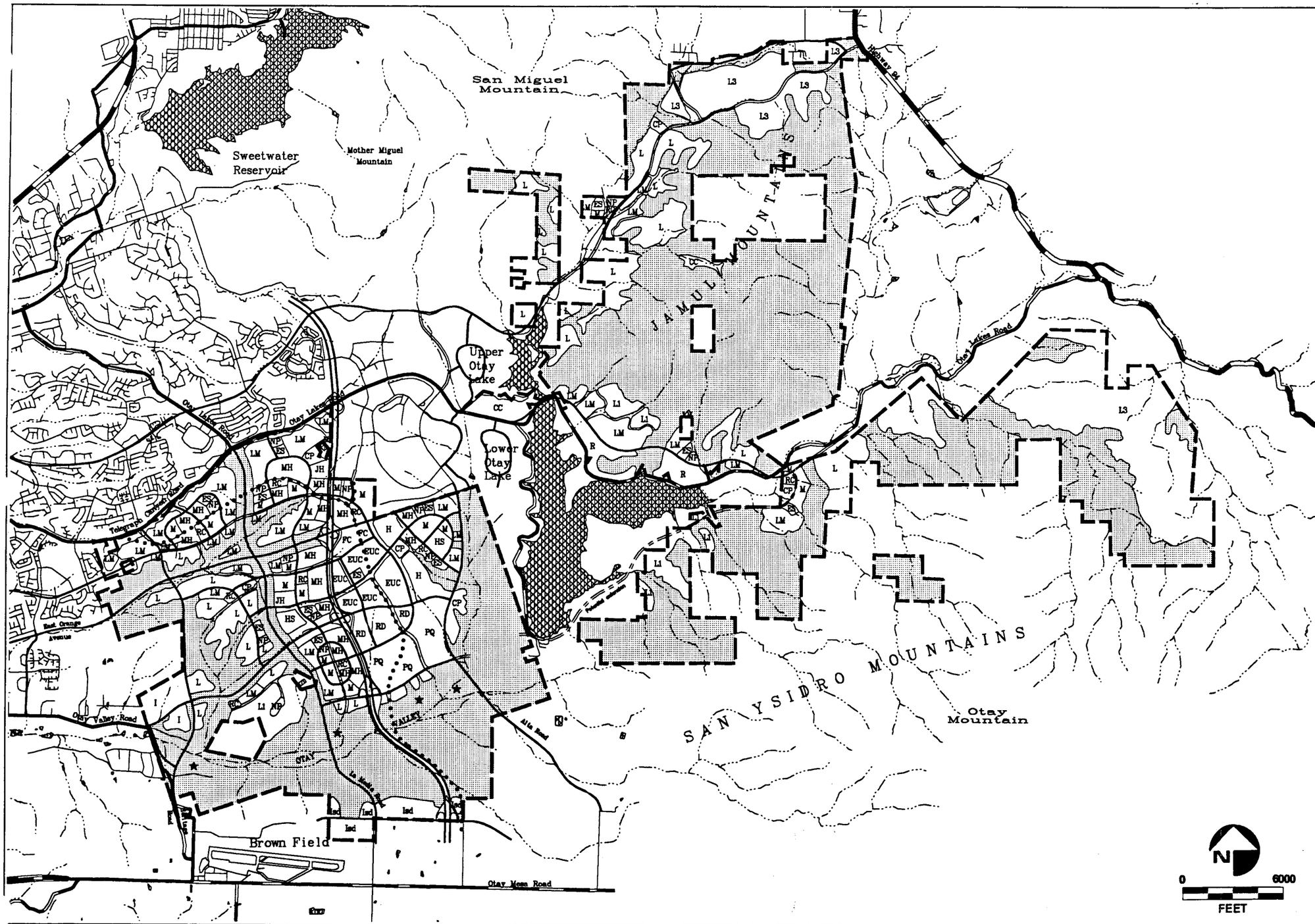
Five special plan areas are identified under the Project Team Alternative: Eastern Urban Center, Proctor Valley resort, Proctor Valley conference center, Village Centers, and potential active recreation areas within the Otay River Valley. The Eastern Urban Center would comprise 286 acres of mixed, but predominantly high density residential, uses located in the center of the Otay River parcel. The resort is planned for two locations along

Table 4.4-1

LAND USE STATISTICS FOR PROJECT TEAM ALTERNATIVE

Land Use Designation	Residential Density (du/ac)	Otay River Parcel Acres	Otay River Parcel Dwelling Units	Proctor Valley Parcel Acres	Proctor Valley Parcel Dwelling Units	San Ysidro Parcel Acres	San Ysidro Parcel Dwelling Units	Otay Ranch Total Acres	Otay Ranch Total Dwelling Units
RESIDENTIAL									
Low	0 to 3	675	1,076	1,658	1,809	2,102	1,030	4,435	3,915
Low Medium	3 to 6	749	3,351	308	1,426	73	315	1,130	5,092
Medium	6 to 11	354	2,497	7	68	56	416	417	2,981
Medium High	11 to 18	524	6,616	--		--		524	6,616
High	18-27	144	3,960	--		--		144	3,960
Total Residential		2,446	17,500	1,973	3,303	2,231	1,761	6,650	22,564
OFFICE/COMMERCIAL									
Retail Commerical		88		7		12		107	
Freeway Commerical		61		--		--		61	
INDUSTRIAL									
General Industrial		222		--		--		222	
Research Industrial		152		--		--		152	
Limited Manufacturing		169		--		--		169	
PUBLIC/QUASI-PUBLIC									
Public Facilities/Schools		244		24		10		278	
University Site		384		--		--		384	
PARKS/SQUARES		215		37		16		268	
EASTERN URBAN CENTER									
Residential		55	1,500	--		--		55	1,500
Retail Commerical		76		--		--		76	
General Office		100		--		--		100	
Park		30		--		--		30	
Public/Quasi-Public		25		--		--		25	
RESORT		--		236		--		236	
CONFERENCE CENTER		--		161		--		161	
OPEN SPACE									
Natural		4,747		5,415		3,280		13,442	
Manufactured		518		62		6		586	
FREEWAY		86		--		--		86	
TOTALS		9,618	19,000	7,915	3,303	5,555	1,761	23,088	24,064

Source: Robert Bein, William Frost & Associates, Project Team Land Use Alternatives - Otay Ranch, 1990; as revised by Ogden, 1992.



LEGEND

Open Space

Man Made Open Space

★ Potential Active Recreational Areas

Residential

L3	Low 3
L2	Low 2
L1	Low 1
L	Low
LM	Low Medium
M	Medium
MH	Medium High
H	High

Commercial

RC	Retail Commercial
FC	Freeway Commercial

Industrial

RD	Research/Development
Isd	City of San Diego Industrial
I	Limited Manufacturing

Public & Open Space

PQ	Public & Quasi Public
HS	High School
JH	Junior High School
ES	Elementary School
NP	Neighborhood Park
CP	Community Park

Special Plan Area

EUC	Eastern Urban Center
R	Resort
CC	Conference Center

Hwy 125

Parkway

Transit corridor

Primary arterials

"A" Way

Otay Ranch property

OGDEN

Project Team Alternative

FIGURE

4.4-1

the northern shore of Lower Otay Lake, south of Otay Lakes Road. The resort would contain a medium to low-density golf course community, a tourist-oriented commercial center, and rural residential area. The conference center would be situated at the same location as in the Phase I-Progress Plan, Fourth, Low Density, and New Town Plan alternatives. The village centers would feature mixed residential, civic, and commercial uses. Four active recreation areas would be situated in the Otay River Valley.

The circulation plan of the Project Team Alternative proposes a series of prime arterials and major and collector roadways to provide access to the entire site (Figure 4.4-1). Four crossings of the Otay River Valley are proposed and include extensions of SR-125 and Heritage Road and two new roadways, Alta Road and La Media Road. An additional roadway, "A" Way, is potentially proposed south of Lower Otay Lake to provide access between the Otay River and San Ysidro parcels. This access will only be constructed if the detailed traffic analysis identifies a need for the roadway. As with other project alternatives, a transit corridor is designated on the Otay River parcel to supplement the proposed roadway network. The corridor would run from western Telegraph Canyon Road through two village centers east of the freeway, freeway commercial areas, Eastern Urban Center, university site, and research industrial area. The transit corridor would link to the SR-125 alignment near the southern slopes of the river valley before entering the Otay Mesa industrial area. The proposed villages are arranged to maximize transit use opportunities.

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4.4.2 Land Use, Planning, and Zoning

4.4.2.1 Impact Analysis

The Project Team Alternative would result in a significant change in the character of the site, from open space to urban and semi-rural development. Potentially significant land use incompatibilities could occur due to proposed development adjacent to EastLake, the Nelson and Sloan quarry, the San Diego Air Sports Center, the Daley Quarry site, and where residential development is planned next to industrial development and SR-125 onsite. No significant land use incompatibilities would occur between this alternative and development with the Sunbow project or the Otay Landfill. Impacts to rural lands north and east of the Proctor Valley and San Ysidro parcels may occur indirectly due to growth induced by the extension of infrastructure and the Urban Limit Line (see Section 7, Growth Inducement).

This alternative is not consistent with County of San Diego policies (Goal 1, Jamul-Dulzura Subregional Plan; Overall Goal 1.1, Land Use Goals 2.2, 2.3, and 2.4 of the Regional Land Use Element) to preserve the rural atmosphere of existing rural county lands. The Proctor Valley parcel would be developed with 315 acres of medium or low-medium density residential development, while the San Ysidro parcel would be developed with approximately 129 acres of medium or low-medium density residential development. This alternative also proposes development within several of the county's Resource Conservation Areas (RCAs). While development is not prohibited in RCAs, the overlay requires that special attention be given to avoiding impacts to sensitive resources. The same special consideration should be required by the new Subregional Plan for the area to preserve the intent of county RCAs to protect sensitive resources.

No significant policy inconsistencies with City of San Diego industrial policies would occur with this alternative.

The Project Team Alternative is not consistent with the City of Chula Vista's goal to develop the Eastern Territories primarily with low-medium density residential development since the Project Team Alternative proposes almost 40 percent of the residential acreage (and 60 percent of the units) in the Otay River parcel to be devoted to medium, medium-high, or high density residential development. ~~This alternative is also not consistent with the city's plans for a four-year college or university in the Eastern Territories.~~

4.4.2.2 Proposed Mitigation

Mitigation for land use impacts of the Project Team Alternative are required at the GDP/Subregional Plan level and will be implemented at the SPA level, including: the implementation of landscaping, grading, buffering, and/or phasing guidelines for areas of the project near EastLake Greens, and where residential and industrial developments are planned adjacent to each other on the site; coordination with the FAA and implementation of their required measures to avoid impacts to the San Diego Sports Air Center (through the year 2002); mitigation as described in the noise section for areas near the Nelson and Sloan and Daley quarries; and the addition of overlays or other restrictions on the Subregional Plan map (or an adopted RCA map) to protect biological, cultural, and scenic resources currently protected by county RCAs. (Refer to Section 3.1.3 for more details on the above mitigation.)

4.4.2.3 Analysis of Significance

The Project Team Alternative would significantly change the character of the site from open space to urban and semi-rural land, especially in or adjacent to Jamul, Proctor Valley, Lower Otay Lake and the San Ysidro Mountains. Significant land use impacts due to inconsistency with county policies to preserve rural lands and with City of Chula Vista goals for development of the Eastern Territories primarily with low-medium density residential development ~~and with a four-year college or university~~ would also occur.

4.4.3 Landform Alteration/Aesthetics

4.4.3.1 Impact Analysis

The Project Team Alternative proposes development in generally the same areas as the Fourth Alternative but at lower gross residential densities. This reduction in development intensity would be particularly noticeable in Proctor Valley, southwest of Lower Otay Lake, and in the eastern foothills of the San Ysidro parcel. In contrast, development proposed north of the lake would appear similar in intensity as under the Fourth Alternative, but not as extensive as the Phase-I Progress Plan. On the Otay River parcel, development adjacent to existing roadways would be similar to the Fourth and Phase-I Progress Plan alternatives. The Project Team Alternative also proposes development along Otay Lakes Road between Lower Otay Lake and Highway 94 in areas left in open space by the Phase I-Progress Plan Alternative. These lower densities in the eastern and northern areas are crucial in minimizing potential visual impacts in Proctor Valley and in the southwestern part of the San Ysidro parcel. Irrespective of the lower residential densities, the conversion of vacant land to urban development represents a significant and unavoidable impact of GDP implementation. Night lighting impacts would be less than significant since the project would have to comply with the county's Dark Sky Ordinance or similar city ordinances.

In general, the Project Team Alternative would result in the following significant landform alteration and/or visual impacts:

- landform alteration impacts due to possible grading of steep slopes on all parcels;
- long-term visual impacts of developing on the mesa northeast of Lower Otay Lake and in the southwestern corner of the San Ysidro parcel in the vicinity of the lake; and
- visual impacts of development proposed in Proctor Valley, around Lower Otay Lake, and south of Otay Lakes Road between Lower Otay Lake and Highway 94.

4.4.3.2 Proposed Mitigation

Mitigation would be required if the Project Team Alternative were selected in order to reduce the potentially significant effects of grading steep slopes, developing the resort on the northern lakeshore, moving Otay Lakes Road, and constructing residencies in Proctor Valley and south of Otay Lakes Road. Measures controlling grading and design are detailed in Section 3.2.3. In addition, proposed development along Otay Lakes Road between Lower Otay Lake and Highway 94 should be mitigated in the same manner as proposed development along Proctor Valley Road. In the case of the low density development proposed in the southwestern corner of the San Ysidro parcel, visual impacts may be mitigable below levels of significance through careful site, building, and landscape design, whereby grading is minimized and homes are placed on stepped building pads that conform to the natural terrain, when feasible.

4.4.3.3 Analysis of Significance

Upon implementation of the above mitigation measures, significant landform and visual impacts due to grading of steep slopes, development of the mesa northeast of Lower Otay Lake and in the southwestern corner of San Ysidro parcel, and development within Proctor

Valley, around Lower Otay Lake, and south of Otay Lake Road between Lower Otay Lake and Highway 94 would be avoided. Significant effects due to the long-term change in open-space character of the site would remain unmitigated.

4.4.4 Biological Resources

4.4.4.1 Impact Analysis

Reduction of Vegetative Communities/Habitats

The Project Team Alternative would reduce current open space overall by an estimated 42 percent (9,646 acres). By parcel existing open space would be reduced by approximately 51 percent (4,871 acres) in the Otay River parcel, 32 percent (2,500 acres) in the Proctor Valley parcel, and 41 percent (2,275 acres) in the San Ysidro parcel. These are general estimates that would be further refined at the SPA level of analysis.

Reduction of Sensitive Habitats

The Project Team Alternative would reduce sensitive coastal sage scrub habitats by an estimated 32 percent; the exact acreages of sensitive habitats impacted were not calculated. This impact to coastal sage scrub and maritime succulent scrub habitats, would be significant. Significant impacts would also occur to undisturbed and disturbed valley needlegrass grassland habitats which are reduced by an estimated 65 percent. Native woodlands including southern live oak riparian forest, southern interior cypress forest, and sycamore alluvial woodland would be impacted significantly also. Wetland habitats would be reduced by approximately 5 to 10 percent (probably less than 9 percent); the impact would be considered significant. Industrial development in the southern portion of J31+ on Otay Mesa and in Proctor Valley would significantly impact vernal pool habitat (less than 8 percent).

Reduction of Sensitive Plants

This alternative would significantly impact four of nine state or federally-listed threatened/ endangered plant species on Otay Ranch. A fifth species could be indirectly impacted by development.

<u>San Diego Thorn-mint (*Acanthomintha ilicifolia*)</u>

The two populations found on Otay Ranch would be lost to development in the Proctor Valley parcel near Lower Otay Lake. This 100 percent reduction would be a significant impact.

<u>Dunn's Mariposa Lily (*Calochortus dunnii*)</u>

Two of 16 (12.5 percent) points of occurrence would be impacted. This would be considered a significant impact.

<u>San Diego Button-celery (*Eryngium aristulatum* var. *parishii*)</u>

An estimated 10 (7 percent) of the vernal pools supporting populations of this species would be developed by the Project Team Alternative. This would be a significant impact to San Diego button-celery.

<u>Otay Tarweed (*Hemizonia conjugens*)</u>

Approximately 25 percent of the points of occurrence of this species would be developed. Impacts would occur at Poggi Canyon, Wolf Canyon, the north slope of Rock Mountain,

the northwest end of Salt Creek, and in the disjunct parcel north of Upper Otay Lake. These impacts would be significant.

Willowy Monardella (*Monardella linoides* ssp. *viminea*)

This species would not be affected directly by the implementation of the Project Team Alternative. Development of the canyon at the west end of the San Ysidro parcel could indirectly impact this species. Alterations in the amount of water input to the canyon and disturbance from human activities could pose a significant threat to the continued survival of this population.

The following highly sensitive species would not be significantly affected by the Project Team Alternative:

Slender-pod Caulanthus (*Caulanthus stenocarpus*)
Mexican Flannelbush (*Fremontodendron mexicanum*)
California Orcutt Grass (*Orcuttia californica*)
Otay Mesa-mint (*Pogogyne nudiuscula*)

The numbers of second, third, and fourth priority sensitive plant species significantly affected by the Fourth Alternative would be 6, ~~4~~ 5, and ~~1~~ 2, respectively; they include the following: second priority – Orcutt's brodiaea, variegated dudleya, San Diego barrel cactus, San Diego golden star, snake cholla, narrow-leaved nightshade; third priority – Munz's sage, Greene's ground-cherry, San Diego sunflower, San Diego County stipa, San Diego marsh elder; fourth priority – California adder's-tongue fern, Coulter's Matilija poppy.

The following sensitive species would be adversely but not significantly affected by this alternative: Tecate cypress, San Diego sagewort, Palmer's grappling-hook, ~~San Diego County stipa,~~ western dichondra, spiny rush, ~~Coulter's matilija poppy,~~ and ashy spike-moss.

Reduction of Sensitive Animals

The Project Team Alternative would significantly impact sensitive wildlife species inhabiting upland scrub communities by an approximately 32 percent reduction in habitat. Development within key raptor foraging areas in Proctor Valley (especially the northern end), on the southwest slope of the Jamul Mountains, south of Dulzura Creek in the San Ysidro parcel, in the eastern portion of the San Ysidro parcel, and on Otay Mesa would be considered a significant impact. Vernal pool species could be significantly impacted through the development of vernal pools on Otay Mesa. All of the highest priority wildlife species would be significantly impacted or would have the potential to be significantly impacted by implementation of the Project Team Alternative.

First Priority Species

Endangered Species

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

If this species occurs onsite it could be impacted by road construction in the Otay River Valley. It could also be indirectly affected by adjacent development if it occurs in Dulzura Creek. Information on the status of this species onsite is required to determine the significance of any potential impacts.

Least Bell's Vireo (*Vireo bellii pusillus*)

This species would be significantly impacted by road construction in the Otay River Valley under the Project Team Alternative. Direct impacts would occur to recently occupied vireo habitat at La Media Road and Heritage Road crossings of the Otay River. Road construction across Dulzura Creek adjacent to the San Ysidro parcel would also be likely to directly affect this species. Indirect impacts from road construction in the Otay River Valley (SR-125, transit corridor, and Alta Road), and development of the San Ysidro parcel adjacent to Dulzura Creek could occur and should be evaluated at the next level of review.

Species Petitioned for State and/or Federal Listing

Invertebrates

~~Two~~ Three invertebrates, Riverside fairy shrimp (*Streptocephalus woottoni*), San Diego vernal pool fairy shrimp (*Branchinecta sandiegensis*), and Quino checkerspot (*Euphydryas editha quino*), could be potentially impacted by development of vernal pool habitat under the Project Team Alternative. Further information on their distribution and abundance is necessary to assess the significance of impacts. Harbison's dun skipper (*Euphyes vestris harbisoni*) could be impacted by development of approximately 5 percent of southern live oak riparian forest. Hermes copper (*Lycaena hermes*) could be impacted by a loss of approximately 32 percent of coastal sage scrub habitats. Thorne's hairstreak (*Mitoura thornei*) could also be impacted by an approximate 5 percent loss of onsite Tecate cypress habitat. Information is required for all of these species to assess impacts from implementation of the Project Team Alternative.

Reptiles and Amphibians

Both the California red-legged frog (*Rana aurora draytonii*) and the southwestern pond turtle (*Clemmys marmorata pallida*) could be impacted by the loss of 5 to 10 percent of wetland habitat if they occur onsite.

Birds

~~Coastal~~ Cactus Wren (*Campylorhynchus brunneicapillus ~~eousei~~*)

A total of 38 percent of the 60 cactus wren locations would be impacted by road construction or development of the Project Team Alternative. This species would be directly impacted by development at approximately 25 percent of the points of occurrence. An additional 13 percent of cactus wren points of occurrence could be impacted by road construction. Impacts would occur at the same development locations and road alignments as described ~~above~~ below for the California gnatcatcher in the Otay River parcel.

California Gnatcatcher (*Polioptila californica*)

A total of 60 of 144 estimated California gnatcatcher pairs would be impacted by implementation of the Project Team Alternative. An estimated 32 percent of the Otay Ranch California gnatcatcher population would be directly impacted by development ~~of the Project Team Alternative~~. Greatest impacts would occur in the Otay River parcel from development adjacent to Salt Creek, on the north slope of Rock Mountain, and along the edges of Poggi and Wolf Canyons. In the Proctor Valley parcel impacts would occur from development on the lower south slopes of Jamul Mountain, to the south and east of Lower

Otay Lake, and in ravines along the east side of Proctor Valley. The proposed conference center would impact one to two pairs of gnatcatcher. Impacts to California gnatcatcher in the San Ysidro parcel would be greatest south of Lower Otay Lake and the Borderland Air Sports Center. Road construction could directly impact California gnatcatchers on all three parcels through loss of habitat and restriction of movement. Approximately 10 percent of gnatcatcher sighting locations would be impacted by roads. Road alignments of concern in the Otay River parcel include: Otay Valley Road (across Wolf Canyon), Heritage Road (across Poggi Canyon and across a potential gnatcatcher corridor), East Orange Avenue (through Poggi Canyon), SR-125 and the transit corridor (on the north side of the Otay River Valley and through Johnson Canyon), Hunte Parkway (along the west side of Salt Creek), and Alta Road (at O'Neal Canyon and Salt Creek). The construction of "A" Way would significantly impact onsite and offsite gnatcatchers as it passes through high occupancy habitat south of Lower Otay Lake in the San Ysidro parcel. Proctor Valley Road could also impact one to two pairs of gnatcatchers in the Proctor Valley parcel.

Tricolored Blackbird (*Agelaius tricolor*)

The tricolored blackbird would be significantly impacted by the development of SR-125 at the site of a large nesting colony in 1991. Reduction of agriculture fields and grasslands could also impact this species.

Reduction of Wildlife Corridors

Regional and major local wildlife corridors for the Otay Ranch area are included in Figure 3.3-7. Implementation of the Project Team Alternative would significantly block ~~two~~ three of thirteen regional wildlife corridors. An additional ~~eight~~ seven regional corridors could be potentially impacted from adjacent development or road construction. Three regional wildlife corridors would not be impacted. Three major local corridors would be significantly impacted and the fourth would not be affected. Significant impacts would occur at the Wolf Canyon to Salt Creek corridor and corridors 1, 4, 5, 8, and 9. Potential impacts could occur at the ~~Wolf Canyon to Salt Creek,~~ Wolf Canyon to Otay River, Salt Creek to Otay River, and O'Neal Canyon corridors. Potential impacts could also occur at corridors 2, 6, 10, and 11. The impacts to wildlife movement under the Project Team Alternative would be considered significant. The potential corridor between Poggi and Wolf canyons, the Salt Creek corridor, and corridors 3 and 7 would not be impacted by implementation of the Project Team Alternative.

4.4.4.2 Proposed Mitigation

Compliance of the Project Team Alternative with the RMP

The Project Team Alternative comes close to meeting the RMP's goal of establishing an open space system in a Management Preserve that would protect and enhance biological resources on Otay Ranch. With some modification, it could potentially allow the maintenance of long-term biological diversity and ensure the survival and recovery of native species and habitats within a Preserve. However, there are some RMP objectives, policies, and standards that are not achieved. Refer to Table 4.10-1.1 in Section 4.10 which compares the compliance of the Project Team Alternative with different RMP policies.

Sensitive Habitats

The Project Team Alternative potentially does not preserve coastal sage scrub at the level required in the RMP. There may also be insufficient acreage onsite for the combined

restoration components required by the RMP for the various sensitive habitats. However, with some redesign and modification, the Project Team Alternative could potentially achieve RMP policies and guidelines. The Project Team Alternative reduces coastal sage scrub habitats by less than 32 percent which may be greater than the 30 percent reduction allowed by the RMP (Policy 2.2). A reduction in existing native grassland would probably not exceed the RMP allowable loss of 75 percent. Wetlands are reduced by less than 9 percent under the Project Team Alternative. The potential exists to retain 90 percent of onsite wetlands in a Preserve and to restore additional wetlands to achieve no net loss as required by the RMP (Policy 2.10). Under the Project Team Alternative vernal pools on Otay Mesa would be preserved according to RMP Policy 2.9. There would be impacts to southern live oak riparian forest, southern interior cypress forest, and sycamore alluvial woodland. The RMP requires 100 percent preservation of these sensitive woodlands (Policy 2.4).

Sensitive Plants

The Project Team Alternative would not meet RMP standards (Policy 2.6) for the following state and federally listed plant species: San Diego thorn-mint and Dunn's mariposa lily. There is also the potential for San Diego button-celery to be impacted beyond the level allowed by the RMP. Several federal Category 2 and California Native Plant Society sensitive species could also be reduced by levels greater than allowed in the RMP (Policies 2.7 and 2.8).

Sensitive Animals

Road construction under the Project Team Alternative could impact the state and federally endangered least Bell's vireo at a higher level than allowed by the RMP (Policy 2.6). Further information on the distribution and abundance of this species is necessary to determine the level of impacts under this alternative. California gnatcatcher and coastal cactus wrens would be impacted at higher levels than allowed by the RMP (Policy 2.5). Based on distribution of sighting locations and estimated habitat loss, at least seven federal candidate species would be reduced below the 25 percent level allowed by the RMP (Policy 2.8). These federal candidate species include San Diego horned lizard, orange-throated whiptail, two-striped garter snake, ferruginous hawk, loggerhead shrike, Bell's sage sparrow, and tricolored blackbird. Another 22 federal candidate species could also be impacted at higher levels than allowed by the RMP, depending on the species distribution and abundance onsite.

Wildlife Corridors

Implementation of the Project Team Alternative would block ~~two~~ three regional wildlife corridors and potentially impact or constrain another eight. These impacts to wildlife movement do not meet the habitat linkage and wildlife movement requirements set forth by the RMP (Policy 4.1).

Sensitive Habitats Mitigation

Mitigation recommendations for the Project Team Alternative generally follow those for the Phase I-Progress Plan (see Section 4.2.4.2) except where noted below.

Proctor Valley Parcel

Mitigation measure 1.a. in Table 4.2.4-8 to redesign central Proctor Valley and to relocate the conference center is applicable to the Project Team Alternative. The latter part of

mitigation measure 1.a., however, to eliminate single-family housing west of Proctor Valley in the eastern portion of the L-shaped parcel and the isolated parcel south of the L-shaped parcel is not completely applicable, because much of that area is retained in the Project Team Alternative. The area retained in these parcels contains disturbed coastal sage scrub which can be enhanced. Substantial impacts to valley needlegrass grassland and Otay tarplant would still occur within these detached parcels under the Project Team Alternative and alterations to the plan to reduce those impacts are recommended.

The vernal pool complex identified as R2 in Proctor Valley is planned for residential and public uses. These uses should be relocated in order to preserve the R2 vernal pool complex. Impacts to the R4 vernal pool complex can be mitigated through vernal pool restoration.

The northern potential local wildlife corridor between San Miguel Mountain and the Jamul Mountains is partially constrained by residential (L2) development. Recommendation is to pull back development north of the tributary to Proctor Valley.

San Ysidro Parcel

Mitigation measures 1.b. and 1.c. in Table 4.2.4-8 to eliminate development on the ridgeline adjacent to Hubbard Springs and at the western-most area of development in this parcel (southwest of Buschalaugh Cove) are not applicable because these areas are retained under the Project Team Alternative.

Additional mitigation recommendation is to pull back the eastern portion of the residential development between Cedar and Little Cedar Canyons to reduce coastal sage scrub impacts. This also would preserve the Dunn's mariposa lily and San Diego goldenstar populations. It also is recommended to pull back the proposed development from the canyon that extends east from Hubbard Springs to reduce impacts to wetlands.

Otay River Parcel

Mitigation measure 1.d. in Table 4.2.4-8 is not applicable. Mitigation measure 1.e. is applicable. The portions of single-family housing in Wolf Canyon that impact coastal sage scrub habitats should be eliminated.

Mitigation measure 8 in Table 4.2.4-8 is generally applicable for the Otay River parcel as below. Under the Project Team Alternative, most of the vernal pool habitat on Otay Mesa is preserved including J23, J24, J25 and most of J29, J30, and J31+, including the historical locations for San Diego navarretia, little mousetail, and California Orcutt grass. Some vernal pool habitat is still impacted in J31+. Mitigation for this impact shall consist of vernal pool restoration and may occur within the disturbed portions of the J31+, J29, or J30 vernal pool complexes.

Sensitive Plants Mitigation

Mitigation recommendations for the Project Team Alternative follow those for the Phase I-Progress Plan Alternative (see Section 4.2.4.2) except where noted below. Impacts to second, third, and fourth priority sensitive plants were addressed qualitatively only.

Dunn's mariposa lily mitigation should include minor project redesign to preserve the population in the canyon east of Little Cedar Canyon, thus avoiding all impacts.

California Orcutt grass and Otay Mesa-mint would not be impacted and therefore would not require mitigation under the Project Team Alternative.

Sensitive Animals Mitigation

Mitigation recommendations would follow those for the Phase I-Progress Plan Alternative (see Section 4.2.4.2) and the General Mitigation Requirements section for sensitive animals in Section 3.3.3 except where noted below:

First Priority Species

Endangered Species

Southwestern Willow Flycatcher

Refer to least Bell's vireo mitigation below.

Least Bell's Vireo

See measures ~~1 and 2~~ 1–3 for the Phase I-Progress Plan (Table 4.2.4-5). Mitigation of Heritage Road impacts could involve realignment of the Otay River crossing to the west of a historic least Bell's vireo sighting. This decision should be based on additional vireo distribution and potential habitat data obtained at the next level of review. Indirect impacts from residential and commercial development at Dulzura Creek should be studied in the same manner as the Phase I-Progress Plan assessment of the village center ~~(measures 2g–h)~~.

Species Proposed for Listing

Invertebrates

Streptocephalus woottoni

See measures 7–10 for the New Town Plan (Table 3.3-7).

Branchinecta sandiegensis

See measures 7–10 for the New Town Plan (Table 3.3-7).

Harbison's Dun Skipper

See measure 11 for the New Town Plan (Table 3.3-7).

Hermes Copper

See measure 12 for the New Town Plan (Table 3.3-7).

Thorne's Hairstreak

See measure 13 for the New Town Plan (Table 3.3-7).

Quino Checkerspot

See measures ~~13 and~~ 14 for the New Town Plan (Table 3.3-7).

Reptiles and Amphibians

California Red-legged Frog

See measure 15 for New Town Plan (Table 3.3-7).

Southwestern Pond Turtle

See measure 15 for New Town Plan (Table 3.3-7). Also see additional mitigation text under southwestern pond turtle.

Coastal Cactus Wren

See measures ~~3-7~~ 4-6 for Phase I-Progress Plan (Table 4.2.4-5). An alternative alignment for the transit corridor within the SR-125 corridor should be evaluated. Further assessment of the impacts of the current and alternative alignment should occur at the next level of review. In the Fourth Alternative, Otay Valley Road would not have to be aligned further north as in the Phase I-Progress Plan since it is already set back to the north.

California Gnatcatcher

See measures ~~8-10~~ 7-8 for Phase I-Progress Plan (Table 4.2.4-5). Potential mitigation for "A" Way could involve realignment at the east end to avoid high occupancy habitat and termination of the alignment at the most westerly low density development in the San Ysidro parcel. Impacts from continuing the alignment west below the dam could be unmitigable to the offsite population of California gnatcatchers, depending on the number of pairs directly impacted. Impacts from disruption of movement and noise could potentially be mitigated for in design of the road. Further evaluation is required at the next level of review.

Riverside Fairy Shrimp

See measures 13 and 14 for the New Town Plan (Table 3.3-7).

Quino Checkerspot

See measures 13 and 14 for the New Town Plan (Table 3.3-7).

Wildlife Corridors

Recommended wildlife corridor mitigation measures for the Project Team Alternative are presented in the Phase I-Progress Plan Open Space Design discussion (see Section 4.2.4.2). Specific corridor design requirements are discussed in detail in the Otay Ranch Wildlife Corridor Study (Ogden 1992b). Additional mitigation would involve pulling back development onto the ridge top north of corridor 10, and away from the mouth of Little Cedar Canyon in the San Ysidro parcel. Corridor 10 should be preserved in natural open space to include rim-to-rim topography. Corridor 11 should be 1100 to 1600 feet wide along its length. It is important that the mouth of Little Cedar Canyon not be constrained by adjacent development. It is recommended that development be drawn back to the north, away from the northwest section of corridor 3 in the Proctor Valley parcel so that rim-to-rim topography is included within the corridor. Unlike the Phase I-Progress Plan, Otay Valley Road would not be required to pull back in the Project Team Alternative.

4.4.4.3 Analysis of Significance

The Project Team Alternative would impact 42 percent of existing open space on Otay Ranch. Sensitive coastal sage scrub habitats would be reduced by an estimated 32 percent and wetland habitats by 5 to 10 percent. Vernal pool impacts are estimated at 8 percent or less. These impacts to sensitive habitats are significant and will require a combination of mitigation approaches including redesign of portions of the project and habitat restoration. Of 18 major regional wildlife corridors identified on Otay Ranch, five would be impacted significantly and nine would be potentially impacted by implementation of the Project Team Alternative. Recommendations to mitigate these impacts include redesign of some of the proposed developments and roadway alignments and habitat restoration. Sensitive plant and animal species also are impacted significantly by this alternative, including the following highest priority species: San Diego thorn-mint, Dunn's mariposa lily, San Diego button-celery, Otay tarweed, least Bell's vireo, California gnatcatcher, coastal cactus wren, and potentially willowy monardella, Riverside fairy shrimp, and Quino checkerspot. Adequate mitigation of impacts to these species would necessitate a combination of project redesign, habitat restoration, and species reestablishment.

Impacts to the following sensitive habitats are considered significant but mitigable to below a level of significance with minor project redesign and habitat restoration:

Southern live oak riparian forest
Southern interior cypress forest
Sycamore alluvial woodland
Southern willow scrub
Floodplain scrub
Coastal freshwater marsh/Aquatic
Vernal pools

Impacts to the following sensitive habitats are considered significant and potentially unmitigable:

Diegan coastal sage scrub
Maritime succulent scrub
Valley needlegrass grassland
Alkali meadow

Impacts to the following sensitive plant species are considered significant but mitigable to below a level of significance with minor project redesign and restoration:

San Diego thorn-mint (*Acanthomintha ilicifolia*)
Dunn's mariposa lily (*Calochortus dunnii*)
San Diego button-celery (*Eryngium aristulatum* var. *parishii*)
Willowy monardella (*Monardella linoides* ssp. *viminea*)
Orcutt's brodiaea (*Brodiaea orcuttii*)
Variegated hasseanthus (*Dudleya variegata*)
San Diego coast barrel cactus (*Ferocactus viridescens*)
Narrow-leaved nightshade (*Solanum tenuilobatum*)
~~Munz's sage (*Salvia munzii*)~~
San Diego County stipa (*Stipa diegoensis*)
San Diego marsh elder (*Iva hayesiana*)
Coulter's Matilija poppy (*Romneya coulteri*)
Greene's ground-cherry (*Physalis greenei*)

San Diego sunflower (*Viguiera laciniata*)
California adder's-tongue fern (*Ophioglossum lusitanicum* spp. *californicum*)

Impacts to the following sensitive plant species are considered significant and unmitigable without considerable project redesign:

Otay tarweed (*Hemizonia conjugens*)
San Diego goldenstar (*Muilla clevelandii*)
Snake cholla (*Opuntia parryi* var. *serpentina*)
Munz's sage (*Salvia munzii*)

Impacts to two highest priority sensitive animal species, *Streptocephalus woottoni* and Quino checkerspot, are not considered significant at this level of review.

At this level of review, impacts to the following highest priority sensitive animal species are considered significant but mitigable to below a level of significance through minor project redesign and other mitigation measures:

Least Bell's vireo
Tricolored blackbird

At this level of review, impacts to the following highest priority sensitive animal species are considered significant and unmitigable without major project redesign:

Streptocephalus woottoni
Branchinecta sandiegensis
Southwestern willow flycatcher
Harbison's dun skipper
Thorne's hairstreak
Quino checkerspot
California red-legged frog
Southwestern pond turtle
Coastal cactus wren
California gnatcatcher

The following species, which in the impact analysis are potentially significant based on available data, are considered significantly impacted at this level of review. Impacts to these species are considered unmitigable without major project redesign.

Hermes copper

The significance of impacts to 45 second priority sensitive animal species were not evaluated at this qualitative level of review.

At this level of review, impacts to regional raptor populations are considered significant and unmitigable without major project redesign.

Impacts to wildlife movement are considered significant but with minor project redesign are mitigable to a level below significance.

4.4.5 Cultural Resources

4.4.5.1 Impacts to Prehistoric Resources

Impacts to prehistoric resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria; therefore, all of the 213 prehistoric sites currently known to be on the property are considered to be important at this stage of planning. With this assumption of importance, the Project Team Alternative development plan is assessed for potential impacts to prehistoric resources based on the proposed land use, with areas proposed for development assumed to have greater potential for impacts to resources than undeveloped land usages, such as Open Space, Parks, or Agriculture. Table 4.4.5-1 indicates, by parcel, the land uses proposed for the Project Team Alternative, the prehistoric site types, and the occurrences of the sites in the various land uses.

Based on the land use plan for the Project Team Alternative, 135 of the 213 prehistoric sites on the property are located all or partially within a land use proposed for development. With 78 prehistoric sites falling completely into open space, parks, or agricultural areas, the Project Team Alternative has a comparable ratio (135/78) of prehistoric resources in developed land use areas to undeveloped land use areas, to three of the other plans considered; the Phase II-Progress Plan Alternative (~~133/80~~ 130/83), the Low Density Alternative (131/82), and the Fourth Alternative (134/79). These four plans constitute the mid-range of prehistoric site avoidance of the alternatives.

4.4.5.2 Impacts to Historic Resources

As with the prehistoric sites, impacts to historic resources can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 49 historic sites currently known to be present on the property are considered to be important at this stage of planning. With this assumption, the Project Team Alternative is assessed for impacts to historic sites based on the the proposed land use, with areas proposed for development assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture. Table 4.4.5-2 indicates, by parcel, the land uses proposed for the Project Team Alternative, the historic site types, and the occurrences of the sites in the various land uses.

When compared to the other development plan alternatives, the Project Team Alternative falls in the lower middle range of the plan alternatives with 25 historic sites occurring all or partially within areas to be developed and 24, lying completely within areas proposed for undeveloped land use such as open space, parks, or agricultural. With a ratio of 25/24, it is comparable to three of the other plans: the Fourth (25/24), Phase I-Progress Plan (24/25), Phase II-Progress Plan (~~18/38~~ 23/26), and Low Density (27/22) alternatives, only the Environmental Alternative (14/35), New Town Plan (43/6), and Composite General Plans Alternative (9/40) having dissimilar impacts.

4.4.5.3 Prehistoric/Historic Resources

Impacts to prehistoric/historic resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 30 prehistoric/historic sites currently known to be on the property are considered to be important at this stage of planning. With this assumption of importance for all of the prehistoric/historic sites, the Project Team Alternative is assessed below based on the proposed land use, with areas proposed for development (as defined above) assumed to have greater potential for impacts to resources than undeveloped

Table 4.4.5-1

PROJECT TEAM ALTERNATIVE
PREHISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-10,452	OS	Temporary Camp	CA-SDi-4,741	L/OS	Lithic Scatter
CA-SDi-10,622	OS/OA	Lithic Scatter	CA-SDi-4,742	L/OS	Lithic Scatter
CA-SDi-10,875	OS/(OS)	Lithic Scatter	CA-SDi-4,743	OS	Lithic Scatter
CA-SDi-11,157	JRHS	Temporary Camp	CA-SDi-4,789/SDi-4,988	OS	Temporary Camp
CA-SDi-11,158	JRHS/OA	Temporary Camp	CA-SDi-4,790	OS	Temporary Camp
CA-SDi-11,210	OS	Lithic Scatter	CA-SDi-4,989	OS	Temporary Camp
CA-SDi-11,211	OS/(OS)	Lithic Scatter	CA-SDi-5,352	FI/ISD/(OS)/OA	Temporary Camp
CA-SDi-11,212	OS	Lithic Scatter	CA-SDi-7,212	OS	Habitation Site
CA-SDi-11,213	OS	Temporary Camp	CA-SDi-7,217 A-E	CP/OS	Temporary Camp
CA-SDi-11,214	ISD/(OS)/OA	Lithic Scatter	CA-SDi-8,649	OS	Temporary Camp
CA-SDi-11,215	ISD/OA	Lithic Scatter	CA-SDi-8,650	OS	Lithic Scatter
CA-SDi-11,216	ISD/OA	Lithic Scatter	CA-SDi-8,651	C/NP/(OS)/HS	Lithic Scatter
CA-SDi-11,220	ISD/OS	Lithic Scatter	CA-SDi-9,970	OS/OA	Lithic Scatter
CA-SDi-11,362	OS/OA	Lithic Scatter	CA-SDi-9,974	ISD/(OS)/OA	Lithic Scatter
CA-SDi-11,363	OS	Lithic Scatter	CA-SDi-9,975	OS/OA	Quarry
CA-SDi-11,364	OS	Milling Station	CA-SDi-9,976	OS	Temporary Camp
CA-SDi-11,365	OS	Lithic Scatter	CA-SDi-9,977 A & B	OS	Quarry
CA-SDi-11,366	OS	Lithic Scatter	CA-SDi-9,978	OS	Quarry
CA-SDi-11,369/SDi-11,376	OS/(OS)	Habitation Site	CA-SDi-9,979	OS	Lithic Scatter
CA-SDi-11,372	LM/(OS)	Lithic Scatter	CA-SDi-9,980	OS	Temporary Camp
CA-SDi-11,373	(OS)	Lithic Scatter	CA-SDi-9,981	OS	Temporary Camp
CA-SDi-11,378	OS	Habitation Site	CA-SDi-12,465	M	Temporary Camp
CA-SDi-11,379	OS	Lithic Scatter	CA-SDi-12,466	M/(OS)	Temporary Camp
CA-SDi-11,381	OS	Lithic Scatter	CA-SDi-12,467	M/MH	Lithic Scatter
CA-SDi-11,412	FI/(OS)	Lithic Scatter	CA-SDi-12,276	NP/(OS)	Lithic Scatter
CA-SDi-11,951	OS/(OS)	Lithic Scatter	CA-SDi-12,285	H	Temporary Camp
CA-SDi-11,952	OS/(OS)	Lithic Scatter	CA-SDi-12,286	PQ	Temporary Camp
CA-SDi-11,967	OS/OA	Temporary Camp	CA-SDi-12,287	LM/M/(OS)	Temporary Camp
CA-SDi-11,968	I/OA/(OS)	Lithic Scatter	CA-SDi-12,288	(OS)	Lithic Scatter
CA-SDi-4,726	OS/PQ	Lithic Scatter	CA-SDi-12,289	L/OS	Temporary Camp
CA-SDi-4,727	OS	Lithic Scatter	CA-SDi-12,290	L/OS/(OS)	Lithic Scatter
CA-SDi-4,728 A & B	OS	Lithic Scatter	CA-SDi-12,291	OS	Lithic Scatter
CA-SDi-4,729	OS	Lithic Scatter	CA-SDi-12,292	I/OA	Lithic Scatter
CA-SDi-4,730	OS	Lithic Scatter	CA-SDi-12,293	I/OS/(OS)	Lithic Scatter
CA-SDi-4,731	(OS)/PQ	Lithic Scatter	CA-SDi-12,277	LM	Lithic Scatter
CA-SDi-4,732	OS	Lithic Scatter	CA-SDi-12,278	OS/(OS)	Lithic Scatter
CA-SDi-4,733	OS	Lithic Scatter	CA-SDi-12,279	C/(OS)/MH	Lithic Scatter
CA-SDi-4,734	OS	Lithic Scatter	CA-SDi-12,280	MH	Lithic Scatter
CA-SDi-4,735	OS	Lithic Scatter	CA-SDi-12,281	M/MH/(OS)	Temporary Camp
CA-SDi-4,736	OS	Lithic Scatter	CA-SDi-12,282	OS/(OS)	Temporary Camp
CA-SDi-4,737	OS	Lithic Scatter	CA-SDi-12,283	OS/(OS)	Lithic Scatter
CA-SDi-4,738	OS	Lithic Scatter	CA-SDi-12,284	H/(OS)	Lithic Scatter
CA-SDi-4,739	L/OS	Lithic Scatter	SDM-W-170	OS	Habitation Site
CA-SDi-4,740	OS	Lithic Scatter	CA-SDi-12,656	HS	Temporary Camp

TOTALS:

(Retail Commercial)	C	1
(Freeway Commerical)	CP	1
(Freeway Interchange)	FI	2
(High Density Residential(18-27 du/ac))	H	2
(High School)	HS	2
(Industrial Limited Manufacturing)	I	3
(City of San Diego Industrial Designation)	ISD	6
(Junior High School)	JRHS	2
(Low Density Residential (0-3 du/ac))	L	5
(Low-Medium Density Residential (3-6 du/ac))	LM	3
(Medium Density Residential (6-11 du/acre))	M	4
(Medium-High Density Residential (11-18 du/acre))	MH	5
(Neighborhood Park)	NP	2
(Outside of Area)	OA	13
(Open Space)	OS	60
(Man-made Open Space)	(OS)	26
(Public and Quasi-Public)	PQ	3

Table 4.4.5-1 (Continued)

PROJECT TEAM ALTERNATIVE
PREHISTORIC SITES

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-11,388	L/OS/(OS)/OA	Quarry	CA-SDi-12,356	LM	Lithic Scatter
CA-SDi-11,389	LM/(OS)	Lithic Scatter	CA-SDi-12,357	LM	Lithic Scatter
CA-SDi-11,394	LM/(OS)/OA	Lithic Scatter	CA-SDi-12,358	L1/LM/(OS)	Lithic Scatter
CA-SDi-11,395	OS	Lithic Scatter	CA-SDi-12,359	L1/OS	Lithic Scatter
CA-SDi-11,401	LM	Lithic Scatter	CA-SDi-12,316	L	Lithic Scatter
CA-SDi-11,403 Locus F	OS	Lithic Scatter/Milling Station/Quarry	CA-SDi-12,360	LM/(OS)/R	Lithic Scatter
CA-SDi-11,404	R/OA	Lithic Scatter	CA-SDi-12,361	(OS)/R	Lithic Scatter
CA-SDi-11,405	L1	Lithic Scatter	CA-SDi-12,363	LM/(OS)	Lithic Scatter
CA-SDi-11,406	L1	Quarry	CA-SDi-12,364	OA/(OS)	Lithic Scatter
CA-SDi-11,407	LM/R/(OS)	Lithic Scatter	CA-SDi-12,365	LM/OS	Lithic Scatter
CA-SDi-11,408	L1/LM/(OS)	Lithic Scatter	CA-SDi-12,366	LM/OS	Lithic Scatter
CA-SDi-11,410 A-E	OS/(OS)	Habitation Site	CA-SDi-12,367	OS	Lithic Scatter
CA-SDi-11,414	L1/OS	Lithic Scatter	CA-SDi-12,368	LM/OS	Quarry
CA-SDi-12,034	L/OS/OA	Milling Station	CA-SDi-12,369	L1	Lithic Scatter
CA-SDi-8,086 A, B & C	L/OS/OA	Lithic Scatter	CA-SDi-12,317	L	Lithic Scatter
CA-SDi-12,313	L	Lithic Scatter	CA-SDi-12,370	L1	Lithic Scatter
CA-SDi-12,321	L/OA/(OS)	Lithic Scatter	CA-SDi-12,371	L1/(OS)	Lithic Scatter
CA-SDi-12,322	L	Lithic Scatter	CA-SDi-12,372	L1	Lithic Scatter
CA-SDi-12,324	L	Lithic Scatter	CA-SDi-12,374	CC	Quarry
CA-SDi-12,326	L	Lithic Scatter	CA-SDi-12,375	OS	Lithic Scatter
CA-SDi-12,327	LM/OA	Lithic Scatter	CA-SDi-12,377	L3	Quarry
CA-SDi-12,329	LM/(OS)	Lithic Scatter	CA-SDi-12,378	L3	Quarry/Lithic Scatter
CA-SDi-12,330	(OS)	Lithic Scatter	CA-SDi-12,379	L3	Lithic Scatter
CA-SDi-12,314	L	Lithic Scatter	CA-SDi-12,381	L3	Milling Station
CA-SDi-12,331	C/ES/M/(OS)	Milling Station	CA-SDi-12,383	L3	Lithic Scatter
CA-SDi-12,332	NP/(OS)/OA	Lithic Scatter	CA-SDi-12,384	L3	Milling Station
CA-SDi-12,333	NP	Lithic Scatter	CA-SDi-12,385	L3	Milling Station
CA-SDi-12,334	ES/(OS)	Habitation Site	CA-SDi-12,386	L3/(OS)	Lithic Scatter
CA-SDi-12,335	LM	Lithic Scatter	CA-SDi-12,387	L3	Lithic Scatter
CA-SDi-12,336	L1/LM/(OS)	Lithic Scatter	CA-SDi-12,388	L3	Lithic Scatter
CA-SDi-12,338	NP	Milling Station	CA-SDi-12,319	L	Lithic Scatter
CA-SDi-12,339 A & B	LM/OS	Lithic Scatter	CA-SDi-12,389	(OS)	Milling Station
CA-SDi-12,340	LM/(OS)	Temporary Camp	CA-SDi-12,390	L3	Lithic Scatter
CA-SDi-12,337/OR-I-3	L/OA	Lithic Scatter	CA-SDi-12,391	L3	Milling Station
CA-SDi-12,341	R/OS/(OS)/OA	Lithic Scatter	CA-SDi-12,392	L3	Milling Station/Lithic Scatter
CA-SDi-12,342	L1/OS	Quarry	CA-SDi-12,394	L3	Milling Station
CA-SDi-12,343	L1/OS	Quarry	CA-SDi-12,397	L3	Quarry/Lithic Scatter/Milling Station
CA-SDi-12,315	L	Lithic Scatter	CA-SDi-12,398	L3/OS	Quarry/Lithic Scatter/Milling Station
CA-SDi-12,353	LM/R/(OS)/OS	Lithic Scatter	CA-SDi-12,320	L/OS	Lithic Scatter
CA-SDi-12,355	L1/LM/OS	Lithic Scatter	CA-SDi-12,635	L3/OS	Lithic Scatter

TOTALS:		
(Retail Commercial)	C	1
(Conference Center)	CC	1
(Elementary School)	ES	2
(Low Density Residential (0-3 du/ac))	L	15
(Low Density Residential 1 (.5-1 du/ac))	L1	14
(Low Density Residential 3 (.25-.5 du/ac))	L3	15
(Low-Medium Density Residential (3-6 du/ac))	LM	21
(Neighborhood Park)	NP	3
(Outside of Area)	OA	11
(Open Space)	OS	24
(Man-made Open Space)	(OS)	22
(Resort)	R	6

Table 4.4.5-1 (Continued)

PROJECT TEAM ALTERNATIVE
PREHISTORIC SITES

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-10,027	C/OS/L/M/(OS)/OA	Quarry	CA-SDi-11,300	OS	Lithic Scatter
CA-SDi-11,294	L3	Lithic Scatter	CA-SDi-11,302	L3/OS	Habitation Site
CA-SDi-11,298	L3	Lithic Scatter	CA-SDi-11,304	OS	Lithic Scatter
CA-SDi-11,303	L3	Lithic Scatter	CA-SDi-11,307	OS	Lithic Scatter
CA-SDi-11,308	L3	Lithic Scatter	CA-SDi-11,311	OS	Lithic Scatter
CA-SDi-11,309	L3	Lithic Scatter	CA-SDi-11,312	OS	Lithic Scatter
CA-SDi-11,314	L3	Lithic Scatter	CA-SDi-11,313	OS	Lithic Scatter
CA-SDi-11,315	L3	Lithic Scatter	CA-SDi-11,321	OS	Lithic Scatter
CA-SDi-11,317	L3	Quarry	CA-SDi-11,322	OS	Lithic Scatter
CA-SDi-11,324	L3	Lithic Scatter	CA-SDi-11,323	OS	Lithic Scatter
CA-SDi-11,325	L3	Lithic Scatter	CA-SDi-11,334	L3	Habitation Site
CA-SDi-11,326	L3	Lithic Scatter	CA-SDi-11,342	L	Lithic Scatter
CA-SDi-11,327	L3	Lithic Scatter	CA-SDi-11,344	OS	Lithic Scatter
CA-SDi-11,328	L3	Lithic Scatter	CA-SDi-11,345	OS	Milling Station
CA-SDi-11,329	L3	Lithic Scatter	CA-SDi-11,346	OS	Quarry
CA-SDi-11,331	L3	Temporary Camp	CA-SDi-11,349	OS	Lithic Scatter
CA-SDi-11,332	L3	Temporary Camp	CA-SDi-11,352	L3	Lithic Scatter
CA-SDi-11,333	L3	Temporary Camp	CA-SDi-11,353	L3	Lithic Scatter
CA-SDi-11,350	L	Lithic Scatter	CA-SDi-11,354	L3	Lithic Scatter
CA-SDi-11,351	L/OS	Quarry	CA-SDi-12,345	LM/OS	Milling Station
CA-SDi-12,147	L	Milling Station	CA-SDi-12,349	LM/(OS)	Milling Station
CA-SDi-12,148	L	Lithic Scatter	CA-SDi-12,344	M	Lithic Scatter
CA-SDi-12,149	L	Lithic Scatter			

TOTALS:			
	(Retail Commercial)	C	1
	(Low Density Residential(0-3 du/ac)	L	7
	(Low Density Residential 3 (.05-.25 du/ac))	L3	22
	(Low-Medium Density Residential (3-6 du/ac))	LM	2
	(Medium Density Residential (6-11 du/ac))	M	2
	(Outside of Area)	OA	1
	(Open Space)	OS	17
	(Man-made Open Space)	(OS)	2

Table 4.4.5-2

PROJECT TEAM ALTERNATIVE
HISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-10,155H	OS	Historic Rock Feature
CA-SDi-11,221	OS	Historic Refuse
CA-SDi-11,361H	OS	Historic Structure
CA-SDi-11,374	OS	Historic Refuse
CA-SDi-11,375H	PQ	Historic Structure
CA-SDi-11,377H	(OS)/PQ	Historic Structure
CA-SDi-11,383H	OS	Historic Structure
CA-SDi-11,384H	CP/OS/(OS)/L	Historic Complex
CA-SDi-11,385H	OS	Historic Archaeological Complex
CA-SDi-11,386H	OS	Historic Complex
CA-SDi-11,387H	(OS)	Historic Structure
CA-SDi-12,272H	LM/(OS)	Historic Refuse
CA-SDi-12,273H	ISD	Historic Refuse
CA-SDi-12,274H A & B	ISD/FI	Historic Refuse
CA-SDi-12,271H	M	Historic Refuse

TOTALS:		
(Community Park)	CP	1
(Freeway Interchange)	FI	1
(City of San Diego Industrial Designation)	ISD	2
(Low Density Residential (0-3 du/ac))	L	1
(Low-Medium Density Residential (3-6 du/ac))	LM	1
(Medium Density Residential (6-11 du/acre))	M	1
(Open Space)	OS	8
(Man-made Open Space)	(OS)	4
(Public and Quasi-Public)	PQ	2

Table 4.4.5-2 (Continued)

PROJECT TEAM ALTERNATIVE
HISTORIC SITES

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,390H	LM/OA/(OS)	Historic Structure
CA-SDi-11,393H	OS	Historic Structure
CA-SDi-11,418H	OS	Historic Camp
CA-SDi-11,419H	OS/OA	Historic Complex
CA-SDi-11,420H	OS	Historic Camp
CA-SDi-11,421H	L	Historic Structure
CA-SDi-11,422H	OS/(OS)	Historic Structure/Historic Refuse
CA-SDi-6,723H	L/OS	Historic Structure
CA-SDi-6,968H	OS	Historic Structure
CA-SDi-12,323H	L	Historic Rock Feature
CA-SDi-12,354H	OS	Historic Rock Feature
CA-SDi-12,376H	OS	Historic Rock Feature
CA-SDi-12,318H	L	Historic Rock Feature
CA-SDi-12,395H	L3	Historic Refuse/Historic Rock Feature
CA-SDi-12,396H	L3	Historic Rock Feature

TOTALS:	(Low Density Residential (0-3 du/ac))	L	4
	(Low Density Residential 3 (.05-.25 du/ac))	L3	2
	(Low-Medium Density Residential (3-6 du/acre))	LM	1
	(Outside of Area)	OA	2
	(Open Space)	OS	10
	(Man-made Open Space)	(OS)	1

Table 4.4.5-2 (Continued)

PROJECT TEAM ALTERNATIVE
HISTORIC SITES

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,299H	OS	Historic Structure
CA-SDi-11,301H	OS	Historic Camp
CA-SDi-11,305	OS	Historic Rock Feature
CA-SDi-11,306H	L3/OS	Historic Camp
CA-SDi-11,310	L3	Historic Rock Feature
CA-SDi-11,316H	L3	Historic Refuse
CA-SDi-11,318	L3	Historic Rock Feature
CA-SDi-11,319	L3	Historic Rock Feature
CA-SDi-11,320	L3	Historic Rock Feature
CA-SDi-11,330H	L3	Historic Refuse
CA-SDi-11,340H	L1	Historic Structure
CA-SDi-11,341H	OS	Historic Rock Feature
CA-SDi-11,343H	OS	Historic Structure
CA-SDi-11,347	OS	Historic Rock Feature
CA-SDi-11,348	OS	Historic Rock Feature
CA-SDi-11,357	M/(OS)	Historic Rock Feature
CA-SDi-6,970	L3	Historic Archaeological Complex
CA-SDi-12,351H	LM/OS	Historic Rock Feature
CA-SDi-12,352H	OS	Historic Rock Feature

TOTALS:	(Open Space)	OS	10
	(Low Density Residential 1 (.5-1 du/ac))	L1	1
	(Low Density Residential 3 (.05-.25 du/ac))	L3	8
	(Low-Medium Density Residential (3-6 du/ac))	LM	1
	(Medium Density Residential (6-11 du/ac))	M	1
	(Man-made Open Space)	(OS)	1

land usages, such as open space, parks, or agriculture. Table 4.4.5-3 indicates, by parcel, the land use proposed for the Project Team Plan, the prehistoric/historic site types, and the occurrences of the sites in the various land uses.

Over the the entire Otay Ranch property, 26 of the 30 prehistoric/historic sites known to be present on the property fall all or partially within areas proposed for intense development, with only 4 prehistoric/historic sites located entirely within areas proposed for non-construction oriented land use, in the Project Team Alternative. This ratio (26/4) is only slightly different than five of the other plans: the New Town Plan (28/2), the Phase I-Progress Plan (28/2), the Low Density Alternative (27/3), the Fourth Alternative (24/6), and the Phase II-Progress Plan (22/8). While the Project Team Alternative would not impact the most, it would still impact a large percentage of the prehistoric/historic sites on the property.

4.4.5.4 Proposed Mitigation

Prehistoric Resources

At this stage of planning, not all of the prehistoric resources have been identified; therefore, importance of the resources is assumed rather than verified. Impacts are still problematic rather than specific, and development plans are still highly conceptual; therefore, development of a comprehensive mitigation plan must be conceptual and necessarily programmatic rather than resource-specific. The following plan is a synopsis of a more detailed program presented in the Resource Management Plan (RMP) and in the cultural resources technical report. For conciseness, the mitigation plan is presented as a series of interrelated stages or phases (see Section 3.4.3 for additional detail).

- Stage 1: The applicant shall complete an intensive, systematic survey of the remaining 17,000 acres for cultural resources in compliance with the county's requirements. Completion of the survey shall occur as soon as feasible with the survey of the first SPA being completed no later than filing of the first SPA Plan application. The survey of the remaining portion of Otay Ranch shall be completed prior to ~~approval~~ public review of the first SPA Plan.

- Stage 2: The applicant shall complete importance and boundary testing for each resource identified within the first SPA and for a sample of site types beyond the SPA but within the overall project. All Stage 2 work must be in compliance with CEQA and local guidelines to include county policies.

- Stage 3: The applicant shall implement appropriate mitigation measures for resources determined as important during the Stage 2 importance evaluation phase. These forms of mitigation would include:

    1) Site avoidance by preservation of the site in open space easements.

    2) Site avoidance by preservation through capping the site and placing landscaping on top of the fill.

    3) Data recovery through implementation of an agency-approved excavation and analysis data recovery program.

    4) A combination of one or more of the above measures.

Table 4.5.5-3

COMPOSITE GENERAL PLANS ALTERNATIVE
PREHISTORIC/HISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,217	M	Lithic Scatter/Historic Structure
CA-SDI-11,218	M	Lithic Scatter/Historic Structure
CA-SDI-11,219	M	Lithic Scatter/Historic Structure
CA-SDI-11,367/11,368	M/VH	Lithic Scatter/Historic Rock Feature

TOTALS:			
	(Medium Density Residential (6-11 du/ac))	M	4
	(Very High Density Residential (43 du/ac))	VH	1

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,391 A- C	MRU	Historic Structure/Lithic Scatter/Milling Station/Temporary Camp
CA-SDI-11,396/H	MRU	Historic Structure/Lithic Scatter
CA-SDI-11,399H	MRU	Historic Structure/Lithic Scatter
CA-SDI-11,409	MRU	Lithic Scatter/Historic Rock Feature
CA-SDI-11,411 A-D	MRU	Milling Station/Historic Refuse
CA-SDI-11,415	MRU	Milling Station/Lithic Scatter/Historic Rock Feature
CA-SDI-11,417H	MRU	Historic Structure/Lithic Scatter/Milling Station
CA-SDI-6,695 A & B	MRU	Lithic Scatter/Historic Rock Feature
CA-SDI-6,965/11,398H	MRU	Historic Archaeological Complex/Lithic Scatter
CA-SDI-12,328/H	MRU	Lithic Scatter/Historic Rock Feature
CA-SDI-12,362/H	MRU	Lithic Scatter/ Historic Refuse
CA-SDI-12,373/H	MRU	Habitation Site/Historic Structure
CA-SDI-12,380/H	MRU	Lithic Scatter/Historic Rock Feature
CA-SDI-12,382/H	MRU	Historic Rock Feature/Lithic Scatter
CA-SDI-12,393/H	MRU	Lithic Scatter/Historic Rock Feature
SDM-W-1,932	MRU/RR	Lithic Scatter/Historic Rock Feature

TOTALS:

(Multiple Rural Use-General Agriculture (1 du/2,8 & 20 ac))	A72	7
(Outside of Area)	OA	4
(Rural Residential (.25-1 du/ac))	RR	2
(Multiple Rural Use-Special Purpose Limited Control (1 du/25 ac))	S87	10

SAN YSIDRO PARCEL

Site Number	Proposed Land Use		Site Type
CA-SDI-11,355	MRU	San Ysidro	Lithic Scatter/Historic Rock Feature
CA-SDI-11,356	MRU	San Ysidro	Lithic Scatter/Historic Structure
CA-SDI-11,358	MRU	San Ysidro	Lithic Scatter/Historic Rock Feature
CA-SDI-11,359H	MRU	San Ysidro	Lithic Scatter/Historic Refuse
CA-SDI-11,360H A-C	MRU	San Ysidro	Historic Structure/Lithic Scatter
CA-SDI-12,150	MRU	San Ysidro	Historic Structure/Lithic Scatter
CA-SDI-12,346/H	MRU	San Ysidro	Temporary Camp/Lithic Scatter/Historic Rock Feature
CA-SDI-12,347/H	MRU	San Ysidro	Historic Structure/Lithic Scatter
CA-SDI-12,348/H	MRU	San Ysidro	Lithic Scatter/Historic Rock Feature
CA-SDI-12,350/H	MRU/OA	San Ysidro	Lithic Scatter/Historic Rock Feature

TOTALS:

(Outside of Area)	OA	3
(Multiple Rural Use-Special Purpose Limited Control (1 du/25 ac))	S87	10

Additionally, a plan shall be developed for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This shall be accomplished through adaptive reuse of one of the historic structures within the project or through construction of a building within one of the parks or community centers. It is expected that this interpretive center will only be for temporary curation of those materials being actively use for interpretation or display, and that permanent curation of artifacts and data will be at a regional repository when one is established.

Historic Resources

Mitigating measures for historic resources are essentially the same as the measures for prehistoric resources described above. The same steps and stages should be followed although, as described in the RMP, archival research and historical documentation shall be used to augment Stage 2 field testing programs. Mitigation of impacts to historic resources through preservation may be more feasible for historic sites than for prehistoric sites because they generally comprise a smaller area and can often be synthesized into a development plan. In the case of historic resources, Stage 3 data recovery programs shall be integrated with comprehensive programs of corresponding archival research to provide the context for, and make possible a full evaluation of, the material found on the sites. Also as indicated under the prehistoric mitigation measures, a plan shall be developed for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This shall be accomplished through adaptive reuse of one of the historic structures within the project or through construction of a building within on of the parks or community centers.

Prehistoric/Historic Resources

Mitigating measures for prehistoric/historic resources are essentially the same as for prehistoric and historic resources as described above. The same steps and stages should be followed although, as described in the RMP, archival research and historical documentation may be used to augment field testing programs. Mitigation of impacts to historic components of prehistoric/historic resources through preservation may in some instances be more feasible than for the prehistoric components because they generally comprise a smaller area and can often be synthesized into a development plan.

If in situ preservation is not possible, recovery of a representative amount or sample of information, both surface and subsurface, is the only other acceptable alternative. For historic components, the data recovery program will be integrated with a corresponding archival research program to fully assess the significance of the material found on the sites. By creating a complementary research program that fully incorporates the archival material with the field results, many important research questions can be addressed.

4.4.5.5 Analysis of Significance

At this program-level of analysis, all prehistoric, historic, and prehistoric/historic resources are considered significant (see Section 3.4.4).

4.4.6 Geology and Soils

4.4.6.1 Impact Analysis

The Project Team Alternative proposes the same development footprint as the Fourth Alternative, with slightly varied land uses. The general types of geologic and soil impacts that can be anticipated include slope instability, rippability, seismic ground shaking, expansive and erodable soils, liquefaction, and landslides.

4.4.6.2 Proposed Mitigation

The mitigation measures outlined in the geology and soils section concerning the New Town Plan (see Section 3.5.3) would mitigate potential impacts to levels below significance. A brief summary of the proposed mitigation measures is as follows:

- Slope instability - Perform site-specific geotechnical investigation and slope stability analyses and implement appropriate design measures.

- Rippability - Perform site-specific geotechnical investigation. Where non-excavatable materials are encountered, blasting may be required to achieve proposed grades.

- Seismic ground shaking - Perform site-specific geotechnical investigation, incorporate seismic parameters into the design and construction of the project, design according to appropriate building codes.

- Expansive/erodable soils - Perform selective grading and design foundations in accordance with UBC standards. Incorporate erosion control measures into design and construction of the project.

- Liquefaction - Perform site-specific geotechnical investigation to evaluate liquefaction potential. Perform vibrofloatation or dynamic compaction techniques, or remove and recompact soils as appropriate to mitigate liquefaction potential.

- Landslides - Perform site-specific geotechnical investigation to delineate limits of landslides. Landslides may be completely removed or buttressed during site grading.

4.4.6.3 Analysis of Significance

Implementation of the proposed mitigation measures would reduce impacts to below a level of significance.

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4.4.7 Paleontological Resources

4.4.7.1 Impact Analysis

The Project Team Alternative proposes the same development footprint as the Fourth Alternative, with slightly varied land uses. Substantial development is proposed in areas with a high potential for paleontological resources. Therefore, a significant impact would occur with development of this alternative.

4.4.7.2 Proposed Mitigation

The mitigation measures outlined in the paleontology section concerning the New Town Plan (Section 3.6.3) would mitigate potential impacts to paleontological resources to levels below significance. The following general mitigation measures shall be implemented:

- A qualified paleontologist shall be retained. The paleontologist shall be present at all times during original cutting in highly sensitive formations and to a lesser extent in less sensitive formations.
- When fossils are discovered, the paleontologist shall be allowed to recover them.
- Prepared fossils and notes shall be given to a scientific institution, and a final summary report shall be prepared by the paleontologist at the end of excavation.
- Geologic/paleontologic preserves shall be created in designated areas not planned for mass excavation.

4.4.7.3 Analysis of Significance

Implementation of the Project Team Alternative would result in adverse impacts to paleontological resources. The significance of these impacts would vary depending upon the paleontological resource sensitivity of individual affected formations. Implementation of the proposed mitigation measures would reduce impacts to below a level of significance.

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4.4.8 Agricultural Resources

4.4.8.1 Impact Analysis

The Project Team Alternative would develop less land in the Otay River parcel than the New Town Plan. Regional park space would primarily be located on the southern and eastern portions of the Otay River parcel. This would convert less agricultural land of Prime, Statewide and Local Farmland Importance to urban uses. Although more suitable agricultural land would be preserved, no agricultural activities would occur along the southern portions of the Otay River parcel since this area is designated as a regional park by the Project Team Alternative.

Residential development would occur in the northern, western, and southern portions of the Proctor Valley parcel, while the central and eastern areas would be retained as natural open space. Low to medium density residential uses and commercial uses would occur in the San Ysidro parcel. The land uses proposed by the Project Team Alternative would change the existing agricultural character of Otay Ranch resulting in the loss or impairment of land designated to have Prime, Statewide, and Local Farmland Importance. Loss of lands suitable for the production of coastal-dependent crops would be a significant and irreversible impact of the Project Team Alternative.

Approximately 20,000 acres of the Otay Ranch property are used for cattle grazing activities. Otay Ranch's grazing land is not included in the county's overall 168,317 acres of agricultural land since it is not irrigated grazing land. However, within the 20,000 acres, approximately 4,000 to 5,000 acres are used for barley cultivation and when added to the county's overall agricultural land, would represent a loss of 3 percent of county agricultural land (total county agricultural land is 173,317 acres assuming the addition of 4,000 to 5,000 acres of Otay Ranch agricultural land). The Otay Ranch property has approximately 9,714 acres of land with soil suitable for the production of coastal-dependent crops such as avocados, citrus, truck crops, tomatoes, and flowers. Conversion of the Otay Ranch property to non-agricultural uses would result in the loss or impairment of five percent of the county's agricultural land which is suitable for the potential production of coastal-dependent crops. The loss of existing agricultural land and soils suitable for growing coastal-dependent crops would result in a significant and irreversible impact of the Project Team Alternative.

As indicated in the discussion of historical agricultural uses of the site (Section 3.7.1), tomatoes, celery, cucumbers, and other row crops were produced in the Otay Ranch site until the mid 1970s (JBF Associates 1989). Row crop production ceased due to the high cost of water for agricultural use. Although the site is suitable for production of coastal-dependent crops, the high cost of water would not make this feasible. In addition to the high cost of importing water for agricultural uses, an adequate water storage supply is needed since agriculture is the first use to have its water cut off during severe drought conditions because it is considered on "interruptable user" (OWD 1992). Water for urban uses is perceived to be more economically viable given the present economic and taxation system, which encourages intensification of uses to create additional economic activity and thus provide higher employment levels. (San Diego Coast Regional Commission Report 1974).

It is estimated that approximately 2,400 to 3,000 tons of barley could have been cultivated on the Otay Ranch property in 1990, generating an average gross income of approximately $230,000 to $288,000. These figures were based on the 1989 yield per acre ratio (0.60 tons/acre), the 1990 market value of barley (96.00/ton), and assumed that 4,000 to 5,000 acres of the property were planted and harvested. The average gross value for cattle

was estimated to be between $43,800 to $131,400 for 1990. As discussed in Section 3.7.2, the cost of production and the amount of property taxes paid exceeds the average gross income generated by barley and cattle production. According to the property's farming operation personnel, any net income from barley or cattle production is used towards the payment of property taxes, property security, and maintenance. Therefore, the loss of barley and cattle production at the Otay Ranch property would have a minimal impact on the county's overall production and value for these commodities. More important is the loss of resources for the potential production of coastal-dependent crops.

Applicable Agricultural Policies

Most of the Otay River parcel is designated as Intensive Agriculture, which allows 1 dwelling unit per 2-4-8 acres. The Proctor Valley and San Ysidro parcels are designated for Multiple Rural Use, allowing 1 dwelling unit per 4-8-20 acres. The Project Team Alternative would change these existing land use designations allowing the conversion of agricultural land to urban uses. The area north of the Otay River Valley would be developed with low to medium density residential uses, commercial uses, parks, schools, and the East Urban Center.

The Proctor Valley and San Ysidro parcels would be developed with less residential uses than the New Town Plan. However, the change in land use designations would allow residential uses to develop adjacent to offsite, existing agriculture activities associated with Daley Ranch to the east. Potential interface land use impacts related to noise, dust, odors, and use of pesticides could occur between the proposed residences located on the east portion of the San Ysidro parcel and residences close to the northeast section of the Proctor Valley parcel. No land use interface impacts related to agriculture would occur with the proposed land uses in the Otay River parcel since they are surrounded by existing and developing urban land uses to the north, south, east, and west.

The land use designations proposed by the Project Team Alternative would allow the conversion of land currently in agricultural use to urban uses, which is a significant agricultural land use impact of the alternative due to the loss of a limited agricultural resource.

The Project Team Alternative would result in similar indirect, growth-inducing impacts as the New Town Plan since it would extend roads and public infrastructure next to lands currently in agricultural use, primarily in the San Ysidro parcel where residential development would be adjacent to agricultural activities associated with Daley Ranch.

The northern portion of the Proctor Valley parcel is within the Jamul-Dulzura Subregional Planning area, and is designated as an "Estate Development Area" and as a "Rural Development Area" along the parcel's northern boundary. Existing grazing activities which occur along the Proctor Valley parcel are consistent with the goals and policies of the subregional plan, which encourages agricultural activity to maintain the existing rural character of the community.

This alternative would replace cattle grazing activities with single-family homes along the northern portion of the Proctor Valley parcel. Natural open space areas would be retained in the central and eastern portions of the Proctor Valley parcel. Land use designations of the Project Team Alternative would allow residential development of 0.05-0.25 dwelling units per acre. These low density large lots would be adequate in size to allow agricultural activities such as the keeping of farm animals and the cultivation of vegetables and orchards. By allowing these agricultural uses, the Project Team Alternative would be consistent with the Jamul-Dulzura Subregional Plan's goals. No significant policy

inconsistency impacts would occur unless these agricultural activities are not allowed along the northern portions of the Proctor Valley parcel.

The Otay River parcel, San Ysidro parcel, and the lower portion of the Proctor Valley parcel lie within the Otay Mesa Subregional Planning area. The plan encourages agricultural production as an interim use on undeveloped lands planned for future urban use. The Project Team Alternative, similar to the New Town Plan, would allow agricultural activities to occur as an interim use on the undeveloped areas of the Otay Ranch property. An Agricultural Plan would be developed to tie into the project's phasing plan. Areas not scheduled for development and which are currently used for cattle grazing or barley cultivation would continue to operate as agricultural land. The plan would require measures to mitigate potential internal interface impacts related to interim agricultural activities. The Project Team Alternative would be consistent with the goals of the Otay Subregional Plan by allowing agricultural activity to occur as an interim use.

The Project Team Alternative, similar to the New Town Plan, would not be consistent with Goal 2 - Objective 5, Open Space and Conservation Element of the Chula Vista General Plan which calls for the maintenance of agriculture as a viable land use and the preservation of highly productive agricultural land. The Project Team Alternative would also result in the conversion of approximately 20,000 acres of land currently in agricultural production and 9,714 acres of agricultural land with the potential to be highly productive to urban uses. This is a significant open space and conservation policy inconsistency of the project. It should be noted that, contrary to the Open Space Element's goals and objectives to preserve agricultural land, the City of Chula Vista General Plan map for the Eastern Territories does not include any agricultural designations within the Otay River parcel which would preserve agriculture as a viable land use.

The Local Agency Formation Commission (LAFCO) will review development plans for the Otay Ranch property to determine whether the project complies with their Agricultural Lands Preservation Policy when it considers the sphere of influence for the Otay River parcel. LAFCO's review and approval process is independent of this EIR analysis.

4.4.8.2 Proposed Mitigation

The mitigation measures proposed for the New Town Plan would be applicable to the Project Team Alternative. The alternative would also result in significant agricultural impacts due to the loss or impairment of existing agricultural land with soils suitable for the potential production of coastal-dependent crops.

1. An agricultural plan shall be prepared by the project applicant prior to approval of any SPA Plans affecting agricultural resources and will be required for each subsequent development proposal. The plan shall indicate the type of agricultural activity that will be allowed as an interim use. Specifications shall include buffering guidelines designed to prevent potential land use interface impacts related to noise, odors, dust, insects, rodents, and chemicals that may accompany agricultural activities and operations. Adequate buffering shall be provided between the proposed development area and the interim agricultural use. Buffering measures may include:

    - a 200-foot distance between property boundaries and agricultural operations;

- if permitted interim agricultural uses require the use of pesticide, then limits shall be set as to the time of day and the type of pesticide application that may occur;

- use of vegetation along the field edges adjacent to development that can be used for shielding (i.e., corn); and

- notification of adjacent property owners of potential pesticide applications and use of fencing.

The plan shall be reviewed by the city or county planning department that has jurisdiction over these areas to verify that proposed guidelines are adequate to prevent significant interface impacts from occurring. This measure would partially mitigate the incremental loss of agricultural land.

2. Landscaping and buffering guidelines shall be included in the development plans at the SPA level for the areas planned adjacent to existing agricultural uses. These areas include the areas near the northeastern edges of the Proctor Valley parcel and the areas along the northern edges of the San Ysidro parcel where low-density residential uses would be located near existing Daley Ranch agricultural activities (i.e., crop cultivation and cattle ranging).

3. The loss or impairment of prime agricultural land for agricultural activity is an unmitigable impact. However, a small portion of the Otay River parcel where prime soils are located should be set aside for a community garden. A possible location for the community garden would be in the southwest portion of the Otay River parcel. This area is considered suitable since it contains prime agricultural soils and is designated as a park by the Project Team Alternative. Development of this garden will depend on the feasibility of maintaining it within the proposed park. If the community garden is deemed feasible its size and exact location will be determined at the SPA level. Schools proposed within the Otay Ranch property could promote educational activities in regard to agriculture through the use of the community garden.

4. Agricultural activity and the keeping of animals shall be allowed within the large, low density lots planned along the northern edge of the Proctor Valley parcel, as recommended in the Jamul-Dulzura Subregional Plan. Development plans for this area shall contain landscaping and buffering guidelines designed to prevent potential nuisance impacts related to noise, odor, dust, and use of chemicals from occurring between adjacent internal residential uses.

4.4.8.3 Analysis of Significance

Implementation of the Project Team Alternative would result in significant impacts to agricultural resources. These impacts would not be as significant as the New Town Plan since less land would be developed. However, the conversion of agricultural land to urban uses and the loss of prime agricultural land is a significant unmitigable impact of the alternative. According to state, county, and City of Chula Vista policies and goals, the loss of an agricultural resource which has the potential to produce coastal-dependent crops, is considered a significant, unmitigable impact regardless of the feasibility of maintaining the land in agricultural production (i.e., due to a lack of an adequate water supply).

4.4.9 Mineral Resources

4.4.9.1 Impact Analysis

The Project Team Alternative proposes the same development footprint as the Fourth Alternative, with slightly varied land uses. The development footprints are the same for the Otay River Valley and for Rock Mountain as proposed for the Fourth Alternative; therefore, the impacts would be the same as identified for the Fourth Alternative.

The Project Team Alternative has the same development footprints for the Proctor Valley and San Ysidro parcels as proposed for the Fourth Alternative; therefore, the impacts would be the same as identified for the Fourth Alternative.

4.4.9.2 Proposed Mitigation

The Otay River Valley segment within the Otay Ranch project is no longer considered to be a source of significant mineral resources (see Section 3.8, New Town Plan). Therefore, no impacts to mineral resources would result from the proposed development, and mitigation measures are not necessary.

The Project Team Alternative should include measures in its development plan to allow for mineral extraction on Rock Mountain and mineral extraction should be designated as the primary land use. Rock Mountain shall be placed in a mineral extractive overlay designation or an RCA in accordance with the policies of the soon-to-be adopted Mineral Resource Management Plan.

Development of the San Ysidro and Proctor Valley parcels shall be phased, if possible, to allow for mineral extraction if the county's Mineral Resources Element determines that significant mineral resources are located on the Otay Ranch property. Where possible, compatible land uses shall be developed near the locations of future mineral extraction activities (EIR proposed). Should project phasing not be possible, the impact to mineral resources would be significant and unmitigable.

The bentonite deposits onsite are not considered to be regionally significant (see Section 3.8, New Town Plan). Therefore, no impacts to mineral resources would result from the proposed development and mitigation measures are not necessary.

4.4.9.3 Analysis of Significance

The phasing of development of the San Ysidro and Proctor Valley parcels to allow for the extraction of mineral resources before construction would effectively mitigate impacts to mineral resources. However, should this not be feasible, the impact to mineral resources would be significant and unmitigable. Actions that preclude the extraction of significant mineral resources would be significant and would result in unmitigable adverse impacts.

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4.4.10 Water Resources and Water Quality

4.4.10.1 Impact Analysis

The Project Team Alternative proposes essentially the same development footprint as the Fourth Alternative, with slightly varied land uses. The types of impacts that can be anticipated are generally similar to those of the New Town Plan and include inundation of project features, changes in surface water flow rates, surface water quality, and ground-water quality and quantity.

4.4.10.2 Proposed Mitigation

Further analysis is necessary to determine the magnitude of the impacts and to identify measures appropriate to mitigate significant effects. All future studies shall be conducted by a qualified hydrologic engineer and meet the City of Chula Vista, County of San Diego, and Regional Water Quality Control Board standards for urban runoff, sedimentation, floodplain, encroachment, and water quality, as appropriate. A brief summary of the proposed mitigation measures is as follows:

- Floodplain encroachment - determine floodplain/floodway width; avoid floodplain encroachment.

- Inundation of project features - perform appropriate detailed hydrologic and hydraulic studies and incorporate the findings, conclusions, and recommendations into the design and construction of the project. Upgrade existing facilities or install retention/detention basins, as appropriate, to contain surface flows, etc.

- Changes in surface flow rates - perform appropriate detailed hydrologic and hydraulic studies and incorporate findings, conclusions, and recommendations into the design and construction of the project. Incorporate erosion control measures, siltation basins, etc. into project design.

- Ground-water quality - Implement the improvements and plans provided in the Urban Runoff Reservoir Study. Details on study contents are provided in Section 3.9.3.

- Ground-water quantity - implement measures to enhance recharge to aquifer systems.

- Urban runoff to Lower Otay Lake - prepare and implement Urban Runoff Master Plan.

4.4.10.3 Analysis of Significance

At this level of analysis, impacts to ground-water and surface water resources and quality are considered significant upon development of the Project Team Alternative. Implementation of the recommended mitigation measures at the SPA and project design levels of review would reduce the ground-water and surface water impacts to below a level of significance.

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4.4.11 Transportation, Circulation, and Access

4.4.11.1 Impact Analysis

This section documents the results of the impact analysis for the Project Team Alternative. The following topics will be discussed in this section: trip generation, proposed circulation network, arterial segment and freeway impacts, and intersection impacts.

Appendix B contains critical information regarding local and regional transportation topics related to project impacts and mitigation.

Trip Generation

This alternative was developed by the Otay Ranch Joint Planning Team to reflect their view of the goals, objectives, and policies originally accepted by the Interjurisdictional Task Force. The Project Team Alternative (PTA) places emphasis on:

- alternatives to automobile transport;
- public spaces for community gatherings;
- streetscapes and land use densities which encourage pedestrian activity; and
- sensitivity to environmental preservation, energy conservation, solid waste disposal and suburban traffic congestion.

Toward these ends, the PTA includes the following major features:

- a large, mixed use Eastern Urban Center located adjacent to SR-125;
- a university site located adjacent to the research/development industrial area;
- a large research and development area located adjacent to SR-125, the Eastern Urban Center and the university site; and
- three regional park-type open space areas oriented to passive uses.

Table 4.4.11-1 summarizes the proposed land uses and daily trips under this alternative. It shows that under SANDAG trip generation standards, the proposed land uses for this alternative would generate approximately 544,835 daily trips on Otay Ranch.

Proposed Circulation Network

The Project Team Alternative would include four Otay River Valley road crossings (SR-125, Paseo Ranchero, La Media Road, and Alta Road) and a pattern of major streets which would form a modified grid, with the exception of four-lane collector loops within villages, and a loop formed by Palomar Street as it curves around to the Eastern Urban Center. The major roadways reflect the roads of the County General Plan Circulation Network; however, their alignments vary, and additional north-south roads have been added.

Transportation and Circulation Impacts

The impact analysis for the Project Team Alternative was conducted in a qualitative manner in accordance with directives from County of San Diego and City of Chula Vista staff.

The Project Team Alternative is projected to generate approximately 547,835 total daily trips. This equals 40 percent fewer daily trips than the 901,025 trips estimated for the New Town Plan 26 percent fewer trips than the 736,883 trips estimated for the Phase I-Progress Plan Alternative, and 37 percent more trips than the 397,551 trips estimated for

Table 4.4.11-1

LAND USE AND TRIP GENERATION SUMMARY
PROJECT TEAM ALTERNATIVE
OTAY RANCH TOTAL

Land Use	Land Use Intensity	Trip Rate	Daily Trips
Single-family Residential	9,007 du	10/du	90,070
Multifamily Residential	15,057 du	7/du	105,399
TOTAL DWELLING UNITS	24,064 du		
TOTAL RESIDENTIAL TRIPS			195,469
Office/Commercial			
Retail Commercial	107 AC	**	89,400
Freeway Commercial (10–30 acres ea.)	61 AC	650/AC	39,650
Industrial			
General Industrial	222 AC	130/AC	28,860
Research Industrial	152 AC	80/AC	12,160
Limited Manufacturing	169 AC	130/AC	21,976
Public/Quasi-public			
Public Facilities/Schools	278 AC	50/AC	13,900
University	384 AC	80/AC	30,720
Parks (Developed)	268 AC	50/AC	13,400
Eastern Urban Center (EUC)			
General Office (Less than 100,000 sq. ft. each)	100 AC	20/AC	2,000
Multifamily Residential*	1,500 AC*		
Retail Commercial (30–60 acres each)	76 AC	500/AC	38,000
Public/Quasi Public	25 AC	80/AC	2,000
Parks (Developed)	30 AC	50/AC	1,500
Resort	236 AC	100/AC	23,600
Conference Center (Hotel)	16 AC	200/AC	32,200
TOTAL NON-RESIDENTIAL TRIPS			349,366
TOTAL DAILY TRIPS			544,835

* The 10,500 trips that are generated by the multifamily dwelling units in the EUC are reflected in the total residential dwelling unit count and trip generation figures.

** This trip generation figure is based on the various classes of non-EUC retail commercial uses included in the Otay Ranch Project (i.e., 800 trips per acre on the Otay River Parcel and 1,000 trips per acre on the Proctor Valley and San Ysidro parcels).

the Composite General Plans Alternative. Since the Composite General Plans Alternative was used as the adopted regional standard in terms of acceptable level of impact, it is assumed that the Project Team Alternative would create impacts in excess of those forecasted for the Composite General Plans Alternative. Thus, the basis for determining the impacts associated with the Project Team Alternative involved review of the projected impacts (under quantitative analysis) associated with the two alternatives which comprised the next-higher density of development (Phase I-Progress Plan) and the next-lower density (Composite General Plans Alternative). Table 4.4.11-2 details the estimated impacts to the Otay Ranch study area network under these alternatives:

Comparative Analysis of Impacts

It is important to note that the impacts to the Otay Ranch study area circulation network under any development alternative must be mitigated to achieve acceptable levels of service and conform to the adopted performance standards. For review purposes, the estimated Project Team Alternative impacts are compared to those impacts that would occur under the Composite General Plans Alternative. As discussed in Section 4.5.11, the Composite General Plans Alternative is a combination of the adopted general plans for each of the jurisdictions in the study area. As the Adopted Chula Vista General Plan contains the most detailed land use and circulation network information for the area of eastern Chula Vista on and adjacent to the project site, this general plan was used as the primary plan for analysis purposes. This direction was provided by the Interjurisdictional Task Force during the early stages of the review process. This comparative analysis will enable the reviewer to clearly understand the project and cumulative impacts that would result from a particular alternative. However, at this program level of review, the definitions of project-only have not yet been determined. Specific measures that describe the process to be followed to accurately define the project-only impacts associated with each phase of development are contained in the mitigation section.

Project-level impacts are impossible to fully identify and address at this stage of development because of uncertainty relating to the ultimate street system to be approved for the area. For example, will SR-125 be a freeway or a toll facility? Will there be two, three, or four river crossings? These major circulation issues significantly impact trips through the project area; consequently, project-level impacts cannot be adequately identified at this time. During the subsequent planning efforts and preparation of SPA plans, these issues can be quantified and mitigated.

As shown in the previous section, the Project Team Alternative is estimated to have a total of 36 impacted roadway miles and ten impacted major signalized intersections. The Composite General Plans Alternative is expected to have 26 impacted roadway miles and eight impacted major signalized intersections. Thus, ten additional miles of roadway and two additional intersections would be impacted under the Project Team Alternative.

4.4.11.2 Proposed Mitigation

The mitigation analysis for the Project Team Alternative was conducted in a qualitative manner. The Otay Ranch Project Team determined that no modeling would be conducted on this alternative, as it is expected to create impacts similar to the Phase I-Progress Plan and the Composite General Plans alternatives. Thus, there is no precise information available to determine the extent and location of estimated segment and intersection impacts, nor is it possible to identify specific mitigation measures that will be required under this alternative. The comparative impact analysis conducted for this alternative revealed that approximately 36 miles of roadway network and ten major signalized intersections within the project study area require some form of mitigation. In order to determine specific

Table 4.4.11-2

TRAFFIC IMPACTS OF THREE ALTERNATIVE DEVELOPMENT SCENARIOS (Prior to Mitigation)

Alternative	Impacted Roadway Miles		
	Total Network	Freeway	Arterial
Phase I-Progress Plan	50	13	37
Project Team	36	8	27
Composite General Plans	26	6	20

Alternative	Impacted Intersections		
	Special At-grade Design Required	Special At-grade or Grade Separated Design Required	Special Grade Separated Design Required
Phase I-Progress Plan	5	1	9
Project Team	4	1	5
Composite General Plans	4	0	4

mitigation requirements for this alternative, the proposed land uses and circulation network would have to be analyzed in detail using the Combined Southbay Transportation Model.

Potential Transportation Demand Management Benefits

This section summarizes the potential benefits to circulation system operations with the successful implementation of Transportation Demand Management (TDM) strategies proposed by SANDAG and the Air Pollution Control District. Both of these plans would increase average vehicle occupancy (passengers per vehicle) during commute trips from the current level of less than 1.1 to at least 1.5 in the future.

SANDAG estimates that through TDM, commuting trips region-wide could be reduced by 17 percent. As a regional program, implementation of an aggressive TDM program clearly has a significant positive impact on peak hour operating LOS on the regional circulation system, when roads are usually operating at or near capacity.

Based on the modeled results using the Phase I-Progress Plan Alternative, with TDM benefits included in the model, it can be expected that the TDM policies would decrease total vehicle miles traveled (VMT) by approximately 8 percent. This reduction in traffic activity could potentially reduce both arterial and intersection impacts by one third. A peak hour analysis will be conducted on the conceptually approved plan under TDM and non-TDM conditions prior to each SPA Plan approval. This analysis will more precisely define the extent and location of impacts and identify specific mitigation measures that will be required under the selected development scenario for the Otay Ranch.

4.4.11.3 Analysis of Significance

A detailed analysis of actual impacts and required mitigation would be necessary to provide an accurate analysis of significance for the unmitigable impacts that would occur under this alternative. However, based on the analysis of significance conducted for the Phase I-Progress Plan and the Composite General Plans alternatives, which formed the range for determining impacts that would occur under the Project Team Alternative, it is anticipated that this alternative would have some significant arterial and freeway impacts and no more than four significant offsite intersection impacts after mitigation.

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4.4.12 Air Quality

4.4.12.1 Impact Analysis

The Project Team Alternative represents a lower population increase to the area than the New Town Plan, Phase I-Progress Plan Alternative, or Fourth Alternative; therefore, local air quality impacts would be lower. The design of this alternative emphasizes transportation alternatives. Road congestion is expected to be the lowest of any alternative except the Environmental Alternative (to which it is equal) and the No Project Alternative (Figures 4.7.11-2 and 4.8.11-2). San Diego County does not presently meet ambient air quality standards, and the Project Team Alternative provides for a greater increase in population than the Existing General Plans on which the SANDAG Series 7 growth projections are based (see Section 3.11.1.1 for a discussion of Series 8 projections). Therefore, impacts are expected to be significant and only partially mitigable.

4.4.12.2 Proposed Mitigation

The mitigation measures listed in Table 4.4.12-1 would minimize air pollution impacts.

4.4.12.3 Analysis of Significance

Assuming that growth in the remainder of the county equals or exceeds the Series 7 projections, mitigation measures (summarized in Table 4.4.12-1) applied to this alternative would not reduce impacts to below a level of significance.

Table 4.4.12-1 (Revised)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Construction Sources

- minimize simultaneous operation of multiple construction equipment units (i.e., phase construction to minimize impacts)
- use low pollutant-emitting construction equipment
- use electrical construction equipment as practical
- use catalytic reduction for gasoline-powered equipment
- use injection timing retard for diesel-powered equipment
- water the construction area to minimize fugitive dust
- stabilize (for example, hydroseed) graded areas as quickly as possible to minimize fugitive dust
- pave permanent roads as quickly as possible to minimize dust

Land Use Policies

- Provide neighborhood shopping and personal services adjacent to residential areas to minimize auto trips and reduce mileage travelled to service areas.
- Provide open space and recreational facilities within or adjacent to the residential areas.*
- Provide employee services within walking distance (i.e., banking, childcare, restaurants, etc.).
- Provide a balanced mix of housing and employment possibilities to reduce trips and vehicle miles traveled.

Siting/Design Policies

- Site-specific analysis for potentially incompatible projects (for example, a residential development near one of the quarries or the landfill) shall be reviewed in the SPA Plan.
- Provide dedicated bike lanes to encourage use of bicycles.
- Provide bicycle storage facilities at employment and retail centers.
- Provide shower and locker facilities at offices to encourage bicycle use.

Table 4.4.12-1 (Revised) (Continued)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Siting/Design Policies (Continued)

- Provide sidewalks and curbs to ensure safe pedestrian travel within residential areas and to commercial centers.*
- Provide street designs that promote pedestrian safety (i.e., safe islands in center of major arterials, "Walk" signals, night lighting, etc.).*
- Orient shopping centers to promote use by mass transit (i.e., provide bus turnouts), pedestrians, and bicyclists.
- Design parking lots to promote use of mass transit and car pools.
- Control emissions of NO_x by installing heat transfer modules on gas-fired furnaces.
- Utilize solar heating technology as practical. Generally, solar panels can be cost-effectively used to heat water for domestic use and for swimming pools. Advances in solar technology in the future may make other applications appropriate.
- Utilize low-NO_x residential and commercial water heaters.
- Enhance energy efficiency in building designs and landscaping plans.
- Minimize "drive-through" establishments to reduce emissions from idling vehicles.**
- Minimize on-street parking to reduce congestion and avoid back-up and idling of vehicles.**
- Identify an environmental coordinator to be responsible for education and disseminating information on ridesharing and/or mass transit opportunities, recycling, energy conservation programs, etc.

Transportation-related Management Actions

The City of Chula Vista is responsible for the transportation-related management actions in which they shall coordinate these development plans with the Metropolitan Transit Development Board (MTDB).

Table 4.4.12-1 (Revised) (Continued)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Transportation-related Management Actions (Continued)

- Provide land for transit support facilities such as bus stops, park-n-ride lots, etc.*
- Provide amenities to increase convenience and attractiveness of transit stops (i.e., passenger staging areas, waiting shelters, etc.).*
- Provide minibus, jitney, or other para-transit service to provide access from residential areas to commercial areas.**
- Require major employers to provide ridesharing or mass transit incentives.
- Provide demand-responsive traffic signals.
- Achieve transit agency agreement to institute new routes or express bus service, or to expand existing service, related to the demand caused by the proposed project.

* Measure is feasible in areas with relatively high residential densities.
** Measure is infeasible because: 1) few of these land use combinations are proposed for this alternative or 2) conflicts with village design concept.

4.4.13 Noise

4.4.13.1 Impact Analysis

Roadways

The primary noise source throughout the project area at full buildout of the Project Team Alternative would be from vehicular traffic. Onsite noise impacts would occur as development is completed on Otay Ranch, whereas offsite impacts would be realized as regional traffic volumes increase due to area growth and roadway segments are widened to accommodate the increased traffic. Additional noise impacts are anticipated when existing roadways are re-aligned in accordance with planned or proposed circulation element improvements. The degree of the impact would depend on the location of the noise-sensitive receptors in relation to the roadways as well as the project design. In general, noise-sensitive receptors located along major arterials and collector streets may be impacted by sound levels exceeding 60 CNEL and result in a significant impact. Vehicular traffic noise levels from this alternative would be similar to the New Town Plan. However, this alternative appears to have more open space along the major roadways than any of the other alternatives, which may act as a buffer to the proposed residential receptors.

Noise generated by project-related traffic is expected to increase the noise level at the existing sensitive receptors located along the offsite access roadways. Based on the transportation analysis in Section 4.4.11, the project-generated traffic would impact approximately 15 percent (or 44 miles) of the roadway miles. No distinction has been made between impacts to onsite and offsite roadway segments under the Project Team Alternative. However, in comparison to buildout under the Composite General Plan, the Project Team Alternative traffic contributes to 10 additional miles of impacted roadways (refer to Table 4.3.11-2 for details on impacted roadway miles). Although there is not a direct correspondence between impacted mileage and noise impacts, comparison with the Composite General Plans Alternative should provide a general degree of vehicular noise impacts. The amount of noise increase is dependent on such factors as roadway design, ADT, distance from the roadway, the orientation of the usable outdoor living areas to the roadway, and intervening topography. In general, a doubling of the traffic volume would be expected to increase the sound level by 3 dBA. This is considered significant if usable outdoor living areas such as balconies, patios, children's playing areas, and swimming pools are affected. Major roadways which may impact existing residences include East H Street, Otay Valley Road, East Orange Avenue, Palomar Street, and Telegraph Canyon Road. There may be other smaller roadways which may cause a noise impact.

At this level of analysis, noise from onsite and offsite roadways is considered to be a significant and potentially unmitigable impact within 1250 feet of the facility. A site-specific acoustical study will be required during the SPA Plan review and prior to adoption of any circulation element General Plan Amendments. The study shall provide a description of the proposed project, the existing noise environment, the future noise environment, noise impacts, and the required mitigation measures. If development within the effected area is phased in subsequent to the landfill closure, the impacts would be avoided.

Riparian vegetation is a potential habitat for the federally endangered least Bell's vireo. Elevated noise levels can potentially mask the song of the least Bell's vireo which is used to attract mates and defend territories. The San Diego Association of Governments (SANDAG) in a 1989 study (SANDAG 1989,) theoretically estimated that noise levels above 60 dBA L_{eq} in vireo breeding areas may impact the reproductive success of this

species during their breeding season which occurs from March 15 to September 15. At this level of analysis noise from roadways and construction is considered to be a significant and unmitigated impact (see Section 3.3, Biological Resources).

Gun Ranges

Two gun ranges are currently located on the project site. A small private shooting range is located north of the Otay River. Target Tossers Gun Club, a public shooting range, is located at the western property boundary south of the Otay River. It is assumed that both gun ranges would be relocated prior to development and would not result in an adverse impact.

Rock Quarries

The Project Team Alternative proposes residential land uses to the west, east, and north of the Nelson and Sloan mining operation and to the south of the Daley Quarry. Compliance with applicable property line noise ordinances is the responsibility of the quarry operator. The county noise ordinance permits extractive industries to generate one-hour average sound levels as high as 75 dBA at the property line, regardless of the adjacent land use. As discussed for the New Town Plan, calculations show that a 9300-foot buffer from the quarry property line would be required to achieve the residential noise standard of 45 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume that the receiver is in direct line-of-sight with the noise source. No consideration was given to the noise attenuating effects of intervening topography. The intervening knolls and ridgelines will block sound transmission which may result in a reduced buffer area. The 45 dBA residential standard assumes that quarry operations begin prior to 7:00 a.m. Even if the Nelson and Sloan Mining Operation and the Daley Quarry can comply with the applicable noise ordinances, noise at residential receptors within 9300 feet of the quarry may still be sufficiently audible to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Nelson and Sloan Mining Operation and Daley Quarry is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during the specific plan amendment. The study shall provide a description of the proposed project, the existing noise environment, the future noise environment, noise impacts, and the required mitigation measures. The study shall consider the effects of intervening topography which may tend to attenuate sound.

Recycling Center

A small wood recycling center is in operation at the west end of the Otay River parcel on Otay Valley Road. The recycling center would be relocated prior to project development and would not result in significant impacts.

Landfills

The Project Team Alternative proposes residential development immediately to the south of the Otay Landfill and at least 1,200 feet to the north. Based on a measured sound level of 72 dBA at 100 feet from the active work surface (ERCE 1991), similar operations would result in a sound level of 75 dBA at 70 feet. Based on a 70-foot reference distance, calculations show that a 1250-foot buffer from the landfill property line would be required to achieve the daytime residential noise standard of 50 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume that the receiver is in direct line-of-sight with the noise source. No consideration was given to the

noise attenuating effects of intervening topography. The 50 dBA residential standard assumes that landfill operations are limited to the hours of 7:00 a.m. to 7:00 p.m. Compliance with the County of San Diego Noise ordinance is the responsibility of the landfill operator. Even if the landfill can comply with the applicable noise ordinances, noise at residential receptors within 1250 feet of the landfill may still be sufficiently audible to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Otay Landfill is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during SPA Plan review. The study shall provide a description of the proposed project, the existing noise environment, the future acoustical environment, noise impacts, and the required mitigation measures. The study will consider the effects of intervening topography which may tend to attenuate sound.

Industrial Activities

There are numerous industrial land uses adjacent to the Otay River parcel along Otay Valley Road. Auto wrecking yards are located in this area along with other types of industrial activities. Noise associated with each industry is specific to the type of activity. The permitted sound level at an industrial property line would be the arithmetic mean of the permitted sound level of the business and the adjacent properties zones. The result would permit higher sound levels at adjacent residences than would be permitted in a strictly residential neighborhood. Assuming that each business can comply with applicable noise ordinances, noise may still be sufficiently audible at the residential receptors to result in a significant impact. A site-specific analysis will be required during SPA Plan review. The study will provide a description of the proposed project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation measures.

Airfields

Brown Field

Brown Field is located immediately south of the Otay River parcel. The existing noise contours depicted in the Brown Field Municipal Airport Master Plan, adopted in 1978, and the more current noise contours in the updated Draft Brown Field Master Plan (unadopted), show that the project site lies outside of the 60 CNEL noise contour. Noise from Brown Field aircraft operations is not expected to cause a significant impact.

San Diego Air Sports Center

The Project Team Alternative proposes to develop residential land uses immediately to the north, south and east of the San Diego Air Sports Center. FAA guidelines prohibit skydiving and ultralight flying over congested areas. Therefore, the plan may result in a potentially incompatible land use. Since noise contours are not currently available, this analysis assumes that residential land use within one mile of the Sports Center may be significantly impacted by aircraft noise. A site-specific analysis will be required during SPA Plan review. At this level of analysis, noise from the Air Sports Center is considered to be a significant and potentially unmitigable impact.

Regional Airport

The City of San Diego is currently studying the concept of constructing a regional/binational airport in Otay Valley south of the project site. The proposal is in the

very preliminary planning stages, and potential noise impacts from the proposed airport are currently unknown.

Light Rail Transit

The San Diego Metropolitan Transit Development Board (MTDB) is currently studying the concept of constructing a light rail transit (trolley) expansion into the study area. The proposal is in the preliminary planning stages, and potential noise impacts are unknown.

4.4.13.2 Proposed Mitigation

Site-specific Noise Studies

Potentially significant noise impacts have been identified from onsite roadways, the Nelson and Sloan Mining Operation, the Daley Quarry, the Otay Landfill, the San Diego Air Sports Center, and various industrial activities in close proximity to the project site. Site-specific acoustical analyses will be required during SPA Plan review. The study will provide a description of the proposed project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation measures. A "D" designator for noise shall be created to identify areas where a site-specific study is required. The "D" designator impact area shall include the following:

- All areas within 9300 feet of the Nelson and Sloan Mining Operation and the Daley Quarry;
- All areas within the 60 CNEL noise contour of onsite and offsite roadways, which shall include all roadways on the Otay River parcel and all roadways assigned a future ADT of 3000 trips or greater on the Proctor Valley and San Ysidro parcels;
- All areas within 1250 feet of the landfill;
- All areas within one mile of the San Diego Air Sports Center; and
- All areas adjacent to least Bell's vireo habitat.

Residential development within the impact area may be allowed if the site-specific noise study shows that mitigation to below a level of significance is feasible.

Potentially significant noise impacts have been identified from offsite roadways. Site-specific acoustical analyses will be required for all areas adjacent to roadways proposed for widening, realignment, and/or an upgrade in roadway classification through a General Plan Amendment.

Noise Mitigation Measures

Vehicular Traffic

Noise mitigation is required for all residential land uses located in areas where the CNEL from vehicular traffic exceeds 60 dBA. The estimated 60 CNEL contour is located approximately 120 feet from the roadway centerline for collector streets, 400 to 2400 feet from the roadway centerline for major and prime arterials, and over 4000 feet from the centerline of the freeways. The modeled contours are considered a worst-case condition

because the roadways were modeled at grade with the surrounding area, and the effects of intervening topography were not considered.

Onsite. In general, roadway noise impacts can be mitigated by setbacks, by the construction of barriers, or a combination of both. However, depending on the roadway design and surrounding topography, barriers such as noise walls and earthen berms in excess of 10 feet high may be necessary and are often not considered to be feasible or aesthetically desirable. The setback distance necessary to lower the wall height can be considerable, possibly several hundred to more than a thousand feet. Therefore, noise impacts from vehicular traffic are considered to be potentially unmitigable at residences proposed closest to the roadways. The required setbacks may result in lower residential densities.

Offsite. Mitigation of noise impacts resulting from project-related vehicular traffic on offsite roadways may require construction of barriers on public or private property to mitigate exterior noise impacts, and possibly retrofitting residences with noise insulation for interior noise impacts. In areas were the residences have been built along the roadway, mitigation to below a level of significance may not be possible.

Noise from vehicular traffic and construction is considered to be a significant impact to the least Bells' vireo. In areas where major roadways are located or construction will be undertaken in close proximity to least Bell's vireo habitat, mitigation to below a level of significance may not be possible.

Rock Quarries

Noise associated with the Nelson and Sloan Mining Operation and the Daley Quarry is considered to be a significant impact. Based on the County of San Diego Noise Ordinance, sound levels from the quarries are permitted to be as high as 75 dBA Leq at the source property line. Compliance with the noise ordinance is the responsibility of the quarry operator. Sound levels were calculated to be 45 dBA Leq at approximately 9300 feet from the source property line. Mitigation of noise impacts may not be feasible at residences within 9300 feet and in direct line-of-sight of the quarry. However, mitigation may be possible as a result of intervening topography such as fills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate the impacts to below a level of significance. Residential development within 9300 feet of the quarries should be staged such that construction not take place unless the quarries have been mined-out and mining operations have ceased or noise impacts can be mitigated as demonstrated in the site-specific noise study.

Otay Landfill

Noise associated with the Otay Landfill is considered to be a significant impact. Sound levels were calculated to meet the 50 dBA Leq daytime noise standard at approximately 1250 feet from the landfill property line. Mitigation of noise impacts may not be feasible at residences within 1250 feet and in direct line-of-sight of the landfill. However, mitigation may be possible as a result of intervening topography such as hills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate the impacts to below a level of significance. Residential development within 1250 feet of the landfill should be staged such that

construction not take place unless the landfill has undergone closure or noise impacts can be mitigated as demonstrated in the site-specific noise study.

San Diego Air Sports Center

Noise associated with the San Diego Air Sports Center is considered to be a significant impact. As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate impacts to below a level of significance. Residential development within one mile of the Air Sports Center should be staged such that construction not take place unless the Air Sports Center has closed or noise impacts can be mitigated as demonstrated in the site-specific noise study.

4.4.13.3 Analysis of Significance

Significant noise impacts have been identified from roadways, the Nelson and Sloan Mining Operation, the Daley Quarry, the Otay Landfill, the San Diego Air Sports Center, and the various industrial activities in close proximity to the project site. Reduction of noise impacts from all of these noise sources to below a level of significance may not be feasible. At this level of analysis, noise from these sources are considered to be a significant and unmitigated impact.

4.4.14 Public Services and Utilities

4.4.14.1 Impact Analysis

The Project Team Alternative would result in the development of 24,064 homes and a population of 67,046 (Baldwin Vista 1991). The following analysis is based on the same generation/demand rates utilized in Section 3.13 for the New Town Plan.

Water Availability and Demand

Demand Generated

The total water demand for this alternative is estimated at 21.0 mgd for average day use Water conservation measures would reduce the potable demand 121 gpd per dwelling unit, for a savings of 2.9 mgd or 14 percent. Water service and attendant facilities are proposed for all pressure zones. Storage capacity and filtration plan capacity would be purchased from the City of San Diego. Facility phasing would require construction on the Otay River parcel first, followed by incremental system expansion.

Reclaimed Water. The estimated reclaimed water demand for the Otay River parcel under the Project Team Alternative is 3.20 mgd. A transmission and distribution system similar to the proposed project would require; however, this alternative would require less capacity in the wastewater reclamation facility.

Significant impacts would occur under the Project Team Alternative similar to the proposed project. These impacts include the unanswered question of which water jurisdiction will ultimately serve the project, the provision of facilities sufficient to serve the project, and the issues of water reclamation and future water availability. Due to the lack of detailed development and facility plans at this time, the Project Team Alternative would require further environmental review at the SPA Plan level similar to the proposed project.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- Annexation of land to the appropriate water jurisdiction.
- The preparation of a Water Master Plan in accordance with the engineering and facility standards of the appropriate water jurisdiction.
- If required by the appropriate water district, written verification shall be obtained from the water district that water will be adequately provided.

Wastewater and Sewer Service

Demand Generated

The total sewage generation for this alternative is estimated at 10.20 mgd for average flows. This alternative would provide gravity flow through Poggi and Telegraph Canyon drainage basins. The estimated flow from Poggi and Telegraph Canyon drainage basins is

2.25 mgd. Under this alternative, approximately 8.0 mgd of wastewater flow would be conveyed to the Otay River Valley.

Significant wastewater and sewer service impacts would occur under the Project Team Alternative similar to the proposed project. These impacts include the unanswered questions of which sewer jurisdiction would serve the project, where the project's wastewater would be treated, and how facilities would be funded. Further environmental review at the SPA Plan level would be required under this alternative, similar to the proposed project, to ensure that adequate facilities are provided.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- Annexation of land to the appropriate sewer jurisdiction.
- The preparation of a Sewer Master Plan by the project applicant in accordance with the engineering and facility standards of the appropriate jurisdiction.
- If required by the appropriate sewer district, written verification shall be obtained from the sewer district that sewer service will be adequately provided.

Integrated Waste Management

Demand Generated

The total waste generated by the 24,064 units and the additional population of 67,046 proposed under the Project Team Alternative is approximately 241 tpd, or 87,965 tpy. Through the use of integrated waste management techniques, it is anticipated that the amount of waste which would ultimately require landfill disposal would be approximately 120 tpd, or 43,800 tpy. This additional solid waste generation would result in potentially significant impacts to solid waste management in South County. An integrated waste management system would be required under this alternative similar to the proposed project. However, the MRF and composting facility may be scaled back to serve the projected demand. Further environmental analysis of this issue would be required at the SPA Plan level.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required under the Project Team Alternative include the preparation of an Integrated Waste Management Program by the project applicant, ~~and~~ the project's participation in this program during all phases of SPA development, and compliance with County and City programs and regulations concerning long-term solid waste capacity.

Police Protection

Demand Generated

The Project Team Alternative would result in a demand for 93 law enforcement personnel and 18,914 square feet of office space. Although 18,914 square feet of office space is proposed to be provided, due to the fact that detailed development and facility plans are not available at this time, the project-specific impacts of the Project Team Alternative cannot be determined. Further environmental review would be required at the SPA Plan level, similar to the proposed project, to ensure adequate facilities and staff are available to serve the project. At this stage of review, it has been determined that the unresolved issues with respect to the provision and funding of services and facilities constitute significant impacts.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to the approval of any SPA Plan under the alternative include:

- The preparation of a comprehensive Law Enforcement Master Plan by the project applicant in accordance with the standards of the appropriate service provider.

Fire Protection and Emergency Medical Service

Demand Generated

Fire and emergency service demand would result in the need for three fire protection facilities. One emergency services facility would be required.

The Project Team Alternative would result in potentially significant impacts to the provision of fire protection and emergency medical service. This determination has been made due to the current lack of detailed development and facility plans which would be made available during the SPA Plan review process. Further environmental review of fire protection service would be required at the SPA Plan level to ensure adequate facilities and staff are provided to serve the project.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to any SPA Plan approval under this alternative include the preparation of a comprehensive Fire Master Plan by the project applicant in accordance with the appropriate service provider requirements for staffing and response times. The master plan shall also include provisions for emergency medical service.

Schools

Demand Generated

The estimated 67,046 total population under the Project Team Alternative would generate a demand for facilities necessary to serve 14,697 students, and approximately 15 schools on 254 acres of land. Under this alternative, 12 elementary schools, 2 junior high schools, and two high schools are proposed onsite, for a total of 16 schools.

Although 16 schools are proposed under the Project Team Alternative which would be adequate to serve the project, the lack of detailed development and facility plans at this stage of analysis make it difficult to determine the project-specific impacts on schools. Further environmental review is required prior to SPA Plan approval to ensure the adequate provision of school facilities. Until that time, this alternative is considered to have potentially significant impacts on schools.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include the preparation of a Schools Master Plan by the project applicant in close coordination with the affected school districts. The project applicant shall also provide documentation to the appropriate jurisdiction confirming school district satisfaction of facility funding.

Library Service

Demand Generated

The estimated 67,046 total population under the Project Team Alternative would generate demand for 33,523 square feet of additional library space. The population distribution indicates the following geographic demand:

• Otay River Parcel	25,494 square feet
• Proctor Valley Parcel	5,275 square feet
• San Ysidro Mountain Parcel	2,754 square feet
Total	33,523 square feet

An additional 203,175 books would also be required for the residents of Otay Ranch under this alternative.

One 33,523-square-foot EUC library are proposed on Otay Ranch under this alternative. Bookmobiles would serve rural residents in the eastern portion of the property. The proposed 33,523 square feet of library space would be adequate to serve the project under this alternative.

Although a total of 33,523 square feet of library space is proposed under the Project Team Alternative, the lack of detailed development and facility plans at this stage of analysis make it difficult to determine the project-specific impacts on libraries. Further environmental review would be required prior to SPA Plan approval to ensure the adequate provision of library facilities. Until that time, this alternative is considered to have potentially significant impacts on libraries with respect to the siting and funding of proposed facilities.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- The preparation of a Library Master Plan by the project applicant in accordance with the criteria of the applicable jurisdiction.

Parks, Recreation, and Open Space

Demand Generated

Based on the required 3 acres per 1,000 population, the demand for neighborhood and community parks would be:

Otay River Parcel	153 acres
Proctor Valley Parcel	32 acres
San Ysidro Parcel	16 acres
Total	201 acres

Based on the required 15 acres per 1,000 population, the regional park demand would be 1,006 acres.

Under the Project Team Alternative, 268 acres would be devoted to community and neighborhood parks, and approximately 14,028 acres would be devoted to natural and man-made open space uses, including passive recreation areas. An extensive greenbelt system (composed of man-made open space and parkways) along most of the arterial roadways would link all portions of the Otay River parcel and open space areas. Parkland and open space would be provided in compliance with the Otay Ranch Resource Management Plan (RMP).

The 268 acres proposed under this alternative are in excess of the parkland required.

The lack of detailed development and facility plans at this stage of analysis make the full extent of this alternative's impact on parks, recreation, and open space difficult to determine. Further environmental review would be required prior to SPA Plan approval to ensure the provision of adequate parks, recreation, and open space. Until that time, this alternative is considered to have potentially significant impacts on parks, recreation and open space with respect to siting, funding and phasing.

Policy Consequences

The County's Public Facility Element for Parks and Recreation calls for the co-location of local and regional parks with other public facilities such as schools, parks, and other public land when appropriate (Implementation Measure 3.2.1). This may be difficult to realize under the Project Team Alternative due to the proposed distribution of development.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval include the preparation of a Parks, Recreation and Open Space Master Plan by the project applicant in accordance with applicable standards for parkland acreage and recreation facilities. Dedication of land in accordance with requirements or payment of fees in lieu of dedication would mitigate any impacts to below a level of significance.

Electricity and Gas

Demand Generated

Additional substations and associated distribution lines would be required to serve development under the Project Team Alternative; placement of these facilities and associated impacts would be determined at the SPA Plan level.

SDG&E does not anticipate any significant impacts associated with the provision of electric and gas facilities for Otay Ranch, provided the following mitigation measures are implemented.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

- The project applicant shall work with SDG&E during all stages of electrical and gas facilities planning to minimize disturbance to sensitive resources (EIR proposed).
- Land uses adjacent to the SDG&E transmission lines shall be subject to review and comment by SDG&E (EIR proposed).

Health and Medical Facilities

Demand Generated

Based on the same methodology utilized in Section 3.13.11, it was estimated that the following health and medical facilities would be required under the Project Team Alternative:

- 1 public health satellite office
- 1.8 99-bed nursing homes
- 1.4 commercial home health care offices
- 4 public and private community meeting spaces
- 2 ambulatory pavilions
- 114 commercial physician, dentist, chiropractic, mental health, therapeutic, laboratory, and medical services and supply offices

Otay Ranch would be served by Kaiser Permanente (planned for EastLake), Chula Vista Community Hospital and Scripps Memorial Hospital of Chula Vista. No new hospitals, in-patient mental health facilities or community clinics would be required to serve the residents of Otay Ranch under this alternative.

Although there are currently no statutory requirements for the provision of health and medical services, it is expected that development of the proposed project would have significant impacts on the provision of these services as the population continues to increase and the demand for health and medical services in the region continues to grow. Further environmental review of this issue is required at the SPA Plan level to ensure that adequate facilities are available to serve Otay Ranch.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures under this alternative include the involvement of appropriate governmental agencies and service providers during all stages of planning. Specific needs and siting of appropriate facilities shall be be identified by the project applicant in cooperation with health care providers prior to SPA Plan approval.

Senior and Social Service Facilities

Demand Generated

Demand for senior and social service facilities is dependent upon the number, location and demographics of the proposed project's population. Although there are currently no statutory requirements for the provision of senior and social services, it is expected that the Project Team Alternative would have significant impacts on the provision of these services as the proportion of the population over the age of sixty continues to increase and the demand for social services in the region continues to grow. Further environmental review of this issue is required at the SPA Plan level to ensure that adequate facilities are available to serve Otay Ranch.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures under this alternative include the involvement of appropriate governmental agencies and service providers during all stages of planning. Specific needs and siting of appropriate facilities shall be identified by the project applicant in cooperation with service providers prior to SPA Plan approval.

Cemeteries

Demand Generated

The Project Team Alternative would not generate enough demand to warrant the development of cemetery facilities, and the existing facilities would be adequate; therefore, no significant impacts would occur and no mitigation would be required.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Child Care

Demand Generated

The estimated population of 67,046 residents would generate demand for 2,676 formal child care slots, or 3,144 slots less than the proposed project. It is estimated that 52 percent of needed child care would be provided by large group facilities with an average capacity of 90 children. Therefore, the Project Team Alternative would generate a demand for sixteen 90-slot child care facilities.

Although there are currently no mandated requirements for the provision of child care facilities, the development of the proposed project is expected to have significant impacts on the provision of these services as the population increases in the project area. Further environmental review of this issue is required at the SPA Plan level to ensure that adequate child care facilities are available to serve Otay Ranch.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures include the provision of child care facilities as deemed necessary during the policy development process.

Animal Control

Demand Generated

The additional population in the South County area generated by the development under the Project Team Alternative would increase the demand for animal control facilities, resulting in a potentially significant impact.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures require that the project applicant participate in programs to equitably share the funding of animal control facilities and designate animal control facilities to provide adequate square footage of shelter space per dwelling unit to the satisfaction of the appropriate jurisdiction.

4.4.14.2 Analysis of Significance

At this level of analysis, impacts to the provision of public services and utilities as a result of implementation of the Project Team Alternative are considered to be significant. Implementation of the measures outlined above at the SPA level would mitigate project-specific impacts to these services and utilities to below a level of significance.

4.4.15 Risk of Upset

4.4.15.1 Impact Analysis

The potential risks of upset associated with the Project Team Alternative would be similar to the risks associated with the New Town Plan. Soils contaminated with petroleum hydrocarbons and pesticides have been identified in the area of the ranch operations center on the Otay River parcel (Woodward-Clyde 1989). The Project Team Alternative proposes low density residential development and a community park in the area of the ranch operations center; therefore, the potential exists for exposure to contaminated material in excess of State of California standards.

The area in the southern part of the Otay River parcel, previously used as the Brown Field Bombing Range, would be allocated to open space under the Project Team Alternative. There is potential danger of an accident occurring due to disturbance of any unexploded ordnance in this area.

The areas adjacent to the Otay Landfill would be used for limited manufacturing and open space. The potential exists for exposure to contaminated material in these areas resulting from previous use of the landfill for hazardous waste disposal. Potential air quality and noise impacts associated with the existing landfill operation are addressed in Sections 4.2.12 and 4.2.13, respectively.

4.4.15.2 Proposed Mitigation

The mitigation measures proposed for the New Town Plan (Section 3.14.3) would also be applicable to the Project Team Alternative. These measures include:

1. Soil and ground-water testing shall occur in the ranch operations center area potentially affected by the previous disposal of hazardous waste or historic pesticide use. The purpose of the testing shall be to identify areas of contamination in excess of federal and state standards. Should areas of excess contamination be identified, remediation shall occur prior to residential development. (EIR proposed.)

2. The applicant shall notify prospective buyers and the California Department of Health Services (DHS) as required, regarding their intention to develop the area adjacent to the Otay Landfill. (EIR proposed.)

3. A survey shall be conducted of the Brown Field Bombing Range by the Army to identify the presence of any unexploded ammunition. Should unexploded ordnance be located on the property, appropriate measures shall be taken for removal of the material. (EIR proposed.)

4. The transport of hazardous waste on existing and future roadways shall be conducted in accordance with the California Code of Regulations (CCR) and the Code of Federal Resolution (CFR). These regulations identify Department of Transportation (DOT) approved methods for packaging and containerizing hazardous waste and site appropriate options and procedures relative to the handling and transportation of these wastes. (EIR proposed.)

4.4.15.3 Analysis of Significance

Implementation of the measures identified above would mitigate health risks to below a level of significance.

4.5 COMPOSITE GENERAL PLANS ALTERNATIVE

4.5.1 Description

Development of the Otay Ranch property under the Composite General Plans Alternative would utilize the land use designations within the City of Chula Vista Eastern Territories Plan, the County of San Diego Otay and Jamul-Dulzura Subregional Plans, and the City of San Diego Otay Mesa Community Plan (Table 4.5-1 and Figure 4.5-1). Development of the Otay River parcel would be governed by the policies and provisions of the City of Chula Vista and City of San Diego, while both eastern parcels would be subject to County of San Diego plans and policies. Implementation of the City of Chula Vista land use designations on the Otay River parcel would allow for up to 12,112 single-family residences (70.9 percent of total) and 4,971 multifamily units. The county's land use designations on the Proctor Valley and San Ysidro parcels would result in the construction of a maximum of 3,387 single-family residences. The City of San Diego land use plans do not include a residential component for the project area. Overall, buildout of this alternative would involve a maximum of 20,470 dwelling units at an average net density of 0.85 du/ac, and generate approximately 62,487 additional residents in the southern San Diego County area. Approximately 80.6 percent of the homes would be single-family, while the balance would be multifamily residences. The majority of the residences and the higher development densities would occur on the Otay River parcel, at an average net density of 4.2 du/ac, in comparison to the 0.12 du/ac density on the eastern parcels. Higher density uses would be concentrated in the center of the parcel, with low density (0-3 du/ac) development on the northern slopes of the Otay River Valley. It is assumed that amendments to the County of San Diego and City of Chula Vista general plans would not be required for this alternative.

The county land use designations only allow for residential development on the San Ysidro and Proctor Valley parcels, but the cities of San Diego and Chula Vista provide acreage dedicated to non-residential use to service residences on the Otay River parcel. Approximately 1,521 acres onsite would be devoted to commercial, industrial/office, and public/quasi-public uses. Within the Eastern Urban Center of the Eastern Territories Plan, professional and administrative commercial (offices) and retail uses are planned. Research and limited manufacturing uses are proposed adjacent to the freeway and a 160-acre university site. Additional industrial lands are planned on the Otay Mesa portion within the City of San Diego. Public uses associated with the Chula Vista plan include three elementary school sites, a single junior high school site, and a high school site. Community and neighborhood parks are distributed throughout the Otay River parcel.

The undeveloped 4,311 acres of this alternative, located on the Otay River parcel, would be left as open space, including the Otay River Valley and the Salt Creek area. Agriculture would occupy 226 acres onsite. The Composite General Plans Alternative does not preserve open space in the eastern parcels. A greenbelt trail system is proposed under the City of Chula Vista General Plan through the Otay River Valley, the Salt Creek drainage, and up to the southern shore of Lower Otay Lake. No trail system is proposed beyond the lake under the county General Plan. Plans for the Otay Valley Regional Park would continue evolving and be implemented during buildout. A separate comprehensive resource management plan would not be adopted to conserve and manage sensitive biological and cultural resources onsite. Resources on portions of the alternative within the eastern parcels would be protected by the Multiple Species, Wildlife, and Open Space Plan currently being prepared by the County.

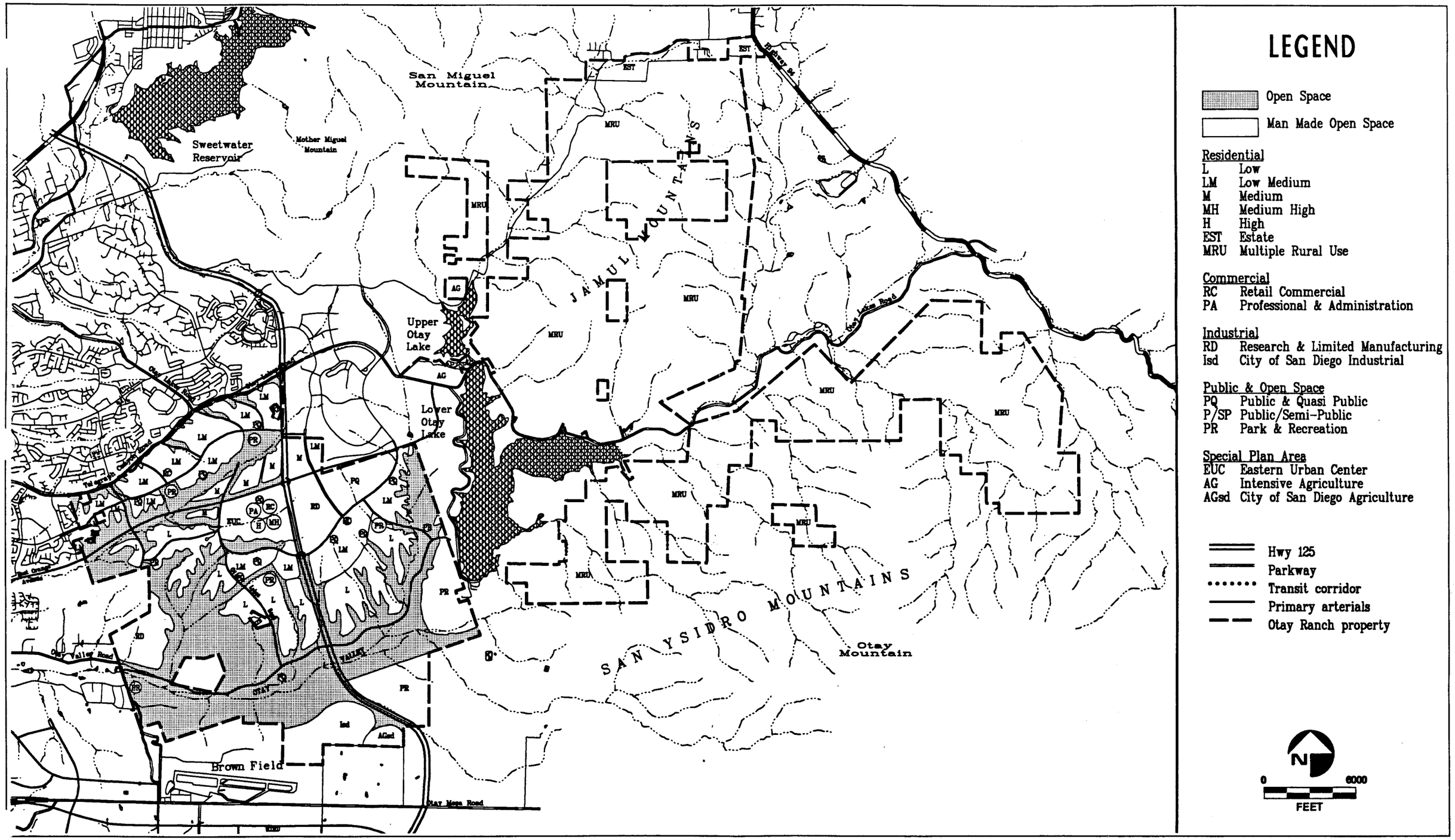
The roadway network on the Otay River parcel includes two river valley crossings, one by SR-125 and the other would be Heritage Road. Eastern extensions of Orange Avenue and

Table 4.5-1

LAND USE STATISTICS FOR
COMPOSITE GENERAL PLANS ALTERNATIVE

Land Use Designation	Residential Density (du/ac)	Otay River Parcel Acres	Otay River Parcel Dwelling Units	Proctor Valley Parcel Acres	Proctor Valley Parcel Dwelling Units	San Ysidro Parcel Acres	San Ysidro Parcel Dwelling Units	Otay Ranch Total Acres	Otay Ranch Total Dwelling Units
RESIDENTIAL									
Multiple Rural	1 du/4-8-20 ac	--		7,483	1,870	5,555	1,389	13,038	3,259
Estate	1 du/2-4 ac	--		255	128	--		255	128
Low	0 to 3	1,151	3,453	--		--		1,151	3,453
Low Medium	3 to 6	1,498	8,988	--		--		1,498	8,988
Medium	6 to 11	282	3,102	--		--		282	3,102
Medium High	11 to 18	--		--		--		--	
High	18-27	--		--		--		--	
Total Residential:		2,931	15,543	7,738	1,998	5,555	1,389	16,224	18,930
COMMERCIAL/OFFICE									
Retail Commercial		25		--		--		25	
General Office		17		--		--		17	
INDUSTRIAL									
Research Industrial		541		--		--		541	
General Industrial		358		--		--		358	
PUBLIC, QUASI-PUBLIC AND PARKS									
Public & Quasi Public		309		20		--		329	
Parks and Recreation		772		--		--		772	
EASTERN URBAN CENTER									
Residential		34	1,540			--		34	1,540
Retail Commerical		100						100	
General Office		151						151	
AGRICULTURE		69		157		--		226	
OPEN SPACE		4,311		--		--		4,311	
TOTALS		9,618	17,083	7,915	1,998	5,555	1,389	23,088	20,470

Source: City of Chula Vista (1990) and County of San Diego (1984); as revised by Ogden 1992.



OGDEN

Composite General Plans Alternative

FIGURE 4.5-1

Otay Valley Road would provide circulation on the Otay River parcel. No alignments have been identified for local roadways accessing the eastern parcels; however, roadway improvements on the San Ysidro and Proctor Valley parcels would follow county standards. Otay Lakes and Proctor Valley roads would not be realigned, and an access road would not be constructed around the southern shore of Lower Otay Lake. Roadway improvements within the City of San Diego industrial area, as adopted in the community plan, would include Otay Valley Road and widening of Lonestar Road, and similar facilities.

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4.5.2 Land Use, Planning, and Zoning

4.5.2.1 Impact Analysis

If the site is developed according to County of San Diego, City of Chula Vista, and City of San Diego General Plan land use designations, no significant unmitigable land use impacts would occur other than an unavoidable loss of open space. Potential land use incompatibilities with the Daley quarry could occur since adjacent land could be developed under the Multiple Rural Use designation. Land adjacent to the Nelson and Sloan quarry would be left in open space. Potential land use incompatibilities between proposed residential land uses and the Otay Landfill would be minimal due to the amount of open space incorporated into these areas. Some incompatibilities could occur due to residential land uses in proximity to SR-125. This alternative could still, however, result in a significant change in the site's open space character since most of the Otay River parcel and a small portion of the Proctor Valley parcel would be developed. Potential impacts to rural lands, due to growth inducement may also occur (see Section 7, Growth Inducement).

4.5.2.2 Proposed Mitigation

No mitigation is available other than to leave the site undeveloped.

4.5.2.3 Analysis of Significance

No significant land use impacts would occur other than an unavoidable loss of open space.

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4.5.3 Landform Alteration/Aesthetics

4.5.3.1 Impact Analysis

The Composite General Plans Alternative would allow the open space character of the project site to be converted to urban and rural development. In contrast to other alternatives where pockets of residential would be surrounded by large expanses of dedicated open space, development of eastern Otay Ranch would occur throughout the Proctor Valley and San Ysidro parcels. Development of this nature could lead to a diversity of housing types and sizes and a extensive network of roadways and drives throughout the eastern parcels. However, the lower residential densities could provide for more flexibility in site planning, thus allowing for development that is more sensitive to the overall topography and visual character of the area. Therefore, this significant yet unavoidable impact on existing visual resources would be most pronounced on the Otay River parcel, where mass grading and urban uses would occur under the City of Chula Vista General Plan. Visual impacts of development around Lower Otay Lake and within Proctor Valley would be minimized under the Composite General Plans Alternative, as only large lot residential development would be allowed. Assuming the San Ysidro parcel was fully developed under the county's Multiple Rural Use designation, it is anticipated that most of the development would occur in the western portion of the parcel due to the flatter terrain, resulting in a potentially significant impact. No large structures, such as the university or resort uses, would dominate views around the lake. Night lighting impacts would be less than significant since the project would have to comply with the county's Dark Sky Ordinance or similar city ordinances.

The primary potentially significant landform impacts would be from grading along the south side of the Otay River Valley. This alternative proposes moderate density residential development, in accordance with the Chula Vista General Plan, that could require mass grading and significant disturbance on the steep northern slopes of the river valley. Landform alteration could also occur on steep slopes near Wolf Canyon, Poggi Canyon, Telegraph Canyon, and Salt Creek (although development would not encroach upon the valley or canyons as much as that proposed in the New Town Plan). However, landform alteration associated with this alternative would be subject to the City of Chula Vista and City of San Diego grading ordinances and the County of San Diego's Resource Protection Ordinance No. 7631, as well as the applicable goals and policies of their general plans. Impacts on existing views would occur along Telegraph Canyon Road, Proctor Valley Road, and Otay Lakes Road. Development on the Otay River parcel would appear similar in nature to existing residential development to the north, with the exception that the minimal setback distances proposed under this alternative may allow for intrusion into views along Telegraph Canyon Road, similar to other land use alternatives. In contrast to the other alternatives, this alternative would provide for some retention of the existing terrain, as natural draws along Telegraph Canyon would be placed in open space. Views of low-density residential development through Proctor Valley would conform to visual resource policies that encourage rural uses. Impacts to views along Otay Lakes Road would occur, and the scenic quality of the surrounding hillsides could be impacted through large-lot development. The impact of rural development on views of the lake could constitute an adverse effect on visual resources in the area, depending upon the character of the development.

4.5.3.2 Proposed Mitigation

No mitigation is available to reduce significant, unavoidable effects to the visual character of the site. Many of the measures described in Section 3.2.3 would be applied to this alternative in order to mitigate impacts to landforms and sensitive or significant views. In

addition to the GDP/Community Plan policy recommendations contained in Section 3.2.3, the following measures specifically are applicable to the Existing General Plans Alternative:

- Careful site planning shall be utilized when developing grading plans for the eastern areas; no mass grading of residential lots shall be permitted.

- Residential structures visible from scenic roadways and highways shall be limited in height to three stories and be composed of non-reflective building materials.

- Building setbacks along Telegraph Canyon Road/Otay Lakes Road shall limit the amount of encroachment into views along the roadway by proposed structures. Landscape slopes shall dominate the views along the roadway.

4.5.3.3 Analysis of Significance

Upon implementation of the mitigation measures identified above significant impacts to landforms on the Otay River parcel and views from Telegraph Canyon Road, Proctor Valley Road, and Otay Lakes Road would be reduced below a level of significance. Impacts associated with the change in visual character of the site would remain unmitigable.

4.5.4 Biological Resources

4.5.4.1 Impact Analysis

Impacts under the Existing General Plans Alternative are quantifiable primarily for the Otay River parcel. A lack of detail in the plans for the Proctor Valley and San Ysidro parcels precludes in-depth assessment of impacts to sensitive biological resources. General Agriculture (A-72) and Special Purpose Limited Control (S-87) designations indicate these parcels will be developed into large lots ranging in size from 4 to 20 acres. This type of development is not clustered and would eliminate large areas of natural habitats from Otay Ranch.

Reduction of Vegetative Communities/Habitats

The Existing General Plans Alternative would significantly reduce natural and disturbed habitats by approximately 55 percent (5,307 acres) in the Otay River parcel.

Reduction of Sensitive Habitats

The Existing General Plans Alternative could significantly reduce sensitive upland habitat throughout Otay Ranch. Development in the Otay River parcel particularly in the Salt Creek area, along the northern rim of the Otay River Valley, and along Poggi and Wolf canyons would significantly impact coastal sage scrub habitats. Sensitive vernal pool habitats would be significantly impacted by development of potentially all of the Otay Mesa vernal pools. There is a potential for Otay Mesa vernal pools J23, J24, and J25 to be retained within a designated park. Depending on the specific development plans, vernal pools could also be impacted in the Proctor Valley and San Ysidro parcels.

Reduction of Sensitive Plants

The Existing General Plans Alternative would significantly impact at least four of nine state or federally-listed threatened/endangered plant species found onsite. Impacts to five other highly sensitive species could not be determined due to the lack of specificity of the Existing General Plan for the Proctor Valley and San Ysidro parcels. Further evaluation of impacts to the following species should be conducted at the next level of review:

San Diego Thorn-mint (*Acanthomintha ilicifolia*)
Dunn's Mariposa Lily (*Calochortus dunnii*)
Slender-pod Caulanthus (*Caulanthus stenocarpus*)
Mexican Flannelbush (*Fremontodendron mexicanum*)
Willowy Monardella (*Monardella linoides* ssp. *viminea*)

<u>San Diego Button-celery (*Eryngium aristulatum* var. *parishii*)</u>

An estimated 111 (73 percent) to 150 (98 percent) of the vernal pools supporting populations of this species could be developed by the Existing General Plans Alternative. The lower estimate assumes the designated Parks and Recreation area on Otay Mesa would preserve vernal pool habitat. Impacts under the Existing General Plans Alternative would be significant to the onsite San Diego button-celery population.

<u>Otay Tarweed (*Hemizonia conjugens*)</u>

Direct impacts to this species would occur at Poggi Canyon and Wolf canyons on the south slopes of Otay River Valley, at the northwest end of Salt Creek, and on the south slope of

the Otay River Valley. Approximately 44 percent of the points of occurrence for this species in the Otay River Valley would be impacted by the Existing General Plans Alternative. These impacts would be significant. Potential impacts on the Proctor Valley and San Ysidro parcels need to be assessed at the next level of review.

California Orcutt Grass (*Orcuttia californica*)

The single point of occurrence for this species on Otay Ranch would be impacted by implementation of the Existing General Plans Alternative. This would be a significant impact.

Otay Mesa-mint (*Pogogyne nudiuscula*)

Impacts to this species could range from 18 to 100 percent depending on the extent of development of vernal pools on Otay Mesa. Both levels of impact would be significant.

Reduction of Sensitive Animals

Proposed development in the Proctor Valley and San Ysidro parcels is not clustered and would eliminate large natural open space areas necessary for wildlife maintenance. The Existing General Plans Alternative would significantly impact sensitive wildlife species inhabiting upland scrub communities through habitat reduction. Development of Otay mesa, the north side of the Otay River Valley and east Salt Creek could significantly impact raptor foraging habitat. Depending on the specific development plans and resulting land use, key raptor foraging areas could also be impacted in the Proctor Valley and San Ysidro parcels. These areas include: Proctor Valley (especially the north end), on the southwest slope of the Jamul Mountains, the Hubbard Springs area, and the western end of the San Ysidro parcel along Lower Otay Lake. Vernal pool species would be significantly impacted through the development of potentially all vernal pools on Otay Mesa. All of the highest priority wildlife species would be significantly impacted or would have the potential to be significantly impacted by implementation of the Existing General Plans Alternative.

First Priority Species

Endangered Species

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

This species could be impacted by road construction and development of public parks in the Otay River Valley. See discussion of impacts for least Bell's vireo.

Least Bell's Vireo (*Vireo bellii pusillus*)

This species could be significantly impacted by construction of Otay Valley Road through the Otay River Valley. The south end of the proposed park in lower eastern Salt Creek Canyon could directly impact three historic least Bell's vireo sighting locations. There could be potential indirect impacts from the SR-125 Otay River crossing and from development of the San Ysidro parcel adjacent to Dulzura Creek. These impacts need to be evaluated at the next level of review.

Species Petitioned for State or Federal Listing

Invertebrates

~~Two~~ Three invertebrates, Riverside fairy shrimp (*Streptocephalus woottoni*), San Diego fairy shrimp (*Branchinecta sandiegensis*), and Quino checkerspot (*Euphydryas editha quino*), could be significantly impacted by development of vernal pool habitat under the Existing General Plans Alternative. Due to the lack of specificity in development plans for the San Ysidro and Proctor Valley parcel it is not possible to determine whether Harbison's dun skipper (*Euphyes vestris harbisoni*) would be impacted by loss of southern live oak riparian forest. It is also not possible to determine if Thorne's hairstreak (*Mitoura thornei*) would be affected through loss of Tecate cypress habitat. Hermes copper (*Lycaena hermes*) could be impacted by a loss of coastal sage scrub habitats in the Otay River parcel.

Reptiles and Amphibians

There is insufficient data on wetland impacts in the San Ysidro and Proctor Valley parcels to determine if California red-legged frog (*Rana aurora draytonii*) and southwestern pond turtle (*Clemmys marmorata pallida*) would be impacted by the Composite General Plans Alternative.

California Gnatcatcher (*Polioptila californica*)

Within the Otay River parcel at least 42 percent of the California gnatcatcher points of occurrence would be impacted by residential and commercial development. Impacts would be the highest in Salt Creek along the western rim of the canyon and in the southeast portion. Impacts would also occur along the edges of Poggi and Wolf canyons. Additional direct and indirect impacts (14 percent) would occur from road construction. Road alignments of concern in the Otay River parcel include: Otay Valley Road (along the Otay River Valley and through Salt Creek Canyon), Otay Lakes Road (on the north slope of the Otay River Valley), East Orange Avenue (through Poggi Canyon), SR-125 (on the north side of the Otay River Valley and through Johnson Canyon), and the unnamed roads crossing Salt Creek and Poggi canyons. Impacts from development and road construction are significant to California gnatcatcher in the Otay River parcel. Impacts for the Proctor Valley and San Ysidro parcels are potentially significant and need to be assessed when specific development plans are available.

~~Coastal~~ Cactus Wren (*Campylorhynchus brunneicapillus ~~eousei~~*)

This species would be directly impacted by development of approximately 42 percent of the points of occurrence under the Existing General Plan. Road construction would impact an additional 23 percent of cactus wren sighting locations. Impacts would occur at the same development locations and road alignments as described above for the California gnatcatcher in the Otay River parcel.

Reduction of Wildlife Corridors

Regional and major local wildlife corridors for the Otay Ranch area are included in Figure 3.3-7. Implementation of the Existing General Plans Alternative would significantly block three of six regional wildlife corridors in the Otay River parcel. Poggi to Wolf Canyon, Salt Creek, and Salt Creek to Otay River Valley corridors would be blocked by development. Wolf Canyon to Salt Creek and Wolf Canyon to Otay River Valley corridors would be potentially impacted by adjacent development and road construction. Only the O'Neal Canyon corridor would be preserved within the Otay River

parcel. The remaining twelve corridors have the potential for impact depending on final development plans in the Proctor Valley and San Ysidro parcels.

4.5.4.2 Proposed Mitigation

Sensitive Habitats

Mitigation recommendations for impacts to sensitive habitats in the Otay River parcel for the Existing General Plans Alternative follow those for the Phase I-Progress Plan (see Section 4.2.4.2) except where noted below. More specific development plans for the Proctor Valley and San Ysidro parcels at the next level of review will allow development mitigation plans for those areas.

Otay River Parcel

Only the latter part of mitigation measure 1.d. in Table 4.2.4-8 is applicable; the Otay Valley Road should be relocated northward to retain coastal sage scrub along the northern edge of Otay River Valley.

A large area of coastal sage scrub and floodplain scrub east of Salt Creek and at the east end of Otay River Valley is designated as Parks and Recreation, but the intensity of use of these areas is not yet defined. Active park development in this area would result in a substantially greater impact.

All of the vernal pools identified as the J29, J30, and J31+ vernal pool complexes on Otay Mesa are designated for residential development. As currently designed, this is a significant unmitigable impact. These vernal pool complexes should be retained in open space in addition to the J23, J24, and J25 pool complexes designated as Parks and Recreation land.

Sensitive Plants

Mitigation recommendations for the Existing General Plans Alternative follow those of the New Town Plan (see Section 3.3.3). Impacts within the Otay River parcel from this alternative are most similar to the New Town Plan. Specific mitigation measures for the following highest priority plant species are presented in New Town Plan Table 3.3-11:

San Diego Button-celery	(*Eryngium aristulatum* var. *parishii*)
Otay Tarweed	(*Hemizonia conjugens*)
California Orcutt Grass	(*Orcuttia californica*)
Otay Mesa-mint	(*Pogogyne nudiuscula*)

Additional mitigation would be required at the next level of review for any of the following highly sensitive species that would be significantly impacted by more specific development plans:

San Diego Thorn-mint	(*Acanthomintha ilicifolia*)
Dunn's Mariposa Lily	(*Calochortus dunnii*)
Slender-pod Caulanthus	(*Caulanthus stenocarpus*)
Mexican Flannelbush	(*Fremontodendron mexicanum*)
Willowy Monardella	(*Monardella linoides* ssp. *viminea*)

Impacts and mitigation for the second, third, and fourth priority plant species would have to be assessed at the next level of review when more specific development plans are available.

Sensitive Animals

Sensitive wildlife mitigation recommendations from the New Town Plan (see Section 3.3.3) apply to the Existing General Plans Alternative for impacted wildlife in the Otay River parcel.

Southwestern Willow Flycatcher

See measures 1, 2a-c, 2g, 3, 4, 5, and 6 for least Bell's vireo for the New Town Plan (Table 3.3-7). See also mitigation for least Bell's vireo below.

Least Bell's Vireo

See measures ~~1 and 2~~ 1, 2a-c, 2g, 3, 4, 5, and 6 for New Town Plan (Table 3.3-7). Additional recommendations include designing the Salt Creek Park so that least Bell's vireo habitat at the south end of the park is retained in a preserve. Depending on the level of development and road construction in the San Ysidro parcel adjacent to Dulzura Creek, mitigation measures 2h and 2i may be warranted.

Species Petitioned for State or Federal Listing

Invertebrates

Streptocephalus woottoni

See measures 7–10 for the New Town Plan (Table 3.3-7).

Branchinecta sandiegensis

See measures 7–10 for the New Town Plan (Table 3.3-7).

Coastal Cactus Wren

See measures 4-7 for New Town Plan (Table 3.3-7). There should be no road construction through Salt Creek Canyon as this habitat has the highest occupancy onsite. Otay Lakes Road should be relocated onto agriculture land on the mesa north of Otay River Valley. It should also be realigned through agriculture fields west of Salt Creek Canyon to avoid impacts. The unnamed road crossing Salt Creek Canyon should be eliminated or realigned to avoid occupied habitat.

California Gnatcatcher

See recommended mitigation measures 7,10, and 11 for New Town Plan (Table 3.3-7) for impacts in the Otay River parcel. Additional mitigation for the Proctor Valley and San Ysidro parcels should be determined at the next level of review when more detailed plans are available. Future mitigation for Proctor Valley and San Ysidro parcels should also incorporate where applicable measures 10 and 11 of the New Town Plan (Table 3.3-7).

~~Riverside Fairy Shrimp~~

~~See measures 13 and 14 for New Town Plan (Table 3.3-7).~~

Harbison's Dun Skipper

See measure 11 for the New Town Plan (Table 3.3-7).

Hermes Copper

See measure 12 for the New Town Plan (Table 3.3-7).

Thorne's Hairstreak

See measure 13 for the New Town Plan (Table 3.3-7).

Quino Checkerspot

See measures ~~13 and~~ 14 for New Town Plan (Table 3.3-7).

Reptiles and Amphibians

California Red-legged Frog

See measure 15 for New Town Plan (Table 3.3-7).

Southwestern Pond Turtle

See measure 15 for New Town Plan (Table 3.3-7). See additional mitigation text under southwestern pond turtle.

Wildlife Corridors

Mitigation for impacts to wildlife movement in the Otay River parcel should include the following recommendations. The recommendations are based on the Otay Ranch Wildlife Corridor Study (Ogden 1992b). Development should be pulled back to the northeast at the site of a potential California gnatcatcher-coastal cactus wren movement corridor between Poggi and Wolf canyons. This corridor should be 500 feet wide. Natural coastal scrub habitat should be restored within this corridor. Implementation of measures ~~10a and 11a~~ 24a, c, and 25a, b, and c of the New Town Plan (Table 3.3-7) for ~~coastal~~ cactus wren and California gnatcatcher above would mitigate for the Salt Creek and Salt Creek to Otay River Valley corridors. Potential impacts from Otay Valley Road to the Wolf Canyon to ~~Salt Creek~~ Otay Valley corridor could be mitigated by ~~bridging~~ installing a 12-foot high drainage culvert Wolf Canyon to allow for movement of ~~wildlife~~ bobcats through the Canyon. Realigning Otay Valley Road as recommended for mitigation for coastal cactus wren would mitigate impacts to the Wolf Canyon to Salt Creek, and Salt Creek to Otay River Valley corridors. Elimination of the unnamed road crossing Salt Creek Canyon would mitigate impacts to the Salt Creek corridor. Potential impacts and any necessary mitigation for the other twelve wildlife corridors should be determined at the next level of analysis when detailed development plans for the Proctor Valley and San Ysidro parcels are available.

4.5.4.3 Analysis of Significance

The Existing General Plans Alternative would impact 55 percent of existing open space within the Otay River parcel. Sensitive upland and wetland habitats would be significantly impacted by implementation of this alternative. Redesign of portions of the project and habitat restoration are necessary to mitigate the impacts to sensitive habitats. Development of the Otay Mesa vernal pool complexes would result in a significant unmitigable loss. ~~Three~~ Five of the six regional wildlife corridors in the Otay River parcel would be impacted significantly and could be mitigated by roadway realignments, alterations to proposed developments, and habitat restoration. Significant unmitigable impacts would occur to the following highest priority sensitive plant and animal species at this level of review: ~~also are impacted significantly by the Existing General Plans Alternative including the following highest priority species~~: San Diego button-celery, Otay tarweed, California Orcutt grass, Otay mesa-mint, least Bell's vireo, *Streptocephalus woottoni*, *Branchinecta sandiegensis*, California gnatcatcher, and coastal cactus wren. Several other high priority sensitive plants and ~~the Riverside fairy shrimp~~ animals such as Harbison's dun skipper, Hermes copper, Thorne's hairstreak, and Quino checkerspot, California red-legged frog, and southwestern pond turtle may be affected by development in the San Ysidro and Proctor Valley parcels. Mitigation of impacts to the sensitive species listed above would necessitate a combination of major project redesign, habitat restoration, and species reestablishment.

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4.5.5 Cultural Resources

4.5.5.1 Impacts to Prehistoric Resources

Impacts to prehistoric resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria; therefore, all of the 213 prehistoric sites currently known to be on the property are considered to be important at this stage of planning. With this assumption of importance, the Composite General Plans Alternative is assessed for potential impacts to prehistoric resources based on the proposed land use, with areas proposed for development assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture. Table 4.5.5-1 indicates, by parcel, the land uses proposed for the Composite General Plans Alternative, the prehistoric site types, and the occurrences of the sites in the various land uses.

When compared to the other development plan alternatives, the Composite General Plans Alternative has the lowest incidence of prehistoric sites occurring all or partially within areas to be developed. Over the the entire Otay Ranch property, of the currently known 213 prehistoric sites on the property, only 51 fall all or partially within areas proposed for development. With 162 prehistoric sites falling completely into open space, parks, or agricultural areas, the Composite General Plans Alternative has 31 more than the next closest plan, the Environmental Alternative; the sites in the Multiple Rural Use designation on the Proctor Valley and San Ysidro parcels are included in this total. From the standpoint of prehistoric site avoidance, the Composite General Plans Alternative has the highest avoidance of impacts to prehistoric resources excluding the No Project Alternative.

4.5.5.2 Impacts to Historic Resources

As with the prehistoric sites, impacts to historic resources can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 49 historic sites currently known to be present on the property are considered to be important at this stage of planning. With this assumption, the Composite General Plans Alternative is assessed for impacts to historic sites based on the proposed land use, with areas proposed for development assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture. Table 4.5.5-2 indicates, by parcel, the land use proposed for the Composite General Plans Alternative, the historic site types, and the occurrences of the sites in the various land uses.

The Composite General Plans Alternative has the lowest number of historic sites (9) occurring all or partially within areas to be developed, and correspondingly the highest number (40) lying completely within areas proposed for non-construction oriented land use such as open space, parks, or agricultural (including Multiple Rural Use). This ratio (9/49) is the best of the development plans, indicating that the Composite General Plans Alternative has the best potential for avoiding impacts to historic resources, excluding the No Project Alternative.

4.5.5.3 Impacts to Prehistoric/Historic Resources

Impacts to prehistoric/historic resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 30 prehistoric/historic sites currently known to be on the property are considered to be important at this stage of planning. With this assumption of importance for all of the prehistoric/historic sites, the Composite General Plans

Table 4.5.5-1

COMPOSITE GENERAL PLANS ALTERNATIVE
PREHISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-10,452	P/OS	Temporary Camp	CA-SDi-4,741	L/OS	Lithic Scatter
CA-SDi-10,622	OS/OA	Lithic Scatter	CA-SDi-4,742	L	Lithic Scatter
CA-SDi-10,875	OS	Lithic Scatter	CA-SDi-4,743	OS	Lithic Scatter
CA-SDi-11,157	LM	Temporary Camp	CA-SDi-4,789/SDi-4,988	OS	Temporary Camp
CA-SDi-11,158	LM/(OS)/OA	Temporary Camp	CA-SDi-4,790	OS	Temporary Camp
CA-SDi-11,210	M	Lithic Scatter	CA-SDi-4,989	P	Temporary Camp
CA-SDi-11,211	M	Lithic Scatter	CA-SDi-5,352	H/M/VH/OA	Temporary Camp
CA-SDi-11,212	M	Lithic Scatter	CA-SDi-7,212	OS	Habitation Site
CA-SDi-11,213	M	Temporary Camp	CA-SDi-7,217 A-E	L/OS	Temporary Camp
CA-SDi-11,214	M/OA	Lithic Scatter	CA-SDi-8,649	P	Temporary Camp
CA-SDi-11,215	M/OA	Lithic Scatter	CA-SDi-8,650	OS	Lithic Scatter
CA-SDi-11,216	M/OA	Lithic Scatter	CA-SDi-8,651	LM	Lithic Scatter
CA-SDi-11,220	M	Lithic Scatter	CA-SDi-9,970	P/OA	Lithic Scatter
CA-SDi-11,362	OS/OA	Lithic Scatter	CA-SDi-9,974	M/OA	Lithic Scatter
CA-SDi-11,363	H/M/P/VH	Lithic Scatter	CA-SDi-9,975	P/OA	Quarry
CA-SDi-11,364	OS	Milling Station	CA-SDi-9,976	OS	Temporary Camp
CA-SDi-11,365	OS/VH	Lithic Scatter	CA-SDi-9,977 A & B	P/(OS)	Quarry
CA-SDi-11,366	VH	Lithic Scatter	CA-SDi-9,978	P	Quarry
CA-SDi-11,369/SDi-11,376	OS/(OS)	Habitation Site	CA-SDi-9,979	P	Lithic Scatter
CA-SDi-11,372	L	Lithic Scatter	CA-SDi-9,980	OS/VH	Temporary Camp
CA-SDi-11,373	OS	Lithic Scatter	CA-SDi-9,981	OS/VH	Temporary Camp
CA-SDi-11,378	OS	Habitation Site	CA-SDi-12,465	P	Temporary Camp
CA-SDi-11,379	OS	Lithic Scatter	CA-SDi-12,466	M/OS	Temporary Camp
CA-SDi-11,381	P	Lithic Scatter	CA-SDi-12,467	M	Lithic Scatter
CA-SDi-11,412	EUC/(OS)	Lithic Scatter	CA-SDi-12,276	M	Lithic Scatter
CA-SDi-11,951	M	Lithic Scatter	CA-SDi-12,285	LM	Temporary Camp
CA-SDi-11,952	OS	Lithic Scatter	CA-SDi-12,286	L	Temporary Camp
CA-SDi-11,967	L/OA	Temporary Camp	CA-SDi-12,287	L	Temporary Camp
CA-SDi-11,968	OA/OS/RD	Lithic Scatter	CA-SDi-12,288	LM/(OS)	Lithic Scatter
CA-SDi-4,726	L/OS	Lithic Scatter	CA-SDi-12,289	L/OS	Temporary Camp
CA-SDi-4,727	OS	Lithic Scatter	CA-SDi-12,290	RD	Lithic Scatter
CA-SDi-4,728 A & B	OS	Lithic Scatter	CA-SDi-12,291	OS	Lithic Scatter
CA-SDi-4,729	OS	Lithic Scatter	CA-SDi-12,292	OA/RD	Lithic Scatter
CA-SDi-4,730	L	Lithic Scatter	CA-SDi-12,293	OS/RD	Lithic Scatter
CA-SDi-4,731	OS	Lithic Scatter	CA-SDi-12,277	PQ	Lithic Scatter
CA-SDi-4,732	OS	Lithic Scatter	CA-SDi-12,278	LM/OS	Lithic Scatter
CA-SDi-4,733	P	Lithic Scatter	CA-SDi-12,279	EUC/P	Lithic Scatter
CA-SDi-4,734	P	Lithic Scatter	CA-SDi-12,280	LM/OS	Lithic Scatter
CA-SDi-4,735	P	Lithic Scatter	CA-SDi-12,281	LM	Temporary Camp
CA-SDi-4,736	P	Lithic Scatter	CA-SDi-12,282	M/OS	Temporary Camp
CA-SDi-4,737	P	Lithic Scatter	CA-SDi-12,283	M/OS	Lithic Scatter
CA-SDi-4,738	OS	Lithic Scatter	CA-SDi-12,284	L	Lithic Scatter
CA-SDi-4,739	L/OS	Lithic Scatter	SDM-W-170	OS	Habitation Site
CA-SDi-4,740	OS	Lithic Scatter	CA-SDi-12,656	OS/LM	Temporary Camp

TOTALS:		
(Eastern Urban Core)	EUC	2
(Low Density Residential (0-3 du/ac))	L	12
(Low-Medium Density Residential (3-6 du/ac))	LM	9
(Medium Density Residential (6-11 du/ac))	M	17
(Outside of Area)	OA	13
(Research and Limited Manufacturing)	RD	4
(Open Space)	OS	41
(Man-made Open Space)	(OS)	5
(Parks and Recreation)	P	17
(Public and Quasi-Public)	PQ	1
(Very High Density Residential (43 du/ac))	VH	6

Table 4.5.5-1 (Continued)

COMPOSITE GENERAL PLANS ALTERNATIVE
PREHISTORIC SITES

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-11,388	MRU/OA	Quarry	CA-SDi-12,356	MRU	Lithic Scatter
CA-SDi-11,389	MRU	Lithic Scatter	CA-SDi-12,357	MRU	Lithic Scatter
CA-SDi-11,394	MRU/OA	Lithic Scatter	CA-SDi-12,358	MRU	Lithic Scatter
CA-SDi-11,395	MRU	Lithic Scatter	CA-SDi-12,359	MRU	Lithic Scatter
CA-SDi-11,401	MRU	Lithic Scatter	CA-SDi-12,316	MRU	Lithic Scatter
CA-SDi-11,403 Locus P	MRU	Lithic Scatter/Milling Station/Quarry	CA-SDi-12,360	MRU	Lithic Scatter
CA-SDi-11,404	MRU/OA	Lithic Scatter	CA-SDi-12,361	MRU	Lithic Scatter
CA-SDi-11,405	MRU	Lithic Scatter	CA-SDi-12,363	MRU	Lithic Scatter
CA-SDi-11,406	MRU	Quarry	CA-SDi-12,364	MRU/OA	Lithic Scatter
CA-SDi-11,407	MRU	Lithic Scatter	CA-SDi-12,365	MRU	Lithic Scatter
CA-SDi-11,408	MRU	Lithic Scatter	CA-SDi-12,366	MRU	Lithic Scatter
CA-SDi-11,410 A-E	RR	Habitation Site	CA-SDi-12,367	MRU	Lithic Scatter
CA-SDi-11,414	MRU	Lithic Scatter	CA-SDi-12,368	MRU	Quarry
CA-SDi-12,034	MRU/OA	Milling Station	CA-SDi-12,369	MRU	Lithic Scatter
CA-SDi-8,086 A, B & C	MRU/OA	Lithic Scatter	CA-SDi-12,317	MRU	Lithic Scatter
CA-SDi-12,313	MRU	Lithic Scatter	CA-SDi-12,370	MRU	Lithic Scatter
CA-SDi-12,321	MRU/OA	Lithic Scatter	CA-SDi-12,371	MRU	Lithic Scatter
CA-SDi-12,322		Lithic Scatter	CA-SDi-12,372	MRU	Lithic Scatter
CA-SDi-12,324	MRU	Lithic Scatter	CA-SDi-12,374	MRU	Quarry
CA-SDi-12,326	MRU	Lithic Scatter	CA-SDi-12,375	MRU	Lithic Scatter
CA-SDi-12,327	MRU/OA	Lithic Scatter	CA-SDi-12,377	MRU/RR	Quarry
CA-SDi-12,329	MRU	Lithic Scatter	CA-SDi-12,378	MRU	Quarry/Lithic Scatter
CA-SDi-12,330	MRU	Lithic Scatter	CA-SDi-12,379	MRU	Lithic Scatter
CA-SDi-12,314	MRU	Lithic Scatter	CA-SDi-12,381	MRU	Milling Station
CA-SDi-12,331	MRU	Milling Station	CA-SDi-12,383	MRU	Lithic Scatter
CA-SDi-12,332	MRU/OA	Lithic Scatter	CA-SDi-12,384	MRU	Milling Station
CA-SDi-12,333	MRU	Lithic Scatter	CA-SDi-12,385	MRU	Milling Station
CA-SDi-12,334	MRU	Habitation Site	CA-SDi-12,386	MRU	Lithic Scatter
CA-SDi-12,335	MRU	Lithic Scatter	CA-SDi-12,387	MRU	Lithic Scatter
CA-SDi-12,336	MRU	Lithic Scatter	CA-SDi-12,388	MRU	Lithic Scatter
CA-SDi-12,338	MRU	Milling Station	CA-SDi-12,319	MRU	Lithic Scatter
CA-SDi-12,339 A & B	MRU	Lithic Scatter	CA-SDi-12,389	MRU	Milling Station
CA-SDi-12,340	MRU	Temporary Camp	CA-SDi-12,390	MRU	Lithic Scatter
CA-SDi-12,337/OR-I-3	MRU/OA	Lithic Scatter	CA-SDi-12,391	MRU	Milling Station
CA-SDi-12,341	MRU/OA	Lithic Scatter	CA-SDi-12,392	MRU	Milling Station/Lithic Scatter
CA-SDi-12,342	MRU	Quarry	CA-SDi-12,394	MRU	Milling Station
CA-SDi-12,343	MRU	Quarry	CA-SDi-12,397	MRU	Quarry/Lithic Scatter/Milling Station
CA-SDi-12,315	MRU	Lithic Scatter	CA-SDi-12,398	MRU	Quarry/Lithic Scatter/Milling Station
CA-SDi-12,353	MRU	Lithic Scatter	CA-SDi-12,320	MRU	Lithic Scatter
CA-SDi-12,355	MRU	Lithic Scatter	CA-SDi-12,635	MRU	Lithic Scatter

TOTALS:			
	(Multiple Rural Use-General Agriculture (1 du/2,8 & 20 ac))	A72	20
	(Outside of Area)	OA	11
	(Rural Residential (.25-1 du/ac))	RR	2
	(Multiple Rural Use-Special Purpose Limited Control (1 du/25 ac))	S87	59

Table 4.5.5-1 (Continued)

COMPOSITE GENERAL PLANS ALTERNATIVE
PREHISTORIC SITES

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-10,027	MRU	Quarry	CA-SDi-11,311	MRU	Lithic Scatter
CA-SDi-11,294	MRU	Lithic Scatter	CA-SDi-11,324	MRU	Lithic Scatter
CA-SDi-11,298	MRU	Lithic Scatter	CA-SDi-11,325	MRU	Lithic Scatter
CA-SDi-11,300	MRU	Lithic Scatter	CA-SDi-11,326	MRU	Lithic Scatter
CA-SDi-11,302	MRU	Habitation Site	CA-SDi-11,327	MRU	Lithic Scatter
CA-SDi-11,303	MRU	Lithic Scatter	CA-SDi-11,328	MRU	Lithic Scatter
CA-SDi-11,304	MRU	Lithic Scatter	CA-SDi-11,329	MRU	Lithic Scatter
CA-SDi-11,307	MRU	Lithic Scatter	CA-SDi-11,342	MRU	Lithic Scatter
CA-SDi-11,308	MRU	Lithic Scatter	CA-SDi-11,344	MRU	Lithic Scatter
CA-SDi-11,309	MRU	Lithic Scatter	CA-SDi-11,345	MRU	Milling Station
CA-SDi-11,312	MRU	Lithic Scatter	CA-SDi-11,346	MRU	Quarry
CA-SDi-11,313	MRU	Lithic Scatter	CA-SDi-11,349	MRU	Lithic Scatter
CA-SDi-11,314	MRU	Lithic Scatter	CA-SDi-11,350	MRU	Lithic Scatter
CA-SDi-11,315	MRU	Lithic Scatter	CA-SDi-11,351	MRU	Quarry
CA-SDi-11,317	MRU	Quarry	CA-SDi-11,352	MRU	Lithic Scatter
CA-SDi-11,321	MRU	Lithic Scatter	CA-SDi-11,353	MRU	Lithic Scatter
CA-SDi-11,322	MRU	Lithic Scatter	CA-SDi-11,354	MRU	Lithic Scatter
CA-SDi-11,323	MRU	Lithic Scatter	CA-SDi-12,147	MRU	Milling Station
CA-SDi-11,331	MRU	Temporary Camp	CA-SDi-12,148	MRU	Lithic Scatter
CA-SDi-11,332	MRU	Temporary Camp	CA-SDi-12,149	MRU	Lithic Scatter
CA-SDi-11,333	MRU	Temporary Camp	CA-SDi-12,345	MRU	Milling Station
CA-SDi-11,334	MRU	Habitation Site	CA-SDi-12,349	MRU	Milling Station
			CA-SDi-12,344	MRU	Lithic Scatter

TOTALS:

(Multiple Rural Use-General Agriculture (1 du/2.8 & 20 ac))	A72	18
(Outside of Area)	OA	1
(Multiple Rural Use-Special Purpose Limited Control (1 du/25 ac))	S87	27

Table 4.5.5-2

COMPOSITE GENERAL PLANS ALTERNATIVE
HISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-10,155H	P	Historic Rock Feature
CA-SDi-11,221	M/VH	Historic Refuse
CA-SDi-11,361H	OS	Historic Structure
CA-SDi-11,374	OS	Historic Refuse
CA-SDi-11,375H	OS	Historic Structure
CA-SDi-11,377H	L/OS	Historic Structure
CA-SDi-11,383H	OS/(OS)	Historic Structure
CA-SDi-11,384H	EUC/L/(OS)	Historic Complex
CA-SDi-11,385H	P/(OS)	Historic Archaeological Complex
CA-SDi-11,386H	OS	Historic Complex
CA-SDi-11,387H	(OS)	Historic Structure
CA-SDi-12,272H	L	Historic Refuse
CA-SDi-12,273H	M	Historic Refuse
CA-SDi-12,274H A & B	H	Historic Refuse
CA-SDi-12,271H	LM	Historic Refuse

TOTALS:		
(Eastern Urban Core)	EUC	1
(High Density Residential (18-27 du/ac))	H	1
(Low Density Residential (0-3 du/ac))	L	3
(Low-Medium Density Residential (3-6 du/ac))	LM	1
(Medium Density Residential (6-11 du/ac))	M	2
(Open Space)	OS	6
(Man-made Open Space)	(OS)	4
(Parks and Recreation)	P	2
(Very High Density Residential (43 du/ac))	VH	1

Table 4.5.5-2 (Continued)

COMPOSITE GENERAL PLANS ALTERNATIVE
HISTORIC SITES

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,390H	MRU/OA	Historic Structure
CA-SDi-11,393H	MRU	Historic Structure
CA-SDi-11,418H	MRU	Historic Camp
CA-SDi-11,419H	MRU/OA	Historic Complex
CA-SDi-11,420H	MRU	Historic Camp
CA-SDi-11,421H	MRU	Historic Structure
CA-SDi-11,422H	RR	Historic Structure/Historic Refuse
CA-SDi-6,723H	MRU	Historic Structure
CA-SDi-6,968H	MRU	Historic Structure
CA-SDi-12,323H	MRU	Historic Rock Feature
CA-SDi-12,354H	MRU	Historic Rock Feature
CA-SDi-12,376H	MRU	Historic Rock Feature
CA-SDi-12,318H	MRU	Historic Rock Feature
CA-SDi-12,395H	MRU	Historic Refuse/Historic Rock Feature
CA-SDi-12,396H	MRU/RR	Historic Rock Feature

TOTALS:		
(Intensive Agriculture)	AG	1
(Multiple Rural Use-General Agriculture (1 du/2,8 & 20 ac))	A72	6
(Outside of Area)	OA	2
(Rural Residential (.25-1 du/ac))	RR	2
(Multiple Rural Use-Special Purpose Limited Control (1 du/25 ac))	S87	7

Table 4.5.5-2 (Continued)

COMPOSITE GENERAL PLANS ALTERNATIVE
HISTORIC SITES

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Parcel	Site Type
CA-SDi-11,299H	MRU	San Ysidro	Historic Structure
CA-SDi-11,301H	MRU	San Ysidro	Historic Camp
CA-SDi-11,305	MRU	San Ysidro	Historic Rock Feature
CA-SDi-11,306H	MRU	San Ysidro	Historic Camp
CA-SDi-11,310	MRU	San Ysidro	Historic Rock Feature
CA-SDi-11,316H	MRU	San Ysidro	Historic Refuse
CA-SDi-11,318	MRU	San Ysidro	Historic Rock Feature
CA-SDi-11,319	MRU	San Ysidro	Historic Rock Feature
CA-SDi-11,320	MRU	San Ysidro	Historic Rock Feature
CA-SDi-11,330H	MRU	San Ysidro	Historic Refuse
CA-SDi-11,340H	MRU	San Ysidro	Historic Structure
CA-SDi-11,341H	MRU	San Ysidro	Historic Rock Feature
CA-SDi-11,343H	MRU	San Ysidro	Historic Structure
CA-SDi-11,347	MRU	San Ysidro	Historic Rock Feature
CA-SDi-11,348	MRU	San Ysidro	Historic Rock Feature
CA-SDi-11,357	MRU	San Ysidro	Historic Rock Feature
CA-SDi-6,970	MRU	San Ysidro	Historic Archaeological Complex
CA-SDi-12,351H	MRU	San Ysidro	Historic Rock Feature
CA-SDi-12,352H	MRU	San Ysidro	Historic Rock Feature

TOTALS:

(Multiple Rural Use-General Agriculture (1 du/2,8 & 20 ac))	A72	10
(Multiple Rural Use-Special Purpose Limited Control (1 du/25 ac))	S87	9

Alternative is assessed below based on the proposed land use, with areas proposed for development (as defined above) assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture. Table 4.5.5-3 indicates, by parcel, the land use proposed for the Composite General Plans Alternative, the prehistoric/historic site types, and the occurrences of the sites in the various land uses.

Over the the entire Otay Ranch property, 6 of the 30 prehistoric/historic sites known to be present on the property fall all or partially within areas proposed for intense development, with 24 prehistoric/historic sites located entirely within areas proposed for non-construction oriented land use, in the Composite General Plans Alternative. This ratio (6/24) is the same as the Environmental Plan. When compared with the other development plan alternatives: New Town Plan (28/2), Phase I-Progress Plan (28/2), Low Density Plan (27/3), Project Team Plan (26/4), Fourth Alternative (24/6), and Phase II-Progress Plan (22/8); the Composite General Plans Alternative and the Environmental Plan Alternative have a substantially lower incidence of prehistoric/historic sites occurring in all or partially within areas proposed for development.

4.5.5.4 Proposed Mitigation

Prehistoric Resources

At this stage of planning, not all of the prehistoric resources have been identified; therefore, importance of the resources is assumed rather than verified. Impacts are still problematic rather than specific, and development plans are still highly conceptual; therefore, development of a comprehensive mitigation plan must be conceptual and necessarily programmatic rather than resource-specific. For conciseness, the mitigation plan is presented as a series of interrelated stages or phases (see Section 3.4.3 for additional detail).

- Stage 1: The applicant shall complete an intensive, systematic survey of the remaining 17,000 acres for cultural resources in compliance with the county's requirements. Completion of the survey shall occur as soon as feasible with the survey of the first SPA being completed no later than filing of the first SPA Plan application. The survey of the remaining portion of Otay Ranch shall be completed prior to ~~approval~~ public review of the first SPA Plan.

- Stage 2: The applicant shall complete importance and boundary testing for each resource identified within the first SPA and for a sample of site types beyond the SPA but within the overall project. All Stage 2 work must be in compliance with CEQA and local guidelines to include county policies.

- Stage 3: The applicant shall implement appropriate mitigation measures for resources determined as important during the Stage 2 importance evaluation phase. These forms of mitigation would include:

    1) Site avoidance by preservation of the site in open space easements.

    2) Site avoidance by preservation through capping the site and placing landscaping on top of the fill.

    3) Data recovery through implementation of an agency-approved excavation and analysis data recovery program.

    4) A combination of one or more of the above measures.

Table 4.5.5-3

COMPOSITE GENERAL PLANS ALTERNATIVE
PREHISTORIC/HISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,217	M	Lithic Scatter/Historic Structure
CA-SDI-11,218	M	Lithic Scatter/Historic Structure
CA-SDI-11,219	M	Lithic Scatter/Historic Structure
CA-SDI-11,367/11,368	M/VH	Lithic Scatter/Historic Rock Feature

TOTALS:	(Medium Density Residential (6-11 du/ac))	M	4
	(Very High Density Residential (43 du/ac))	VH	1

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,391 A- C	MRU	Historic Structure/Lithic Scatter/Milling Station/Temporary Camp
CA-SDI-11,396/H	MRU	Historic Structure/Lithic Scatter
CA-SDI-11,399H	MRU	Historic Structure/Lithic Scatter
CA-SDI-11,409	MRU	Lithic Scatter/Historic Rock Feature
CA-SDI-11,411 A-D	MRU	Milling Station/Historic Refuse
CA-SDI-11,415	MRU	Milling Station/Lithic Scatter/Historic Rock Feature
CA-SDI-11,417H	MRU	Historic Structure/Lithic Scatter/Milling Station
CA-SDI-6,695 A & B	MRU	Lithic Scatter/Historic Rock Feature
CA-SDI-6,965/11,398H	MRU	Historic Archaeological Complex/Lithic Scatter
CA-SDI-12,328/H	MRU	Lithic Scatter/Historic Rock Feature
CA-SDI-12,362/H	MRU	Lithic Scatter/ Historic Refuse
CA-SDI-12,373/H	MRU	Habitation Site/Historic Structure
CA-SDI-12,380/H	MRU	Lithic Scatter/Historic Rock Feature
CA-SDI-12,382/H	MRU	Historic Rock Feature/Lithic Scatter
CA-SDI-12,393/H	MRU	Lithic Scatter/Historic Rock Feature
SDM-W-1,932	MRU/RR	Lithic Scatter/Historic Rock Feature

TOTALS:	(Multiple Rural Use-General Agriculture (1 du/2,8 & 20 ac))	A72	7
	(Outside of Area)	OA	4
	(Rural Residential (.25-1 du/ac))	RR	2
	(Multiple Rural Use-Special Purpose Limited Control (1 du/25 ac))	S87	10

SAN YSIDRO PARCEL

Site Number	Proposed Land Use		Site Type
CA-SDI-11,355	MRU	San Ysidro	Lithic Scatter/Historic Rock Feature
CA-SDI-11,356	MRU	San Ysidro	Lithic Scatter/Historic Structure
CA-SDI-11,358	MRU	San Ysidro	Lithic Scatter/Historic Rock Feature
CA-SDI-11,359H	MRU	San Ysidro	Lithic Scatter/Historic Refuse
CA-SDI-11,360H A-C	MRU	San Ysidro	Historic Structure/Lithic Scatter
CA-SDI-12,150	MRU	San Ysidro	Historic Structure/Lithic Scatter
CA-SDI-12,346/H	MRU	San Ysidro	Temporary Camp/Lithic Scatter/Historic Rock Feature
CA-SDI-12,347/H	MRU	San Ysidro	Historic Structure/Lithic Scatter
CA-SDI-12,348/H	MRU	San Ysidro	Lithic Scatter/Historic Rock Feature
CA-SDI-12,350/H	MRU/OA	San Ysidro	Lithic Scatter/Historic Rock Feature

TOTALS:	(Outside of Area)	OA	3
	(Multiple Rural Use-Special Purpose Limited Control (1 du/25 ac))	S87	10

Additionally, a plan shall be developed for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This shall be accomplished through adaptive reuse of one of the historic structures within the project or through construction of a building within one of the parks or community centers. It is expected that this interpretive center will only be for temporary curation of those materials being actively used for interpretation and display, and that permanent curation of artifacts and data will be at a regional repository when one is established.

Historic Resources

Mitigating measures for historic resources are essentially the same as the measures for prehistoric resources described above. The same steps and stages should be followed although archival research and historical documentation shall be used to augment Stage 2 field testing programs. Mitigation of impacts to historic resources through preservation may be more feasible for historic sites than for prehistoric sites because they generally comprise a smaller area and can often be synthesized into a development plan. In the case of historic resources, Stage 3 data recovery programs shall be integrated with comprehensive programs of corresponding archival research to provide the context for, and make possible a full evaluation of, the material found on the sites. Also as indicated under the prehistoric mitigation measures, a plan shall be developed for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This shall be accomplished through adaptive reuse of one of the historic structures within the project or through construction of a building within one of the parks or community centers.

Prehistoric/Historic Resources

Mitigating measures for prehistoric/historic resources are essentially the same as for prehistoric and historic resources as described above. The same steps and stages should be followed although archival research and historical documentation may be used to augment field testing programs. Mitigation of impacts to historic components of prehistoric/historic resources through preservation may in some instances be more feasible than for the prehistoric components because they generally comprise a smaller area and can often be synthesized into a development plan.

If in situ preservation is not possible, recovery of a representative amount or sample of information, both surface and subsurface, is the only other acceptable alternative. For historic components, the data recovery program will be integrated with a corresponding archival research program to fully assess the significance of the material found on the sites. By creating a complementary research program that fully incorporates the archival material with the field results, many important research questions can be addressed.

4.5.5.5 Analysis of Significance

At this program-level of analysis, all prehistoric, historic, and prehistoric/historic resources are considered significant (see Section 3.4.4).

4.5.6 Geology and Soils

4.5.6.1 Impact Analysis

Development of the Composite General Plans Alternative would involve primarily residential construction on the Otay River parcel. The Proctor Valley and San Ysidro parcels' development would involve special purpose, limited control, and general agriculture land uses. Impacts would be minimal for these parcels based on this proposed development. The general types of geologic and soil impacts that can be anticipated include slope instability, rippability, seismic ground shaking, expansive and erodable soils, liquefaction, and landslides.

4.5.6.2 Proposed Mitigation

The mitigation measures outlined in the geology and soils section concerning the New Town Plan (see Section 3.5.3) would mitigate potential impacts to levels below significance. A brief summary of the proposed mitigation measures is as follows:

- Slope instability - Perform site-specific geotechnical investigation and slope stability analyses and implement appropriate design measures.

- Rippability - Perform site-specific geotechnical investigation. Where non-excavatable materials are encountered, blasting may be required to achieve proposed grades.

- Seismic ground shaking - Perform site-specific geotechnical investigation, incorporate seismic parameters into the design and construction of the project, design according to appropriate building codes.

- Expansive/erodable soils - Perform selective grading and design foundations in accordance with UBC standards. Incorporate erosion control measures into design and construction of the project.

- Liquefaction - Perform site-specific geotechnical investigation to evaluate liquefaction potential. Perform vibrofloatation or dynamic compaction techniques, or remove and recompact soils as appropriate to mitigate liquefaction potential.

- Landslides - Perform site-specific geotechnical investigation to delineate limits of landslides. Landslides may be completely removed or buttressed during site grading.

4.5.6.3 Analysis of Significance

Implementation of the proposed mitigation measures would reduce impacts to below a level of significance.

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4.5.7 Paleontological Resources

4.5.7.1 Impact Analysis

Development under the Composite General Plans (County of San Diego, City of Chula Vista, and City of San Diego) Alternative would result in a variety of proposed development types throughout the project site and in impacts to paleontological resources.

Otay River Parcel

Development under the Composite General Plans Alternative for this parcel would involve a great deal of residential construction. Such construction typically requires large-scale mass grading which, if done in areas with highly sensitive paleontological resources, would result in significant impacts. Since the majority of the Otay Mesa region is underlain by either the San Diego or Otay formations, significant impacts are anticipated.

Proctor Valley and San Ysidro Parcels

Development proposed for these parcels under the Composite General Plans Alternative would involve general agricultural and special purpose limited control land uses. The majority of this region is underlain by rocks with no resource sensitivity. Exceptions are areas immediately adjacent to Proctor Valley Road and along Otay Lake Road north of Lower Otay Lake. These areas are underlain by highly sensitive formations (e.g, Otay and Sweetwater formations). Significant impacts are generally not anticipated from development of these parcels, based on the proposed development.

4.5.7.2 Proposed Mitigation

The mitigation measures outlined in the paleontology section concerning the New Town Plan (Section 3.6.3) would mitigate potential impacts to paleontological resources to levels below significance. The following general mitigation measures shall be implemented:

- A qualified paleontologist shall be retained. The paleontologist shall be present at all times during original cutting in highly sensitive formations and to a lesser extent in less sensitive formations.
- When fossils are discovered, the paleontologist shall be allowed to recover them.
- Prepared fossils and notes shall be given to a scientific institution, and a final summary report shall be prepared by the paleontologist at the end of excavation.
- Geologic/paleontologic preserves shall be created in designated areas not planned for mass excavation.

4.5.7.3 Analysis of Significance

Implementation of the Composite General Plans Alternative would result in adverse impacts to paleontological resources. The significance of these impacts would vary depending upon the paleontological resource sensitivity of individual affected formations. Implementation of the proposed mitigation measures would reduce impacts to below a level of significance.

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4.5.8 Agricultural Resources

4.5.8.1 Impact Analysis

Development of the Otay River parcel as proposed by the Composite General Plans Alternative would involve a mixture of residential uses, park space, and research and industrial related uses. This development would occur on land overlain with soils designated to have Prime, Statewide, and Local Farmland Importance.

The Proctor Valley and San Ysidro parcels would involve agricultural land uses and special purpose/limited control industrial land uses. Retail commercial uses would, however, be developed on land overlain with Prime Farmland soils. Development under the Composite General Plans Alternative would preserve more agricultural land than the New Town Plan since agricultural land uses would be allowed in the Proctor Valley and San Ysidro parcels. However, the Otay River parcel, which is overlain with soils suitable for the production of coastal-dependent crops, would be converted to urban uses or preserved as park space within the designated open space areas. These proposed uses would impair use of Prime, Statewide and Locally Important Farmland soils suitable for production of coastal-dependent crops. Significant agricultural impacts would, therefore, occur with development of this alternative.

Crop Production

Existing cattle grazing and barley cultivation operations would cease with development of the Otay River parcel under the Composite General Plans Alternative. Limited agricultural activities would continue to occur in the Proctor Valley and San Ysidro parcels.

The loss of barley production in the Otay River parcel would not be a significant impact since it is a low cost, low yield, low return crop. Field crops as a whole are not significant in terms of their countywide agricultural value. Approximately 20,000 cattle and calves were reported in the county for 1990; approximately 600 cows or three percent are within the Otay Ranch property. The net income received from both cattle and barley operations are used towards the cost of production, and the payment of property taxes which exceed $100 per acre, including land not in agricultural use. The loss of agricultural production within the Otay River parcel would not have a significant impact on the countywide cattle production since the incremental amount of cows lost would be less than three percent of the county's overall number of cattle. Additionally, the type of crop produced onsite does not have a high countywide agricultural value.

Applicable Agricultural Policies

The Composite General Plans Alternative would have less indirect growth-inducing impacts than the New Town Plan since the extension of roads and public infrastructure would be limited to the Otay River parcel's boundaries. The areas surrounding the Otay River parcel have been or are being developed for urban uses. The rural residential and agricultural land use designations on the Proctor Valley parcel and the agriculture designation on the eastern portion of the San Ysidro parcel would maintain the rural agricultural character of the land. Urbanizing pressures on the adjacent agricultural land to the east would therefore be minimized by the Composite General Plans Alternative. No significant land use interface impacts related to agriculture would occur under this alternative since no residential uses are planned directly adjacent to offsite agricultural lands (i.e., Daley Ranch).

The Composite General Plans Alternative would maintain the rural atmosphere of the Proctor Valley parcel. The low-density residential designations and agricultural designations along the upper portions of the parcel would allow the keeping of animals and other agricultural uses. This would be consistent with the goals and policies of the Jamul-Dulzura Subregional Plan which encourages agricultural uses on large low-density lots to maintain the community's rural character.

Existing agricultural activities would be allowed as an interim use in the Otay River parcel as it is developed under the Composite General Plans Alternative. An agricultural plan would be developed at the SPA level. The plan would tie into the project's phasing plan and would include areas of the site not yet scheduled for development which are suitable for interim agricultural uses. Measures to reduce potential interface impacts, related to agricultural operations between the built-out areas of the parcel and the interim agricultural uses, would also be included. Interim agricultural use of the site would be consistent with the Otay Mesa Subregional Plan's goals.

The City of Chula Vista Open Space Element recognizes Otay Ranch as an important undeveloped agricultural land due to its coastal area climate and the suitability of its soil for the production of coastal dependent crops such as tomatoes, vegetables, strawberries, flowers, and container grown nursery stock. However, the general plan states that rising land values, water costs, and increasing taxes make it difficult to maintain existing agricultural activity. Therefore, the remaining agricultural activities in the project area are viewed as interim uses, prior to development. The City of Chula Vista Land Use Element contains no agricultural designation which would prevent conversion of the Otay River parcel from agricultural land uses to urban uses. The EIR prepared for the City of Chula Vista General Plan Update (1989a) states that "the conversion of agricultural land represents a significant impact in terms of the loss of potential production of coastal-dependent crops." Most of the property's potentially highly productive land, which lies within the Otay River parcel, would be converted to urban uses or preserved as open space for recreational/park uses. Conversion of agricultural land uses, as allowed by the existing general plan designations for the Otay River parcel would result in a permanent loss of land suitable for the potential production of coastal-dependent crops.

Portions of the Otay River parcel are designated as a Special Study Area by LAFCO. Any development on this parcel is subject to LAFCO's review which will occur when the annexation process begins to incorporate the land to the City of San Diego or the City of Chula Vista.

4.5.8.2 Proposed Mitigation

The following measures will partially mitigate the loss of agricultural land suitable for the production of coastal-dependent crops.

1. An agricultural plan shall be prepared by the project applicant prior to approval of any SPA Plans affecting agricultural resources and will be required for each subsequent development proposal. The plan shall indicate the type of agricultural activity that will be allowed as an interim use. Specifications shall include buffering guidelines designed to prevent potential land use interface impacts related to noise, odors, dust, insects, rodents, and chemicals that may accompany agricultural activities and operations. Adequate buffering shall be provided between the proposed development area and the interim agricultural use. Buffering measures may include:

- a 200-foot distance between property boundaries and agricultural operations;

- if permitted interim agricultural uses require the use of pesticide, then limits shall be set as to the time of day and the type of pesticide application that may occur;

- use of vegetation along the field edges adjacent to development that can be used for shielding (i.e., corn); and

- notification of adjacent property owners of potential pesticide applications and use of fending.

The plan shall be reviewed by the city or county planning department that has jurisdiction over these areas to verify that proposed guidelines are adequate to prevent significant interface impacts from occurring. This measure would partially mitigate the incremental loss of agricultural land.

2. The loss or impairment of prime agricultural land for agricultural activity is an unmitigable impact. However, a portion of the Otay River parcel where Prime soils are located should be set aside for a community garden. A possible location for the community garden would be in the southwest portion of the Otay River Parcel. This area is considered suitable since it contains prime agricultural soils and is designated as a park by the Composite General Plans Alternative. Development of this garden will depend on the feasibility of maintaining it within the proposed park. If the community garden is deemed feasible its size and exact location will be determined at the SPA level. Schools proposed within the Otay Ranch property could promote educational activities in regard to agriculture through the use of the community garden.

4.5.8.3 Analysis of Significance

The Composite General Plans Alternative would result in less significant impacts than the New Town Plan since more agricultural land, specifically in the Proctor Valley and San Ysidro parcels would be preserved. However, development of the Otay River parcel would result in the conversion or impairment of land suitable for the production of coastal-dependent crops. Existing agricultural uses on the parcel would also be precluded. According to state, county, and the City of Chula Vista policies and goals, the loss of an agricultural resource (Prime Farmland and land suitable for production of coastal-dependent crops) is considered a significant and unmitigable impact, regardless of the feasibility of maintaining the property in agricultural production (i.e., lack of an adequate water supply).

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4.5.9 Mineral Resources

4.5.9.1 Impact Analysis

Development under the Composite General Plans (City of Chula Vista, County of San Diego, and City of San Diego) would result in open space and park land uses in the Otay River valley, and open space land uses on the majority of Rock Mountain. Aggregate minerals and bentonite clay are not considered to be significant mineral resources within the project site. Therefore, the proposed land uses will not result in a significant impact to mineral resources. However, if mineral extraction is not permitted in open space, then impacts to mineral resources on Rock Mountain are considered significant.

The proposed land use designations for the Proctor Valley and San Ysidro parcels include Special Purpose Limited Control and general agricultural land uses. These land uses types would preclude mineral extraction only where permanent buildings are constructed. These land uses are considered to be generally compatible with mineral extraction activities, therefore, the impacts are not considered to be significant.

4.5.9.2 Proposed Mitigation

The Otay River Valley segment within the Otay Ranch project is no longer considered to be a source of significant mineral resources (see Section 3.8, New Town Plan). Therefore, no impacts to mineral resources would result from the proposed development, and mitigation measures are not necessary.

The Composite General Plans Alternative should include measures in its development plan to allow for mineral extraction on Rock Mountain and mineral extraction should be designated as the primary land use. Rock Mountain shall be placed in a mineral extractive overlay designation or an RCA in accordance with the policies of the soon-to-be adopted Mineral Resource Management Plan.

Proposed development of the San Ysidro and Proctor Valley parcels is generally compatible with potential mineral extraction activities. Areas proposed for permanent structures shall allow for mineral extraction prior to construction. Should this not be possible, the impact to mineral resources would be significant and unmitigable.

The bentonite deposits onsite are not considered to be regionally significant (see Section 3.8, New Town Plan). Therefore, no impacts to mineral resources would result from the proposed development and mitigation measures are not necessary.

4.5.9.3 Analysis of Significance

The phasing of development of the San Ysidro and Proctor Valley parcels to allow for the extraction of mineral resources before construction would effectively mitigate impacts to mineral resources. However, should this not be feasible, the impact to mineral resources would be significant and unmitigable. Actions that preclude the extraction of significant mineral resources would be significant and would result in unmitigable adverse impacts.

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4.5.10 Water Resources and Water Quality

4.5.10.1 Impact Analysis

The Composite General Plans Alternative would involve less development and a consequent decrease in the potential for urban runoff and degradation of water quality in comparison to the New Town Plan. This plan calls for two Otay River Valley crossings, thus limiting the impact to floodplains. The types of impacts that can be anticipated are generally similar to those of the New Town Plan and include inundation of project features, changes in surface water flow rates, surface water quality, and ground-water quality and quantity.

4.5.10.2 Proposed Mitigation

Further analysis is necessary to determine the magnitude of the impacts and to identify measures appropriate to mitigate significant effects. All future studies shall be conducted by a qualified hydrologic engineer and meet the City of Chula Vista, County of San Diego, and Regional Water Quality Control Board standards for urban runoff, sedimentation, floodplain, encroachment, and water quality, as appropriate. A brief summary of the proposed mitigation measures is as follows:

- Floodplain encroachment - determine floodplain/floodway width; avoid floodplain encroachment.

- Inundation of project features - perform appropriate detailed hydrologic and hydraulic studies and incorporate the findings, conclusions and recommendations into the design and construction of the project. Upgrade existing facilities or install retention/detention basins, as appropriate, to contain surface flows, etc.

- Changes in surface flow rates - perform appropriate detailed hydrologic and hydraulic studies and incorporate findings, conclusions, and recommendations into the design and construction of the project. Incorporate erosion control measures, siltation basins, etc. into project design.

- Ground-water quality - Implement the improvements and plans provided in the Urban Runoff Reservoir Study. Details of the study are provided in Section 3.9.3.

- Ground-water quantity - implement measures to enhance recharge to aquifer systems.

- Urban runoff to Lower Otay Lake - prepare and implement Urban Runoff Master Plan.

4.5.10.3 Analysis of Significance

At this level of analysis, impacts to ground-water and surface water resources and quality are considered significant upon development of the Composite General Plans Alternative. Implementation of the recommended mitigation measures at the SPA and project design levels of review would reduce the ground-water and surface water impacts to below a level of significance.

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4.5.11 Transportation, Circulation, and Access

4.5.11.1 Impact Analysis

This section documents the results of the impact analysis for the Composite General Plans Alternative. The following topics will be discussed in this section: trip generation, proposed circulation network, and transportation and circulation impacts.

Appendix B of this document contains a detailed discussion of the impact analysis methodologies and threshold standards used to identify impacts of the Composite General Plans Alternative. In addition, Appendix B explains why the land uses in the trip generation tables prepared for this alternative for the Otay Ranch may not directly correspond to those land use acreages and residential dwelling units shown in Table 4.5-1 in the description of this alternative. Finally, Appendix B contains information regarding local and regional transportation planning topics related to project impacts and mitigation.

Trip Generation

This alternative envisions development of the Otay River parcel under the existing Chula Vista General Plan, while the remainder of the property would be developed as now shown on the Otay Mesa and Jamul Community Plans for San Diego County. This alternative is substantially different from the County of San Diego Adopted Otay Subregion plan in terms of both land use and circulation elements. The county's land use plan designates the Otay River parcel area as Intensive Agricultural. This designation allows only 1 dwelling unit per 2-4-8 acres, depending on the exact designation of the site. Therefore, at its most intensive development level, the Otay River parcel would accommodate 4,800 single-family dwelling units and would generate 48,000 ADT. The Interjurisdictional Task Force determined that the Adopted Chula Vista General Plan land use and circulation network assumptions would be utilized in defining the Composite General Plans Alternative for the Otay River parcel. This alternative allows for a greater variety of uses on this parcel (i.e., Residential, Commercial, Public and Quasi Public Services, Industrial, Parks) and would generate 395,366 ADT. Thus, almost 350,000 additional trips have been assumed for this parcel compared to the County of San Diego's plan for this area. Development in much of the Otay River parcel would, under the Chula Vista General Plan, be characterized as suburban. An Eastern Urban Center would be located in the center of the parcel, adjacent to SR-125. Development in this area would probably reflect the surrounding suburban area, including standard retail commercial areas and multi-user office buildings, as are commonly seen in such suburban areas. Table 4.5.11-1 summarizes the proposed land uses and daily trips under this alternative. It shows that under SANDAG trip generation standards, the proposed land uses for this alternative would generate approximately 397,551 daily trips on Otay Ranch. Table 4.5.11-1 shows that two separate trip generation rates were used for Light Industry land use in Table 4.5.11-1. The following paragraphs provide a brief explanation of the two different trip generation rates.

<u>Industrial Trip Generation for the SANDAG Combined Southbay Transportation Model</u>

Modeling efforts in the Southbay began in the early 1980s with the creation of the Chula Vista Subarea Model. The calibrated model rate for industrial land in Chula Vista was 130 trips per acre. Survey rates from around the county range from 50 to 200 trips per acre, depending on the type of industrial use and the amount of commercial use allowed in the industrial zone.

SANDAG's 1985-86 Work Program included a modeling effort in the Southbay to size the future SR-125 facility between the Southbay Freeway (SR-54) and the Otay Mesa Border

Table 4.5.11-1

LAND USE AND TRIP GENERATION SUMMARY
COMPOSITE GENERAL PLANS ALTERNATIVE
OTAY RANCH TOTAL

Land Use	Land Use Intensity	Trip Rate	Daily Trips
Single-family Residential	11,277 du	10/du	112,770
Multifamily Residential	4,668 du	7/du	32,676
TOTAL DWELLING UNITS***	15,995 du		
TOTAL RESIDENTIAL TRIPS			145,446
Office/Commercial			
Regional Shopping Center (30–60 acres each)	20 AC	500/AC	10,000
Neighborhood Shopping Center (10–30 acres each)	3 AC	800/AC	2,400
Industrial			
Research and Industrial (Light Industrial)	540 AC	130/AC	70,200
General Industrial (Light Industrial)	368 AC	100/AC**	36,800
Public/Quasi-Public			
Elementary School (Calibrated Rate)	10 AC	100/AC	1,000
Elementary School (Standard Rate)	9 AC	40/AC	360
Other Services	228 AC	50/AC	11,400
Parks (Developed)	82 AC	10/AC	820
Parks (Undeveloped)	537 AC	5/AC	2,685
Eastern Urban Center (EUC)			
Single-family Residential	71 du*		
Multifamily Residential	668 du*		
General Office (Less than 100,000 sq. ft. each)	78 AC	300/AC	23,400
Regional Shopping Center (30–60 acres each)	186 AC	500/AC	93,000
TOTAL NON-RESIDENTIAL TRIPS			252,065
TOTAL DAILY TRIPS			397,551

* The 710 trips that are generated by the single-family dwelling units in the EUC and the 4,676 trips that are generated by the multifamily dwelling units in the EUC are reflected in the total residential dwelling unit count and trip generation figures.

** Uses City of San Diego trip generation rate for general industrial uses.

*** The total dwelling unit count includes 15,655 dwelling units on the Otay River Parcel (as per the buildout of the Chula Vista General Plan) and 250 dwelling units on the Proctor Valley Parcel (as per the SANDAG Series 7 20-year forecast). No dwelling units were assumed on the San Ysidro Parcel for this alternative.

Crossing. At the request of the County of San Diego, City of San Diego, and City of Chula Vista, SANDAG enlarged the scope of the project to provide detailed traffic forecasts for the area east of I-805 and south of SR-54.

Using the Chula Vista model as a starting point, SANDAG created a full-development (post 2010) model for the Southbay. The initial industrial trip rate was 130 per acre for both Chula Vista and all of Otay Mesa. The new Southbay model added the Otay Ranch project inputs first from United Enterprises and then from the Baldwin Company.

Early forecast results showed that even with all of the planned crossings of the Otay River Valley (Paseo Ranchero, La Media Road, SR-125, and Alta Road) and the east-west access to I-805, street and highway capacity in and out of Otay Mesa would not accommodate projected peak period traffic.

In 1987, SANDAG lowered the industrial trip rate first to 115 trips per acre, and then to 100 trips per acre in an attempt to determine if there was a level of industrial trip generation which could be accommodated by the circulation network without reducing the amount of industrial land. SANDAG's analysis concluded that the traffic system could work at 100 trips per industrial acre if:

- Industrial trip generation at 100/acre or less was ensured by controlling allowable land uses;
- SR-125 had 8 lanes with two reversible HOV lanes and all four river crossings were built;
- TDM objectives such as those in the Regional Transportation Plan were achieved in Otay Mesa; and
- Higher residential densities in Otay Mesa provided more trip-matching opportunities.

This analysis did not assume that the industrial land in Otay Mesa would only generate 100 trips per acre; it simply demonstrated that a lower rate was needed to achieve a workable system. Since that time, the Otay Mesa industrial rate has remained at 100/acre for continuing model work. However, changes have occurred to land uses in Otay Ranch, Otay Mesa, and across the border. Plans for light rail transit are also being considered for the area. A new "industrial generation limitations" study may find different results from the 1987 analysis.

Proposed Circulation Network

The Composite General Plans Alternative circulation network is a combination of the General Plans for the City of Chula Vista, the County of San Diego, and the City of San Diego. This section describes the features of these plans by jurisdiction; Figure 4.5.11-1 shows the areas of these respective jurisdictions relative to Otay Ranch.

City of Chula Vista Adopted General Plan Circulation Element

The Chula Vista General Plan Circulation Element identifies the following roadways within the Otay River parcel:

- SR-125 (with two interchanges at Hunte Parkway and Orange Avenue);
- Hunte Parkway;

- Orange Avenue;
- Paseo Ranchero (existing road at the western site boundary); and
- Telegraph Canyon Road (existing road at the northern site boundary).

Two roads are proposed to cross the Otay River Valley: Paseo Ranchero, which extends across the Otay River Valley along the current alignment of Otay Valley Road (Heritage Road), and SR-125, which is proposed to cross the valley east of Brown Field. The Chula Vista General Plan intends for all regional traffic to use freeways.

County of San Diego Otay Mesa Community Adopted General Plan Circulation Element

The County of San Diego General Plan Circulation Element identifies the following roadways within the Otay River parcel:

- SR-125;
- Otay Valley Road;
- Orange Avenue;
- Alta Road;
- La Media Road;
- Paseo Ranchero (existing road at the western site boundary); and
- Telegraph Canyon Road (existing road at the northern site boundary).

A total of four roads would cross the Otay River Valley within Otay Ranch, including Paseo Ranchero, SR-125, Alta and La Media roads (located east and west of SR-125, respectively).

City of San Diego Otay Mesa Community General Plan Circulation Element

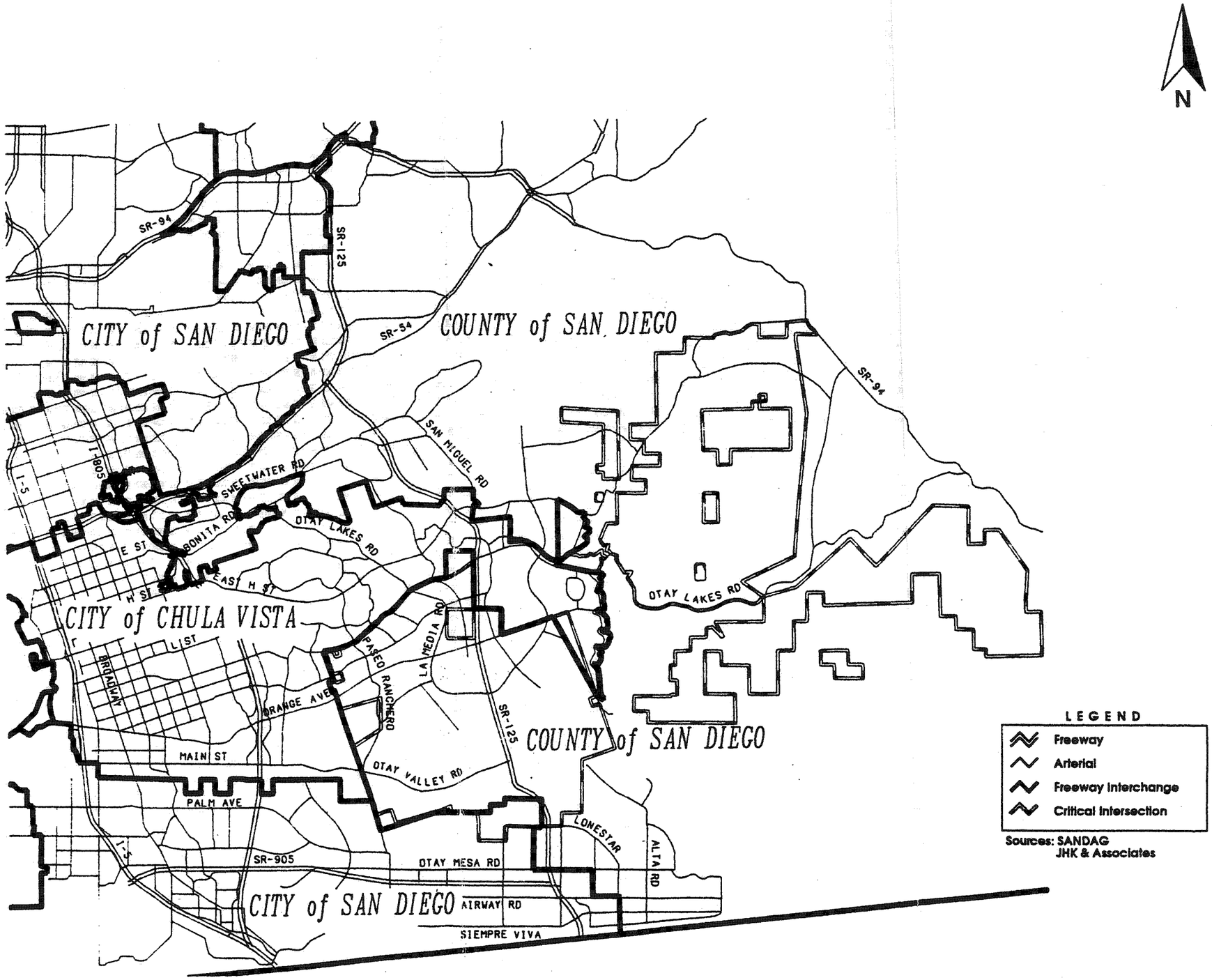
The City of San Diego Otay Mesa Community General Plan Circulation Element identifies three roads which approach the Otay River Valley from the south on Otay Mesa. These include SR-125, La Media Road, and Heritage Road.

Composite General Plans Alternative

The Interjurisdictional Task Force determined that the Chula Vista General Plan Circulation Element network would be the network used for the Composite General Plans Alternative analysis. In addition, various scenarios analyzed among the eight project alternatives address different numbers of river crossings; therefore, it was deemed unnecessary to independently model the County of San Diego or the City of San Diego Circulation Element networks for this analysis.

This plan does not include the Alta Road and La Media Road crossings of the Otay River Valley as shown in the County of San Diego Circulation Plan. However, the omission of these roadway facilities is consistent with the Adopted Chula Vista General Plan Circulation Element. Moreover, the proposed circulation system for this alternative does not utilize the village design concept (i.e., loop roads, discouragement of through trips, reduction of vehicular dependency, etc.).

Figure 4.5.11-2 shows the assumed circulation network for the Composite General Plans Alternative. The proposed circulation network for this alternative does not include the village design concept.

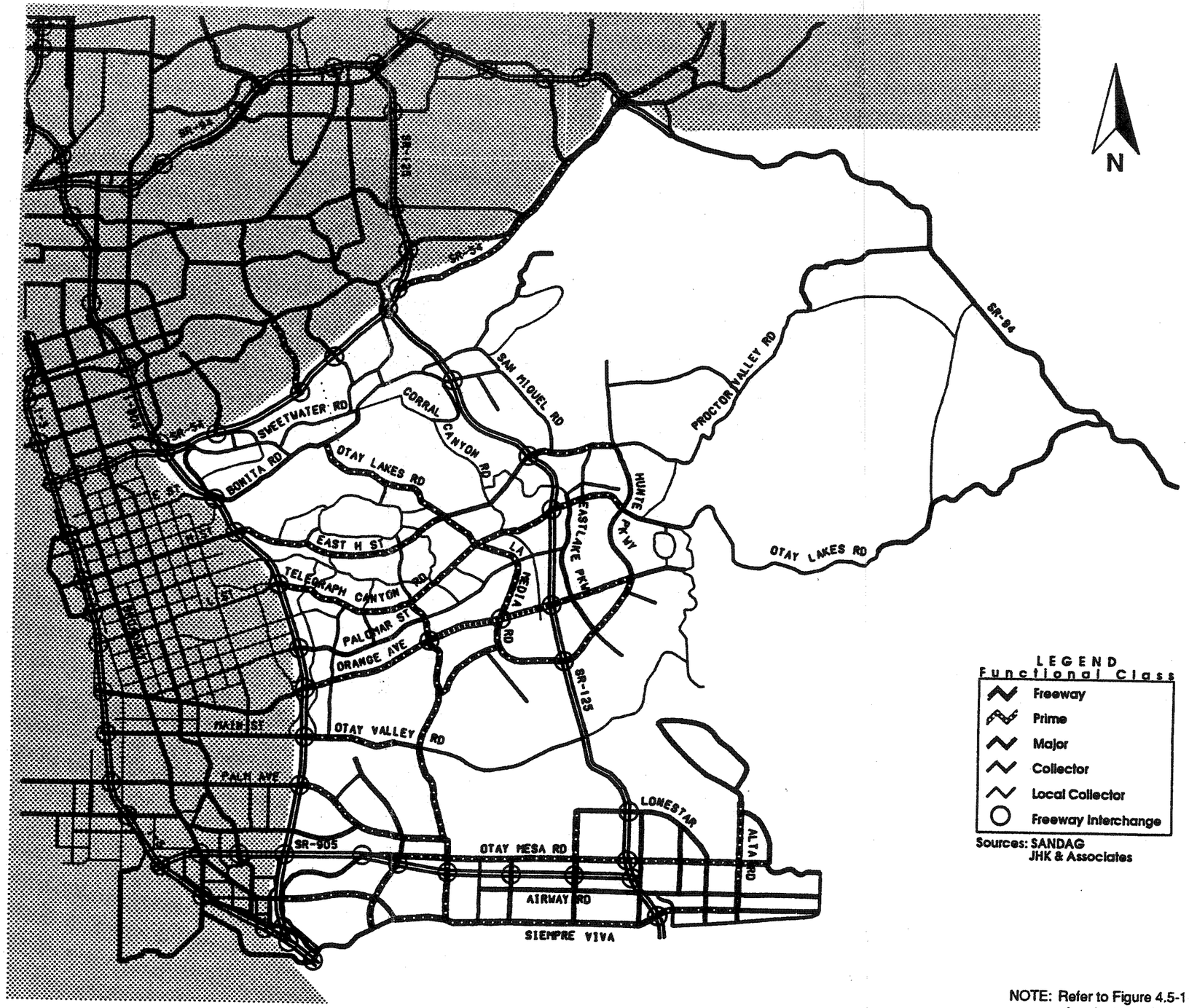


OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.5.11-1

COMPOSITE GENERAL PLANS ALTERNATIVE CIRCULATION NETWORK AND JURISDICTIONAL BOUNDARIES



NOTE: Refer to Figure 4.5-1 for an illustration of project area boundaries.

OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.5.11-2

COMPOSITE GENERAL PLANS ALTERNATIVE CIRCULATION NETWORK

Arterial Segment and Freeway Impacts

This alternative represents the impacts expected to occur if the project site were to be developed as shown on the adopted general plans for the Southbay region. In evaluating the impacts of the alternative development scenarios, it is recommended that the impacts identified for this alternative be used as a basis for comparing the impacts of the proposed project and the other development plans for Otay Ranch. This is due to the fact that the adopted general plans for all of the jurisdictions in the Southbay region reflect the approved concept for the future transportation facilities and performance within the region. The degree of circulation element modification required for each jurisdiction directly corresponds to the density of the proposed development alternatives on Otay Ranch.

Figure 4.5.11-3 shows the projected network levels of service for the study area as provided by SANDAG. Of the total 248 roadway miles included in the circulation network within the study area (east of I-805) for the Composite General Plans Alternative, 26 miles (approximately 11 percent) are forecasted to operate above the maximum recommended ADT volume, i.e., at LOS D or worse for arterials and LOS F for freeways.

A review of the freeway impacts (excluding arterial segments) revealed that of the 31 freeway miles in the study area, 6 miles (approximately 19 percent) are forecasted to experience ADT volumes in excess of the maximum recommended ADT volume (i.e. at LOS F).

Of the total 216 arterial roadway miles that make up the arterial circulation network for the Composite General Plans Alternative, 20 miles of roadway (approximately 8 percent) are predicted to operate above the maximum recommended ADT volume at LOS D or worse under the Composite General Plans land use scenario and circulation network.

Table 4.5.11-2 summarizes the impacted roadway miles by LOS and facility class.

Intersection Impacts

Figure 4.5.11-4 shows the location of critical intersections that would experience high total entering volumes in excess of 65,000 vpd. Table 4.5.11-3 summarizes these critical intersection locations and entering volumes. It shows that a total of eight intersections are predicted to experience high entering volumes in excess of 65,000 vpd under the Composite General Plans Alternative. Of the eight intersections identified, two are located within the project site; the remaining six impacted intersections are located south of the project site. Four intersections may require special at-grade design to accommodate expected demand. The remaining four intersections may require grade separation based on the expected entering volumes under this alternative. Detailed study of peak hour turn movement volumes is required at the SPA plan stage of development to determine the specific mitigation measures needed at these impacted intersections.

4.5.11.2 Proposed Mitigation

This section provides a detailed discussion of the proposed mitigation measures required for the Composite General Plans Alternative. These mitigation measures include specific geometric mitigation measures for both the study area arterial roadways and major intersections. The applicable mitigation measures have been divided into two separate categories: those which are required mitigation measures for the project, and those in which the project proponent shall participate, as a major developer in the Southbay region. Appendix B of this document contains a detailed discussion of the various forms of circulation system mitigation measures recommended for the Otay Ranch study area under

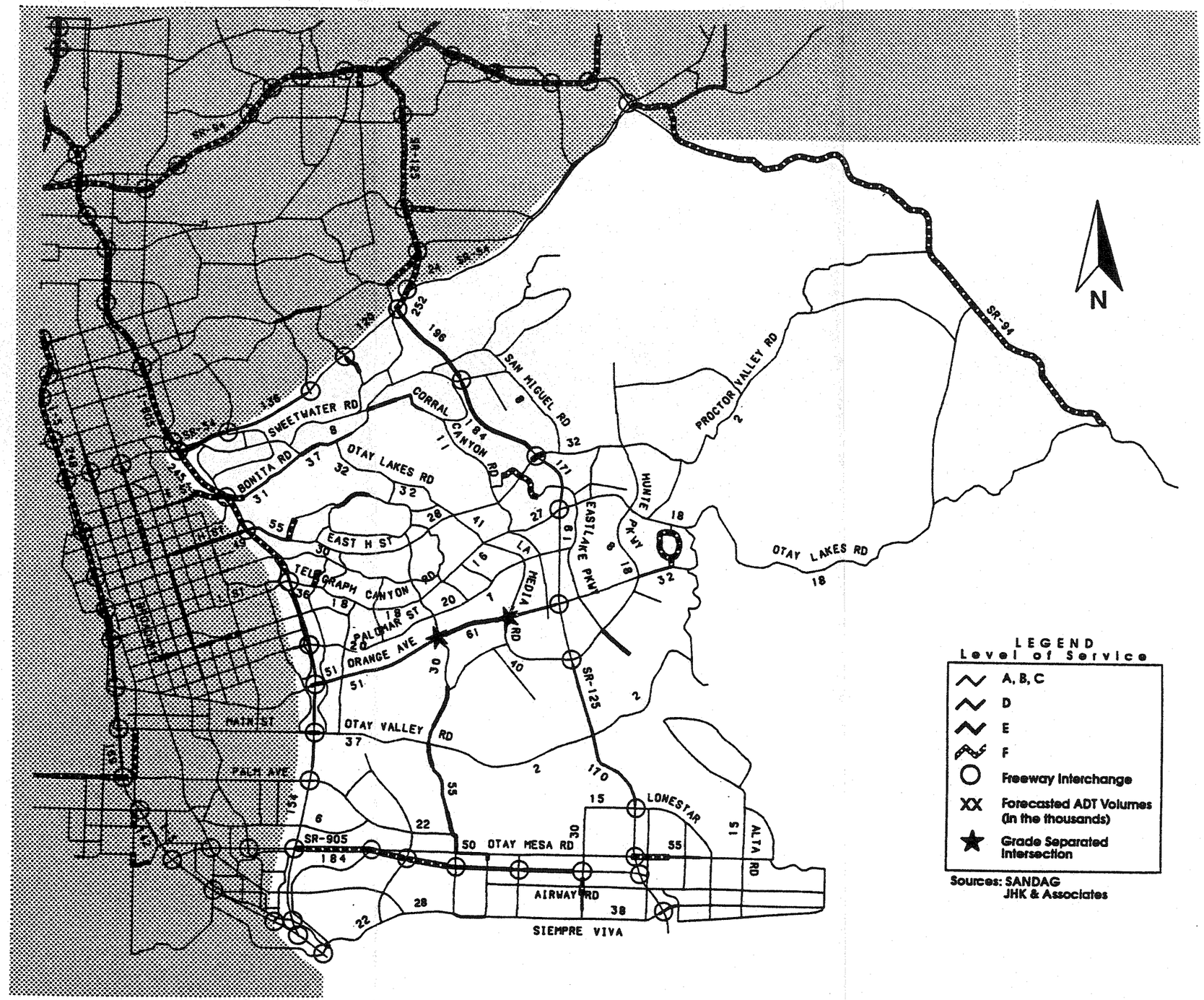
Table 4.5.11-2

IMPACTED ROADWAY MILES BY LEVEL OF SERVICE
COMPOSITE GENERAL PLANS ALTERNATIVE
(Prior to Mitigation)

Facility Class (# of lanes)	LOS D	LOS E	LOS F	Total Miles
Onsite Impacts				
Collector (4)	0.00	0.58	0.00	0.58
Major (4)	0.55	0.00	1.25	1.80
Prime (6)	0.00	0.36	0.00	0.36
TOTAL	0.55	0.94	1.25	2.74
Offsite Impacts				
Local Collector (2)	0.00	1.63	3.79	5.42
Collector (4)	0.00	0.77	0.05	0.82
Major (4)	0.76	0.62	4.27	5.65
Prime (6)	3.69	1.92	0.00	5.61
Freeway	0.00	0.00	6.00	6.00
TOTAL	4.45	4.94	14.11	23.50
Combined Onsite/ Offsite Impacts				
Local Collector (2)	0.00	1.63	3.79	5.42
Collector (4)	0.00	1.35	0.05	1.40
Major (4)	1.31	0.62	5.52	7.45
Prime (6)	3.69	2.28	0.00	5.97
Freeway	0.00	0.00	6.00	6.00
TOTAL	5.00	5.88	15.36	26.24

Combined Onsite/Offsite Network	Total Roadway Miles	Total Impacted Roadway Miles	Percent Impacted Roadway Miles
Local Collection (2)	39.91	5.42	14%
Collector (4)	47.65	1.40	3%
Major (4)	73.22	7.45	10%
Prime (6)	55.65	5.97	11%
Freeway	31.48	6.00	19%
TOTAL	247.90	26.24	11%

See Appendix B for more information.



OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.5.11-3

COMPOSITE GENERAL PLANS ALTERNATIVE CIRCULATION NETWORK LEVEL OF SERVICE (Prior to Mitigation)

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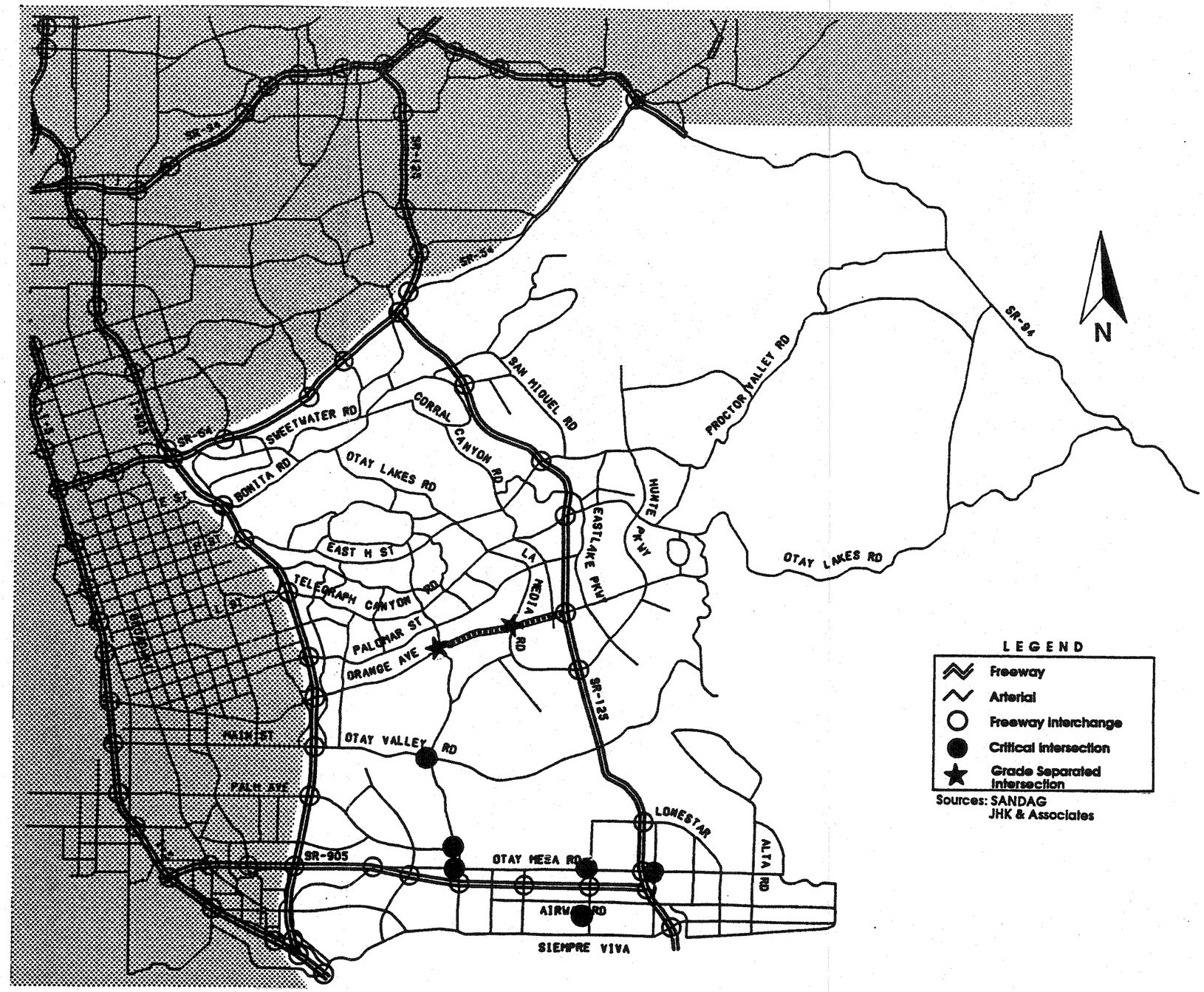

OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.5.11-4

COMPOSITE GENERAL PLANS ALTERNATIVE CRITICAL INTERSECTION LOCATIONS (Prior to Mitigation)

Table 4.5.11-3

SUMMARY OF HIGH VOLUME INTERSECTION LOCATIONS
COMPOSITE GENERAL PLANS ALTERNATIVE
(Prior to Mitigation)

Intersection	Total Entering Volume	Special At-grade Design Required	Special Grade Separated Design Required
Onsite Impacts			
Paseo Ranchero/Orange Avenue	88,400	N/A	Yes
La Media Road/Orange Avenue	103,100	N/A	Yes
Offsite Impacts			
Harvest Road/Otay Mesa Road	96,150	N/A	Yes
La Media Road/Otay Mesa Road	69,400	Yes	No
Paseo Ranchero/Otay Mesa Road	89,150	N/A	Yes
La Media Road/Airway Road	70,150	Yes	No
Paseo Ranchero/Otay Valley Road	74,550	Yes	No
Paseo Ranchero/Palm Avenue	68,700	Yes	No

See Appendix B for more information.

all of the development alternatives proposed for the site, including the Composite General Plans Alternative. A separate section of Appendix B contains a detailed discussion of policy-related mitigation measures applicable to the Otay Ranch study area and the Southbay region.

General Mitigation Measures

This section identifies the applicable measures from Appendix B which shall be applied to the Composite General Plans Alternative as required mitigation. The following table summarizes the specific and general mitigation measures from Appendix B which are specifically applied to this alternative.

Required Mitigation Measures

	Participatory	Required
Overall Measures		
• Develop Transportation Demand Management Mitigation Strategies	X	
• Prepare Transportation Phasing Plans	X	X
• Provide Parallel Arterial System	X	
• Improve Mode Split	X	
• Increase Local/Regional Trip Capture	X	
Regional Freeway System Mitigation		
• Increase Freeway Capacities	X	
Arterial Segment Mitigation		
• Increase Segment Capacities	X	
Arterial Intersection Mitigation		
• Increase Intersection Capacities	X	
Other Mitigation Strategies		
• Implement Traffic Control Strategies	X	X

Potential Transportation Demand Management Benefits

This section summarizes the potential benefits to circulation system operations with the successful implementation of Transportation Demand Management (TDM) strategies proposed by SANDAG and the Air Pollution Control District. Both of these plans would increase average vehicle occupancy (passengers per vehicle) during commute trips from the current level of less than 1.1 to at least 1.5 in the future.

SANDAG estimates that through TDM, commuting trips region-wide could be reduced by 17 percent. As a regional program, implementation of an aggressive TDM program clearly has a significant positive impact on peak hour operating LOS on the regional circulation system, when roads are usually operating at or near capacity.

Based on the modeled results using the Phase I-Progress Plan Alternative, with TDM benefits included in the model, it can be expected that the TDM policies would decrease total vehicle miles traveled (VMT) by approximately 8 percent. This reduction in traffic activity could potentially reduce both arterial and intersection impacts by one third. A peak hour analysis will be conducted on the conceptually approved plan under TDM and non-TDM conditions prior to each SPA Plan approval. This analysis will more precisely define the extent and location of impacts and identify specific mitigation measures that will be required under the selected development scenario for the Otay Ranch.

Transit System Mitigation

The proposed rail lines for the Southbay area are not included in MTDB's Long Range Rail Plan and, therefore, these lines and the supporting bus services are not funded at the present time. Otay Ranch shall contribute to the capital and operating costs associated with the new transit system. This shall be done through provisions in facility financing plans at the SPA level. Further, benefit assessment districts shall be established to fund new transit routes under MTDB Board Policy No. 40, Non Transit Funding of New Transit Services.

Summary

It is critical to note that the plans for Otay Ranch provide a comprehensive, efficient, and safe system for a variety of transportation modes. Automobile-oriented improvements do not entirely define the scope of these improvements. Rather, they are just one element of an integrated mobility system which includes bus, fixed guideway transit, carts, bicycles, pedestrian ways, and trails all linked to minimize or avoid automobile travel.

The next section details the project-specific mitigation measures to individual impacted segments and intersections identified in the impact analysis conducted for this alternative. These specific mitigation measures are defined in Appendix B and outlined below.

Project-specific Mitigation Measures

Introduction

This traffic analysis is oriented toward future traffic conditions at the full buildout of the project. However, buildout will occur over a number of years, and it will be necessary to provide an adequate transportation system for interim periods of development. The following paragraphs describe the recommendations to deal with the phasing of development and transportation improvements.

Primary regional transportation facilities which impact the project area are SR 125 and regional transit service (light rail or express bus). With these regional transportation facilities in place, it will be feasible to implement any major portion of development. If some of the development is proposed to occur before regional transportation facilities are implemented, project phasing will require that a local transportation traffic phasing analysis be conducted to identify alternative transportation mitigation measures which may be necessary.

Additional traffic analyses will be conducted to determine appropriate phasing of transportation improvements as interim phases of project development occur. As documented by the Transportation Phasing Plan (TPP) developed by Chula Vista for the Eastern Territories area, trip patterns and traffic impacts may change significantly in the course of project development. Thus, it will be important to adequately assess the impacts of the Otay Ranch Project at various phases of development. This will require the

development of a comprehensive transportation phasing program which will be coordinated with each phase of land use development. This Otay Ranch Transportation Phasing Program will be coordinated with the TPP conducted by the City of Chula Vista. The development and implementation of each SPA or village will receive a site-specific traffic impact evaluation to identify the potential impacts to the current transportation network and recommend appropriate mitigation to maintain high quality service to the local system.

Table 4.5.11-4 summarizes the required mitigation measures for network arterial segments to accommodate expected demand. Table 4.5.11-5 summarizes the required arterial intersection mitigation under this alternative. Figure 4.5.11-5 shows the location of all arterial impacts under this alternative. Impacted arterial segments are coded with letters that correspond to those in Table 4.5.11-4. Impacted intersections are coded with numbers that correspond with those found in Table 4.5.11-5.

The information shown in the mitigation figure and tables for this alternative indicates that the following facilities will require special attention during final review:

Critical East/West Roadway Facilities

- Bonita Road - I-805 to Central Avenue
- Otay Valley Road - I-805 to Oleander Avenue
- Otay Mesa Road - SR-125 to Enrico Fermi
- Orange Avenue - I-805 to SR-125

Critical North/South Roadway Facilities

- Paseo Ranchero - UEI E/W Connector #1 to Otay Mesa Road
- SR-94 - Campo Road to Proctor Valley Road

Mitigation Implementation Review

In order to clearly identify potential difficulties in implementing the recommended mitigation measures for critical offsite segment and intersections, additional research has been conducted to identify existing constraints. These existing circulation system constraints may consist of the following factors:

- Existing residential or commercial development
- Previous general plan roadway classification
- Limited ability to acquire additional rights-of-way
- Non-conformance with existing community character

Utilizing data compiled by the County of San Diego and the City of Chula Vista Public Works Departments relating to the existence of constraints on existing or planned offsite circulation facilities, JHK has prepared Table 4.5.11-6 which summarizes the anticipated difficulties which may occur if recommended mitigation measures are implemented for a given alternative. This preliminary review of potential constraints is intended to provide insight towards the feasibility of implementing a particular mitigation measure. The information provided at this General Plan level project review is also intended to provide citizens, staff, and decision-makers with adequate data on which to base project findings.

4.5.11.3 Analysis of Significance

This section provides a discussion of the analysis of significance of unmitigable impacts under the Composite General Plans Alternative. The methodology used to define the

Table 4.5.11-4

COMPOSITE GENERAL PLANS ALTERNATIVE
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED ARTERIAL SEGMENTS

SEGMENT MITIGATION			DESCRIPTION OF SEGMENT MITIGATION					
No.	Segment	From - To	Increase Segment Capacity *	Require Enhanced Intersection Capacity**	Increase Regional/ Local Trip Capture	Improve Mode Split	Level of Significance***	Comments
On-Site Network								
A.	La Media Road	S/O Orange Avenue		X (Stage 3)	X	X	1	Provide Grade Separation
B.	Orange Avenue	Hunte Parkway - Lakeshore Drive	X				1	(1) Major (4LN) - Major (6LN)
C.	UEI E/W Connector #1	Paseo Ranchero - La Media Road	X				1	(1) Major (4LN) - Prime (6LN)
AJ.	Eastlake Parkway	S/O Hunte Parkway	X				1	(1) Collector (4LN) - Major (4LN)
Off-Site Network								
D.	Bonita Road	I-805 - Plaza Bonita Road	X		X	X	2	(1) Major (4LN) - Prime (6LN)
E.	Bonita Road	Plaza Bonita Road - Willow Street	X		X	X	2	(1) Major (4LN) - Major (6LN)
F.	Bonita Road	Willow Street - Central Avenue	X		X	X	2	(1) Major (4LN) - Major (6LN)
G.	Briarwood Road	SR 54 - Sweetwater Road	X		X	X	2	(1) Collector (4LN) - Major (4LN)
H.	Cactus Road	Otay Mesa Road - SR 905	X				1	(1) Collector (4LN) - Major (4LN)
I.	Central Avenue	Bonita Road - Corral Canyon Road	X				1	(1) Local Collector (2LN) - Collector (4LN)
J.	Crest Drive	Telegraph Canyon Road - East J Street	X		X	X	1	(1) †
K.	East Beyer Boulevard	Siempre Viva Road - San Ysidro Blvd.	X				1	(1) Collector (2LN) - Major (4LN)
L.	Eastlake Drive	Corral Canyon Road - East H Street	X				1	(1) Local Collector (2LN) - Collector (3LN)
M.	Eastlake Drive	East H Street - SR 125	X		X	X	1	(1) †
N.	East H Street	I-805 - Ridgeback Road	X				1	(1) Prime (6LN) - Prime (8LN)
O.	Paseo Ranchero	Palm Avenue - Otay Mesa Road		X (Stage 3)	X	X	1	Provide Grade Separation
P.	La Media Road	SR 905 - Airway Road					1	Maximum Segment Classification
Q.	La Media Road	Airway Road - Siempre Viva Road	X				1	(1) Major (4LN) - Prime (6LN)
R.	Orange Avenue	I-805 - Oleander Avenue	X		X	X	3	(1) Prime (6LN) - Prime (8LN)
S.	Orange Avenue	Oleander Ave. - Medical Center Drive	X		X	X	2	(1) Prime (6LN) - Prime (8LN)
T.	Orange Avenue	Medical Center Dr. - Paseo Ranchero		X (Stage 3)	X	X	1	Provide Grade Separation
U.	Otay Mesa Road	Heritage Road - Cactus Road		X (Stage 3)	X	X	1	Provide Grade Separation
V.	Otay Mesa Road	SR 125 - Harvest Road	X	X (Stage 3)			1	(1) Major (4LN) - Prime (6LN)
W.	Otay Mesa Road	Harvest Road - Sanyo Road	X		X	X	3	(1) Major (4LN) - Prime (6LN)
X.	Otay Mesa Road	Sanyo Road - Enrico Fermi	X		X	X	2	(1) Major (4LN) - Prime (6LN)
Y.	Paseo Ranchero	EUI E/W Major - Otay Valley Road	X	X (Stage 1)			1	(1) Prime (6LN) - Prime (8LN)
Z.	Paseo Ranchero	Otay Valley Road - Palm Avenue	X	X (Stage 1,1)	X	X	2	(1) Prime (6LN) - Prime (8LN)
AA.	Terra Nova Road	East H Street - Rancho Del Rey Pkwy	X				1	(1) Local Collector (2LN) - Collector (4LN)
AB.	Siempre Viva Road	Heritage Road - Cactus Road			X	X	2	Maximum Segment Classification
AC.	Siempre Viva Road	SR 125 - Paseo De Los Americas	X		X	X	2	(1) Major (4LN) - Prime (6LN)

Table 4.5.11-4 (Continued)

COMPOSITE GENERAL PLANS ALTERNATIVE
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED ARTERIAL SEGMENTS

SEGMENT MITIGATION			DESCRIPTION OF SEGMENT MITIGATION					
No.	Segment	From - To	Increase Segment Capacity *	Require Enhanced Intersection Capacity**	Increase Regional/ Local Trip Capture	Improve Mode Split	Level of Significance***	Comments
Off-Site Network (Continued)								
AD.	Otay Mesa Road	Enrico Fermi - Alta Road	X				1	(1) Major (4LN) - Prime (6LN)
AE.	Siempre Viva Road	Paseo De Los Americas - Enrico Fermi	X				1	(1) Major (4LN) - Prime (6LN)
AF.	State Route 94	Campo - Proctor Valley Road	X				1	(1) Local Collector (2LN) - Major (6LN)
AG.	State Route 94	Proctor Valley Road - Millar Ranch Rd	X				1	(1) Local Collector (2LN) - Major (6LN)
AH.	State Route 94	Millar Ranch Road - Otay Lakes Road	X				1	(1) Local Collector (2LN) - Major (6LN)
AI.	Ranchero Del Rey Parkway	E/O Terra Nova Road	X				1	(1) Local Collector (2LN) - Collector (3LN)
AK.	Lakeshore Drive	Otay Lakes Road - Orange Avenue	X				1	(1) Local Collector (2LN) - Collector (4LN)

Notes:

* See Comment (1) - The description under this column details the requried change in roadway capacity and facility classification which is necessary to achieve acceptable performance on the referenced arterial segment.

**Stages of Intersection Mitigation

Stage 1 - Special At-Grade Intersection Design Required
Stage 2 - Special At-Grade or Grade Separated Intersection Design Required
Stage 3 - Grade Separated Intersection Design Required

***Level of Significance

1 - Significant and Mitigable
2 - Significant and Not Mitigable at the GDP Level Due to the Lack of Design Information
3 - Significant and Not Mitigable

† The City of Chula Vista considers the identification of this roadway segment as impacted represents an anomaly of the model; therefore, a Significant and Mitigable impact is defined for this segment.

See / x B for more information.

Table 4.5.11-5

COMPOSITE GENERAL PLANS ALTERNATIVE
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED SIGNALIZED INTERSECTIONS

INTERSECTION MITIGATION		DESCRIPTION OF INTERSECTION MITIGATION				
No.	Location	Special At-Grade Design Required	Special At-Grade or Grade Separated Design Required	Special Grade Separated Design Required	Increase Regional/ Local Trip Capture	Level of Significance*
On-Site Intersections						
1.	Paseo Ranchero/Orange Avenue			X	X	1
2.	La Media Road/Orange Avenue			X	X	1
Off-Site Intersections						
3.	Harvest Road/Otay Mesa Road			X	X	1
4.	La Media Road/Otay Mesa Road	X				1
5.	Heritage Road/Otay Mesa Road			X	X	1
6.	Paseo Ranchero/Palm Avenue	X				1
7.	La Media Road/Airway Road	X				1
8.	Paseo Ranchero/Otay Valley Road	X				1

Note:

* Level of Significance

1 - Significant and Mitigable

2 - Significant and Not Mitigable at the GDP Level Due to Lack of Design Information

3 - Significant and Not Mitigable

See Appendix B for more information

Table 4.5.11-6

MITIGATION IMPLEMENTATION REVIEW
COMPOSITE GENERAL PLANS ALTERNATIVE

Segment	From - To	Jurisdiction	Adopted Circulation Plan Class (1)	Recommended Circulation Plan Class Mitigation	Difficulty of Implementation (2)	Level of Significance (3)	Comments (4)
Off-Site Intersections							
Bonita Road	I-805 - Plaza Bonita Road	County of San Diego/ City of Chula Vista/ Caltrans	Major (4LN)	Prime (6LN)	2	2	GPA
Bonita Road	Plaza Bonita Road - Willow Street	County of San Diego/ City of Chula Vista	Major (4LN)	Major (6LN)	2	2	GPA
Bonita Road	Willow Street - Central Avenue	City of Chula Vista	Major (4LN)	Major (6LN)	2	2	GPA
Briarwood Road	SR 54 - Sweetwater Road	County of San Diego	Collector (4LN)	Major (4LN)	2	2	GPA
Orange Avenue	I-805 - Oleander Avenue	City of Chula Vista	Prime (6LN)	Prime (8LN)	3	3	GPA
Orange Avenue	Oleander Ave. - Medical Center Drive	City of Chula Vista	Prime (6LN)	Prime (8LN)	2	2	GPA
Paseo Ranchero	Otay Valley Road - Palm Avenue	City of Chula Vista/ City of San Diego	Prime (6LN)	Prime (8LN)	2	2	GPA
Siempre Viva Road	Heritage Road - Cactus Road	County of San Diego	Prime (6LN)	Prime (8LN)	2	2	GPA
Siempre Viva Road	SR 125 - Paseo De Los Americas	County of San Diego	Prime (6LN)	Prime (6LN)	2	2	GPA

Notes:

1. Adopted Circulation Plan Classification
   N/C - Not Classified as a Circulation Element Facility
2. Difficulty of Implementation
   1 - Achievable
   2 - Moderate Level of Difficulty
   3 - High Level of Difficulty
3. Level of Significance
   1 - Significant and Mitigable
   2 - Significant and Not Mitigable at the GDP Level Due to Lack of Design Information
   3 - Significant and Not Mitigable
4. Comment
   GPA - General Plan Amendment Required

See Appendix B for more information

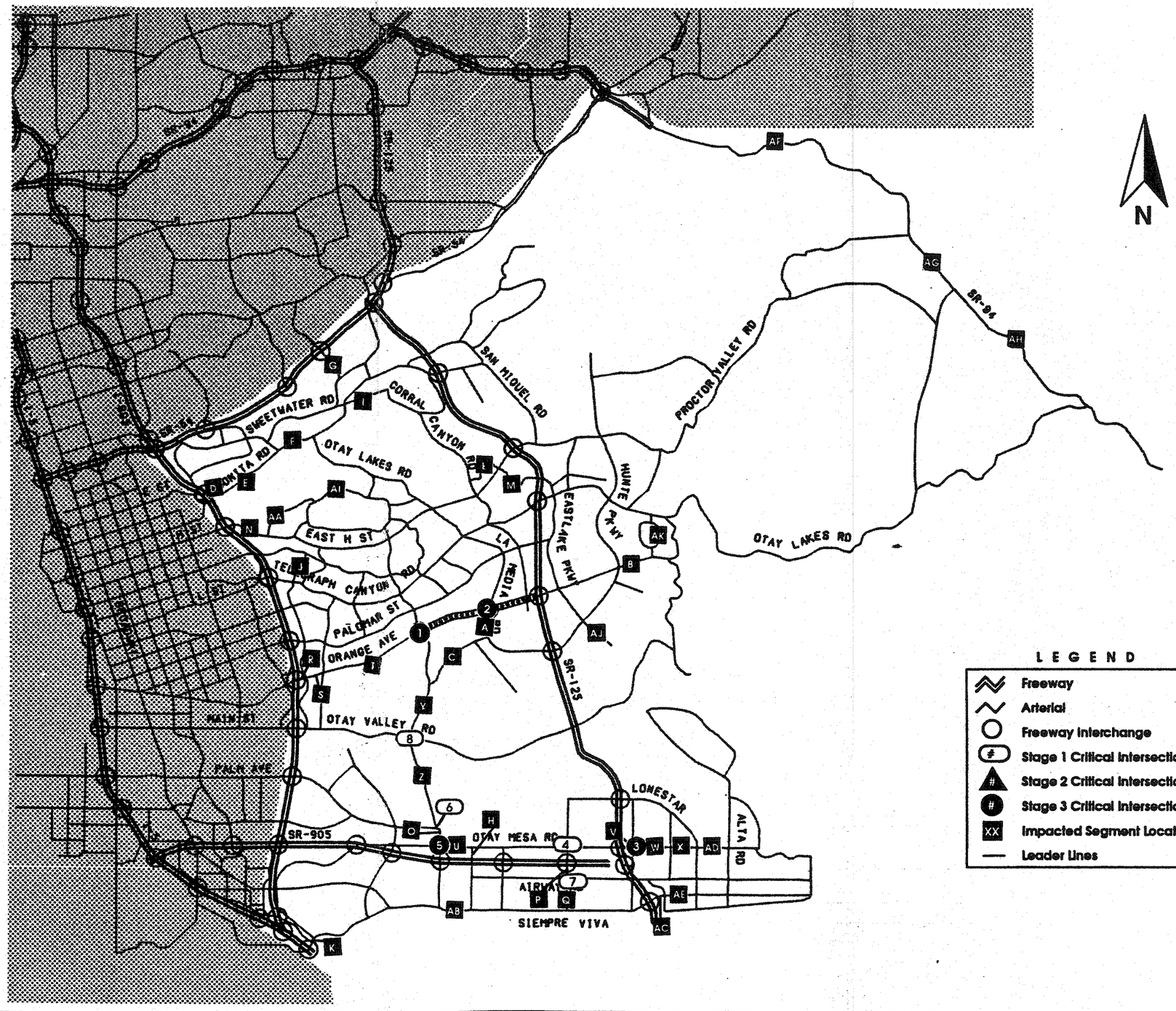

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Figure 4.5.11-5

COMPOSITE GENERAL PLANS ALTERNATIVE REQUIRED MITIGATION MEASURES

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significance of these impacts is defined in Appendix B of this document. Based on the level of significance column shown on the mitigation tables and the review of mitigation implementation tables, those impacts with Level 2 (significant and not mitigable at the GDP level due to lack of design information) or a Level 3 (significant and not mitigable) are summarized in this section.

Table 4.5.11-7 shows the remaining impacts to the study area circulation network after the implementation of the recommended mitigation measures for this alternative. This table shows that, of the 26 roadway miles that make up the onsite circulation network for this alternative and the 2.74 roadway miles (approximately 11 percent) that were impacted by this alternative before mitigation, no roadway miles would be unmitigable.

Of the 222 offsite roadway miles in this alternative circulation network, 23.50 miles (approximately 11 percent) would be impacted by this alternative. A total of 11.84 miles (approximately 5 percent) would remain significant after mitigation.

Of the 248 total roadway miles that make up the circulation network in the study area under this alternative, 26.24 miles (approximately 11 percent) would be impacted by the project. After mitigation, 11.84 miles (approximately 5 percent) would be significant. Of the eight critically impacted intersections, none would be significant after mitigation.

Figure 4.5.11-6 shows the location of the remaining circulation network impacts after mitigation.

Table 4.5.11-7

SIGNIFICANT UNMITIGABLE IMPACTS AFTER MITIGATION
STUDY AREA CIRCULATION NETWORK
COMPOSITE GENERAL PLANS ALTERNATIVE
(Offsite Impacted Roadway Miles)

Arterial Segment	From	To	Distance
Bonita Road	I-805	Central Avenue	2.75 miles
Briarwood Road	SR 54	Sweetwater Road	0.54 miles
Orange Avenue	I-805	Medical Center Drive	0.38 miles
Otay Mesa Road	Sanyo Road	Enrico Fermi	1.03 miles
Paseo Ranchero	Otay Valley Road	Palm Avenue	0.45 miles
Siempre Viva Road	Heritage Road	Cactus Road	0.51 miles
Siempre Viva Road	SR-125	Paseo De Las Americas	0.18 miles
Total Residual Impacts –	Offsite Roadway Miles		5.84 miles
	Offsite Freeway Miles		6.00 miles
Total Residual Impacts –	Study Area Circulation Network		11.84 miles

See Appendix B for more information.

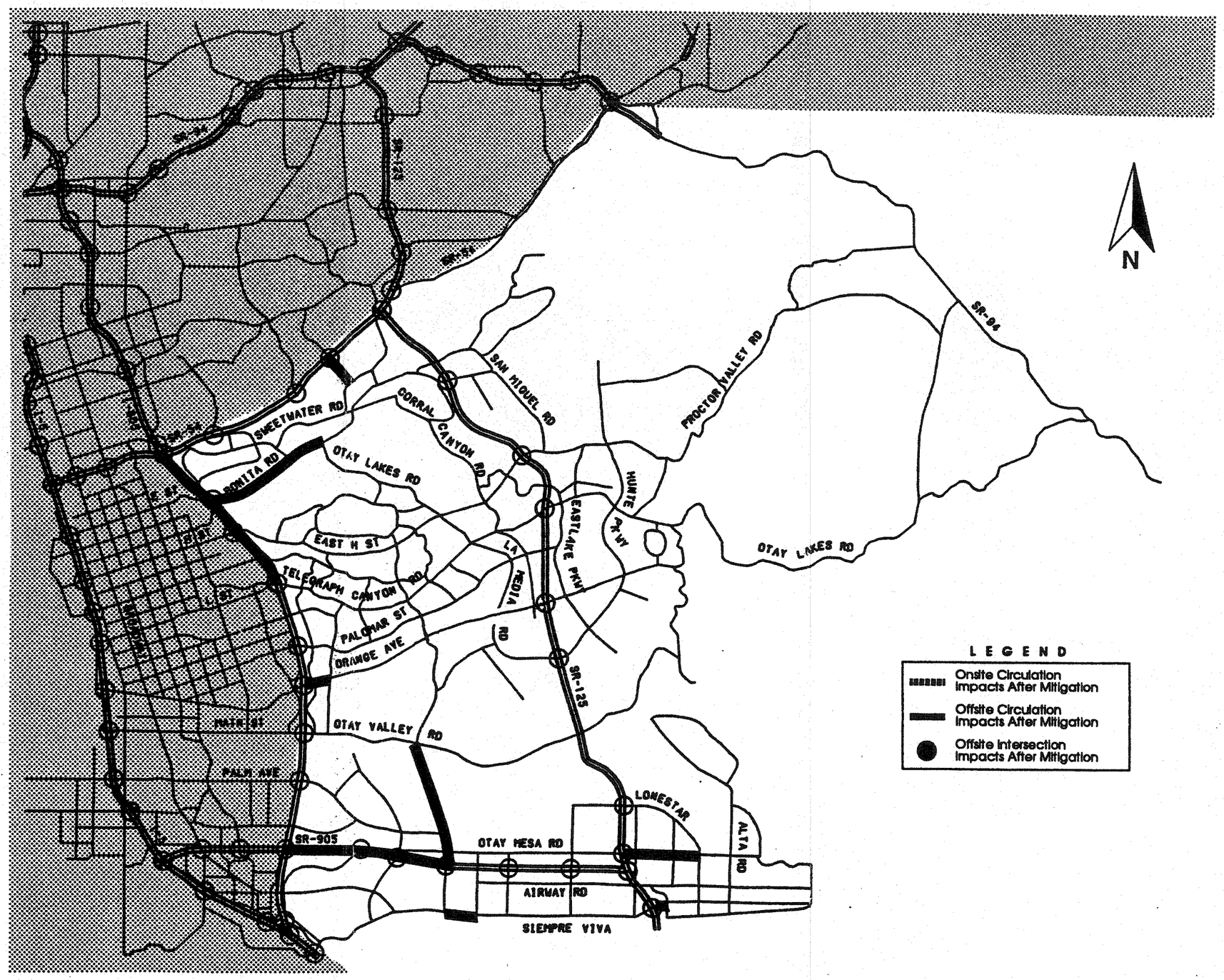

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Figure 4.5.11-6

COMPOSITE GENERAL PLANS ALTERNATIVE/LOCATION OF SIGNIFICANT IMPACTS AFTER MITIGATION

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4.5.12 Air Quality

4.5.12.1 Impact Analysis

The Composite General Plans Alternative projects a lower population increase to the area than the New Town Plan, Phase I-Progress Plan Alternative, Fourth Alternative, and Project Team Alternative. Consequently, local air quality impacts with this alternative would be lower than those under the other plans. The percentage of roads with LOS D-F is expected to be smaller than the New Town Plan and the Phase I-Progress Plan, but higher than the other alternatives (Figures 3.10-3 and 4.2.11-2). However, the lower density of this alternative precludes the development of villages and implementation of a mass transit system. As a result, residents would probably drive farther to reach employment, commercial, and recreational facilities. Since pollutant emissions are related to the trip length as well as the number of trips, this alternative may not, in fact, represent a lower air quality impact.

The SANDAG Series 7 growth projections were derived from land density assumptions contained in the general plans existing at the time Series 7 was being prepared. These general plans included the old Chula Vista General Plan of 1986, which projected a much lower density than the current (i.e., 1988) Chula Vista General Plan. Accordingly, the Composite General Plans Alternative assumes a land use density that is higher than that contained in the Series 7 growth projections (see Section 3.11.1.1 for a discussion of Series 8 projections). Therefore, the growth assumptions under this alternative are not consistent with assumptions in the RAQS, and impacts are considered to be significant.

4.5.12.2 Proposed Mitigation

The mitigation measures listed in Table 4.5.12-1 would minimize air pollution impacts.

4.5.12.3 Analysis of Significance

Assuming that growth in the remainder of the county equals or exceeds the Series 7 projections, mitigation measures (summarized in Table 4.5.12-1) applied to this alternative probably would not reduce impacts to below a level of significance.

Table 4.5.12-1 (Revised)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Construction Sources

- minimize simultaneous operation of multiple construction equipment units (i.e., phase construction to minimize impacts)
- use low pollutant-emitting construction equipment
- use electrical construction equipment as practical
- use catalytic reduction for gasoline-powered equipment
- use injection timing retard for diesel-powered equipment
- water the construction area to minimize fugitive dust
- stabilize (for example, hydroseed) graded areas as quickly as possible to minimize fugitive dust
- pave permanent roads as quickly as possible to minimize dust

Land Use Policies

- Provide neighborhood shopping and personal services adjacent to residential areas to minimize auto trips and reduce mileage travelled to service areas.
- Provide open space and recreational facilities within or adjacent to the residential areas.*
- Provide employee services within walking distance (i.e., banking, childcare, restaurants, etc.).*
- Provide a balanced mix of housing and employment possibilities to reduce trips and vehicle miles traveled.**

Siting/Design Policies

- Site-specific analysis for potentially incompatible projects (for example, a residential development near one of the quarries or the landfill) shall be reviewed in the SPA Plan.
- Provide dedicated bike lanes to encourage use of bicycles.*
- Provide bicycle storage facilities at employment and retail centers.*
- Provide shower and locker facilities at offices to encourage bicycle use.*

Table 4.5.12-1 (Revised) (Continued)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Siting/Design Policies (Continued)

- Provide sidewalks and curbs to ensure safe pedestrian travel within residential areas and to commercial centers.*
- Provide street designs that promote pedestrian safety (i.e., safe islands in center of major arterials, "Walk" signals, night lighting, etc.).*
- Orient shopping centers to promote use by mass transit (i.e., provide bus turnouts), pedestrians, and bicyclists.**
- Design parking lots to promote use of mass transit and car pools.
- Control emissions of NO_x by installing heat transfer modules on gas-fired furnaces.
- Utilize solar heating technology as practical. Generally, solar panels can be cost-effectively used to heat water for domestic use and for swimming pools. Advances in solar technology in the future may make other applications appropriate.
- Utilize low-NO_x residential and commercial water heaters.
- Enhance energy efficiency in building designs and landscaping plans.
- Minimize "drive-through" establishments to reduce emissions from idling vehicles.**
- ~~Minimize on-street parking to reduce congestion and avoid back-up and idling of vehicles.~~
- ~~Identify an environmental coordinator to be responsible for education and disseminating information on ridesharing and/or mass transit opportunities, recycling, energy conservation programs, etc.~~

Transportation-related Management Actions

The City of Chula Vista is responsible for the transportation-related management actions in which they shall coordinate these development plans with the Metropolitan Transit Development Board (MTDB).

Table 4.5.12-1 (Revised) (Continued)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Transportation-related Management Actions (Continued)

- Provide land for transit support facilities such as bus stops, park-n-ride lots, etc.*
- Provide amenities to increase convenience and attractiveness of transit stops (i.e., passenger staging areas, waiting shelters, etc.).*
- Provide minibus, jitney, or other para-transit service to provide access from residential areas to commercial areas.**
- Require major employers to provide ridesharing or mass transit incentives.
- Provide demand-responsive traffic signals.
- Achieve transit agency agreement to institute new routes or express bus service, or to expand existing service, related to the demand caused by the proposed project.**

* Measure is feasible in areas with relatively high residential densities.
** Measure is infeasible because: 1) few of these land use combinations are proposed for this alternative or 2) conflicts with village design concept.

4.5.13 Noise

4.5.13.1 Impact Analysis

Roadways

The primary noise source throughout the project area at full buildout of the Composite General Plans Alternative would be from vehicular traffic. Onsite noise impacts would occur as development is completed on Otay Ranch, whereas offsite impacts would be realized as regional traffic volumes increase due to area growth and roadway segments are widened to accommodate the increased traffic. Additional noise impacts are anticipated when existing roadways are re-aligned in accordance with planned or proposed circulation element improvements. The degree of the impact would depend on the location of the noise-sensitive receptors in relation to the roadways as well as the project design. In general, noise-sensitive receptors located along major arterials and collector streets may be impacted by sound levels exceeding 60 CNEL and result in a significant impact. Most of the vehicular traffic noise impacts identified for the other alternatives would not occur for this alternative. Noise impacts would be limited to areas west of Otay Lakes and south of Telegraph Canyon Road and Otay Lakes Road.

Offsite

Noise generated by vehicular traffic may increase the noise level at the existing sensitive receptors located along the offsite access roadways. Based on the transportation analysis in Section 4.5.11 the project-generated traffic would impact approximately 11 percent (or 23.5 miles) of the offsite roadway miles (refer to Table 4.5.11-2). The amount of noise increase is dependent on such factors as roadway design, ADT, distance from the roadway, the orientation of the usable outdoor living areas to the roadway, and intervening topography. In general, a doubling of the traffic volume would be expected to increase the sound level by 3 dBA. This is considered significant if usable outdoor living areas such as balconies, patios, children's playing areas, and swimming pools are affected. Major roadways which may impact existing residences include East H Street, Otay Valley Road, East Orange Avenue, Palomar Street, and Telegraph Canyon Road. However, there may be other smaller roadways which may cause a noise impact.

At this level of analysis, noise from onsite and offsite roadways are considered to be a significant and potentially unmitigable impact within 1250 feet of the facility. A site-specific acoustical study will be required during the SPA plan review and prior to adoption of any circulation element General Plan Amendments. The study shall provide a description of the proposed project, the existing noise environment, the future noise environment, noise impacts, and the required mitigation measures. If development within the effected area is phased in subsequent to the landfill closure, the impacts would be avoided.

Riparian vegetation is a potential habitat for the federally endangered least Bell's vireo. Elevated noise levels can potentially mask the song of the least Bell's vireo which is used to attract mates and defend territories. The San Diego Association of Governments (SANDAG) in a 1989 study (SANDAG 1989,) theoretically estimated that noise levels above 60 dBA L_{eq} in vireo breeding areas may impact the reproductive success of this species during their breeding season which occurs from March 15 to September 15. At this level of analysis, noise from roadways and construction is considered to be a significant and unmitigated impact (see Section 3.3, Biological Resources).

Rock Quarries

The Composite General Plans Alternative proposes residential land uses approximately 3000 feet to the northeast of the Nelson and Sloan Mining Operation and to the south of the Daley Quarry. Compliance with the applicable noise ordinances is the responsibility of the Nelson and Sloan Mining Operation and Daley Quarry. As discussed for the New Town Plan, calculations show that a 9300-foot buffer from the quarry property line would be required to achieve the residential noise standard of 45 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume the receiver is in direct line-of-sight with the noise source. No consideration was given to the noise attenuating effects of intervening topography. The intervening knolls and ridgelines will block sound transmission which may result in a reduced buffer area. The 45 dBA residential standard assumes that quarry operations begin prior to 7:00 a.m. Even if the Nelson and Sloan Mining Operation and Daley Quarry can comply with the applicable noise ordinances, noise at residential receptors within 9300 feet of the quarry may still be sufficiently audible to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Nelson and Sloan Mining Operation and Daley Quarry is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during the SPA Plan review. The study shall provide a description of the proposed project, the existing noise environment, the future noise environment, noise impacts, and the required mitigation measures. The study will consider the effects of intervening topography which may tend to attenuate sound.

Landfills

The Composite General Plans Alternative proposes residential development immediately to the north of the Otay Landfill and at least 1000 feet to the east. Based on a measured sound level of 72 dBA at 100 feet from the active work surface (ERCE 1991), similar operations would result in a sound level of 75 dBA at 70 feet. Based on a 70-foot reference distance, calculations show that a 1250-foot buffer from the landfill property line would be required to achieve the daytime residential noise standard of 50 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume that the receiver is in direct line-of-sight with the noise source. No consideration was given to the noise attenuating effects of intervening topography. The 50 dBA residential standard assumes that landfill operations are limited to the hours of 7:00 a.m. to 7:00 p.m. Compliance with the County of San Diego Noise Ordinance is the responsibility of the landfill operator. Even if the landfill can comply with the applicable noise ordinances, noise at residential receptors within 1250 feet of the landfill may still be sufficiently audible to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Otay Landfill is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during SPA Plan review. The study shall provide a description of the proposed project, the existing noise environment, the future acoustical environment, noise impacts, and the required mitigation measures. The study will consider the effects of intervening topography which may tend to attenuate sound.

Industrial Activities

There are numerous industrial land uses adjacent to the Otay River parcel along Otay Valley Road. Auto wrecking yards are located in this area along with other types of industrial activities. Noise associated with each industry is specific to the type of activity. The permitted sound level at an industrial property line would be the arithmetic mean of the

permitted sound level of the business and the adjacent properties zones. The result would permit higher sound levels at adjacent residences than would be permitted in a strictly residential neighborhood. Assuming that each business can comply with applicable noise ordinances, noise may still be sufficiently audible at the residential receptors to result in a significant impact. A site-specific analysis will be required during SPA Plan review. The study will provide a description of the proposed project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation measures.

Airfields

Brown Field

Brown Field is located immediately south of the Otay River parcel. The existing noise contours depicted in the Brown Field Municipal Airport Master Plan, adopted in 1978, and the more current noise contours in the updated Draft Brown Field Master Plan (unadopted), show that the project site lies outside of the 60 CNEL noise contour. Noise from Brown Field aircraft operations is not expected to cause a significant impact.

San Diego Air Sports Center

The Composite General Plans Alternative proposes to develop low density residential land uses in the vicinity of the San Diego Air Sports Center. FAA guidelines prohibit skydiving and ultralight flying over congested areas. Therefore, the plan may result in a potentially incompatible land use. Since noise contours are not currently available, this analysis assumes that residential land use within one mile of the Sports Center may be significantly impacted by aircraft noise. A site-specific analysis will be required for residential development. At this level of analysis, noise from the Air Sports Center is considered to be a significant and potentially unmitigable impact.

Regional Airport

The City of San Diego is currently studying the concept of constructing a regional/binational airport in Otay Valley south of the project site. The proposal is in the very preliminary planning stages, and potential noise impacts from the proposed airport are currently unknown.

Light Rail Transit

The San Diego Metropolitan Transit Development Board (MTDB) is currently studying the concept of constructing a light rail transit (trolley) expansion into the study area. The proposal is in the preliminary planning stages, and potential noise impacts are unknown.

4.5.13.2 Proposed Mitigation

Site-specific Noise Studies

Potentially significant noise impacts have been identified from onsite roadways, the Nelson and Sloan Mining Operation, the Daley Quarry, the Otay Landfill, the San Diego Air Sports Center, and various industrial activities in close proximity to the project site. Site-specific acoustical analyses will be required during SPA Plan review. The study will provide a description of the proposed project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation

measures. A "D" designator for noise should be created to identify areas where a site-specific study is required. The "D" designator impact area should include the following:

- All areas within 9300 feet of the Nelson and Sloan Mining Operation and Daley Quarry;
- All areas within the 60 CNEL noise contour of onsite and offsite roadways; which shall include all roadways on the Otay River parcel and all roadways assigned a future ADT of 3,000 trips or greater on the Valley and San Ysidro parcels;
- All areas within 1250 feet of the landfill;
- All areas within one mile of the San Diego Air Sports Center; and
- All areas adjacent to least Bell's vireo habitat.

Residential development within the impact area may be allowed if the site-specific noise study shows that mitigation to below the level of significance is feasible.

Potentially significant noise impacts have been identified from offsite roadways. Site-specific acoustical analyses will be required for all areas adjacent to roadways proposed for widening, realignment, and/or an upgrade in roadway classification through a General Plan Amendment.

Noise Mitigation Measures

Vehicular Traffic

Noise mitigation is required for all residential land uses located where the CNEL from vehicular traffic exceeds 60 dBA. The estimated 60 CNEL contour is located approximately 120 feet from the roadway centerline for collectors streets, 400 to 2400 feet from the roadway centerline for major and prime arterials, and over 4000 feet from the centerline of the freeways. The modeled contours are considered a worst-case condition because the roadways were modeled at grade with the surrounding area and the effects of intervening topography were not considered.

Onsite. In general, roadway noise impacts can be mitigated by setbacks, by the construction of barriers, or a combination of both. However, depending on the roadway design and surrounding topography, barriers such as noise walls and earthen berms in excess of 10 feet high may be necessary and are often not considered to be feasible or aesthetically desirable. The setback distance necessary to lower the wall height can be considerable, possibly several hundred to more than a thousand feet. Therefore, noise impacts from vehicular traffic are considered to be potentially unmitigable at residences proposed closest to the roadways. The resultant site design may result in lower residential densities.

Offsite. Mitigation of noise impacts resulting from project related vehicular traffic on offsite roadways may require construction of barriers on public or private property to mitigate exterior noise impacts, and possibly retrofitting residences with noise insulation for interior noise impacts. In areas where the residences have been built along the roadway, mitigation to below the level of significance may not be possible.

Noise from vehicular traffic and construction is considered to be a significant impact to the least Bells' vireo. In areas where major roadways are located or construction will be undertaken in close proximity to least Bell's vireo habitat, mitigation to below a level of significance may not be possible.

Rock Quarries

Noise associated with the Nelson and Sloan Mining Operation and the Daley Quarry is considered to be a significant impact. Based on the County of San Diego Noise Ordinance, sound levels from the quarries are permitted to be as high as 75 dBA Leq at the source property line. Compliance with the noise ordinance is the responsibility of the quarry operator. Sound levels were calculated to be 45 dBA Leq at approximately 9300 feet from the source property line. Mitigation of noise impacts may not be feasible at residences within 9300 feet and in direct line-of-sight of the quarry. However, mitigation may be possible as a result of intervening topography such as fills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate the impacts to below a level of significance. Residential development within 9300 feet of the quarries should be staged such that construction not take place unless the quarries have been mined-out and mining operations have ceased or noise impacts can be mitigated as demonstrated in the site-specific noise study.

Otay Landfill

Noise associated with the Otay Landfill is considered to be a significant impact. Sound levels were calculated to meet the 50 dBA Leq daytime noise standard at approximately 1250 feet from the landfill property line. Mitigation of noise impacts may not be feasible at residences within 1250 feet and in direct line-of-sight of the landfill. However, mitigation may be possible as a result of intervening topography such as hills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate the impacts to below a level of significance. Residential development within 1250 feet of the landfill should be staged such that construction not take place unless the landfill has undergone closure or noise impacts can be mitigated as demonstrated in the site-specific noise study.

San Diego Air Sports Center

Noise associated with the San Diego Air Sports Center is considered to be a significant impact. As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate impacts to below a level of significance. Residential development within one mile of the Air Sports Center should be staged such that construction not take place unless the Air Sports Center has closed or noise impacts can be mitigated as demonstrated in the site-specific noise study.

4.5.13.3 Analysis of Significance

Significant noise impacts have been identified from roadways, the Nelson and Sloan Mining Operation, the Otay Landfill, the San Diego Air Sports Center, and the various industrial activities in close proximity to the project site. Reduction of noise impacts from all of these noise sources to below a level of significance may not be feasible. At this level of analysis, noise from sources associated with buildout of the Composite General Plans Alternative are considered to be a significant and unmitigated impact.

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4.5.14 Public Services and Utilities

The public services and utilities analysis for the Composite General Plans Alternative is based on a population figure of 2.96 persons per dwelling unit (du). This figure is based on the assumption that 80.6 percent of the dwelling units would be detached single-family units, housing 3.2 persons per unit, and 19.4 percent of the dwelling units would be attached multifamily units, housing 2.55 persons per unit. Therefore, the Composite General Plans Alternative would result in the development of 20,470 homes and a population of 62,487 (Baldwin Vista 1991). The following analysis is based on the same generation/demand rates utilized in Section 3.13 for the New Town Plan.

Water Availability and Demand

Demand Generated

The total water demand for this alternative is estimated at 13.2 mgd for average day use. Water conservation measures would reduce the potable demand 121 gpd per dwelling unit, for a savings of 1.7 mgd or 13 percent. Under this alternative, it is possible the projected demand could be satisfied by expansion of the Otay Water District system in conjunction with the purchase of San Diego County Water Authority capacity. Otay Water District master planned facilities could be oversized to accommodate the areas of this Otay Ranch alternative outside the planning area. Phasing of the facilities would depend on the location of existing facilities in the Otay Water District system.

Reclaimed Water. The estimated reclaimed water demand for the Otay River parcel under the Composite General Plans Alternative is 1.20 mgd. Under this alternative, reclaimed water would be provided through an extension of facilities currently being used by the OWD. The phasing of these facilities would generally be north to south on the Otay River parcel. Expansion of the OWD's treatment plant would be required to meet this projected demand (Baldwin Vista 1991).

Significant impacts would occur under the Composite General Plans Alternative similar to the proposed project. These impacts include the unanswered question of which water jurisdiction will ultimately serve the project, the provision of facilities sufficient to serve the project, and the issues of water reclamation future water availability. Due to the lack of detailed development and facility plans at this time, the Composite General Plans Alternative would require further environmental review at the SPA Plan level similar to the proposed project.

Policy Consequences

No policy inconsistences would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- Annexation of land to the appropriate water jurisdiction.
- The preparation of a Water Master Plan in accordance with the standards of the appropriate water jurisdiction.
- Written verification from the water district that water will be adequately provided.

Wastewater and Sewer Service

Demand Generated

The total sewage generation for this alternative is estimated at 6.6 mgd for average flows This alternative would provide gravity flow through Poggi and Telegraph Canyon drainage basins. The estimated flow from the Poggi and Telegraph Canyon drainage basins is 1.45 mgd. Under this alternative, 4.2 million gpd of wastewater flow would be conveyed to the Otay River Valley. Due to the low sewage flows projected and the low reclaimed water demand, it is recommended that future flows outside Poggi and Telegraph Canyon be conveyed to the City of San Diego's Otay River Valley Interceptor. Less capacity in the wastewater treatment facility would be required than for the New Town Plan. Local conveyance facilities would be required to serve this alternative. Phasing would require construction on the Otay River parcel to develop the downstream facilities necessary for eastern parcel development.

Significant wastewater and sewer service impacts would occur under the Composite General Plans Alternative similar to the proposed project. These impacts include the unanswered questions of which sewer jurisdiction would serve the project, where the project's wastewater would be treated, and how facilities would be funded. Further environmental review at the SPA Plan level would be required under this alternative, similar to the proposed project, to ensure that adequate facilities are provided.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- Annexation of land to the appropriate sewer jurisdiction.
- The preparation of a Sewer Master Plan by the project applicant in accordance with the standards of the appropriate sewer jurisdiction.
- Written verification from the sewer district that sewer service will be adequately provided.

Integrated Waste Management

Demand Generated

The approximate total waste generation for the Composite General Plans Alternative is estimated at 156 tpd, or 56,940 tpy. Through the use of integrated waste management techniques, it is anticipated that the amount of waste which would ultimately require landfill disposal would be approximately 78 tpd or 28,470 tpy resulting in potentially significant impacts to solid waste management in South County. This alternative would require an integrated waste management system similar to the proposed project, although the MRF and composting facility may be scaled back to serve the projected demand. Further environmental analysis of this issue would be required at the SPA Plan level.

Policy Consequences

No policy inconsistences would occur under this alternative.

Proposed Mitigation

Mitigation measures required under the Composite General Plans Alternative include the preparation of an Integrated Waste Management Program by the project applicant, ~~and~~ the project's participation in this program during all phases of SPA development, and compliance with County and City programs and regulations concerning long-term solid waste capacity.

Police Protection

Demand Generated

The Composite General Plans Alternative would result in a demand for 86 law enforcement personnel and 17,628 square feet of office space. To serve the population generated under this alternative, a 12,415-square-foot police station may be located in the EUC to act as a sub-station for the designated jurisdiction. It is also possible that the size of existing or planned law enforcement facilities would be increased to provide an adequate level of service.

Due to the fact that detailed development and facility plans are not available at this time, the project-specific impacts of the Composite General Plans Alternative cannot be determined. Further environmental review would be required at the SPA Plan level, similar to the proposed project, to ensure adequate facilities and staff are available to serve the project. At this stage of review, it has been determined that the unresolved issues with respect to the provision and funding of services and facilities constitute significant impacts.

Policy Consequences

Crime deterrence through utilization of land use and site design techniques may be more difficult to obtain under this plan. The eastern portion of the property would lack the intensity required for urban levels of service. Therefore, a larger portion of the property would be served by a rural response time standard.

Proposed Mitigation

Mitigation measures required prior to the approval of any SPA Plan under the alternative include:

- The preparation of a comprehensive Law Enforcement Master Plan by the project applicant in accordance with the standards of the appropriate service provider.

Fire Protection and Emergency Medical Service

Demand Generated

The Composite General Plans Alternative would require three fire protection facilities and one emergency services facility.

The Composite General Plans alternative would result in potentially significant impacts to the provision of fire protection and emergency medical service. This determination has been made due to the current lack of detailed development and facility plans which would be made available during the SPA Plan review process. Further environmental review of fire protection service would be required at the SPA Plan level to ensure adequate facilities and staff are provided to serve the project.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to any SPA Plan approval under this alternative include the preparation of a comprehensive Fire Master Plan by the project applicant in accordance with the appropriate service provider. The master plan shall demonstrate that City of Chula Vista/County of San Diego emergency response times are achieved and shall include provisions for emergency medical service.

Schools

Demand Generated

The estimated 62,487 total population under the Composite General Plans Alternative would generate demand for facilities necessary to serve 12,303 students. Approximately 13 schools on approximately 210 acres of land would be required.

This alternative proposes seven elementary school sites, a single junior high school site, and a high school site. The 9 school sites proposed would not be considered adequate to serve this alternative.

The lack of detailed development and facility plans at this stage of analysis make it difficult to determine the project-specific impacts on schools. Further environmental review is required prior to SPA Plan approval to ensure the adequate provision of school facilities. Until that time, this alternative is considered to have potentially significant impacts on schools.

Policy Consequences

Both the County of San Diego and the City of Chula Vista identify joint planning and siting of schools with other related public facilities as a planning objective. The population in this alternative would not generate sufficient demand to warrant integration of school facilities with social, health, and/or day care programs. Co-location of complementing services would be difficult to realize due to decreased population demand for multiple services; therefore, the joint planning and siting objective would not be met under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include the preparation of a Schools Master Plan by the project applicant in close coordination with the affected school districts. The master plan must demonstrate that school district capacity goals will be not exceeded during buildout of SPA Plans. The project applicant shall also provide documentation to the appropriate jurisdiction confirming school district satisfaction of facility funding. Details on the master plan contents are contained in Section 3.13.7.3.

Library Service

Demand Generated

The estimated 62,487 total population under the Composite General Plans Alternative would generate a demand for 31,244 square feet of library space. The population distribution indicates the following geographic demand:

• Otay River Parcel	25,824 acres
• Proctor Valley Parcel	3,197 acres
• San Ysidro Parcel	2,223 acres
Total Otay Ranch	31,244 acres

An additional 187,461 books would be required for the residents of Otay Ranch under this alternative.

One 31,244-square-foot branch library to be located in the EUC is proposed under this alternative. This library would be a branch library of an existing library system or be operated in cooperation with an educational institution, if an educational institution locates within Otay Ranch.

Although a total of 31,244 square feet of library space is proposed under the Composite General Plans Alternative, the lack of detailed development and facility plans at this stage of analysis make it difficult to determine the project-specific impacts on libraries. Further environmental review would be required prior to SPA Plan level, similar to the proposed project, to ensure adequate facilities and staff would be available to serve the proposed project. At this stage of review, it has been determined that the unresolved issues with respect to the provision and funding of services and facilities constitute significant impacts.

Policy Consequences

The County of San Diego's Public Facility Element for library service identifies the following factors for the siting of libraries (Implementation Measure 3.1.3):

- Access to the intended service population;
- Availability of the property;
- Existing library deficiency in intended service area;
- Suitability of site to meet identified needs; and
- Location of the site relative to complementary facilities, such as schools, parks, and civic centers.

The Composite General Plans Alternative may disperse the populations in such a way as to decrease access to library service by the intended service population which would conflict with the objectives outlined above.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- The preparation of a Library Master Plan by the project applicant in accordance with the criteria of the applicable jurisdiction.

Parks, Recreation, and Open Space

Demand Generated

Under the Composite General Plans alternative, the demand for neighborhood and community parks would be 188 acres, and regional park demand would be 937 acres; resulting in a total demand for 1125 acres of parkland. Table 4.5.1 indicates that a total of 772 acres of parkland would be provided under this alternative, resulting in a shortfall of 353 acres.

As proposed, community and neighborhood parks are distributed throughout the Otay River Parcel. The undeveloped 4,311 acres of this alternative, located on the Otay River Parcel would be left as open space. This alternative does not preserve open space in the eastern parcels. A greenbelt trail system is proposed under the City of Chula Vista General Plan through the Otay River Valley, the Salt Creek drainage, and up to the southern shore of Lower Otay Lake. No trail system is proposed beyond the lake under the County General Plan. Plans for the Otay Valley Regional Park would continue evolving and be implemented during buildout.

Adequate park acreage is proposed to be provided under this alternative, however, the lack of detailed development and facility plans at this stage of analysis make the full extent of this alternative's impact on parks, recreation, and open space difficult to determine. Further environmental review would be required prior to SPA Plan approval to ensure the provision of adequate parks, recreation, and open space. Until that time, this alternative is considered to have potentially significant impacts on parks, recreation and open space with respect to siting, funding and phasing.

Policy Consequences

The County's Public Facility Element for Parks and Recreation calls for the collocation of local and regional parks with other public facilities such as schools, parks, and other public lands when appropriate (Implementation Measure 3.2.1). This may be difficult to realize under the Composite General Plans Alternative due to the proposed distribution of development.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval include the preparation of a Parks, Recreation and Open Space Master Plan by the project applicant in accordance with applicable standards for parkland acreage and recreation facilities. Dedication of land in accordance with requirements or payment of fees in lieu of dedication would mitigate any impacts to below a level of significance.

Electricity and Gas

Demand Generated

Additional substations and associated distribution lines would be required to serve development under the Composite General Plan Alternative; placement of these facilities and associated impacts would be determined at the SPA Plan level.

SDG&E does not anticipate any significant impacts associated with the provision of electric and gas facilities for Otay Ranch, provided the following mitigation measures are implemented.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

- The project applicant shall work with SDG&E during all stages of electrical and gas facilities planning to minimize disturbance to sensitive resources (EIR proposed).

- Land uses adjacent to the SDG&E transmission lines shall be subject to review and comment by SDG&E (EIR proposed).

Health and Medical Facilities

Demand Generated

Based on the same methodology utilized in Section 3.13.11, it was estimated that the following health and medical facilities would be required under the Composite General Plans Alternative:

- 2 99-bed nursing homes
- 4 public and private community meeting spaces
- 106 commercial physician, dentist, chiropractic, mental health, therapeutic, laboratory, and medical services and supply offices
- 1 public health office
- 1 commercial home health care office
- 2 ambulatory pavilions

Policy Consequences

This alternative recommends that public health services for the residents of Otay Ranch be provided offsite. Satellite offices for public services and small scale village medical services are not proposed under this alternative, reducing the opportunities for collocation. Adequate alternate transportation may not exist within Otay Ranch under this alternative, resulting in limited access to offsite medical service providers. This alternative therefore conflicts with the county's Public Facility Element for health services resulting in a potentially significant impact.

Proposed Mitigation

Mitigation measures under this alternative include the involvement of appropriate governmental agencies and service providers during all stages of planning. Specific needs and siting of appropriate facilities shall be identified by the project applicant in cooperation with health care providers prior to SPA Plan approval.

Senior and Social Service Facilities

Demand Generated

Although there are currently no statutory requirements for the provision of senior and social services, it is expected that development of the proposed project would have potentially significant impacts on the provision of these services as the proportion of the population over the age of sixty continues to increase and the demand for social services in the region continues to grow.

Policy Consequences

Under this alternative, fewer onsite services would be available to the residents of the proposed project and the collocation of services would be less likely.

Proposed Mitigation

Mitigation measures under this alternative include the involvement of appropriate governmental agencies and service providers during all stages of planning. Specific needs and siting of appropriate facilities shall be identified by the project applicant in cooperation with health care providers prior to SPA Plan approval.

Cemeteries

Demand Generated

The Composite General Plans Alternative would not generate enough demand to warrant the development of cemetery facilities, and existing facilities would be adequate; thus, no impacts would occur and not mitigation would be required.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Child Care

Demand Generated

The estimated population of 62,487 residents would generate a demand for 2,494 formal child care slots. It is estimated that 52 percent of needed child care would be provided by large group facilities with an average capacity of 90 children. Therefore, the Composite General Plans Alternative would generate a demand for fourteen 90-slot child care facilities.

Although there are currently no mandated requirements for the provision of child care facilities, the development of the proposed project is expected to have significant impacts on the provision of these services as the population increases in the project area. Further

environmental review of this issue is required at the SPA Plan level to ensure that adequate child care facilities are available to serve Otay Ranch.

Policy Consequences

The overall lower demand for child care may limit the child care options available, such as workplace and family co-op child care. The potential for collocation or sharing of facilities with shopping areas, neighborhood centers, schools, and parks may be difficult to achieve under this alternative.

Proposed Mitigation

Mitigation measures include the provision of child care facilities by the project applicant as deemed necessary during the policy development process.

Animal Control

Demand Generated

The additional population in the south county area generated by the development under the Composite General Plans Alternative would increase the demand for animal control facilities, resulting in a potentially significant impact.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures require the project applicant participate in programs to equitably share the funding of animal control facilities and designate animal control facilities sufficient to provide adequate square feet of shelter space per dwelling unit to the satisfaction of the appropriate jurisdiction.

4.5.14.2 Analysis of Significance

At this level of analysis, impacts from the development of 20,470 homes and a population of 62,487 under the Composite General Plans Alternative would be considered significant to the provision of public services and utilities. Implementation of the measures outlined above at the SPA Plan level would mitigate project-specific impacts to below a level of significance.

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4.5.15 Risk of Upset

4.5.15.1 Impact Analysis

The potential risks of upset associated with the Composite General Plans Alternative would be similar to the risks associated with the New Town Plan. Soils contaminated with petroleum hydrocarbons and pesticides have been identified in the area of the ranch operations center on the Otay River parcel (Woodward-Clyde 1989). The Composite General Plans Alternative proposes low density residential development and and the EUC in the area of the ranch operations center; therefore, the potential exists for exposure to contaminated material in excess of State of California standards.

The area in the southern part of the Otay River parcel, previously used as the Brown Field Bombing Range, would be used as a park under this alternative. There is potential danger of an accident occurring due to disturbance of any unexploded ordnance in this area.

The areas adjacent to the Otay Landfill would be used for research and development, low density residential, and open space. The potential exists for exposure to contaminated material in these areas resulting from previous use of the landfill for hazardous waste disposal. Potential air quality and noise impacts associated with the existing landfill operation are addressed in Sections 4.2.12 and 4.2.13, respectively.

4.5.15.2 Proposed Mitigation

The mitigation measures proposed for the New Town Plan (Section 3.14.3) would also be applicable to the Composite General Plans Alternative. These measures include:

1. Soil and ground-water testing shall occur in the ranch operations center area potentially affected by the previous disposal of hazardous waste or historic pesticide use. The purpose of the testing shall be to identify areas of contamination in excess of federal and state standards. Should areas of excess contamination be identified, remediation shall occur prior to residential development. (EIR proposed.)

2. The applicant shall notify prospective buyers and the California Department of Health Services (DHS) as required, regarding their intention to develop the area adjacent to the Otay Landfill. (EIR proposed.)

3. A survey shall be conducted of the Brown Field Bombing Range by the Army to identify the presence of any unexploded ammunition. Should unexploded ordnance be located on the property, appropriate measures shall be taken for removal of the material. (EIR proposed.)

4. The transport of hazardous waste on existing and future roadways shall be conducted in accordance with the California Code of Regulations (CCR) and the Code of Federal Resolution (CFR). These regulations identify Department of Transportation (DOT) approved methods for packaging and containerizing hazardous waste and site appropriate options and procedures relative to the handling and transportation of these wastes. (EIR proposed.)

4.5.15.3 Analysis of Significance

Implementation of the measures identified above would mitigate health risks to below a level of significance.

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4.6 LOW DENSITY ALTERNATIVE

4.6.1 Description

Adoption of this alternative would result in 7,423 acres of residential development and allow for a maximum of 10,287 dwelling units at an overall density of 0.44 du/ac. The local population would increase by approximately 32,544 residents upon buildout of the Low Density Alternative (Table 4.6-1). Approximately 87.9 percent of the new units would be single-family, while the remaining 12.1 percent would be multifamily units. This alternative emphasizes single-family residential and represents the second lowest development density of the project alternatives evaluated in this document.

In comparison to the eastern parcels, residential densities would be higher on the Otay River parcel (Figure 4.6-1) and would result in an average net density of 3.06 du/ac. Moderate density residential would be situated in the center of the Otay River parcel and in the vicinity of the freeway. A majority of the peripheral residential areas would feature low density development (up to 3 du/ac). No land would be dedicated to medium-high or high density residential use anywhere onsite and no residences would be situated in the Eastern Urban Center. Residential areas throughout the Proctor Valley parcel would be characterized by large lots (1 to 2 acres), slightly decreasing in size in the vicinity of Jamul (1 to 4 acre minimums). This same pattern of large residential lots would be present above the northern shore of Lower Otay Lake, resulting in an average net density across the parcel of 0.53 du/ac. The San Ysidro parcel would also feature rural, large lot residential development under this alternative (at an average net density of 0.29 du/ac). The fundamental difference between this land use pattern and the New Town Plan, Phase I-Progress Plan, Fourth and Project Team alternatives is that the residential areas would not be arranged in villages. The densities would be too low to make such an arrangement feasible.

Commercial and industrial land uses are reduced in size under this alternative compared to other alternatives and represent approximately 911 acres of the development on the property. A majority of the commercial acreage is contained in the Eastern Urban Center, near the center of the Otay River parcel. The remaining commercial acreage is distributed among several small areas across the Otay River parcel and at a single location within the Proctor Valley and San Ysidro parcels. In addition to the industrial lands on Otay Mesa, limited manufacturing uses are planned in the vicinity of the industrial area along Otay Valley Road near the landfill. The research and development uses would occur in the center of the Otay River parcel, near the East Orange Avenue interchange with SR-125. The remaining non-residential acreage would be devoted to schools, parks, and other public/quasi-public facilities. The Low Density Alternative proposes five elementary school sites and one junior high school site on the Otay River parcel. A high school site is proposed on the property currently occupied by the FAA. No school acreage is planned for the eastern parcels. Seven neighborhood parks and three community parks are planned under this alternative, a majority of which would be located on the Otay River parcel.

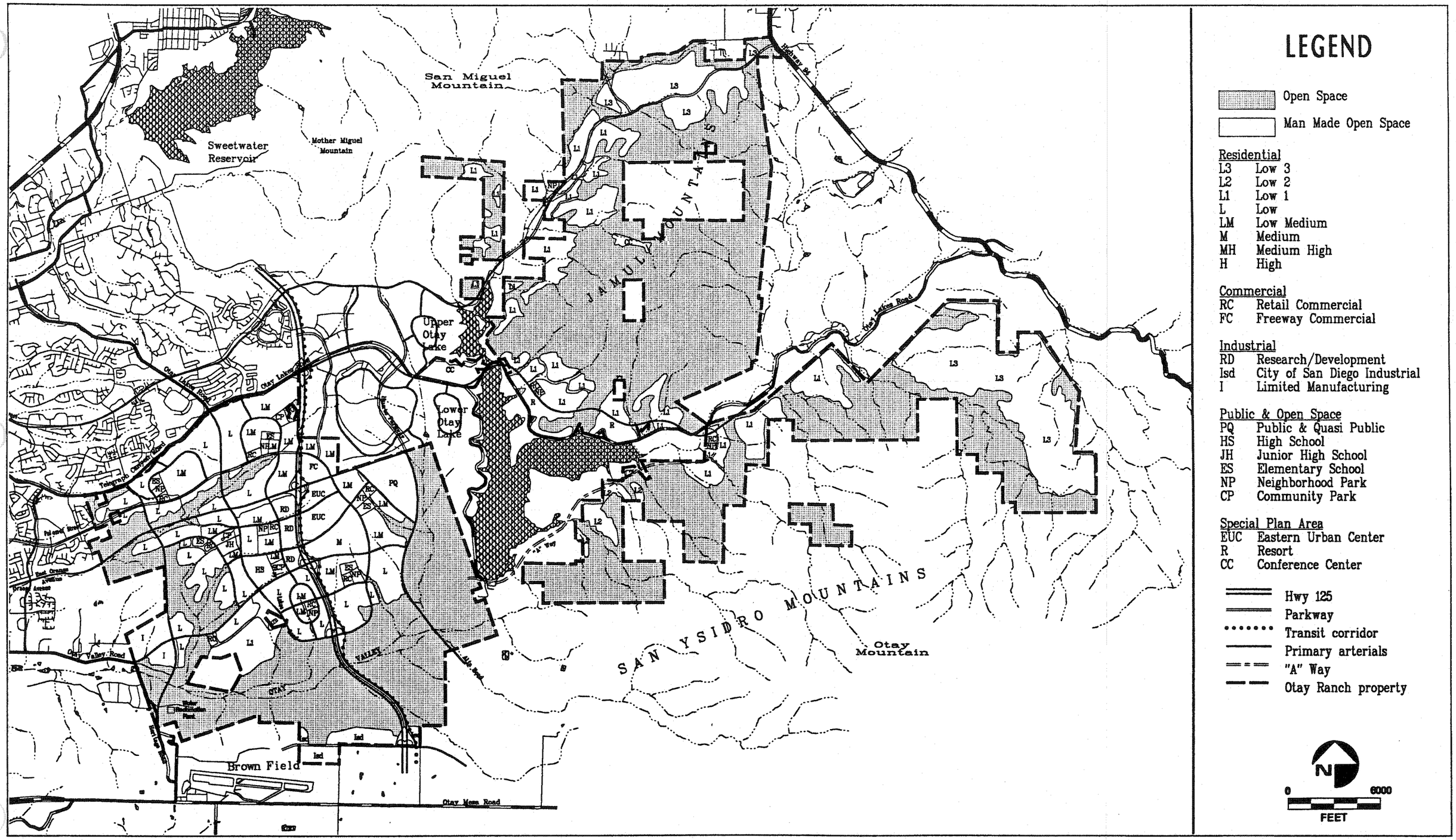
Along with the Eastern Urban Center, the Proctor Valley resort and conference center are identified as special plan areas for future planning studies. As under other project alternatives, the resort would be located along the northern shore of Lower Otay Lake. Two conference center locations are identified, a smaller one in a narrow drainage of the Jamul Mountains and a second on the property of the Ranch House. The smaller site is the same conference center location proposed in the New Town Plan, Project Team, Fourth, and Environmental alternatives. In addition, a 213-acre site for a community college or private university is identified near the Salt Creek open space.

Table 4.6-1

LAND USE STATISTICS FOR LOW DENSITY ALTERNATIVE

Land Use Designation	Residential Density (du/ac)	Otay River Parcel Acres	Otay River Parcel Dwelling Units	Proctor Valley Parcel Acres	Proctor Valley Parcel Dwelling Units	San Ysidro Parcel Acres	San Ysidro Parcel Dwelling Units	Otay Ranch Total Acres	Otay Ranch Total Dwelling Units
RESIDENTIAL									
Low	0 to 3	2,086	3,186	1,871	1,013	2,112	681	6,069	4,880
Low Medium	3 to 6	1,163	4,158	--		--		1,163	4,158
Medium	6 to 11	191	1,249	--		--		191	1,249
Medium High	11 to 18	--		--		--		--	
High	18-27	--		--		--		--	
Total Residential		3,440	8,593	1,871	1,013	2,112	681	7,423	10,287
COMMERCIAL									
Freeway		63		--		--		63	
Retail		86		17		12		115	
INDUSTRIAL									
Limited Manufacturing		385		--		--		385	
Research Industrial		140		--		--		140	
PUBLIC/QUASI-PUBLIC									
Public Facilities/Schools		191		--		--		191	
University Site		213		--		--		213	
PARKS/SQUARES		138		19		7		164	
EASTERN URBAN CENTER									
Retail Commercial		208		--		--		208	
RESORT		--		203		--		203	
CONFERENCE CENTER		--		160		--		160	
OPEN SPACE									
Natural		4,448		5,588		3,421		13,457	
Manufactured		215		57		3		275	
FREEWAY		91		--		--		91	
TOTALS		9,618	8,593	7,915	1,013	5,555	681	23,088	10,287

Source: Robert Bein, William Frost & Associates, Project Team Land Use Alternatives - Otay Ranch, 1990; as revised by Ogden 1992.



OGDEN

Low Density Alternative

FIGURE 4.6-1

The remaining undeveloped portion of the Low Density Alternative, 13,457 acres, would be dedicated to natural open space. The open space system would link the Otay River Valley, San Ysidro mountain area, and the Jamul Mountains. As in the other project alternatives, a greenbelt system between the developed areas is proposed to connect the natural areas with the local park facilities and residential areas, and a trail system travels throughout the open space. No resource management plan would be adopted to protect the resources within natural open space, since the lower densities would not make such a plan feasible. Instead, the County's Multiple Species, Wildlife, and Open Space Plan would protect the resources of Otay Ranch.

The circulation system of the Low Density Alternative would be composed of primary and major roadways interconnected with smaller collector streets. Three Otay River Valley crossings are planned and include SR-125, Hunte Parkway, and Heritage Roadway. The eastern extensions of Telegraph Canyon, Orange Avenue, and Otay Valley Road would form interchanges with the freeway on the Otay Ranch property. Otay Lakes Road would be realigned to a more northerly location, while the segment along the lakeshore would be dedicated to pedestrian use through the resort. An access road around the southern tip of Lower Otay Lake, "A" Way, is preliminarily proposed if traffic analyses indicate that it is necessary for local circulation. The transit corridor would strictly parallel the freeway the entire length through the Otay River parcel, rather than traversing through residential, commercial, and industrial lands.

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4.6.2 Land Use, Planning, and Zoning

4.6.2.1 Impact Analysis

The Low Density Alternative would result in a significant change in the character of the site from open space to urban and semi-rural land. Potentially significant land use incompatibilities could occur due to proposed residential development adjacent to the landfill, onsite industrially-designated areas, the Nelson and Sloan quarry, the San Diego Air Sports Center, SR-125, and the Daley quarry site and due to public and/or quasi-public land uses proposed near residential areas of EastLake. Impacts to adjacent rural lands may occur indirectly due to growth induced by the extension of infrastructure and the Urban Limit Line (see Section 7, Growth Inducement).

This alternative would be consistent with both the City of Chula Vista's goal to develop the Eastern Territories primarily with low-medium density residential development (since the alternative proposes only 5 percent of the residential acreage in the Otay River parcel to be devoted to medium density residential development) and with county policies to preserve the rural atmosphere of existing rural county lands. Neither the Proctor Valley parcel nor the San Ysidro parcel would be developed with densities of residential development greater than low density (i.e., 0.5-1 du/ac). ~~In addition, n~~ The alternative is not consistent, however, with the City of Chula Vista's goal for a four-year college or university campus in the Eastern Territories. The alternative designates only 213 acres for such a use and it is not surrounded by the appropriate supporting land use designations (such as high density residential or industrial park). No significant policy inconsistencies with City of San Diego industrial policies would occur with this alternative.

This alternative does propose development within several of the county's Resource Conservation Areas (RCAs). While development is not prohibited by the county within its RCAs, the overlay requires that special attention be given to avoiding impacts to sensitive resources. The same special consideration should be required by the new Subregional Plan for the area to preserve the intent of the county RCAs to protect sensitive resources.

4.6.2.2 Proposed Mitigation

Mitigation for land use impacts of the Low Density Alternative are required at the GDP/Subregional Plan level and will be implemented at the SPA level including: the implementation of landscaping, grading, buffering, and/or phasing guidelines to be contained in the various SPA plans for areas of the project near EastLake Greens, areas onsite where industrially-designated land is adjacent to residentially-designated land, and the Otay Landfill; coordination with the FAA and implementation of their required measures to avoid impacts to the San Diego Air Sports Center (through the year 2002); mitigation as described in the noise section for areas near the Nelson and Sloan and Daley quarries; and the addition of overlays or other restrictions on the Subregional Plan map (or an adopted RCA map) to protect biological, cultural, and scenic resources currently protected by county RCAs. (Refer to Section 3.1.3 for more details on the above mitigation.)

4.6.2.3 Analysis of Significance

The Low Density Alternative would significantly change the character of the site from open space to urban and semi-rural land, especially in or adjacent to Jamul, Proctor Valley, Lower Otay Lake and the San Ysidro Mountains, and is not consistent with the City of Chula Vista's plans for a four-year college or university.

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4.6.3 Landform Alteration/Aesthetics

4.6.3.1 Impact Analysis

Proposed residential densities along Proctor Valley Road, in the southwestern part of the San Ysidro parcel, and along Otay Lakes Road between Lower Otay Lake and Highway 94 would be low (i.e., 1 to 2 du/ac) under the Low Density Alternative. The potential for visual impacts of landform alteration and development is still considered significant because the alteration in natural terrain would be an obvious result of the development. Although the majority of the landform disturbance would be on slopes less than 15 percent, development and grading would encroach into some of they steep slopes within central Proctor Valley, northern Otay River Valley, and eastern San Ysidro parcel. Other potentially significant visual impacts that may occur if this alternative is selected are: an unavoidable change in the existing visual character of the site as a result of development and long-term visual impacts of grading on the visually prominent mesa northeast of Lower Otay Lake. Night lighting impacts would be less than significant since the project would have to comply with the county's Dark Sky Ordinance or similar city ordinances.

4.6.3.2 Proposed Mitigation

No mitigation will eliminate the effects of site development on visual resources. Measures to reduce the impacts of development on sensitive views, such as setting height limits, use of setbacks, stepping of building pads in slope areas, and restricting development to level terrain are available and described in detail in Section 3.2.3. The lower residential densities shall increase the opportunities for dispersed development on large lots. Due to the low densities of development proposed for the southwestern corner of the San Ysidro parcel, visual impacts there may be mitigable below levels of significance through careful site, building, and landscape design that restricts development to lower elevations away from steep slopes.

4.6.3.3 Analysis of Significance

Upon implementation of the mitigation measures identified above, significant impacts to landforms on the property and views around Lower Otay Lake (due to development of the northeastern mesa) would be reduced to below a level of significance. Impacts associated with the change in visual character of the site would remain unmitigable.

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4.6.4 Biological Resources

4.6.4.1 Impact Analysis

Reduction of Vegetative Communities/Habitats

The Low Density Alternative would reduce existing open space overall by an estimated 42 percent (9,631 acres). Open space would be reduced by approximately 54 percent (5,170 acres) in the Otay River parcel, 29 percent (2,329 acres) in the Proctor Valley parcel, and 38 percent (2,134 acres) in the San Ysidro parcel. These are general estimates that would be further refined at the SPA level of analysis.

Reduction of Sensitive Habitats

The Low Density Alternative would reduce sensitive coastal sage scrub habitats by an estimated 32 percent; the exact acreages of sensitive habitats impacted were not calculated. The impact to coastal sage scrub and maritime succulent scrub habitats would be significant. Significant impacts would also occur to undisturbed and disturbed valley needlegrass grassland habitats which are reduced by an estimated 65 percent. Wetland habitats would be reduced by approximately 5 to 10 percent (probably less than 9 percent); this impact would be considered significant. Industrial development in the southern portion of J31+ on Otay Mesa and in Proctor Valley particularly the R2 complex would significantly impact vernal pool habitat (less than 8 percent). Sensitive woodlands including southern live oak riparian forest, southern interior cypress forest, and sycamore alluvial woodland would be impacted significantly by the Low Density Alternative.

Reduction of Sensitive Plants

The Low Density Alternative would significantly impact four of nine state or federally-listed threatened/endangered plant species found onsite. A fifth species could be indirectly impacted by development.

San Diego Thorn-mint (*Acanthomintha ilicifolia*)

The two populations found on Otay Ranch would be lost to development in the Proctor Valley parcel near Lower Otay Lake. This 100 percent reduction would be considered a significant impact.

Dunn's Mariposa Lily (*Calochortus dunnii*)

Two of 16 (12.5 percent) points of occurrence would be impacted. This would be considered a significant impact.

San Diego Button-celery (*Eryngium aristulatum* var. *parishii*)

An estimated 10 (7 percent) of the vernal pools supporting populations of this species would be developed by the Low Density Alternative. This would be a significant impact to San Diego button-celery.

Otay Tarweed (*Hemizonia conjugens*)

Impacts to this species could occur at Poggi Canyon, Wolf Canyon, the northwest end of Salt Creek and in the disjunct parcel north of Upper Otay Lake. A total of 23 percent of

points of occurrence would be impacted by the Low Density Alternative. These impacts would be significant.

Willowy Monardella (*Monardella linoides* ssp. *viminea*)

This species would not be affected directly by implementation of the Low Density Alternative. Development of the canyon at the west end of the San Ysidro parcel could indirectly impact this species. Alterations in the amount of water input to the canyon and disturbance from human activities could pose a significant threat to the continued survival of this population.

The following high priority species would not be significantly affected by the Low Density Alternative:

Slender-pod Caulanthus	(*Caulanthus stenocarpus*)
Mexican Flannelbush	(*Fremontodendron mexicanum*)
California Orcutt Grass	(*Orcuttia californica*)
Otay Mesa-mint	(*Pogogyne nudiuscula*)

The numbers of second, third, and fourth priority sensitive plant species significantly affected by the Low Density Alternative would be 6, ~~4~~ 5, and ~~1~~ 2, respectively; they include the following: second priority – Orcutt's brodiaea, variegated dudleya, San Diego barrel cactus, San Diego golden star, snake cholla, narrow-leaved nightshade; third priority – Munz's sage, Greene's ground-cherry, San Diego sunflower, San Diego marsh elder, San Diego County stipa; fourth priority – California adder's-tongue fern, Coulter's Matilija poppy.

The following sensitive species would be adversely but not significantly affected by this alternative: Tecate cypress, San Diego sagewort, Palmer's grappling-hook, ~~San Diego marsh elder, San Diego County stipa, western dichondra, spiny rush, Coulter's matilija poppy,~~ and ashy spike-moss.

Reduction of Sensitive Animals

The Low Density Alternative would significantly impact sensitive wildlife species inhabiting upland scrub communities through an approximate 32 percent reduction in habitat. Development within key raptor foraging areas in Proctor Valley (especially the north end), on the southwest slope of the Jamul Mountains, south of Dulzura Creek in the San Ysidro parcel in the eastern portion of the San Ysidro parcel, and on Otay Mesa would be a significant impact. Vernal pool species could be significantly impacted through the development of vernal pools on Otay Mesa. All of the highest priority wildlife species would be significantly impacted or would have the potential to be significantly impacted by implementation of the Low Density Alternative.

First Priority Species

Endangered Species

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

If this species occurs onsite it could be impacted by road construction in the Otay River Valley. It could also be indirectly affected by adjacent development if it occurs in Dulzura Creek. Information on the status of this species onsite is required to determine the significance of any potential impacts.

Least Bell's Vireo (*Vireo bellii pusillus*)

This species could be significantly impacted by road construction in the Otay River Valley under the Low Density Alternative. Direct impact would occur to habitat supporting a vireo sighting at the Heritage Road crossing of the Otay River. Road construction across Dulzura Creek adjacent to the San Ysidro parcel could also directly affect this species. There could be potential indirect impacts from road construction in the Otay River Valley (SR-125, transit corridor, and Alta Road) and from development of the San Ysidro parcel adjacent to Dulzura Creek. These impacts need to be evaluated at the next level of review.

Reptiles and Amphibians

Both the California red-legged frog (*Rana aurora draytonii*) and southwestern pond turtle (*Clemmys marmorata pallida*) could be impacted by the 5 to 10 percent loss of wetland habitats.

~~Coastal~~ Cactus Wren (*Campylorhynchus brunneicapillus ~~eousei~~*)

A total of 30 percent of cactus wren locations would be impacted by implementation of the Low Density Alternative. This species would be directly impacted at approximately 18 percent of the points of occurrence by the Low Density Alternative. Road construction could impact another 12 percent of cactus wren locations. Impacts would occur at the same development locations and road alignments as described above for the California gnatcatcher in the Otay River parcel.

California Gnatcatcher (*Polioptila californica*)

Thirty-eight percent of the estimated 144 gnatcatcher pairs would be impacted by this alternative. An estimated 28 percent of the Otay Ranch California gnatcatcher population would be directly impacted by development of the Low Density Alternative. Impacts in the Otay River parcel would occur from development adjacent to Salt Creek and along the edges of Poggi and Wolf canyons. In the Proctor Valley parcel impacts would occur from development on the lower south slopes of Jamul Mountain, to the south and east of Lower Otay Lake, in ravines along the east side of Proctor Valley, and at the northeastern corner of the parcel. The proposed conference center would impact one to two pairs of gnatcatcher. Impacts to California gnatcatcher in the San Ysidro parcel would be greatest at the west end, south of Lower Otay Lake and the San Diego Air Sports Center. Road construction could directly impact (10 percent) of California gnatcatcher locations through loss of habitat and restriction of movement. Road alignments of concern in the Otay River parcel include: Otay Valley Road (across Wolf Canyon), Heritage Road (across Poggi Canyon and across a potential gnatcatcher corridor), East Orange Avenue (through Poggi Canyon), SR-125 and the transit corridor (on the north side of the Otay River Valley and through Johnson Canyon), and Alta Road (at O'Neal Canyon and Salt Creek). Proctor Valley Road could also impact one to two gnatcatcher sighting locations in the Proctor Valley parcel. The construction of "A" Way would significantly impact onsite and offsite gnatcatchers. This alignment would pass through high occupancy habitat south of Lower Otay Lake in the San Ysidro parcel.

Invertebrates

~~Two~~ Three invertebrates, Riverside fairy shrimp (*Streptocephalus woottoni*), San Diego fairy shrimp (*Branchinecta sandiegensis*), and Quino checkerspot (*Euphydryas editha quino*), could be potentially impacted by development of vernal pool habitat under the Low

Density Alternative. Further information on their distribution and abundance is necessary to assess the significance of impacts. Harbison's dun skipper (*Euphyes vestris harbisoni*) could be impacted by development of approximately 5 percent of southern live oak riparian forest. Hermes copper (*Lycaena hermes*) could be impacted by a loss of approximately 32 percent of coastal sage scrub habitats. Thorne's hairstreak (Mitoura thornei) could also be impacted by a 5 percent loss of onsite Tecate cypress habitat. Information is required for all of these species to assess impacts of implementation of the Low Density Alternative.

Tricolored Blackbird (*Agelaius tricolor*)

The tricolored blackbird would be significantly impacted by the development of SR-125 at the site of a large nesting colony in 1991. Reduction of agriculture fields and grasslands could also impact this species.

Reduction of Wildlife Corridors

Seventeen regional and major local wildlife corridors for the Otay Ranch area are included in Figure 3.3-7. Implementation of the Low Density Alternative would significantly block ~~two~~ three regional wildlife corridors. An additional ~~eight~~ seven regional corridors would be potentially impacted from adjacent development or road construction. Three regional wildlife corridors would not be impacted. Three major local corridors would be significantly blocked and the fourth would not be affected. Significant impacts would occur at the Wolf Canyon to Salt Creek corridor and corridors 1, 4, 5, 8, and 9. Potential impacts could occur at the Wolf Canyon to Salt Creek, Wolf Canyon to Otay River, Salt Creek to Otay River, and O'Neal Canyon corridors. Potential impacts could also occur at corridors; 2, 6, 10, and 11. Impacts to wildlife movement from development of the Low Density Alternative would be significant. The potential corridor between Poggi and Wolf canyons, the Salt Creek corridor, and corridors 3 and 7 would not be impacted.

4.6.4.2 Proposed Mitigation

Sensitive Habitats Mitigation

Mitigation recommendations for the Low Density Alternative generally follow those for the Phase I-Progress Plan (see Section 4.2.4.2) except where noted below.

Proctor Valley Parcel

Mitigation measure 1.a. in Table 4.2.4-7 to redesign central Proctor Valley and to relocate the conference center is applicable to the Low Density Alternative. The latter part of mitigation measure 1.a., however, to eliminate single-family housing west of Proctor Valley in the eastern portion of the L-shaped parcel and the isolated parcel south of the L-shaped parcel is not completely applicable, because much of that area is retained in the Low Density Alternative. The area retained in these parcels contains disturbed coastal sage scrub which can be enhanced. Substantial impacts to valley needlegrass grassland and Otay tarplant would still occur within these detached parcels under the Low Density Alternative and alterations to the plan to reduce those impacts are recommended.

The vernal pool complex identified as R2 in Proctor Valley is planned for residential and public uses. These uses should be relocated in order to preserve the R2 vernal pool complex. Impacts to the R4 vernal pool complex can be mitigated through vernal pool restoration.

The northern potential local wildlife corridor between San Miguel Mountain and the Jamul Mountains is partially constrained by residential (L2) development. Recommendation is to pull back development north of the tributary to Proctor Valley.

San Ysidro Parcel

Mitigation measures 1.b. and 1.c. in Table 4.2.4-7 to eliminate development on the ridgeline adjacent to Hubbard Springs and at the western-most area of development in this parcel (southwest of Buschalaugh Canyon) are not applicable because these areas are retained under the Low Density Alternative.

Additional mitigation recommendation is to pull back the eastern portion of the residential development between Cedar and Little Cedar Canyons to reduce coastal sage scrub impacts. This also would preserve the Dunn's mariposa lily and San Diego goldenstar populations. It also is recommended to pull back the proposed development from the canyon that extends east from Hubbard Springs to reduce impacts to wetlands.

Otay River Parcel

Mitigation measure 1.d. in Table 4.2.4-7 is not applicable. Mitigation measure 1.e., however, is still applicable. The portions of single-family housing in Wolf Canyon that impact coastal sage scrub habitats should be eliminated.

Mitigation measure 8 in Table 4.2.4-7 is generally applicable for the Otay River parcel as below. Under the Low Density Alternative, most of the vernal pool habitat on Otay Mesa is preserved including J23, J24, J25 and most of J29, J30, and J31+, including the historical locations for San Diego navarretia, little mousetail, and California Orcutt grass. Some vernal pool habitat is still impacted in J31+. Mitigation for this impact shall consist of vernal pool restoration and may occur within the disturbed portions of the J31+, J29, or J30 vernal pool complexes.

Sensitive Plants Mitigation

Mitigation recommendations for the Low Density Alternative follow those of the Phase I-Progress Plan (see Section 4.2.4.2) for the impacted highest priority plant species except where noted below:

Dunn's mariposa lily mitigation should include major project redesign to preserve the population in the canyon east of Little Cedar Canyon, thus avoiding all impacts.

California Orcutt grass and Otay mesa-mint would not be impacted and therefore would not require mitigation under the Low Density Alternative.

Sensitive Animals Mitigation

Sensitive wildlife mitigation recommendations from the Phase I-Progress Plan (see Section 4.2.4.2) and from the General Mitigation Requirements for Sensitive Animals (Section 3.3.3) apply to impacted wildlife in the Low Density Alternative except where noted below:

First Priority Species

Endangered Species

Southwestern Willow Flycatcher

Refer to least Bell's vireo mitigation below.

Least Bell's Vireo

See measures ~~1 and 2~~ 1–3 for the Phase I-Progress Plan (Table 4.2.4-4). Mitigation of Heritage Road impacts could involve realignment of the Otay River crossing to the west of a historic least Bell's vireo sighting. This decision should be based on additional vireo distribution and potential habitat data obtained at the next level of review. Indirect impacts from residential and commercial development at Dulzura Creek should be studied in the same manner as the Phase I-Progress Plan Alternative assessment of the Village Center ~~(measures 2g and h)~~.

Species Proposed for Federal or State Listing

Invertebrates

Streptocephalus woottoni
~~Riverside Fairy Shrimp~~

See measures 7-10 ~~13 and 14~~ for New Town Plan (Table 3.3-7).

Branchinecta sandiegensis

See measures 7–10 for the New Town Plan (Table 3.3-7).

Harbison's Dun Skipper

See measure 11 for the New Town Plan (Table 3.3-7).

Hermes Copper

See measure 12 for the New Town Plan (Table 3.3-7).

Thorne's Hairstreak

See measure 13 for the New Town Plan (Table 3.3-7).

Quino Checkerspot

See measures ~~13 and~~ 14 for New Town Plan (Table 3.3-7).

Reptiles and Amphibians

California Red-legged Frog

See measure 15 for New Town Plan (Table 3.3-7).

Southwestern Pond Turtle

See measure 15 for New Town Plan (Table 3.3-7). Also see additional mitigation text under southwestern pond turtle.

Birds

~~Coastal~~ Cactus Wren

See measures 4-6 ~~3-7~~ for Phase I-Progress Plan (Table 4.2.4-4). An alternative alignment for the transit corridor within the SR-125 corridor should be evaluated. Further assessment of the impacts of the current and alternative alignment should occur at the next level of review. In the Low Density Alternative, Otay Valley Road would not have to be aligned farther north as in the Phase I-Progress Plan since it is already set back.

California Gnatcatcher

See measures 7-8 ~~8-10~~ for Phase I-Progress Plan (Table 4.2.4-4). Potential mitigation for "A" Way could involve realignment at the eastern end to avoid high occupancy habitat and termination of the alignment at the most westerly low density development in the San Ysidro parcel. Impacts from continuing the alignment west below the dam could be unmitigable to the offsite population of California gnatcatchers, depending on the number of pairs directly impacted. Impacts from disruption of movement and noise could potentially be mitigated for in design of the road. Further evaluation is required at the next level of review.

Wildlife Corridors

See appropriate corridor mitigation recommendations for the Low Density Alternative in the Phase I-Progress Plan Open Space Design discussion (Section 4.2.4.2). Additional mitigation involves pulling back development onto the ridge top north of corridor 10 to retain rim-to-rim topography within the corridor and buffer zones, ~~and~~ pull away from the mouth of Little Cedar Canyon in the San Ysidro parcel. It is important development not constrain this corridor. Development needs to remain on the ridge and should be properly screened from the view of animals within the corridor. It is recommended that development is drawn back to the north, away from the northwest section of corridor 3 in the Proctor Valley parcel.

4.6.4.3 Analysis of Significance

This alternative does not support a Resource Management Plan. The Low Density Alternative would impact 42 percent of existing open space on Otay Ranch. Sensitive coastal sage scrub habitats would be reduced by approximately 32 percent and wetland habitats by 5 to 10 percent. Vernal pool impacts are estimated to be 8 percent or less. These impacts to sensitive habitats are significant and will require a combination of mitigation approaches including redesign of portions of the project and habitat restoration. Of 18 major regional wildlife corridors identified on Otay Ranch, five would be impacted significantly and nine would be potentially impacted by implementation of the Low Density Alternative. Recommendations to mitigate these impacts include redesign of some of the proposed developments and roadway alignments and habitat restoration. Sensitive plant and animal species also are impacted significantly by this alternative, including the following highest priority species: San Diego thorn-mint, Dunn's mariposa lily, San Diego button-celery, Otay tarweed, least Bell's vireo, California gnatcatcher, coastal cactus wren, and potentially willowy monardella, Riverside fairy shrimp, and Quino checkerspot.

Adequate mitigation of impacts to these species would necessitate a combination of project design, habitat restoration, and species reestablishment.

Impacts to the following sensitive habitats are considered significant but mitigable to below a level of significance with minor project redesign and habitat restoration:

Southern live oak riparian forest
Southern interior cypress forest
Sycamore alluvial woodland
Southern willow scrub
Floodplain scrub
Coastal freshwater marsh/aquatic
Vernal pools

Impacts to the following sensitive habitats are considered significant and unmitigable:

Diegan coastal sage scrub
Maritime sage scrub
Valley needlegrass grassland
Alkali meadow

Impacts to the following sensitive plant species are considered potentially significant but mitigable to below a level of significance with minor project redesign and habitat restoration:

San Diego thorn-mint (*Acanthomintha ilicifolia*)
Dunn's mariposa lily (*Calochortus dunnii*)
San Diego button-celery (*Eryngium aristulatum* var. *parishii*)
Willowy monardella (*Monardella liniodes* ssp. *viminea*)
Orcutt's brodiaea (*Brodiaea orcuttii*)
Variegated hasseanthus (*Dudleya variegata*)
San Diego coast barrel cactus (*Ferocactus viridescens*)
Narrow-leaved nightshade (*Solanum tenuilobatum*)
~~Munz's sage (*Salvia munzii*)~~
San Diego County stipa (*Stipa diegoensis*)
San Diego marsh elder (*Iva hayesiana*)
Coulter's Matilija poppy (*Romneya coulteri*)
Greene's ground-cherry (*Physalis greenei*)
San Diego sunflower (*Viguiera laciniata*)
California adder's-tongue fern (*Ophioglossum lusitanicum* spp. *californicum*)

Impacts to the following sensitive plant species are considered significant and unmitigable without considerable project redesign:

Otay tarweed (*Hemizonia conjugens*)
San Diego goldenstar (*Muilla clevelandii*)
Snake cholla (*Opuntia parryi* var. *serpentina*)
Munz's sage (*Salvia munzii*)

Impacts to two highest priority sensitive animal species, *Streptocephalus wooltoni* and Quino checkerspot are not considered significant at this level of review.

At this level of review, impacts to the following highest priority sensitive animal species are considered significant but mitigable to below a level of significance through minor project redesign and other mitigation measures:

Streptocephalus woottoni
Branchinecta sandiegensis
Southwestern willow flycatcher
Harbison's dun skipper
Thorne's hairstreak
Quino checkerspot
California red-legged frog
Southwestern pond turtle
Least Bell's vireo
Tricolored blackbird

At this level of review, impacts to the following highest priority sensitive animal species are considered significant and unmitigable without major project redesign:

Coastal cactus wren
California gnatcatcher

The following species which in the impact analysis are potentially significant based on available data are considered significantly impacted at this level of review. Impacts to these species are considered unmitigable without major project redesign.

Hermes copper

The significance of impacts to 45 second priority sensitive animal species were not evaluated at this qualitative level of review.

At this level of review, impacts to regional raptor populations are considered significant and unmitigable without major project design.

Impacts to wildlife movement are considered significant but mitigable to a level below significance with incorporation of recommended project redesign measures.

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4.6.5 Cultural Resources

4.6.5.1 Impacts to Prehistoric Resources

Impacts to prehistoric resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria; therefore, all of the 213 prehistoric sites currently known to be on the property are considered to be important at this stage of planning. With this assumption of importance, the Low Density Alternative development plan is assessed for potential impacts to prehistoric resources based on the proposed land use, with areas proposed for development assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture. Table 4.6.5-1 indicates, by parcel, the land uses proposed for the Low Density Alternative, the prehistoric site types, and the occurrences of the sites in the various land uses.

Based on the land use plan for the Low Density Alternative, 131 of the 213 prehistoric sites on the property are located all or partially within a land use proposed for development. With 82 prehistoric sites falling completely into open space, parks, or agricultural areas, the Low Density Alternative has a comparable ratio (131/82) of prehistoric resources in developed land use areas to undeveloped land use areas, to three of the other plans considered: the Phase II-Progress Plan Alternative (~~133/80~~ 130/83), the Fourth Alternative (134/79), and the Project Team Alternative (135/78). The four similar ratios of these alternatives contrast with the Phase I-Progress Plan Alternative (150/63), the New Town Plan (186/27), the Environmental Alternative (82/131), and the Composite General Plans Alternative (51/162).

4.6.5.2 Impacts to Historic Resources

As with the prehistoric sites, impacts to historic resources can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 49 historic sites currently known to be present on the property are considered to be important at this stage of planning. With this assumption, the Low Density Alternative is assessed for impacts to historic sites based on the proposed land use, with areas proposed for development assumed to have greater potential for impacts to resources than undeveloped land usages such as open space, parks, or agriculture. Table 4.6.5-2 indicates, by parcel, the land uses proposed for the Low Density Alternative, the historic site types, and the occurrences of the sites in the various land uses.

When compared to the other development plan alternatives, the Low Density Alternative has the second highest number of historic sites (27) occurring all or partially within areas to be developed and, correspondingly, the second lowest number (22) lying completely within areas proposed for undeveloped land use, such as open space, parks, or agricultural. This ratio (27/22) of historic sites, all or partially within areas to be developed, to those lying completely within areas proposed for undeveloped land uses, is exceeded only by the New Town Plan with a ratio of 43/6. The ratio indicates that while the Low Density Alternative's ratio is much closer, next to the New Town Plan, the Low Density Alternative has the greatest potential of the plan alternatives for significant impacts to historic resources.

4.6.5.3 Impacts to Prehistoric/Historic Resources

Impacts to prehistoric/historic resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 30 prehistoric/historic sites currently known to be on

Table 4.6.5-1

LOW DENSITY ALTERNATIVE
PREHISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-10,452	OS	Temporary Camp	CA-SDi-4,741	OS	Lithic Scatter
CA-SDi-10,622	OS/OA	Lithic Scatter	CA-SDi-4,742	OS	Lithic Scatter
CA-SDi-10,875	OS/(OS)	Lithic Scatter	CA-SDi-4,743	OS	Lithic Scatter
CA-SDi-11,157	LM	Temporary Camp	CA-SDi-4,789/SDi-4,988	OS	Temporary Camp
CA-SDi-11,158	LM/OA	Temporary Camp	CA-SDi-4,790	OS	Temporary Camp
CA-SDi-11,210	OS	Lithic Scatter	CA-SDi-4,989	OS	Temporary Camp
CA-SDi-11,211	OS	Lithic Scatter	CA-SDi-5,352	FI/ISD/OS/OA	Temporary Camp
CA-SDi-11,212	OS	Lithic Scatter	CA-SDi-7,212	OS	Habitation Site
CA-SDi-11,213	OS	Temporary Camp	CA-SDi-7,217 A-E	OS	Temporary Camp
CA-SDi-11,214	ISD/OA	Lithic Scatter	CA-SDi-8,649	OS	Temporary Camp
CA-SDi-11,215	ISD/OA	Lithic Scatter	CA-SDi-8,650	OS	Lithic Scatter
CA-SDi-11,216	ISD/OA	Lithic Scatter	CA-SDi-8,651	LM/(OS)/PQ	Lithic Scatter
CA-SDi-11,220	ISD/OS	Lithic Scatter	CA-SDi-9,970	OS/OA	Lithic Scatter
CA-SDi-11,362	OS/OA	Lithic Scatter	CA-SDi-9,974	ISD/(OS)/OA	Lithic Scatter
CA-SDi-11,363	OS/(OS)	Lithic Scatter	CA-SDi-9,975	OS/OA	Quarry
CA-SDi-11,364	OS	Milling Station	CA-SDi-9,976	OS	Temporary Camp
CA-SDi-11,365	OS	Lithic Scatter	CA-SDi-9,977 A & B	OS	Quarry
CA-SDi-11,366	OS	Lithic Scatter	CA-SDi-9,978	OS	Quarry
CA-SDi-11,369/SDi-11,376	OS/(OS)	Habitation Site	CA-SDi-9,979	OS/(OS)	Lithic Scatter
CA-SDi-11,372	L	Lithic Scatter	CA-SDi-9,980	OS	Temporary Camp
CA-SDi-11,373	(OS)	Lithic Scatter	CA-SDi-9,981	OS	Temporary Camp
CA-SDi-11,378	OS	Habitation Site	CA-SDi-12,465	LM/NP	Temporary Camp
CA-SDi-11,379	OS	Lithic Scatter	CA-SDi-12,466	LM/(OS)	Temporary Camp
CA-SDi-11,381	OS	Lithic Scatter	CA-SDi-12,467	LM	Lithic Scatter
CA-SDi-11,412	OS	Lithic Scatter	CA-SDi-12,276	LM/(OS)	Lithic Scatter
CA-SDi-11,951	OS	Lithic Scatter	CA-SDi-12,285	LM	Temporary Camp
CA-SDi-11,952	OS	Lithic Scatter	CA-SDi-12,286	L	Temporary Camp
CA-SDi-11,967	OS/OA	Temporary Camp	CA-SDi-12,287	L	Temporary Camp
CA-SDi-11,968	I/OA/(OS)	Lithic Scatter	CA-SDi-12,288	OS	Lithic Scatter
CA-SDi-4,726	OS	Lithic Scatter	CA-SDi-12,289	OS	Temporary Camp
CA-SDi-4,727	OS	Lithic Scatter	CA-SDi-12,290	L/(OS)	Lithic Scatter
CA-SDi-4,728 A & B	OS	Lithic Scatter	CA-SDi-12,291	OS	Lithic Scatter
CA-SDi-4,729	OS	Lithic Scatter	CA-SDi-12,292	I/OA/(OS)	Lithic Scatter
CA-SDi-4,730	OS	Lithic Scatter	CA-SDi-12,293	I/(OS)	Lithic Scatter
CA-SDi-4,731	OS/(OS)	Lithic Scatter	CA-SDi-12,277	PQ	Lithic Scatter
CA-SDi-4,732	OS	Lithic Scatter	CA-SDi-12,278	OS/(OS)	Lithic Scatter
CA-SDi-4,733	OS	Lithic Scatter	CA-SDi-12,279	C/LM/(OS)	Lithic Scatter
CA-SDi-4,734	OS	Lithic Scatter	CA-SDi-12,280	C	Lithic Scatter
CA-SDi-4,735	OS	Lithic Scatter	CA-SDi-12,281	C/NP/(OS)	Temporary Camp
CA-SDi-4,736	OS	Lithic Scatter	CA-SDi-12,282	(OS)	Temporary Camp
CA-SDi-4,737	OS	Lithic Scatter	CA-SDi-12,283	L/(OS)	Lithic Scatter
CA-SDi-4,738	OS	Lithic Scatter	CA-SDi-12,284	LM/OS	Lithic Scatter
CA-SDi-4,739	OS	Lithic Scatter	SDM-W-170	OS	Habitation Site
CA-SDi-4,740	OS	Lithic Scatter	CA-SDi-12,656	HS	Temporary Camp

TOTALS:			
	(Retail Commercial)	C	3
	(Freeway Interchange)	FI	1
	(Industrial Limited Manufacturing)	I	3
	(City of San Diego Industrial Designation)	ISD	6
	(Low Density Residential (0-3 du/ac))	L	5
	(Low-Medium Density Residential (3-6 du/ac))	LM	10
	(Neighborhood Park)	NP	2
	(Outside of Area)	OA	13
	(Open Space)	OS	61
	(Man-made Open Space)	(OS)	19
	(Public and Quasi-Public)	PQ	2
	(High School)	HS	1

Table 4.6.5-1 (Continued)

LOW DENSITY ALTERNATIVE
PREHISTORIC SITES

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-11,388	L1/OS/(OS)/OA	Quarry	CA-SDi-12,356	L1	Lithic Scatter
CA-SDi-11,389	L1/(OS)	Lithic Scatter	CA-SDi-12,357	L1	Lithic Scatter
CA-SDi-11,394	L1/OA/(OS)	Lithic Scatter	CA-SDi-12,358	L1/OS/(OS)	Lithic Scatter
CA-SDi-11,395	OS	Lithic Scatter	CA-SDi-12,359	L1	Lithic Scatter
CA-SDi-11,401	L1/(OS)	Lithic Scatter	CA-SDi-12,316	L1	Lithic Scatter
CA-SDi-11,403 Locus F	OS	Lithic Scatter/Milling Station/Quarry	CA-SDi-12,360	L1/(OS)/R	Lithic Scatter
CA-SDi-11,404	R/OA	Lithic Scatter	CA-SDi-12,361	(OS)/R	Lithic Scatter
CA-SDi-11,405	L1	Lithic Scatter	CA-SDi-12,363	L1/OS	Lithic Scatter
CA-SDi-11,406	L1/OS	Quarry	CA-SDi-12,364	OA/(OS)	Lithic Scatter
CA-SDi-11,407	L1/NP/(OS)	Lithic Scatter	CA-SDi-12,365	L1/OS	Lithic Scatter
CA-SDi-11,408	L1/OS	Lithic Scatter	CA-SDi-12,366	L1/OS	Lithic Scatter
CA-SDi-11,410 A-E	OS/(OS)	Habitation Site	CA-SDi-12,367	OS	Lithic Scatter
CA-SDi-11,414	L1/OS	Lithic Scatter	CA-SDi-12,368	L1/OS	Quarry
CA-SDi-12,034	L1/OS/OA	Milling Station	CA-SDi-12,369	L1	Lithic Scatter
CA-SDi-8,086 A, B & C	L1/OS/(OS)/OA	Lithic Scatter	CA-SDi-12,317	L1	Lithic Scatter
CA-SDi-12,313	L1	Lithic Scatter	CA-SDi-12,370	L1	Lithic Scatter
CA-SDi-12,321	L1/OA	Lithic Scatter	CA-SDi-12,371	L1/OS	Lithic Scatter
CA-SDi-12,322	L1	Lithic Scatter	CA-SDi-12,372	OS	Lithic Scatter
CA-SDi-12,324	L1	Lithic Scatter	CA-SDi-12,374	CC	Quarry
CA-SDi-12,326	L1	Lithic Scatter	CA-SDi-12,375	OS	Lithic Scatter
CA-SDi-12,327	L1/OA	Lithic Scatter	CA-SDi-12,377	L3	Quarry
CA-SDi-12,329	L1/(OS)	Lithic Scatter	CA-SDi-12,378	L3	Quarry/Lithic Scatter
CA-SDi-12,330	C/(OS)	Lithic Scatter	CA-SDi-12,379	L3	Lithic Scatter
CA-SDi-12,314	L1	Lithic Scatter	CA-SDi-12,381	L3	Milling Station
CA-SDi-12,331	L1/(OS)	Milling Station	CA-SDi-12,383	L3	Lithic Scatter
CA-SDi-12,332	NP/OA/(OS)	Lithic Scatter	CA-SDi-12,384	L3	Milling Station
CA-SDi-12,333	NP/(OS)	Lithic Scatter	CA-SDi-12,385	L3	Milling Station
CA-SDi-12,334	L1	Habitation Site	CA-SDi-12,386	L3/(OS)	Lithic Scatter
CA-SDi-12,335	L1	Lithic Scatter	CA-SDi-12,387	L3	Lithic Scatter
CA-SDi-12,336	L1/(OS)	Lithic Scatter	CA-SDi-12,388	L3	Lithic Scatter
CA-SDi-12,338	L1	Milling Station	CA-SDi-12,319	L1	Lithic Scatter
CA-SDi-12,339 A & B	L1/OS	Lithic Scatter	CA-SDi-12,389	(OS)	Milling Station
CA-SDi-12,340	C/L1/(OS)	Temporary Camp	CA-SDi-12,390	L3	Lithic Scatter
CA-SDi-12,337/OR-I-3	L1/OA/(OS)	Lithic Scatter	CA-SDi-12,391	L3	Milling Station
CA-SDi-12,341	OS/(OS)/R/OA	Lithic Scatter	CA-SDi-12,392	L3	Milling Station/Lithic Scatter
CA-SDi-12,342	OS	Quarry	CA-SDi-12,394	L3	Milling Station
CA-SDi-12,343	L1/OS	Quarry	CA-SDi-12,397	L3	Quarry/Lithic Scatter/Milling Station
CA-SDi-12,315	L1	Lithic Scatter	CA-SDi-12,398	L3/OS	Quarry/Lithic Scatter/Milling Station
CA-SDi-12,353	L1/OS/(OS)/R	Lithic Scatter	CA-SDi-12,320	L1/OS	Lithic Scatter
CA-SDi-12,355	L1/OS	Lithic Scatter	CA-SDi-12,635	L3/OS	Lithic Scatter

TOTALS:

(Retail Commercial)	C	2
(Conference Center)	CC	1
(Low Density Residential 1 (.5-1 du/ac))	L1	47
(Low Density Residential 3 (.05-.25 du/ac))	L3	17
(Neighborhood Park)	NP	3
(Outside of Area)	OA	11
(Open Space)	OS	27
(Man-made Open Space)	(OS)	22
(Resort)	R	5

Table 4.6.5-1 (Continued)

LOW DENSITY ALTERNATIVE
PREHISTORIC SITES

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-10,027	L1/OS/(OS)/OA	Quarry	CA-SDi-11,300	OS	Lithic Scatter
CA-SDi-11,294	L3	Lithic Scatter	CA-SDi-11,302	L3/OS	Habitation Site
CA-SDi-11,298	L3	Lithic Scatter	CA-SDi-11,304	OS	Lithic Scatter
CA-SDi-11,303	L3	Lithic Scatter	CA-SDi-11,307	OS	Lithic Scatter
CA-SDi-11,308	L3	Lithic Scatter	CA-SDi-11,311	OS	Lithic Scatter
CA-SDi-11,309	L3	Lithic Scatter	CA-SDi-11,312	OS	Lithic Scatter
CA-SDi-11,314	L3	Lithic Scatter	CA-SDi-11,313	OS	Lithic Scatter
CA-SDi-11,315	L3	Lithic Scatter	CA-SDi-11,322	L3	Lithic Scatter
CA-SDi-11,317	L3	Quarry	CA-SDi-11,323	L3	Lithic Scatter
CA-SDi-11,321	L3	Lithic Scatter	CA-SDi-11,324	L3	Lithic Scatter
CA-SDi-11,325	L3	Lithic Scatter	CA-SDi-11,328	L3	Lithic Scatter
CA-SDi-11,326	L3	Lithic Scatter	CA-SDi-11,329	OS	Lithic Scatter
CA-SDi-11,327	L3	Lithic Scatter	CA-SDi-11,331	L3	Temporary Camp
CA-SDi-11,342	L1	Lithic Scatter	CA-SDi-11,332	L3	Temporary Camp
CA-SDi-11,350	L1	Lithic Scatter	CA-SDi-11,333	L3	Temporary Camp
CA-SDi-11,351	L1/OS	Quarry	CA-SDi-11,334	L3	Habitation Site
CA-SDi-12,147	L1/(OS)	Milling Station	CA-SDi-11,344	OS	Lithic Scatter
CA-SDi-12,148	L1/(OS)	Lithic Scatter	CA-SDi-11,345	OS	Milling Station
CA-SDi-12,149	L1	Lithic Scatter	CA-SDi-11,346	OS	Quarry
CA-SDi-12,345	L1/OS/(OS)	Milling Station	CA-SDi-11,349	OS	Lithic Scatter
CA-SDi-12,349	L1	Milling Station	CA-SDi-11,352	L3	Lithic Scatter
CA-SDi-12,344	L1	Lithic Scatter	CA-SDi-11,353	L3	Lithic Scatter
			CA-SDi-11,354	L3	Lithic Scatter

TOTALS:		
(Low Density Residential 1 (.5-1 du/ac))	L1	10
(Low Density Residential 3 (.05-.25 du/ac))	L3	24
(Outside of Area)	OA	1
(Open Space)	OS	15
(Man-made Open Space)	(OS)	4

Table 4.6.5-2

LOW DENSITY ALTERNATIVE
HISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-10,155H	OS/(OS)	Historic Rock Feature
CA-SDi-11,221	ISD/OS	Historic Refuse
CA-SDi-11,361H	OS	Historic Structure
CA-SDi-11,374	OS	Historic Refuse
CA-SDi-11,375H	OS	Historic Structure
CA-SDi-11,377H	OS	Historic Structure
CA-SDi-11,383H	OS/(OS)	Historic Structure
CA-SDi-11,384H	CP/LM/(OS)	Historic Complex
CA-SDi-11,385H	OS	Historic Archaeological Complex
CA-SDi-11,386H	OS	Historic Complex
CA-SDi-11,387H	(OS)	Historic Structure
CA-SDi-12,272H	L	Historic Refuse
CA-SDi-12,273H	ISD	Historic Refuse
CA-SDi-12,274H A & B	ISD/FI	Historic Refuse
CA-SDi-12,271H	LM	Historic Refuse

TOTALS:

(Community Park)	CP	1
(Freeway Interchange)	FI	1
(City of San Diego Industrial Designation)	ISD	3
(Low Density Residential (0-3 du/ac))	L	1
(Low-Medium Density Residential (3-6 du/ac))	LM	2
(Open Space)	OS	9
(Man-made Open Space)	(OS)	4

Table 4.6.5-2 (Continued)

LOW DENSITY ALTERNATIVE
HISTORIC SITES

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,390H	L1/OA/OS	Historic Structure
CA-SDi-11,393H	OS	Historic Structure
CA-SDi-11,418H	OS	Historic Camp
CA-SDi-11,419H	CC/OA	Historic Complex
CA-SDi-11,420H	OS	Historic Camp
CA-SDi-11,421H	L1	Historic Structure
CA-SDi-11,422H	L3/(OS)	Historic Structure/Historic Refuse
CA-SDi-6,723H	L1/OS	Historic Structure
CA-SDi-6,968H	OS	Historic Structure
CA-SDi-12,323H	L1	Historic Rock Feature
CA-SDi-12,354H	OS	Historic Rock Feature
CA-SDi-12,376H	OS	Historic Rock Feature
CA-SDi-12,318H	L1	Historic Rock Feature
CA-SDi-12,395H	L3	Historic Refuse/Historic Rock Feature
CA-SDi-12,396H	L3	Historic Rock Feature

TOTALS:			
	(Conference Center)	CC	1
	(Low Density Residential 1 (.5-1 du/ac))	L1	5
	(Low Density Residential 3 (.05-.25 du/ac))	L3	3
	(Outside of Area)	OA	2
	(Open Space)	OS	8
	(Man-made Open Space)	(OS)	1

Table 4.6.5-2 (Continued)

LOW DENSITY ALTERNATIVE
HISTORIC SITES

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,299H	OS	Historic Structure
CA-SDi-11,301H	OS	Historic Camp
CA-SDi-11,305	OS	Historic Rock Feature
CA-SDi-11,306H	L3	Historic Camp
CA-SDi-11,310	L3	Historic Rock Feature
CA-SDi-11,316H	L3	Historic Refuse
CA-SDi-11,318	L3	Historic Rock Feature
CA-SDi-11,319	L3	Historic Rock Feature
CA-SDi-11,320	L3	Historic Rock Feature
CA-SDi-11,330H	L3	Historic Refuse
CA-SDi-11,340H	L2	Historic Structure
CA-SDi-11,341H	OS	Historic Rock Feature
CA-SDi-11,343H	OS	Historic Structure
CA-SDi-11,347	OS	Historic Rock Feature
CA-SDi-11,348	OS	Historic Rock Feature
CA-SDi-11,357	L1/OS	Historic Rock Feature
CA-SDi-6,970	L3	Historic Archaeological Complex
CA-SDi-12,351H	L1	Historic Rock Feature
CA-SDi-12,352H	L1/OS	Historic Rock Feature

TOTALS:

(Low Density Residential 1 (.5-1 du/ac))	L1	3
(low Density Residential 2 (.25-.5 du/ac))	L2	1
(Low Density Residential 3 (.05-.25 du/ac))	L3	8
(Open Space)	OS	9

the property are considered to be important at this stage of planning. With this assumption of importance for all of the prehistoric/historic sites, the Low Density Plan is assessed below based on the proposed land use, with areas proposed for development (as defined above) assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture. Table 4.6.5-3 indicates, by parcel, the land use proposed for the Low Density Alternative, the prehistoric/historic site types, and the occurrences of the sites in the various land uses.

Over the the entire Otay Ranch property, 27 of the 30 prehistoric/historic sites known to be present on the property fall all or partially within areas proposed for intense development, with only 3 prehistoric/historic sites located entirely within areas proposed for non-construction oriented land use, in the Low Density Plan. This ratio (27/3) is only slightly different than five of the other plans; the New Town Plan (28/2), the Phase I-Progress Plan (28/2), the Project Team Plan (26/4), the Fourth Alternative(24/6) and the Phase II-Progress Plan (22/8). While the Low Density Alternative would not impact the most, it would still impact a large percentage of the prehistoric/historic sites on the property.

4.6.5.4 Proposed Mitigation

Prehistoric Resources

At this stage of planning, not all of the prehistoric resources have been identified; therefore, importance of the resources is assumed rather than verified. Impacts are still problematic rather than specific, and development plans are still highly conceptual; therefore, development of a comprehensive mitigation plan must be conceptual and necessarily programmatic rather than resource-specific. For conciseness, the mitigation plan is presented as a series of interrelated stages or phases (see Section 3.4.3 for additional detail).

- Stage 1: The applicant shall complete an intensive, systematic survey of the remaining 17,000 acres for cultural resources in compliance with the county's requirements. Completion of the survey shall occur as soon as feasible with the survey of the first SPA being completed no later than preparation of the first SPA Plan. The survey of the remaining portion of Otay Ranch shall be completed prior to ~~approval~~ public review of the first SPA Plan.

- Stage 2: The applicant shall complete importance and boundary testing for each resource identified within the first SPA and for a sample of site types beyond the SPA but within the overall project. All Stage 2 work must be in compliance with CEQA and local guidelines to include county policies.

- Stage 3: The applicant shall implement appropriate mitigation measures for resources determined as important during the Stage 2 importance evaluation phase. These forms of mitigation would include:

    1) Site avoidance by preservation of the site in open space easements.

    2) Site avoidance by preservation through capping the site and placing landscaping on top of the fill.

    3) Data recovery through implementation of an agency-approved excavation and analysis data recovery program.

Table 4.6.5-3

LOW DENSITY ALTERNATIVE
PREHISTORIC/HISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,217	ISD/(OS)	Lithic Scatter/Historic Structure
CA-SDI-11,218	ISD/(OS)	Lithic Scatter/Historic Structure
CA-SDI-11,219	ISD/(OS)	Lithic Scatter/Historic Structure
CA-SDI-11,367/11,368	OS	Lithic Scatter/Historic Rock Feature

TOTALS:	(City of San Diego Industrial Designation)	ISD	3
	(Open Space)	OS	1
	(Man-made Open Space)	(OS)	3

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,391 A- C	L1/OA/OS/(OS)/R	Historic Structure/Lithic Scatter/Milling Station/Temporary Camp
CA-SDI-11,396/H	L1/OA/(OS)	Historic Structure/Lithic Scatter
CA-SDI-11,399H	L1/OS	Historic Structure/Lithic Scatter
CA-SDI-11,409	L1/OS	Lithic Scatter/Historic Rock Feature
CA-SDI-11,411 A-D	L3/OS/(OS)	Milling Station/Historic Refuse
CA-SDI-11,415	L1/(OS)	Milling Station/Lithic Scatter/Historic Rock Feature
CA-SDI-11,417H	L3/(OS)	Historic Structure/Lithic Scatter/Milling Station
CA-SDI-6,695 A & B	C/L1/(OS)	Lithic Scatter/Historic Rock Feature
CA-SDI-6,965/11,398H	L1/OS/(OS)/OA	Historic Archaeological Complex/Lithic Scatter
CA-SDI-12,328/H	L1/OS	Lithic Scatter/Historic Rock Feature
CA-SDI-12,362/H	OA/(OS)/R	Lithic Scatter/ Historic Refuse
CA-SDI-12,373/H	CC/OS	Habitation Site/Historic Structure
CA-SDI-12,380/H	L3	Lithic Scatter/Historic Rock Feature
CA-SDI-12,382/H	L3	Historic Rock Feature/Lithic Scatter
CA-SDI-12,393/H	L3	Lithic Scatter/Historic Rock Feature
SDM-W-1,932	L3/OS	Lithic Scatter/Historic Rock Feature

TOTALS:	(Retail Commercial)	C	1
	(Conference Center)	CC	1
	(Low Density Residential 1 (.5-1 du/ac))	L1	8
	(Low Density Residential 3 (.05-.25 du/ac))	L3	6
	(Outside of Area)	OA	4
	(Open Space)	OS	8
	(Man-made Open Space)	(OS)	8
	(Resort)	R	2

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,355	L1	Lithic Scatter/Historic Rock Feature
CA-SDI-11,356	L1/(OS)/OA	Lithic Scatter/Historic Structure
CA-SDI-11,358	L1/NP/OS/(OS)/OA	Lithic Scatter/Historic Rock Feature
CA-SDI-11,359H	L2/(OS)	Lithic Scatter/Historic Refuse
CA-SDI-11,360H A-C	OS	Historic Structure/Lithic Scatter
CA-SDI-12,150	OS/(OS)	Historic Structure/Lithic Scatter
CA-SDI-12,346/H	L1/(OS)	Temporary Camp/Lithic Scatter/Historic Rock Feature
CA-SDI-12,347/H	L1	Historic Structure/Lithic Scatter
CA-SDI-12,348/H	C/L1/(OS)	Lithic Scatter/Historic Rock Feature
CA-SDI-12,350/H	L1/OA/(OS)	Lithic Scatter/Historic Rock Feature

TOTALS:	(Retail Commercial)	C	1
	(Low Density Residential 1 (.5-1 du/ac))	L1	7
	(low Density Residential 2 (.25-.5 du/ac))	L2	1
	(Neighborhood Park)	NP	1
	(Outside of Area)	OA	3
	(Open Space)	OS	3
	(Man-made Open Space)	(OS)	7

4) A combination of one or more of the above measures.

Additionally, the applicant shall develop a plan for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This shall be accomplished through adaptive reuse of one of the historic structures within the project or through construction of a building within one of the parks or community centers. It is expected that this interpretive center will only be for temporary curation of those materials being actively used for interpretation and display, and that permanent curation of artifacts and data will be at a regional repository when one is established.

Historic Resources

Mitigating measures for historic resources are essentially the same as the measures for prehistoric resources described above. The same steps and stages should be followed although archival research and historical documentation shall be used to augment Stage 2 field testing programs. Mitigation of impacts to historic resources through preservation may be more feasible for historic sites than for prehistoric sites because they generally comprise a smaller area and can often be synthesized into a development plan. In the case of historic resources, Stage 3 data recovery programs shall be integrated with comprehensive programs of corresponding archival research to provide the context for, and make possible a full evaluation of, the material found on the sites. As indicated under the prehistoric mitigation measures, a plan shall also be developed for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This shall be accomplished through adaptive reuse of one of the historic structures within the project or through construction of a building within one of the parks or community centers.

Prehistoric/Historic Resources

Mitigating measures for prehistoric/historic resources are essentially the same as for prehistoric and historic resources as described above. The same steps and stages should be followed although archival research and historical documentation may be used to augment field testing programs. Mitigation of impacts to historic components of prehistoric/historic resources through preservation may in some instances be more feasible than for the prehistoric components because they generally comprise a smaller area and can often be synthesized into a development plan.

If in situ preservation is not possible, recovery of a representative amount or sample of information, both surface and subsurface, is the only other acceptable alternative. For historic components, the data recovery program will be integrated with a corresponding archival research program to fully assess the significance of the material found on the sites. By creating a complementary research program that fully incorporates the archival material with the field results, many important research questions can be addressed.

4.6.5.5 Analysis of Significance

At this program-level of analysis, all prehistoric, historic, and prehistoric/historic resources are considered significant (see Section 3.4.4).

4.6.6 Geology and Soils

4.6.6.1 Impact Analysis

The Low Density Alternative, based on its reduced proposed development density relative to the New Town Plan, would involve the development of less acreage potentially underlain by adverse geology (i.e., landslides, unstable slopes, etc.). Therefore, less overall geologic/soils impacts are anticipated. The general types of geologic and soil impacts that can be anticipated, include slope instability, rippability, seismic ground shaking, expansive and erodable soils, liquefaction, and landslides.

4.6.6.2 Proposed Mitigation

The mitigation measures outlined in the geology and soils section concerning the New Town Plan (see Section 3.5.3) would mitigate potential impacts to levels below significance. A brief summary of the proposed mitigation measures is as follows:

- Slope instability - Perform site-specific geotechnical investigation and slope stability analyses and implement appropriate design measures.

- Rippability - Perform site-specific geotechnical investigation. Where non-excavatable materials are encountered, blasting may be required to achieve proposed grades.

- Seismic ground shaking - Perform site-specific geotechnical investigation, incorporate seismic parameters into the design and construction of the project, design according to appropriate building codes.

- Expansive/erodable soils - Perform selective grading and design foundations in accordance with UBC standards. Incorporate erosion control measures into design and construction of the project.

- Liquefaction - Perform site-specific geotechnical investigation to evaluate liquefaction potential. Perform vibrofloatation or dynamic compaction techniques, or remove and recompact soils as appropriate to mitigate liquefaction potential.

- Landslides - Perform site-specific geotechnical investigation to delineate limits of landslides. Landslides may be completely removed or buttressed during site grading.

4.6.6.3 Analysis of Significance

Implementation of the proposed mitigation measures would reduce impacts to below a level of significance.

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4.6.7 Paleontological Resources

4.6.7.1 Impact Analysis

Implementation of the Low Density Alternative would result in adverse impacts to paleontological resources. The majority of the Otay River parcel proposed for development is underlain by either the San Diego or Otay formations, which are considered to possess a high paleontological resource sensitivity.

Impacts to the San Ysidro and Proctor Valley parcels associated with the Low Density Alternative would be minimal in comparison to the New Town Plan.

4.6.7.2 Proposed Mitigation

The mitigation measures outlined in the paleontology section concerning the New Town Plan (Section 3.6.3) would mitigate potential impacts to paleontological resources to levels below significance. The following general mitigation measures shall be implemented:

- A qualified paleontologist shall be retained. The paleontologist shall be present at all times during original cutting in highly sensitive formations and to a lesser extent in less sensitive formations.
- When fossils are discovered, the paleontologist shall be allowed to recover them.
- Prepared fossils and notes shall be given to a scientific institution, and a final summary report shall be prepared by the paleontologist at the end of excavation.
- Geologic/paleontologic preserves shall be created in designated areas not planned for mass excavation.

4.6.7.3 Analysis of Significance

Implementation of the Low Density Alternative would result in adverse impacts to paleontological resources. The significance of these impacts would vary depending upon the paleontological resource sensitivity of individual affected formations. Implementation of the proposed mitigation measures would reduce impacts to below a level of significance.

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4.6.8 Agricultural Resources

4.6.8.1 Impact Analysis

The Low Density Alternative proposes most of its development near the central portion of the Otay River parcel. Industrial, residential, and open space uses are proposed south of Otay Valley Road, and low-density residential uses in the northern portion of the Proctor Valley parcel. The reduction in land use development would preserve more Prime Farmland located in the Otay River parcel than the New Town Plan. Impacts to Prime Farmland in the Proctor Valley parcel would be similar to those of the New Town Plan, since both plans propose residential uses on land overlain with Prime Farmland soils.

Agricultural land of Statewide and Local Farmland Importance located throughout the Otay River parcel would be developed with residential, commercial, and public uses by the Low Density Alternative. Statewide and Local Farmland Important soils in the Proctor Valley and San Ysidro parcels would be converted to residential uses or retained as natural open space. Loss or impairment of this agricultural land, suitable for production of coastal-dependent crops, would result in a significant and irreversible impact.

Approximately 9,714 acres of the Otay Ranch property are suitable for the cultivation of five principal crops (coastal-dependent crops) which include avocados, citrus, truck crops, tomatoes, and flowers. The land uses proposed throughout the project site by the Low Density Alterative would either convert or impair use of these agricultural soils for the production of coastal-dependent crops. This would result in a loss of ~~five~~ 6 percent of the county's agricultural land suitable for this type of production, which is considered a significant and irreversible loss of a limited agricultural resource.

Crop Production

Existing cattle grazing and barley cultivation operations would cease with ultimate development of the Otay Ranch property under the Low Density Alternative. Approximately 13,457 acres would be dedicated to natural open space. Most of this open space would occur within the Proctor Valley and San Ysidro parcels. Cattle grazing could conceivably occur within both these parcels assuming adequate buffer areas are provided between residential areas and measures to restrict grazing within sensitive biological areas are incorporated.

The loss of barley production would not be a significant impact since it is a low cost, low yield, low return crop. Field crops as a whole are not significant in terms of their countywide agricultural value. Approximately 20,000 cattle and calves were reported in the county for 1990; approximately 600 cows or three percent are within the Otay Ranch property. The net income received from both cattle and barley operations are used towards the cost of production, and the payment of property taxes which exceed $100 per acre, including land not in agricultural use. The loss of agricultural production in the Otay Ranch property would not have a significant impact on the countywide agricultural production since the incremental amount of cows lost would be less than three percent of the county's overall number of cattle. Additionally, the type of crop produced onsite does not have a high, countywide agricultural value.

The change in the county's existing land use and zoning designations as proposed by the Low Density Alternative would allow the conversion of agricultural land uses to urban uses. Although less development would occur under this alternative, the conversion of agricultural land is considered a significant and irreversible impact. The Low Density Alternative would develop residential uses along the upper portion of the Proctor Valley

parcel and the northern and eastern portion of the San Ysidro parcel. These residential uses would be directly adjacent to existing offsite agricultural uses associated with Daley Ranch to the east. Potential land use interface impacts related to agricultural activity (noise, dust, odors, use of pesticides) could occur without adequate buffering between these uses. No agricultural related interface impacts would occur within the Otay River parcel since the surrounding lands are being developed or are planned for urban development (e.g., EastLake and Salt Creek Ranch projects to the north, Brown Field Expansion project and East Otay Mesa Specific Plan to the south).

Indirect, growth inducing impacts would be similar to the New Town Plan as roads and public infrastructure are extending further east towards agricultural land. Urbanizing pressures for the early conversion of agricultural lands is associated with the appreciation of land values and the extension of public services. Since most of the Otay Subregion is undergoing rapid urban development, the conversion of agricultural lands to urban uses would result in a significant and cumulative impact as discussed in Section 6.9.

The upper portion of the Proctor Valley parcel would be developed with large lot, low-density residential uses and natural open spaces would be maintained. The Jamul-Dulzura Subregional Plan recommends the keeping of animals and other agricultural uses on large, low-density lots to maintain the community's rural character. Agricultural uses could occur on the proposed residential lots; however, measures to reduce potential internal interface impacts with proposed residential uses to the southwest would be required. No policy inconsistency impacts would occur with the Jamul-Dulzura Subregional Plan unless agricultural uses on the large low-density lots within the Proctor Valley parcel are restricted.

Interim agricultural uses would be allowed under the Low Density Alternative. An agricultural plan would be required to ensure agricultural activity occurs on portions of the site not yet scheduled for development. The plan would tie into the project's phasing plan and would include measures to reduce potential interface impacts from occurring between interim agricultural activity and the developed areas of the Otay Ranch property. Interim agricultural use of the site would be consistent with the Otay Mesa Subregional Plan's goal which encourages interim agricultural uses on land proposed for future urban uses.

This alternative would not be consistent with the goals and policies of the City of Chula Vista Open Space and Conservation Element. Most of the property's potentially highly productive land lies within the Otay River parcel which would be converted to urban uses or preserved as open space for recreational/park uses. Additionally, the plan does not include agricultural designations which would maintain agricultural land uses on the site. This would be a significant project inconsistency impact of the Low Density Alternative.

Portions of the Otay River parcel are designated as a Special Study Area by LAFCO. Any development on this parcel is subject to LAFCO's review which will occur when the annexation process begins to incorporate the land to the City of San Diego or the City of Chula Vista.

4.6.8.2 Proposed Mitigation

The following measures will partially mitigate the loss of agricultural land suitable for the production of coastal-dependent crops.

1. An agricultural plan shall be prepared by the project applicant prior to approval of any SPA Plans affecting agricultural resources and will be required for each subsequent development proposal. The plan shall indicate the type of

agricultural activity that will be allowed as an interim use. Specifications shall include buffering guidelines designed to prevent potential land use interface impacts related to noise, odors, dust, insects, rodents, and chemicals that may accompany agricultural activities and operations. Adequate buffering shall be provided between the proposed development area and the interim agricultural use. Buffering measures may include:

- a 200 foot distance between property boundaries and agricultural operations;
- if permitted interim agricultural uses require the use of pesticide, then limits shall be set as to the time of day and the type of pesticide application that may occur;
- use of vegetation along the field edges adjacent to development that can be used for shielding (i.e., corn); and
- notification of adjacent property owners of potential pesticide applications and use of fencing.

The plan shall be reviewed by the city or county planning department that has jurisdiction over these areas to verify that proposed guidelines are adequate to prevent significant interface impacts from occurring. This measure would partially mitigate the incremental loss of agricultural land.

2. Landscaping and buffering guidelines shall be included in the development plans at the SPA level for the areas planned adjacent to existing agricultural uses. These include the areas near the eastern edges of the Proctor Valley parcel and the northern edges of the San Ysidro parcel where low-density residential uses would be located near existing Daley Ranch agricultural activities (i.e., crop cultivation and cattle ranging).

3. The loss or impairment of prime agricultural land for agricultural activity is an unmitigable impact. However, a small portion of the Otay River parcel where prime soils are located should be set aside for a community garden. A possible location for the community garden would be in the southwest portion of the Otay River parcel. This area is considered suitable since it contains Prime Agricultural soils and is designated as a park by the Low Density Alternative. Development of this garden will depend on the feasibility of maintaining it within the proposed park. If the community garden is deemed feasible, its size and exact location will need to be determined at the SPA level. Schools proposed within the Otay Ranch property could promote educational activities in regard to agriculture through the use of the community garden.

4. Agricultural activity and the keeping of animals shall be allowed within the large, low-density lots planned along the northern edge of the Proctor Valley parcel, as recommended in the Jamul-Dulzura Subregional Plan. Development plans for this area shall contain landscaping and buffering guidelines designed to prevent potential nuisance impacts related to noise, odors, dust and use of chemicals from occurring between adjacent internal residential uses.

4.6.8.3 Analysis of Significance

The Low Density Alternative would affect less Prime Farmland than the New Town Plan; however, the alternative would still result in the conversion or impairment of agricultural land suitable for the production of coastal-dependent crops. Existing agricultural uses on the Otay River parcel would also be precluded. According to state, county and the City of Chula Vista policies and goals, the loss of an agricultural resource such as Prime Farmland and land suitable for the production of coastal-dependent crops, is considered a significant and unmitigable impact, regardless of the feasibility of maintaining the property in agricultural production (i.e., due to a lack of an adequate water supply).

4.6.9 Mineral Resources

4.6.9.1 Impact Analysis

The Low Density Alternative proposes open space land use in and surrounding the Otay River Valley. Proposed residential land uses are planned to the north of the Otay River Valley and are expected to be far enough away from any potential mineral extraction activities to preclude a conflict. Aggregate minerals and bentonite clay are not considered to be significant mineral resources within the project site. Therefore, the proposed land uses will not result in a significant impact.

The proposed development on the Proctor Valley and San Ysidro parcels includes low residential and open space land uses. The mineral resources known to exist on these parcels have not been designated as significant by the CDMG but have been placed in a resource conservation area by the County of San Diego. The state mineral surveys for significant aggregate minerals did not extend east of Lower Otay Lake. The eastern parcels of the Otay Ranch project were not surveyed for the presence of significant resources because they lay beyond the anticipated urban boundary at the time of the CDMG surveys (both parcels are primarily underlain by the Santiago Peak Volcanics Formation, which is known to be an important source of crushed rock materials, and is the same material found on Rock Mountain, an area designated as MRZ-2).

The forthcoming Mineral Resources Element of the San Diego County General Plan will provide an analysis of the significance of the mineral resources in the Proctor Valley and San Ysidro parcels. It cannot be determined at this time whether the mineral resources contained on these parcels are of regional importance. Therefore, any development that would preclude mineral extraction or would be considered to be an incompatible land use would be a potentially significant impact, until a determination of significance is made by the County of San Diego or the City of Chula Vista. If it is determined that no significant mineral resources exist on the two parcels, no impacts would occur.

4.6.9.2 Proposed Mitigation

The Otay River Valley segment within the Otay Ranch project is no longer considered to be a source of significant mineral resources (see Section 3.8, New Town Plan). Therefore, no impacts to mineral resources would result from the proposed development, and mitigation measures are not necessary.

The Low Density Alternative should include measures in its development plan to allow for mineral extraction on Rock Mountain and mineral extraction should be designated as the primary land use. Rock Mountain shall be placed in a mineral extractive overlay designation or an RCA in accordance with the policies of the soon-to-be adopted Mineral Resource Management Plan.

Development of the San Ysidro and Proctor Valley parcels shall be phased, if possible, to allow for mineral extraction if the county's Mineral Resources Element determines that significant mineral resources are located on the Otay Ranch property. Where possible, compatible land uses shall be developed near the locations of future mineral extraction activities (EIR proposed). Should project phasing not be possible, the impact to mineral resources would be significant and unmitigable.

The bentonite deposits onsite are not considered to be regionally significant (see Section 3.8, New Town Plan). Therefore, no impacts to mineral resources would result from the proposed development and mitigation measures are not necessary.

4.6.9.3 Analysis of Significance

The phasing of development of the San Ysidro and Proctor Valley parcels to allow for the extraction of mineral resources before construction would effectively mitigate impacts to mineral resources. However, should this not be feasible, the impact to mineral resources would be significant and unmitigable. Actions that preclude the extraction of significant mineral resources would be significant and would result in unmitigable adverse impacts.

4.6.10 Water Resources and Water Quality

4.6.10.1 Impact Analysis

The Low Density Alternative would, based on proposed reduced development, generate less urban runoff than the New Town Plan or Phase I-Progress Plan Alternative, thus reducing impacts to ground-water quality. Impacts to the Otay River floodplain would be associated with three crossings. The types of impacts that can be anticipated are generally similar to those of the New Town Plan and include inundation of project features, changes in surface water flow rates, surface water quality, and ground-water quality and quantity.

4.6.10.2 Proposed Mitigation

Further analysis is necessary to determine the magnitude of the impacts and to identify measures appropriate to mitigate significant effects. All future studies shall be conducted by a qualified hydrologic engineer and meet the City of Chula Vista, County of San Diego, and Regional Water Quality Control Board standards for urban runoff, sedimentation, floodplain, encroachment, and water quality, as appropriate. A brief summary of the proposed mitigation measures is as follows:

- Floodplain encroachment - determine floodplain/floodway width; avoid floodplain encroachment.

- Inundation of project features - perform appropriate detailed hydrologic and hydraulic studies and incorporate the findings, conclusions, and recommendations into the design and construction of the project. Upgrade existing facilities or install retention/detention basins, as appropriate, to contain surface flows, etc.

- Changes in surface flow rates - perform appropriate detailed hydrologic and hydraulic studies and incorporate findings, conclusions, and recommendations into the design and construction of the project. Incorporate erosion control measures, siltation basins, etc. into project design.

- Ground-water quality - Implement the improvements and plans provided in the Urban Runoff Reservoir Study. Details on study contents are provided in Section 3.9.3.

- Ground-water quantity - Implement measures to enhance recharge to aquifer systems.

- Urban runoff to Lower Otay Lake - prepare and implement Urban Runoff Master Plan.

4.6.10.3 Analysis of Significance

At this level of analysis, impacts to ground-water and surface water resources and quality are considered significant upon development of the Low Density Alternative. Implementation of the recommended mitigation measures at the SPA and project design levels of review would reduce the ground-water and surface water impacts to below a level of significance.

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4.6.11 Transportation, Circulation, and Access

This section documents the results of the impact analysis for the Low Density Alternative. The following topics will be discussed in this section: trip generation, proposed circulation network, and transportation and circulation impacts.

4.6.11.1 Impact Analysis

Trip Generation

The Low Density Alternative was developed at the direction of the Interjurisdictional Task Force. Residential areas are not arranged in villages, nor is transit emphasized. Higher intensity mixed-use centers that would encourage village formation and transit were deemed inappropriate in a plan that emphasizes suburban and rural land use patterns. The major features of this plan are similar to the other previously discussed plans; however, they have been scaled down to reflect low density uses. Major features include:

- three crossings of the Otay River Valley to handle local and regional traffic;
- a small site for a community college or private university; and
- a small Eastern Urban Center and associated research/development uses.

Table 4.6.11-1 summarizes the proposed land uses and daily trips under this alternative. It shows that under SANDAG trip generation standards, the proposed land uses for this alternative would generate approximately 493,983 daily trips on Otay Ranch.

Proposed Circulation Network

The proposed circulation network for this alternative ~~is~~ would be similar to the network proposed for the Environmental Alternative. The Low Density Alternative circulation network would not include the Otay Lakes/La Media Road river crossing. For this alternative, Otay Lakes Road curves to meet Palomar Street south of the Eastern Urban Center.

Transportation and Circulation Impacts

The impact analysis for the Low Density Alternative was conducted in a qualitative manner in accordance with directives from the Project Team and the EIR Subcommittee. The technical analysis focused on the total trip generation for this alternative. The Low Density Alternative would generate approximately 493,893 total daily trips. This alternative would generate 45 percent fewer daily trips than the 901,025 trips estimated for the New Town Plan and 33 percent fewer than the 736,883 trips estimated for the Phase I-Progress Plan and 24 percent more trips than the 397,551 trips estimated for the Composite General Plans Alternative.

Thus, the basis for determining the impacts associated with the Low Density Alternative in a qualitative manner involved the review of the project impacts (under qualitative analysis) associated with the next-higher density of development (Phase I-Progress Plan) and the next-lower density (Composite General Plans) alternative. Table 4.6.11-2 provides an estimated comparison of the anticipated impacts to the Otay Ranch study area circulation network under these alternatives.

Table 4.6.11-1

LAND USE AND TRIP GENERATION SUMMARY
LOW DENSITY ALTERNATIVE
OTAY RANCH TOTAL

Land Use	Land Use Intensity	Trip Rate	Daily Trips
Single-family Residential	9,038	10/du	90,380
Multifamily Residential	1,249	7/du	8,743
Total Dwelling Units	10,287		
Total Residential Trips			99,123
Commercial			
Retail Commerical	115 AC	*	79,400
Freeway Commercial (10-30 acres each)	86 AC	650/AC	55,900
Industrial			
Limited Manufacturing	386 AC	130/AC	50,180
Research Industrial	140 AC	130/AC	18,200
Public/Quasi Public			
Public Facilities/Schools	191 AC	50/AC	9,550
University	213 AC	80/AC	17,040
Eastern Urban Center (EUC)			
Retail Commerical (30-60 acres each)	208 AC	500/AC	104,000
Resort	203 AC	100/AC	20,300
Conference Center (Hotel)	160 AC	200/AC	32,000
Parks (Developed)	164 AC	50/AC	8,200
Total Non-residential Trips			394,770
TOTAL DAILY TRIPS			493,893

* Trip generation rates are based on the various classes of Non-EUC retail commercial uses included in the Otay Ranch Project (i.e., 800 trips per acre on the Otay River parcel and 1,000 trips per acre on the Proctor Valley and San Ysidro parcels).

Table 4.6.11-2

TRAFFIC IMPACTS OF THREE ALTERNATIVE DEVELOPMENT SCENARIOS (Prior to Mitigation)

	Impacted Roadway Miles		
Alternative	Total Network	Freeway	Arterial
Phase I-Progress Plan	50	13	37
Low Density	30	8	26
Composite General Plans	26	6	20

	Impacted Intersections		
Alternative	Special At-grade Design Required	Special At-grade or Grade Separated Design Required	Special Grade Separated Design Required
Phase I-Progress Plan	5	1	9
Low Density	4	0	5
Composite General Plans	4	0	4

Comparative Analysis of Impacts

It is important to note that the impacts to the Otay Ranch study area circulation network under any development alternative must be mitigated to achieve acceptable levels of service and conform to the adopted performance standards. For review purposes, the estimated Low Density Alternative impacts are compared to those impacts that would occur under the Composite General Plans Alternative. As discussed in Section 4.5.11, the Composite General Plans Alternative is a combination of the adopted general plans for each of the jurisdictions in the study area. As the Adopted Chula Vista General Plan contains the most detailed land use and circulation network information for the area of eastern Chula Vista on and adjacent to the project site, this general plan was used as the primary plan for analysis purposes. This direction was provided by the Interjurisdictional Task Force during the early stages of the review process. This comparative analysis will enable the reviewer to clearly understand project and cumulative impacts that would result from a particular alternative. However, at this program level review, the definition of project-only impacts is not provided and specific measures are recommended in the mitigation section to define precisely the process to be followed during development of the project, which will result in the accurate definition of project-only impacts associated with each phase of development.

Project-level impacts are impossible to fully identify and address at this stage of development because of uncertainty relating to the ultimate street system to be approved for the area. For example, will SR-125 be a freeway or a toll facility? Will there be two, three, or four river crossings? These major circulation issues significantly impact trips through the project area; consequently, project-level impacts cannot be adequately identified at this time. During the subsequent planning efforts and preparation of SPA plans, these issues can be quantified and mitigated.

As shown in the previous section, the Low Density Alternative is estimated to have a total of 30 impacted roadway miles and nine impacted major signalized intersections. The Composite General Plans Alternative is expected to have 26 impacted roadway miles and eight impacted major signalized intersections. Thus, four additional miles of roadway and one additional intersection would be impacted under the Low Density Alternative.

4.6.11.2 Proposed Mitigation

The mitigation analysis for the Low Density Alternative was conducted in a qualitative manner. The Otay Ranch Project Team determined that no modeling would be conducted on this alternative, as it is expected to create impacts within the range of impacts of the Phase I-Progress Plan and the Composite General Plans alternatives. Thus, there is no precise information available to determine the extent and location of estimated segment and intersection impacts, nor is it possible to identify specific mitigation measures that will be required under this alternative. The comparative impact analysis conducted for this alternative revealed that approximately 30 miles of roadway network and nine major signalized intersections within the project study area would require some form of mitigation. In order to determine specific mitigation requirements for this alternative, the proposed land uses and circulation network would have to be analyzed in detail using the Combined Southbay Transportation Model.

Potential Transportation Demand Management Benefits

This section summarizes the potential benefits to circulation system operations with the successful implementation of Transportation Demand Management (TDM) strategies proposed by SANDAG and the Air Pollution Control District. Both of these plans would

increase average vehicle occupancy (passengers per vehicle) during commute trips from the current level of less than 1.1 to at least 1.5 in the future.

SANDAG estimates that through TDM, commuting trips region-wide could be reduced by 17 percent. As a regional program, implementation of an aggressive TDM program clearly has a significant positive impact on peak hour operating LOS on the regional circulation system, when roads are usually operating at or near capacity.

Based on the modeled results using the Phase I-Progress Plan Alternative, with TDM benefits included in the model, it can be expected that the TDM policies would decrease total vehicle miles traveled (VMT) by approximately 8 percent. This reduction in traffic activity could potentially reduce both arterial and intersection impacts by one third. A peak hour analysis will be conducted on the conceptually approved plan under TDM and non-TDM conditions prior to each SPA Plan approval. This analysis will more precisely define the extent and location of impacts and identify specific mitigation measures that will be required under the selected development scenario for the Otay Ranch.

4.6.11.3 Analysis of Significance

A detailed analysis of actual impacts and required mitigation would be necessary to provide an accurate analysis of significance for the unmitigatable impacts that would occur under this alternative. However, based on the analysis of significance conducted for the Phase I-Progress Plan and the Composite General Plans alternatives, which formed the range for determining impacts that would occur under the Low Density Alternative, it is anticipated that this alternative would have some significant arterial and freeway impacts and no more than four significant offsite intersection impacts after mitigation.

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4.6.12 Air Quality

4.6.12.1 Impact Analysis

The Low Density Alternative projects a population increase less than that of the Composite General Plans Alternative. Consequently, local air quality impacts under this alternative would be lower than impacts associated with the Composite General Plans and would not be considered significant according to the established criteria. However, the lower density of this alternative precludes the development of villages and implementation of a mass transit system. As a result, residents would probably drive farther to reach employment, commercial, and recreational facilities. Since pollutant emissions are related to the trip length as well as the number of trips, this alternative may not, in fact, represent a lower air quality impact.

4.6.12.2 Proposed Mitigation

The application of mitigation measures (Table 4.6.12-1) early in the design process is recommended as an alternative to their implementation at a later date in response to new regulations. However, the relative lack of commercial services under this alternative will minimize the effectiveness of the measures associated with a reduction in vehicle trips.

4.6.12.3 Analysis of Significance

Assuming that growth in the remainder of the county equals or exceeds the Series 7 projections, mitigation measures applied to this alternative would not reduce impacts to below a level of significance.

Table 4.6.12-1 (Revised)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Construction Sources

- minimize simultaneous operation of multiple construction equipment units (i.e., phase construction to minimize impacts)
- use low pollutant-emitting construction equipment
- use electrical construction equipment as practical
- use catalytic reduction for gasoline-powered equipment
- use injection timing retard for diesel-powered equipment
- water the construction area to minimize fugitive dust
- stabilize (for example, hydroseed) graded areas as quickly as possible to minimize fugitive dust
- pave permanent roads as quickly as possible to minimize dust

Land Use Policies

- Provide neighborhood shopping and personal services adjacent to residential areas to minimize auto trips and reduce mileage travelled to service areas.
- Provide open space and recreational facilities within or adjacent to the residential areas.*
- Provide employee services within walking distance (i.e., banking, childcare, restaurants, etc.).**
- Provide a balanced mix of housing and employment possibilities to reduce trips and vehicle miles traveled.**

Siting/Design Policies

- Site-specific analysis for potentially incompatible projects (for example, a residential development near one of the quarries or the landfill) shall be reviewed in the SPA Plan.
- Provide dedicated bike lanes to encourage use of bicycles.**
- Provide bicycle storage facilities at employment and retail centers.*
- Provide shower and locker facilities at offices to encourage bicycle use.*

Table 4.6.12-1 (Revised) (Continued)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Siting/Design Policies (Continued)

- Provide sidewalks and curbs to ensure safe pedestrian travel within residential areas and to commercial centers.*
- Provide street designs that promote pedestrian safety (i.e., safe islands in center of major arterials, "Walk" signals, night lighting, etc.).*
- Orient shopping centers to promote use by mass transit (i.e., provide bus turnouts), pedestrians, and bicyclists.**
- Design parking lots to promote use of mass transit and car pools.
- Control emissions of NO_x by installing heat transfer modules on gas-fired furnaces.
- Utilize solar heating technology as practical. Generally, solar panels can be cost-effectively used to heat water for domestic use and for swimming pools. Advances in solar technology in the future may make other applications appropriate.
- Utilize low-NO_x residential and commercial water heaters.
- Enhance energy efficiency in building designs and landscaping plans.
- Minimize "drive-through" establishments to reduce emissions from idling vehicles.**
- ~~Minimize on-street parking to reduce congestion and avoid back-up and idling of vehicles.~~
- ~~Identify an environmental coordinator to be responsible for education and disseminating information on ridesharing and/or mass transit opportunities, recycling, energy conservation programs, etc.~~

Transportation-related Management Actions

The City of Chula Vista is responsible for the transportation-related management actions in which they shall coordinate these development plans with the Metropolitan Transit Development Board (MTDB).

Table 4.6.12-1 (Revised) (Continued)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Transportation-related Management Actions (Continued)

- Provide land for transit support facilities such as bus stops, park-n-ride lots, etc.*
- Provide amenities to increase convenience and attractiveness of transit stops (i.e., passenger staging areas, waiting shelters, etc.).*
- Provide minibus, jitney, or other para-transit service to provide access from residential areas to commercial areas.**
- Require major employers to provide ridesharing or mass transit incentives.
- Provide demand-responsive traffic signals.*
- Achieve transit agency agreement to institute new routes or express bus service, or to expand existing service, related to the demand caused by the proposed project.**

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* Measure is feasible in areas with relatively high residential densities.
** Measure is infeasible because: 1) few of these land use combinations are proposed for this alternative or 2) conflicts with village design concept.

4.6.13 Noise

4.6.13.1 Impact Analysis

Roadways

The primary noise source throughout the project area at full buildout of the Low Density Alternative would be from vehicular traffic. Onsite noise impacts would occur as development is completed on Otay Ranch, whereas offsite impacts would be realized as regional traffic volumes increase due to area growth and roadway segments are widened to accommodate the increased traffic. Additional noise impacts are anticipated when existing roadways are re-aligned in accordance with planned or proposed circulation element improvements. The degree of the impact would depend on the location of the noise-sensitive receptors in relation to those roadway as well as the project design. In general, noise-sensitive receptors located along major arterials and collector streets may be impacted by sound levels exceeding 60 CNEL and result in a significant impact. Vehicular traffic noise impacts from this alternative would be similar to the New Town Plan. The low density alternative proposes open space along some of the major roadways. The open space may buffer noise from the proposed residences.

Noise generated by project-related traffic is expected to increase the noise level at the existing sensitive receptors located along the offsite access roadways. Based on the transportation analysis in Section 4.6.11, the project-generated traffic would impact approximately 10 percent (or 30 miles) of roadway miles. No distinction has been made between onsite and offsite impacts under the Low Density Alternative. However, in comparison to buildout under the Composite General Plan, the Low Density Alternative traffic contributes 4 additional miles of impacted roadways (refer to Table 4.6.11-2 for details on impacted roadway miles). Although there is not a direct correspondence between impacted mileage and noise impacts, comparison with the Composite General Plans Alternative should provide a general degree of vehicular noise impacts. The amount of noise increase is dependent on such factors as roadway design, ADT, distance from the roadway, the orientation of the usable outdoor living areas to the roadway, and intervening topography. In general, a doubling of the traffic volume would be expected to increase the sound level by 3 dBA. This is considered significant if usable outdoor living areas such as balconies, patios, children's playing areas, and swimming pools are affected. Major roadways which may impact existing residences include East H Street, Otay Valley Road, East Orange Avenue, Palomar Street, and Telegraph Canyon Road. There may be other smaller roadways which may cause a noise impact.

At this level of analysis, noise from onsite and offsite roadways is considered to be a significant and potentially unmitigable impact wihtin 1250 feet of the facility. A site-specific acoustical study will be required during the SPA Plan review and prior to adoption of any circulation element General Plan Amendments. The study shall provide a description of the proposed project, the existing noise environment, the future noise environment, noise impacts, and the required mitigation measures. If development within the effected area is phased in subsequent to the landfill closure, the impacts would be avoided.

Riparian vegetation is a potential habitat for the federally endangered least Bell's vireo. Elevated noise levels can potentially mask the song of the least Bell's vireo which is used to attract mates and defend territories. The San Diego Association of Governments (SANDAG) in a 1989 study (SANDAG 1989) theoretically estimated that noise levels above 60 dBA L_{eq} in vireo breeding areas may impact the reproductive success of this species during their breeding season which occurs from March 15 to September 15. At this

level of analysis noise from roadways and construction is considered to be a significant and unmitigated impact (see Section 3.3, Biological Resources).

Gun Ranges

Two gun ranges are currently located on the project site. A small private shooting range is located north of the Otay River. Target Tossers Gun Club, a public shooting range, is located at the western property boundary south of the Otay River. It is assumed that both gun ranges would be relocated prior to development and would not result in an adverse impact.

Rock Quarries

The Low Density Alternative proposes residential land uses approximately 500 feet to the west and 1000 feet to the north of the Nelson and Sloan Mining Operation, and immediately south of the Daley Quarry. Compliance with applicable property line noise ordinances is the responsibility of the quarry operator. The county noise ordinance permits extractive industries to generate one-hour average sound levels as high as 75 dBA at the property line, regardless of the adjacent land use. As discussed for the New Town Plan, calculations show that a 9300-foot buffer from the quarry property line would be required to achieve the residential noise standard of 45 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume that the receiver is in direct line-of-sight with the noise source. No consideration was given to the noise attenuating effects of intervening topography. The intervening knolls and ridgelines will block sound transmission which may result in a reduced buffer area. The 45 dBA residential standard assumes that quarry operations begin prior to 7:00 a.m. Even if the Nelson and Sloan Mining Operation and the Daley Quarry can comply with the applicable noise ordinances, noise at residential receptors within 9300 feet of the quarry may still be sufficiently audible to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Nelson and Sloan Mining Operation and Daley Quarry is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during the specific plan amendment. The study must provide a description of the proposed project, the existing noise environment, the future noise environment, noise impacts, and the required mitigation measures. The study should consider the effects of intervening topography which may tend to attenuate sound.

Recycling Center

A small wood recycling center is in operation at the west end of the Otay River parcel on Otay Valley Road. The recycling center would be relocated prior to project development and would not result in significant impacts .

Landfills

The Low Density Alternative proposes residential development approximately 1200 feet to the south, 500 feet to the south, and 1500 feet to the east of the Otay Landfill and at least 1200 feet to the north. Based on a measured sound level of 72 dBA at 100 feet from the active work surface (ERCE 1991), similar operations would result in a sound level of 75 dBA at 70 feet. Based on a 70-foot reference distance, calculations show that a 1250-foot buffer from the landfill property line would be required to achieve the daytime residential noise standard of 50 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume that the receiver is in direct line-of-sight with the noise source. No consideration was given to the noise attenuating

effects of intervening topography. The 50 dBA residential standard assumes that landfill operations are limited to the hours of 7:00 a.m. to 7:00 p.m. Compliance with the County of San Diego Noise Ordinance is the responsibility of the landfill operator. Even if the landfill can comply with the applicable noise ordinances, noise at residential receptors within 1250 feet of the landfill may still be sufficiently audible to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Otay Landfill is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during SPA Plan review. The study shall provide a description of the proposed project, the existing noise environment, the future acoustical environment, noise impacts, and the required mitigation measures. The study will consider the effects of intervening topography which may tend to attenuate sound.

Industrial Activities

There are numerous industrial land uses adjacent to the Otay River parcel along Otay Valley Road. Auto wrecking yards are located in this area along with other types of industrial activities. Noise associated with each industry is specific to the type of activity. The permitted sound level at an industrial property line would be the arithmetic mean of the permitted sound level of the business and the adjacent properties zones. The result would permit higher sound levels at adjacent residences than would be permitted in a strictly residential neighborhood. Assuming that each business can comply with applicable noise ordinances, noise may still be sufficiently audible at the residential receptors to result in a significant impact. A site-specific analysis will be required during SPA Plan review. The study will provide a description of the proposed project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation measures.

Airfields

Brown Field

Brown Field is located immediately south of the Otay River parcel. The existing noise contours depicted in the Brown Field Municipal Airport Master Plan, adopted in 1978, and the more current noise contours in the updated Draft Brown Field Master Plan (unadopted), show that the project site lies outside of the 60 CNEL noise contour. Noise from Brown Field aircraft operations is not expected to cause a significant impact.

San Diego Air Sports Center

The Low Density Alternative proposes to develop residential land uses immediately to the north, south, and east of the San Diego Air Sports Center. FAA guidelines prohibit skydiving and ultralight flying over congested areas. Therefore, the plan may result in a potentially incompatible land use. Since noise contours are not currently available, this analysis assumes that residential land use within one mile of the Sports Center may be significantly impacted by aircraft noise. A site-specific analysis will be required during SPA Plan review. At this level of analysis, noise from the Air Sports Center is considered to be a significant and potentially unmitigable impact.

Regional Airport

The City of San Diego is currently studying the concept of constructing a regional/binational airport in Otay Valley south of the project site. The proposal is in the

very preliminary planning stages, and potential noise impacts from the proposed airport are currently unknown.

Light Rail Transit

The San Diego Metropolitan Transit Development Board (MTDB) is currently studying the concept of constructing a light rail transit (trolley) expansion into the study area. The proposal is in the preliminary planning stages, and potential noise impacts are unknown.

4.6.13.2 Proposed Mitigation

Site-specific Noise Studies

Potentially significant noise impacts have been identified from onsite roadways, the Nelson and Sloan Mining Operation, the Daley Quarry, the Otay Landfill, the San Diego Air Sports Center, and various industrial activities in close proximity to the project site. Site-specific acoustical analyses will be required during SPA Plan review. The study will provide a description of the proposed project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation measures. A "D" designator for noise shall be created to identify areas where a site-specific study is required. The impact area shall include the following:

- All areas within 9300 feet of the Nelson and Sloan Mining Operation and the Daley Quarry;
- All areas within the 60 CNEL noise contour of onsite and offsite roadways, which shall include all roadways on the Otay River parcel and all roadways assigned a future ADT of 3,000 trips or greater on the Valley and San Ysidro parcels;
- All areas within 1250 feet of the landfill;
- All areas within one mile of the San Diego Air Sports Center; and
- All areas adjacent to least Bell's vireo habitat.

Residential development within the impact area may be allowed if the site-specific noise study shows that mitigation to below a level of significance is feasible.

Potentially significant noise impacts have been identified from offsite roadways. Site-specific acoustical analyses will be required for all areas adjacent to roadways proposed for widening, realignment, and/or an upgrade in roadway classification through a General Plan Amendment.

Noise Mitigation Measures

Vehicular Traffic

Noise mitigation is required for all residential land uses located in areas where the CNEL from vehicular traffic exceeds 60 dBA. The estimated 60 CNEL contour is located approximately 120 feet from the roadway centerline for collector streets, 400 to 2400 feet from the roadway centerline for major and prime arterials, and over 4000 feet from the centerline of the freeways. The modeled contours are considered a worst-case condition

because the roadways were modeled at grade with the surrounding area, and the effects of intervening topography were not considered.

Onsite. In general, roadway noise impacts can be mitigated by setbacks, by the construction of barriers, or a combination of both. However, depending on the roadway design and surrounding topography, barriers such as noise walls and earthen berms in excess of 10 feet high may be necessary and are often not considered to be feasible or aesthetically desirable. The setback distance necessary to lower the wall height can be considerable, possibly several hundred to more than a thousand feet. Therefore, noise impacts from vehicular traffic are considered to be potentially unmitigable at residences proposed closest to the roadways. The required setbacks may result in lower residential densities.

Offsite. Mitigation of noise impacts resulting from project-related vehicular traffic on offsite roadways may require construction of barriers on public or private property to mitigate exterior noise impacts, and possibly retrofitting residences with noise insulation for interior noise impacts. In areas where the residences have been built along the roadway, mitigation to below a level of significance may not be possible.

Noise from vehicular traffic and construction is considered to be a significant impact to the least Bells' vireo. In areas where major roadways are located or construction will be undertaken in close proximity to least Bell's vireo habitat, mitigation to below a level of significance may not be possible.

Rock Quarries

Noise associated with the Nelson and Sloan Mining Operation and the Daley Quarry is considered to be a significant impact. Based on the County of San Diego Noise Ordinance, sound levels from the quarries are permitted to be as high as 75 dBA Leq at the source property line. Compliance with the noise ordinance is the responsibility of the quarry operator. Sound levels were calculated to be 45 dBA Leq at approximately 9300 feet from the source property line. Mitigation of noise impacts may not be feasible at residences within 9300 feet and in direct line-of-sight of the quarry. However, mitigation may be possible as a result of intervening topography such as fills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate the impacts to below a level of significance. Residential development within 9300 feet of the quarries should be staged such that construction not take place unless the quarries have been mined-out and mining operations have ceased or noise impacts can be mitigated as demonstrated in the site-specific noise study.

Otay Landfill

Noise associated with the Otay Landfill is considered to be a significant impact. Sound levels were calculated to meet the 50 dBA Leq daytime noise standard at approximately 1250 feet from the landfill property line. Mitigation of noise impacts may not be feasible at residences within 1250 feet and in direct line-of-sight of the landfill. However, mitigation may be possible as a result of intervening topography such as hills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate the impacts to below a level of significance. Residential development within 1250 feet of the landfill should be staged such that

construction not take place unless the landfill has undergone closure or noise impacts can be mitigated as demonstrated in the site-specific noise study.

San Diego Air Sports Center

Noise associated with the San Diego Air Sports Center is considered to be a significant impact. As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate impacts to below a level of significance. Residential development within one mile of the Air Sports Center should be staged such that construction not take place unless the Air Sports Center has closed or noise impacts can be mitigated as demonstrated in the site-specific noise study.

4.6.13.3 Analysis of Significance

Significant noise impacts have been identified from roadways, the Nelson and Sloan Mining Operation, the Otay Landfill, the San Diego Air Sports Center, and the various industrial activities in close proximity to the project site. Reduction of noise impacts from all of these noise sources to below a level of significance may not be feasible. At this level of analysis, noise from these sources are considered to be a significant and unmitigated impact.

4.6.14 Public Services and Utilities

The Low Density Alternative would result in the development of 10,287 homes and a population of 32,544 (Baldwin Vista 1991). The following analysis is based on the same generation/demand rates utilized in Section 3.13 for the New Town Plan.

Water Availability and Demand

Demand Generated

The total water demand for the Low Density Alternative is estimated at 10.4 mgd for average day use. Water conservation measures would reduce the potable demand 121 gpd per dwelling unit, for a savings of 1.2 mgd or 11 percent. Under this alternative, it is possible the project demand could be satisfied by expansion of the Otay Water District system in conjunction with the purchase of San Diego County Water Authority capacity. Otay Water District master planned facilities could be oversized to accommodate the areas of this Otay Ranch alternative outside the Otay Water District planning area. Phasing of facilities would depend on the location of existing facilities in the Otay Water District system.

Reclaimed Water. The estimated reclaimed water demand for the Otay River parcel under the Low Density Alternative is 0.72 mgd. Reclaimed water would be provided under this alternative through an extension of existing OWD facilities.

Significant impacts would occur under the Low Density Alternative similar to the proposed project. These impacts include the unanswered question of which water jurisdiction will ultimately serve the project, the provision of facilities sufficient to serve the project, and the issues of water reclamation and future water availability. Due to the lack of detailed development and facility plans at this time, the Low Density Alternative would require further environmental review at the SPA Plan level similar to the proposed project.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- Annexation of land to the appropriate water jurisdiction.
- The preparation of a Water Master Plan by the project applicant in accordance with the engineering and facility standards of the appropriate water jurisdiction.
- Written verification from the water district that water will be adequately provided.

Wastewater and Sewer Service

Demand Generated

The total sewage generation for this alternative is estimated at 5.5 mgd for average flows. This alternative would provide gravity flow through Poggi and Telegraph Canyon drainage basins. The estimated flow from Poggi and Telegraph Canyon drainage basins is

1.20 mgd. Due to the low sewage flows projected and the low reclaimed water demand, future flows outside Poggi and Telegraph Canyon would be conveyed to the City of San Diego's Otay River Valley Interceptor. Less capacity in the wastewater treatment facility would be required than for the New Town Plan. Local conveyance facilities would be required to service this alternative. Phasing would require construction on the Otay River parcel to develop the downstream facilities necessary for eastern parcel development.

Significant wastewater and sewer service impacts would occur under the Low Density Alternative similar to the proposed project. These impacts include the unanswered questions of which sewer jurisdiction would serve the project, where the project's wastewater would be treated, and how facilities would be funded. Further environmental review at the SPA Plan level would be required under this alternative, similar to the proposed project, to ensure that adequate facilities are provided.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- Annexation of land to the appropriate sewer jurisdiction.
- The preparation of a Sewer Master Plan by the project applicant in accordance with the engineering and facility siting standards of the appropriate sewer jurisdiction.
- Written verification from the sewer district that sewer service will be adequately provided.

Integrated Waste Management

Demand Generated

The total waste generated by the 10,287 units and the additional population of 32,544 proposed under the Low Density Alternative, would be approximately 116 tpd, or 42,340 tpy. Through the use of integrated waste management techniques, it is anticipated that the amount of waste which would ultimately require landfill disposal would be approximately 58 tpd or 21,170 tpy. This alternative would require an integrated waste management system similar to the proposed project, although, the MRF and composting facility may be scaled back to serve the projected demand. The MRF may be a 100 tpd facility to serve Otay Ranch only, or may be incorporated with a larger regional facility. The additional solid waste generated under this alternative would result in potentially significant impacts to solid waste management in South County. Further environmental analysis of this issue would be required at the SPA Plan level.

Policy Consequences

No policy inconsistences would occur under this alternative.

Policy Consequences

No policy inconsistences would occur under this alternative.

Proposed Mitigation

Mitigation measures required under the Low Density Alternative include the preparation of an Integrated Waste Management Program by the project applicant prior to SPA Plan approval, ~~and~~ the project's participation in this program during all phases of SPA development, and compliance with County and City programs and regulations concerning long-term solid waste capacity.

Police Protection

Demand Generated

The Low Density Alternative would result in a demand for 45 law enforcement personnel and 9,181 square feet of office space. Under this alternative, a 9,181-square-foot police station would be located in the Eastern Urban Center to act as a substation for the designated jurisdiction.

Due to the fact that detailed development and facility plans are not available at this time, the project-specific impacts of the Low Density Alternative cannot be determined. Further environmental review would be required at the SPA Plan level, similar to the proposed project, to ensure adequate facilities and staff are available to serve the project. At this stage of review, it has been determined that the unresolved issues with respect to the provision and funding of services and facilities constitute significant impacts.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to the approval of any SPA Plan under the alternative include:

- The preparation of a comprehensive Law Enforcement Master Plan by the project applicant in accordance with the police emergency response standards of the City of Chula Vista and County of San Diego.

Fire Protection and Emergency Medical Service

Demand Generated

The Low Density Alternative would require three fire protection facilities and one emergency service facility.

The Low Density Alternative would result in potentially significant impacts to the provision of fire protection and emergency medical service. This determination has been made due to the current lack of detailed development and facility plans which would be made available during the SPA Plan review process. Further environmental review of fire protection service would be required at the SPA Plan level to ensure adequate facilities and staff are provided to serve the project.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to any SPA Plan approval under this alternative include the preparation of a comprehensive Fire Master Plan by the project applicant in accordance with the appropriate service provider. The master plan shall demonstrate that the City of Chula Vista and County of San Diego fire service standards will be achieved and provisions for emergency medical service are included.

Schools

Demand Generated

The estimated 32,544 total population under the Low Density Alternative would generate demand for facilities necessary to serve 6,265 students. Approximately 7 schools on 108 acres would be required. This alternative proposes five elementary school sites ~~and~~ one junior high site and one high school site on the Otay River parcel, which would be considered adequate.

Although 7 schools are proposed under the Low Density Alternative, the lack of detailed development and facility plans at this stage of analysis make it difficult to determine the project-specific impacts on schools. Further environmental review is required prior to SPA Plan approval to ensure the adequate provision of school facilities. Until that time, this alternative is considered to have potentially significant impacts on schools.

Policy Consequences

Both the County of San Diego and the City of Chula Visa identify joint planning and siting of schools with other related public facilities as a planning objects. The population in this alternative would not generate sufficient demand to warrant integration of school facilities with social, health, and/or day care programs. Collocation of complementing services would be difficult to realize due to decreased population demand for multiple services; therefore, the joint planning and siting objective would not be met under this alternative.

Proposed Mitigation

Mitigation Measures required prior to SPA Plan approval under this alternative include the preparation of a Schools Master Plan by the project applicant in close coordination with the affected school districts. The project applicant shall also provide documentation to the appropriate jurisdiction confirming school district satisfaction of facility funding.

Library Service

Demand Generated

The estimated 32,544 total population under the Low Density Alternative would generate a demand for 15,459 square feet of additional library space. Based on the assumption that the Otay River Parcel would fall under the jurisdiction of the City of Chula Vista and the Proctor Valley and San Ysidro Parcels would remain in unincorporated territory, population distribution projects the following geographic demand:

An additional 97,632 books would be required for the residents of Otay Ranch under this alternative. One 15,459-square-foot branch library is proposed in the EUC which meets the requirement for library space. This library would be a branch library of an existing library system.

Although a total of 15,459 square feet of library space is proposed under the Low Density Alternative, the lack of detailed development and facility plans at this stage of analysis make it difficult to determine the project-specific impacts on libraries. Further environmental review would be required prior to SPA Plan level, similar to the proposed project, to ensure adequate facilities and staff would be available to serve the proposed project. At this stage of review, it has been determined that the unresolved issues with respect to the provision and funding of services and facilities constitute significant impacts.

Policy Consequences

The County of San Diego's Public Facility Element for library service identifies the following factors for siting of libraries (Implementation Measure 3.1.3):

- Access to the intended service population;
- Availability of the property;
- Existing library deficiency in intended service area;
- Suitability of site to meet identified needs; and
- Location of the site relative to complementary facilities, such as schools, parks, and civic centers.

The Low Density Alternative may disperse the population in such a way as to decrease access to library service by the intended service population which would conflict with the objects outlined above.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- The preparation of a Library Master Plan by the project applicant in accordance with the criteria of the applicable jurisdiction.

Parks, Recreation, and Open Space

Demand Generated

The demand for neighborhood and community parks would be approximately 98 acres. Regional park demand would be for 488 acres.

Seven neighborhood parks and three community parks totaling 164 acres are planned under this alternative, a majority of which would be located on the Otay River parcel. The 164 acres would be in excess of the 98 acre requirement. The undeveloped portion of the Low Density Alternative, 13,457 acres, would be dedicated to natural open space. The open space system would link the Otay River Valley, San Ysidro mountain area, and the Jamul Mountains. A greenbelt system is proposed between the developed areas to connect

the natural areas with the local park facilities and residential areas, and a trail system travels throughout the open space.

The lack of detailed development and facility plans at this stage of analysis make the full extent of this alternative's impact on parks, recreation, and open space difficult to determine. Further environmental review would be required prior to SPA Plan approval to ensure the provision of adequate parks, recreation, and open space. Until that time, this alternative is considered to have potentially significant impacts on parks, recreation and open space with respect to siting, funding and phasing.

Policy Consequences

The County's Public Facility Element for Parks and Recreation calls for the co-location of local and regional parks with other public facilities such as schools, parks, and other public lands when appropriate (Implementation Measure 3.2.1). This may be difficult to realize under the Low Density Alternative due to the proposed distribution of development.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval include the preparation of a Parks, Recreation and Open Space Master Plan by the project applicant in accordance with applicable standards for parkland acreage and facility needs of City of Chula Vista and County of San Diego. Dedication of land in accordance with requirements or payment of in lieu fees would mitigate any impacts to below a level of significance.

Electricity and Gas

Demand Generated

Additional substations and associated distribution lines would be required to serve development under the Low Density Alternative; placement of these facilities and associated impacts would be determined at the SPA Plan level.

SDG&E does not anticipate any significant impacts associated with the provision of electric and gas facilities for Otay Ranch, provided the following mitigation measures are implemented.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

- The project applicant shall work with SDG&E during all stages of electrical and gas facilities planning to minimize disturbance to sensitive resources (EIR proposed).
- Land uses adjacent to the SDG&E transmission lines shall be subject to review and comment by SDG&E (EIR proposed).

Health and Medical Facilities

Demand Generated

Based on the same methodology utilized in Section 3.13.11, it was estimated that the following health and medical facilities would be required under the Low Density Alternative:

- 1 99-bed nursing home
- 2 public and private community meeting spaces
- 55 commercial physician, dentist, chiropractic, mental health, therapeutic, laboratory, and medical services and supply offices

Policy Consequences

This alternative recommends that public health services for the residents of Otay Ranch be provided offsite. Satellite offices for public services and small scale village medical services are not proposed under this alternative, reducing the opportunities for co-location. Adequate alternate transportation may not exist within Otay Ranch under this alternative, resulting in limited access to offsite medical service providers. This alternative therefore conflicts with the county's Public Facility Element for health services resulting in a potentially significant impact.

Proposed Mitigation

Mitigation measures under this alternative include the involvement of appropriate governmental agencies and service providers during all stages of planning. Specific needs and siting of appropriate facilities shall be identified by the project applicant in conjunction with input from the health care providers prior to SPA Plan approval.

Senior and Social Service Facilities

Demand Generated

Although there are currently no statutory requirements for the provision of senior and social services, it is expected that development of the proposed project would have significant impacts on the provision of these services as the proportion of the population which is over the age of sixty continues to increase and the demand for social services in the region continues to grow.

Policy Consequences

Under this alternative, fewer onsite services would be available to the residents of the proposed project and the co-location of services would be less likely.

Proposed Mitigation

Mitigation measures under this alternative include the involvement of appropriate governmental agencies and service providers during all stages of planning. Specific needs and siting of appropriate facilities shall be identified prior to SPA Plan approval.

Cemeteries

Demand Generated

The Low Density Alternative would not generate enough demand to warrant the development of cemetery facilities, and existing facilities would be adequate; thus, no significant impacts would occur and no mitigation would be required.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Child Care

Demand Generated

The estimated population of 32,544 residents would generate demand for 1,299 formal child care slots. It is estimated that 52 percent of needed child care would be provided by large group facilities with an average capacity of 90 children. Therefore, the Low Density Alternative would generate a demand for eight 90-slot child care facilities.

Although there are currently no mandated requirements for the provision of child care facilities, the development of the proposed project is expected to have significant impacts on the provision of these services as the population increases in the project area. Further environmental review of this issue is required at the SPA Plan level to ensure that adequate child care facilities are available to serve Otay Ranch.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures include the provision of child care facilities as deemed necessary during the policy development process.

Animal Control

Demand Generated

The additional population in the south county area generated by the development under the Low Density Alternative would increase the demand for animal control facilities, resulting in a significant impact.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures require the project applicant participate in programs to equitably share the funding of animal control facilities and designate animal control facilities to provide adequate square footage of shelter space per dwelling unit to the satisfaction of the appropriate jurisdiction.

4.6.14.2 Analysis of Significance

Development under this alternative would result in significant impacts to the provision of public services and utilities at this level of analysis. Implementation of the measures outlined above at the SPA level would mitigate project-specific impacts to below a level of significance.

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4.6.15 Risk of Upset

4.6.15.1 Impact Analysis

The potential risks of upset associated with the Low Density Alternative would be similar to the risks associated with the New Town Plan. Soils contaminated with petroleum hydrocarbons and pesticides have been identified in the area of the ranch operations center on the Otay River parcel (Woodward-Clyde 1989). The Low Density Alternative proposes low and low-medium density residential development and a junior high school in the area of the ranch operations center; therefore, the potential exists for exposure to contaminated material in excess of State of California standards.

The area in the southern part of the Otay River parcel, previously used as the Brown Field Bombing Range, would be allocated to open space under this alternative. There is potential danger of an accident occurring due to disturbance of any unexploded ordnance in this area.

The areas adjacent to the Otay Landfill would be used for industrial development and open space. The potential exists for exposure to contaminated material in these areas resulting from previous use of the landfill for disposal of hazardous wastes. Potential air quality and noise impacts associated with the existing landfill operation are addressed in Sections 4.2.12 and 4.2.13, respectively.

4.6.15.2 Proposed Mitigation

The mitigation measures proposed for the New Town Plan (Section 3.14.3) would also be applicable to the Low Density Alternative. These measures include:

1. Soil and ground-water testing shall occur in the ranch operations center area potentially affected by the previous disposal of hazardous waste or historic pesticide use. The purpose of the testing shall be to identify areas of contamination in excess of federal and state standards. Should areas of excess contamination be identified, remediation shall occur prior to residential development. (EIR proposed.)

2. The applicant shall notify prospective buyers and the California Department of Health Services (DHS) as required, regarding their intention to develop the area adjacent to the Otay Landfill. (EIR proposed.)

3. A survey shall be conducted of the Brown Field Bombing Range by the Army to identify the presence of any unexploded ammunition. Should unexploded ordnance be located on the property, appropriate measures shall be taken for removal of the material. (EIR proposed.)

4. The transport of hazardous waste on existing and future roadways shall be conducted in accordance with the California Code of Regulations (CCR) and the Code of Federal Resolution (CFR). These regulations identify Department of Transportation (DOT) approved methods for packaging and containerizing hazardous waste and site appropriate options and procedures relative to the handling and transportation of these wastes. (EIR proposed.)

4.6.15.3 Analysis of Significance

Implementation of the measures identified above would mitigate health risks to below a level of significance.

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4.7 ENVIRONMENTAL ALTERNATIVE

4.7.1 Description

This alternative was developed to minimize environmental impacts of the proposed project, especially effects on steep slopes (greater than 25 percent) and sensitive biological and archaeological resources. In comparison to other project alternatives, the Environmental Alternative would result in the lowest gross density. Adoption of this alternative would result in 4,553 acres of residential development and allow for a maximum of 9,251 dwelling units at an overall density of 0.40 du/ac (Table 4.7-1). The local population would increase by 28,863 residents upon buildout of the Environmental Alternative. Approximately 73.4 percent of the homes would be single-family detached units, while the remainder would be multifamily attached units. As illustrated in Figure 4.7-1, a majority of the residential units would be situated on the Otay River parcel and developed in clusters of low, low-medium, and medium densities (average net density of 4.15 du/ac). No residential units would be located in the Eastern Urban Center. Development on the Proctor Valley parcel would be restricted to an area of large lot single-family residential (0.5 to 1 du/ac) above Lower Otay Lake and a small area of low density residential adjacent to the community of Jamul, making for an average net density of 0.38 du/ac. Large lot single-family development on the San Ysidro parcel would occur at an average residential net density of 0.33 du/ac and be restricted to the northeastern portion of the property. Residences would not be arranged in villages.

Under the Environmental Alternative, 16,981 acres of the 23,088 acre property would remain as open space, including the San Ysidro and Jamul Mountains areas. Many of the open space areas are characterized by slopes over 25 percent. A large portion of the Proctor Valley and San Ysidro parcels would be contained in the proposed open space system. No formal protection of resources would, however, occur since a resource management plan would not be proposed. Instead, Otay Ranch would be subject to the provisions of the Multiple Species, Wildlife, and Open Space Plan currently being developed by the County. To supplement the open space onsite, community and neighborhood parks are planned as active recreation areas. In addition to residential, park, and open space uses, this alternative proposes commercial uses along the freeway and retail commercial uses distributed throughout the Otay River parcel.

The Environmental Alternative specifies four special plan areas for detailed evaluation in the future: the Eastern Urban Center on the Otay River parcel, a conference center on the Ranch House property between the lakes, a resort on the northern shore overlooking Lower Otay Lake, and several village centers (permitting mixed residential, civic, and commercial uses). Several elementary, junior high, and high school, and a 225-acre university site are also planned for the Otay River parcel under this alternative.

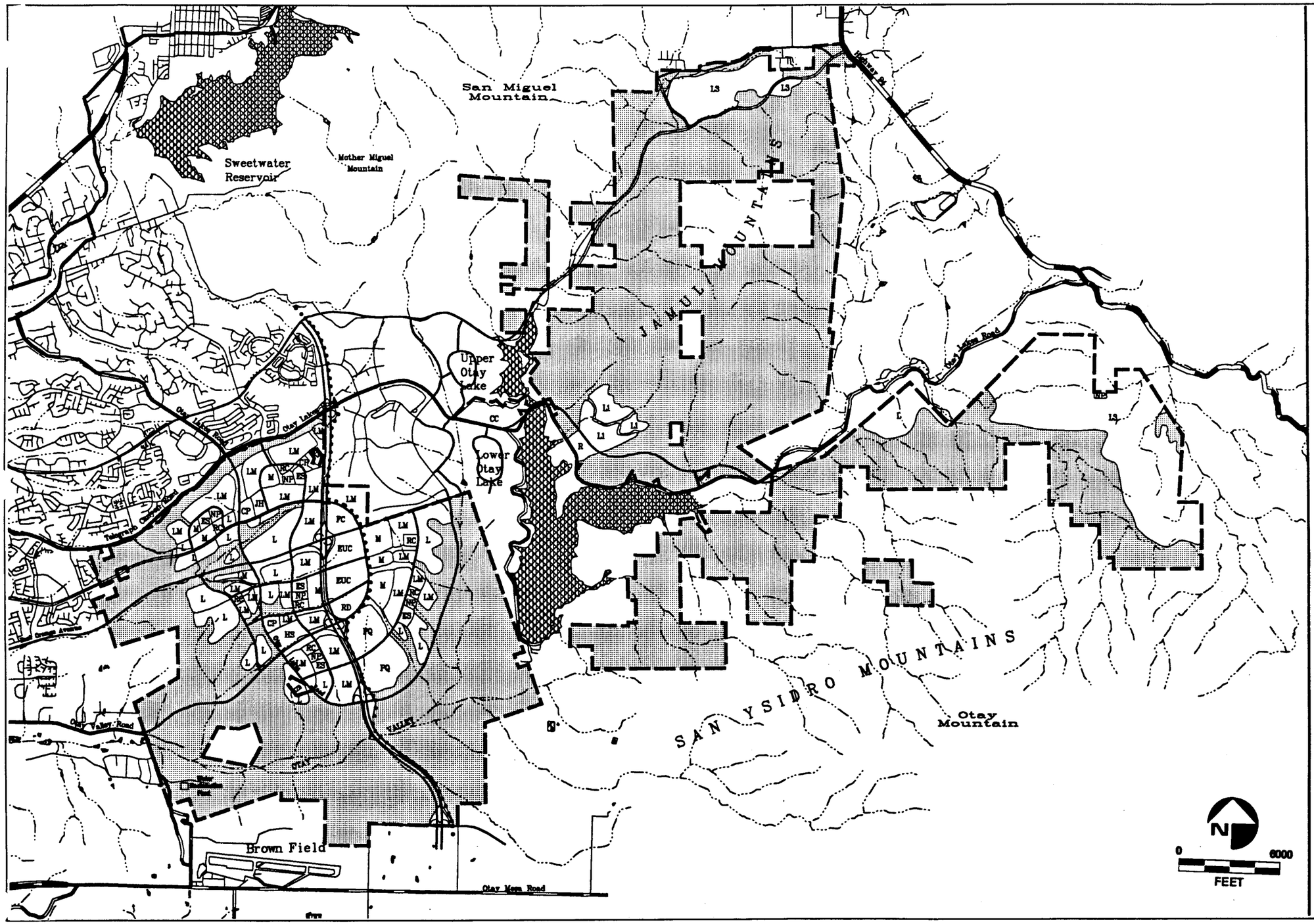
Infrastructure plans are similar to those of the other alternatives, although sizing of facilities would be reduced. Regional access to the site would be gained from the future extension of SR-125 and eastern extensions of East Orange Avenue, Otay Valley Road, East H Street, and East Palomar Street. As part of the proposed circulation plan, the Environmental Alternative features two Otay River Valley crossings, SR-125 and Heritage Road, and a public transit corridor paralleling the entire length of the freeway. Overall, roadway widths would be reduced under this alternative due to decreased vehicle generation.

Table 4.7-1

LAND USE STATISTICS
FOR ENVIRONMENTAL ALTERNATIVE

Land Use Designation	Residential Density (du/ac)	Otay River Parcel Acres	Otay River Parcel Dwelling Units	Proctor Valley Parcel Acres	Proctor Valley Parcel Dwelling Units	San Ysidro Parcel Acres	San Ysidro Parcel Dwelling Units	Otay Ranch Total Acres	Otay Ranch Total Dwelling Units
RESIDENTIAL									
Low	0 to 3	799	1,496	573	205	1,718	572	3,090	2,273
Low Medium	3 to 6	1,187	4,513	--		--		1,187	4,513
Medium	6 to 11	276	2,465	--		--		276	2,465
Medium High	11 to 18	--		--		--		--	--
High	18-27	--		--		--		--	--
Total Residential		2,262	8,474	573	205	1,718	572	4,553	9,251
COMMERCIAL									
Retail Commercial		78		--		--		78	
Freeway Commercial		62		--		--		62	
INDUSTRIAL									
Research Industrial		62		--		--		62	
PUBLIC/QUASI-PUBLIC									
Public Facilities/Schools		209		--		--		209	
University Site		225		--		--		225	
PARKS/SQUARES		111		--		7		118	
EASTERN URBAN CENTER									
Retail Commercial		186		--		--		186	
RESORT		--		40		--		40	
CONFERENCE CENTER		--		132		--		132	
OPEN SPACE									
Natural		5,999		7,152		3,830		16,981	
Manufactured		339		18		--		357	
FREEWAY		85		--		--		85	
TOTALS		9,618	8,474	7,915	205	5,555	572	23,088	9,251

Source: Robert Bein, William Frost & Associates, Project Team Land Use Alternatives - Otay Ranch, 1990; as revised by Ogden, 1992.



LEGEND

Open Space

Man Made Open Space

Residential

L3	Low 3
L2	Low 2
L1	Low 1
L	Low
LM	Low Medium
M	Medium
MH	Medium High
H	High

Commercial

RC	Retail Commercial
FC	Freeway Commercial

Industrial

RD	Research/Development
Isd	City of San Diego Industrial
I	Limited Manufacturing

Public & Open Space

PQ	Public & Quasi Public
HS	High School
JH	Junior High School
ES	Elementary School
NP	Neighborhood Park
CP	Community Park

Special Plan Area

EUC	Eastern Urban Center
R	Resort
CC	Conference Center

Hwy 125

Parkway

Transit corridor

Primary arterials

Otay Ranch property

OGDEN

Environmental Alternative

FIGURE

4.7-1

4.7.2 Land Use, Planning, and Zoning

4.7.2.1 Impact Analysis

Displacement of Existing Land Uses

The following land uses would be displaced by this alternative: agricultural operations on portions of the site not proposed for open space, nine residences and several agricultural-related structures located at the old headquarters for the Otay Ranch operations (the Old Ranch Complex), five houses and associated structures located at the Otay Ranch House (the Ranch House itself would remain), and the Target Tossers Gun Club. Onsite land uses located south of Otay River (such as a recycling business and several houses) would not be displaced by this alternative.

The displacement of agriculture on the site is addressed in Section 3.7 of this report. The loss of 14 houses presently located on the site is not a significant land use impact since the project would replace these units with new residential development. The cultural resource impact of this disturbance is discussed in Section 4.7.5.

Compatibility of the Project with Adjacent Land Uses

Most of the land uses proposed under this alternative would be buffered from offsite land uses by open space incorporated into the project. On the Otay River parcel, large amounts of open space planned for the southern and western part of the parcel would buffer planned Otay Ranch development from industrial land uses along Otay Valley Road, the Otay Landfill, Brown Field, the county detention facility, and the state prison. Onsite open space would also serve as a buffer between the project and the Sunbow residential development to the west, between the project and the Olympic Training Center to the east, and between the project and Telegraph Canyon Road to the north.

No open space buffer is incorporated between the proposed development for the Otay River parcel and adjacent EastLake development under this alternative. However, most of the land uses proposed along the mutual boundary of the two projects are of similar nature and density (i.e., low-medium and medium density residences). The one exception is where public/quasi-public land uses are proposed for the southwesterly corner of EastLake adjacent to proposed Otay Ranch low-medium density residential land uses. This is not a significant land use incompatibility as long as adequate buffering is included for the mutual borders of the closest Otay Ranch lots within the applicable Otay Ranch SPA plan.

The primary land uses proposed for the Proctor Valley and San Ysidro parcels of Otay Ranch under this alternative are open space and low density residential. A SPA that includes a resort is planned for the Proctor Valley parcel just east of Lower Otay Lake. It would, however, be surrounded by open space on all four sides. The low density residential development in the Proctor Valley and San Ysidro parcels would be surrounded by either open space or other low density residential development (along Proctor Valley Road in Jamul). FAA review of the site plan would be necessary to determine whether or not the SPA and adjacent low density residential development would result in a land use incompatibility with the San Diego Air Sports Center. Therefore, no significant incompatibilities with adjacent land uses would result from development proposed for the Proctor Valley and San Ysidro parcels under the Environmental Alternative with the possible exception of the San Diego Air Sports Center and growth inducement impacts from the extension of infrastructure and the Urban Limit Line (see Section 7, Growth Inducement).

Compatibility of Proposed Land Uses Internal to the Project

Land uses proposed for the Otay River parcel include varying densities of residential development with supporting retail commercial and public/quasi-public uses, regional employment centers along the east side of the proposed alignment of SR-125 that include research and development, an Eastern Urban Center, and freeway-serving commercial uses. This alternative assumes the relocation of the FAA VORTAC facility and of a water reservoir that are currently located on out-parcels located within the boundaries of the Otay River parcel.

Based on the proposed Land Use Plan map for this alternative, no significant land use incompatibilities would result from the project's internal design in the Otay River parcel as long as the applicable SPA plans contain adequate buffering and landscaping guidelines for areas between residential and non-residential development. The most intense non-residential land uses are located along the proposed freeway and are generally buffered from sensitive low density residential neighborhoods by open space or more dense residential development. It should be noted that if the existing FAA VORTAC facility and water reservoir are not relocated, then proposed land uses would be inconsistent with these existing land uses. Impacts may also occur due to proposed residential land uses along SR-125 (see Section 4.7.13, Noise). Economic impacts to the Eastern Urban Center would not occur since the entire center would be located east of the highway instead of being divided by the highway. No land use incompatibilities would occur as a result of the Nelson and Sloan quarry since the Environmental Alternative proposes open space on all sides.

No land use incompatibilities internal to the project would occur in the Proctor Valley and San Ysidro parcels since the primary land uses proposed are open space and low density residential.

Project Consistency with Applicable Existing Land Use Plans, Policies, Designations, and Zoning

This alternative would result in an unavoidable change from the site's existing open space and agricultural land uses to urban and semi-rural land uses. The primary change would occur on the Otay River parcel adjacent to EastLake Greens and in proximity to development on the north side of Telegraph Canyon Road. The Proctor Valley parcel, the San Ysidro parcel, the western portion of the Otay River parcel, and the entire Otay River Valley would remain primarily as open space (approximately 78 percent of the overall site).

The Environmental Alternative is generally consistent with County of San Diego goals and policies applicable to the project as listed in Section 3.1.1. The alternative has been developed to avoid various impacts to the environment, including the existing rural character of the Proctor Valley and San Ysidro parcels (where development under the alternative is proposed primarily at a density of 1 du/2-4 acres), that could occur from implementation of one of the other alternate plans. No development is proposed within any of the RCAs mapped on the county's Conservation Element (with the exception of very small areas of the lowest density residential development, L3, in the northeastern corner of the San Ysidro parcel) (see Figure 3-1.8).

This alternative is potentially inconsistent with applicable City of San Diego and Chula Vista goals for the project site (i.e., the Otay River parcel). Both of these jurisdictions envision development of the Otay River parcel at greater development intensities than those proposed in the Environmental Alternative. For example, the City of San Diego intended

the portions of the site within its jurisdiction to be developed as industrial land. Since the Environmental Alternative proposes to keep this area as open space, this is a significant inconsistency with City of San Diego goals for the site.

The City of Chula Vista includes much of the remainder of the Otay River parcel in its General Plan as part of its Eastern Territories. Goals and policies for this area that are not met by the Environmental Alternative are Goal 3-Objective 16 regarding the provision of mobile home parks, Goal 4-Objective 14 regarding the development of a four-year college or university in the Eastern Territories, and Goal 5-Objective 20 regarding the implementation of the Chula Vista greenbelt, open space, and trail system. Inconsistencies with the City of Chula Vista Goal 3-Objective 16 and Goal 5-Objective 20 are not significant since the proposed Land Use Plan map is general enough to allow for the incorporation of mobile homes and a trail system at a later date.

The lack of an industrial designation on the City of San Diego portion of the site and the lack of a designation for a four-year college or university in the Eastern Territories are significant inconsistencies with the goals and objectives for the project site of the City of San Diego and City of Chula Vista, respectively.

4.7.2.2 Proposed Mitigation

The following measures are required at the GDP/Subregional Plan level and will be implemented at the SPA level:

1. For the area of the Otay River parcel adjacent to EastLake landscaping, grading, and buffering guidelines shall be designed to prevent land use interface impacts such as noise, lighting, and loss of privacy between Otay Ranch and EastLake land uses along the two projects' common border. The guidelines shall be reviewed by the city or county planning department that has jurisdiction over this area to ensure that proposed guidelines are adequate to prevent significant interface impacts from occurring. (EIR proposed.)

2. The project plans shall be submitted to the FAA for review as soon as possible to determine if land use incompatibilities would exist between the project and the existing San Diego Air Sports Center. If it is determined that such incompatibilities would occur, then the extent of the incompatibilities (i.e., the size of the buffer needed) must also be determined. The project applicant shall then revise the project's phasing plan to allow for use of the sports center until its option has expired (i.e., through the year 2002). (EIR proposed.)

3. The SPA plans developed for the Otay River parcel shall contain landscaping, grading, and buffering guidelines designed to prevent land use interface impacts such as noise, lighting, and loss of privacy from occurring between adjacent internal land uses, especially between single-family and multifamily residential land uses, and between residential and non-residential land uses. All guidelines shall be reviewed by the city or county planning department that has jurisdiction over the area to ensure that proposed guidelines are adequate to prevent significant interface impacts from occurring. Policy A-6, as listed in the Village Character Issue Paper (July 24, 1991) regarding "buffering and/or transition techniques," shall be included in the land use policies of the GDP. (EIR proposed.)

4. If the existing FAA VORTAC facility and the water reservoir located in the central part of the Otay River parcel are not relocated, the Subregional Plan map

shall be revised to indicate these two existing land uses. In addition, landscaping, grading, and buffering guidelines shall be designed to prevent land use interface impacts. The guidelines shall be reviewed by the city or county planning department that has jurisdiction over this area to ensure that proposed guidelines are adequate to prevent significant interface impacts from occurring. (EIR proposed.)

4.7.2.3 Analysis of Significance

The proposed mitigation measures would mitigate most of the potential land use impacts to below a level of significance. However, the Environmental Alternative would still change the existing character of the site from undeveloped or underdeveloped open space to developed land, especially near Jamul, on the northeast side of Lower Otay Lake and in the easterly part of the San Ysidro parcel.

The Environmental Alternative is inconsistent with city industrial policies for the City of San Diego portion of the site and with the City of Chula Vista's plans for a four-year college or university on the project site. These are significant, unavoidable impacts of this alternative since no measures are available to mitigate these inconsistencies with City of San Diego and City of Chula Vista goals and objectives for the project site other than to revise the Subregional Plan map to include these land uses. The inclusion of these uses would be contradictory to the main objective of this alternative, which is to provide a low density and environmentally sensitive alternative to the project as proposed.

4.7.3 Landform Alteration/Aesthetics

4.7.3.1 Impact Analysis

Change to the Overall Visual Character of the Project Area

This alternative would change the existing visual character of the Otay River parcel of the site from open space and agriculture to urban development surrounded by agriculture to the west and open space associated with the Otay River Valley to the south. The area that is proposed for development would appear as a continuation of the EastLake Greens project and other existing development to the north and east. Both the Proctor Valley and San Ysidro parcels would remain primarily undisturbed. Although the Environmental Alternative retains much of the site as open space, the overall change in the site's visual character from open space to development would be unavoidable and significant. Night lighting impacts would be less than significant since the project would have to comply with the county's Dark Sky Ordinance or similar city ordinances.

Alteration on Significant or Sensitive Landforms

The primary area where potentially significant landform alteration of sensitive areas might occur if the Environmental Alternative is selected would be in the easterly portion of the San Ysidro parcel. In this area, however, development would occur only at very low densities and thus steep slopes could be avoided through careful design and grading. Implementation of the Environmental Alternative would not involve significant amounts of landform alteration in other areas of onsite steep hillsides and canyons (i.e., Wolf Canyon, Poggi Canyon, Salt Creek, the north side of the Otay River Valley, the northwestern corner of the site along Telegraph Canyon Road, in Proctor Valley, and in the southwestern corner of the San Ysidro parcel). All of these areas would be left in open space. Therefore, landform alteration impacts on sensitive landforms would be less significant than those of the New Town Plan. No grading would occur within the Otay River Valley except that associated with park development in accordance with the regional park plans.

The short-term visual effects of grading operations associated with the Environmental Alternative would be adverse, but less than significant. All grading operations would be temporary and would occur primarily in areas isolated from intensely-used public viewsheds, or in areas where grading and construction is occurring in conjunction with other development and thus is a common sight (e.g., Otay River parcel).

The Environmental Alternative would still have potentially significant long-term visual impacts from landform alteration due to the potential for significant amounts of grading on the Otay River parcel and on the top of the mesa to the northeast of Lower Otay Lake to accommodate the land uses proposed there. The amount of grading likely to be necessary would be minimized under this alternative due to low residential densities proposed throughout the project . In the vicinity of the lake, however, long-term visual impacts of grading (i.e., landform alteration) would still be potentially significant. No long-term visual impacts of grading would occur in the southwestern portion of the San Ysidro parcel since this area of the site would be left undisturbed.

Impacts In Highly Visible Areas

A discussion of each of the sensitive viewshed areas in proximity to the project is provided below:

- Telegraph Canyon Road - Development proposed for areas visible from Telegraph Canyon Road would be primarily low-medium density residential, although small amounts of medium density residential development as well as three schools and several parks might also be visible. Portions of the viewshed would also be left undisturbed. This type of development is similar to the development visible from Telegraph Canyon Road to the north and to the south within the EastLake Greens project. Therefore, no significant visual impacts to the viewshed associated with Telegraph Canyon Road or with residents located on the bluffs along the north side of Telegraph Canyon Road would occur.

- Otay Valley Road - The entire Otay River Valley within the Otay River parcel, as well as the slopes on both sides of the valley, would be left undisturbed under the Environmental Alternative. Otay Valley Road itself would be extended north and east of its existing alignment, but would remain above the valley. This would diminish access to the valley as a scenic resource and would require some landform alteration when crossing Wolf Canyon. However, it would not preclude the creation of other means of accessing the valley at a later time.

  Since the portions of the project site that are currently visible from Otay Valley Road would be left undisturbed, no significant visual impacts to the viewshed of Otay Valley Road would occur.

- Orange Avenue and Hunte Parkway - The development proposed along future extensions of Orange Avenue and Hunte Parkway would be similar to adjacent development (i.e., Sunbow and EastLake Greens) as well as to the development that is characteristic of eastern Chula Vista (i.e., mixed use urban development). Therefore, no significant visual impacts from development proposed within the viewshed of these two roads would occur.

- Proctor Valley Road and Jamul - No development is proposed under the Environmental Alternative for areas adjacent to Proctor Valley Road up until the outskirts of Jamul. Therefore, no visual impacts would occur to the Proctor Valley viewshed. No significant visual impacts would occur to Jamul residents as a result of this alternative since the development proposed by the Environmental Alternative is similar to (or of even lower density than) the residential development that already occurs in this part of Jamul. The conversion of open space would be considered an adverse effect on visual resources in the vicinity of Jamul.

- Otay Lakes Road, Wueste Road, and Lower Otay Lake - No development is proposed by the Environmental Alternative for areas within these viewsheds except for a resort and low density residential development on the mesa located northeast of Lower Otay Lake. Visual impacts of this development are potentially significant due to the high visibility of the mesa and the surrounding open space nature of the area.

  Otay Lakes Road would be relocated from along the lake's northeastern shoreline to an alignment internal to the Otay Ranch project under the Environmental Alternative. This would have potentially significant visual impacts since the scenic aspects of the road may be reduced due to the alignment.

- Highway 94 - The portions of the site visible from Highway 94 under the Environmental Alternative would be limited to very low density residential development in the northern part of the Proctor Valley parcel and in the eastern part of the San Ysidro parcel. Views of the development would be medium- to long-

range since the highway is not located immediately adjacent to the project site boundaries; thus no significant visual impacts would occur.

4.7.3.2 Proposed Mitigation

Change to the Overall Visual Character of the Project Area

No mitigation is available; impacts are unmitigable.

Landform Alteration on Significant or Sensitive Landforms

The GDP shall contain specific landform alteration standards that provide more stringent protection of sensitive landforms than is afforded by the proposed New Town Plan. At a minimum, the program shall contain language that provides protection to the extent that is provided in the county's Resource Protection Ordinance No. 7631 and in existing City of Chula Vista and City of San Diego Grading Ordinances, all of which regulate or restrict the grading that can occur on slopes with gradients steeper than 25 percent and have a minimum rise of 50 feet.

Future visual analysis of the proposed grading plans for the development northeast of Lower Otay Lake shall be undertaken to develop specific mitigation measures to reduce the grading impacts of the resort and residential land uses. Mitigation measures that may be required to reduce visual grading impacts of these particular land uses could include increasing the size of the resort building setbacks from the edge of the mesa and limiting the height and length of manufactured slopes visible from Otay Lakes Road and Wueste Road.

Development within Sensitive Viewsheds

Visual impacts of the proposed resort to be located on the mesa east of Lower Otay Lake shall be further evaluated once a site plan and building schematics have been developed. The buildings shall be set back from the edge of the mesa and no more than three stories in height. Color schemes for the development around the lake shall be limited to natural colors that blend in with the existing environment. In addition, non-reflective/non-glare building materials shall be used to the greatest extent feasible to minimize the visual impacts of the development. Design guidelines shall be applied to all other development proposed for the eastern side of Lower Otay Lake.

To mitigate visual impacts resulting from the realignment of Otay Lakes Road, a study shall be conducted once the specific alignment and surrounding development have been determined to identify view corridors that shall be preserved for travelers along the road. The restriction of building heights within the resort could achieve this effect. Additional mitigation measures would include the establishment of viewing areas along the road where travelers could stop and take pictures or enjoy the view of the lake, and the rehabilitation of the abandoned alignment of Otay Lakes Road as additional lake viewing access. The old alignment shall be left open to the public for pedestrian, equestrian, and bicycle access to the lake.

4.7.3.3 Analysis of Significance

Assuming implementation of the above mitigation measures and the grading and design guidelines proposed in the New Town Plan, no significant landform alteration impacts would occur as a result of the Environmental Alternative. Impacts to existing visual character would be significant and unmitigable.

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4.7.4 Biological Resources

4.7.4.1 Impact Analysis

Reduction of Vegetative Communities/Habitats

The reduction of both natural and disturbed habitats associated with the Environmental Alternative is shown in Table 4.7.4-1. The overall reduction of natural open space would be 26.5 percent; by planning area it is estimated at 38 percent for the Otay River parcel, 10 percent for the Proctor Valley parcel, and 31 percent for the San Ysidro parcel. An overlay of the proposed development areas onto the vegetation map of Otay Ranch is included in ~~the~~ Appendix A-9.

Reduction of Sensitive Habitats

A summary of the reduction of sensitive habitats with the implementation of the Environmental Alternative is shown in Table 4.7.4-2. This table consolidates the various sensitive habitats from Table 4.7.4-1 and separates those habitats which are considered wetlands. The impact to sensitive upland habitats is due ~~entirely~~ to the reduction of Diegan coastal sage scrub, ~~and~~ maritime succulent scrub, and valley needlegrass grassland. An estimated one-third of the total impact to scrub habitat is from the reduction of disturbed coastal sage scrub and coastal sage scrub/nonnative grassland areas. An estimated 72 percent of the impact would occur in the eastern portion of the San Ysidro parcel, 26.6 percent in the Proctor Valley parcel, and only 1.4 percent in the Otay River parcel. An evaluation of the relative value of the scrub habitat affected in the manner shown on Table 4.2.4-3 for the Phase I-Progress Plan would be expected to show that over 98 percent of the acreage affected has a very low ranking. The reduction of this habitat onsite is considered a significant effect based on rapidly declining acreage of this habitat in the region, the presence of sensitive plants and animals, and other factors (raptor foraging). However, this effect is mitigated by the overall retention of over 85 percent of this habitat onsite and the demonstrated retention of the highest value resources within this acreage (see Table 4.7.4-3).

Reduction of Sensitive Plants

A summary of the impact analysis is included in Table A-7 of Appendix A; the numbers of points of occurrence to be impacted by the Environmental Alternative and total numbers of occurrences for each species is presented in Table A-8 of Appendix A. An overlay of the Environmental Alternative on the sensitive plant map for Otay Ranch is included in the Appendix A-4. Overall, this alternative would not substantially impact sensitive plants, especially those high priority species associated with vernal pools.

High Priority Species

The following state-listed species would be unaffected by the Environmental Alternative.

Dunn's Mariposa Lily (*Calochortus dunnii*)
Slender-pod Caulanthus (*Caulanthus stenocarpus*)
San Diego Button-celery (*Eryngium aristulatum* var. *parishii*)
Mexican Flannelbush (*Fremontodendron mexicanum*)
Willowy Monardella (*Monardella linoides* var. *viminea*)
California Orcutt Grass (*Orcuttia californica*)
Otay Mesa-mint (*Pogogyne nudiuscula*)

Table 4.7.4-1 (Revised)

SUMMARY OF IMPACTS TO VEGETATIVE HABITATS
ENVIRONMENTAL ALTERNATIVE

HABITAT	OTAY RIVER Open Acres	OTAY RIVER Impacted Acres	OTAY RIVER Total Existing	OTAY RIVER % Impacted	PROCTOR VALLEY Open Acres	PROCTOR VALLEY Impacted Acres	PROCTOR VALLEY Total Existing	PROCTOR VALLEY % Impacted	SAN YSIDRO Open Acres	SAN YSIDRO Impacted Acres	SAN YSIDRO Total Existing	SAN YSIDRO % Impacted	TOTAL	Total Open	Total Impacted	Total % Impacted
UPLAND SCRUB COMMUNITIES																
Diegan coastal sage scrub	1801.2	15.6	1816.8	0.9%	4696.4	146.4	4842.8	3.0%	2237.0	999.3	3236.3	30.9%	9895.9	8734.6	1161.3	11.7%
Southern mixed chaparral	0.0	0.0	0.0	0.0%	568.9	0.0	568.9	0.0%	505.8	11.4	517.2	2.2%	1086.1	1074.7	11.4	1.0%
Chamise chaparral	7.0	0.0	7.0	0.0%	878.3	86.2	964.5	8.9%	450.7	18.4	469.1	3.9%	1440.6	1336.0	104.6	7.3%
Mixed chaparral/ coastal sage scrub	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	29.3	0.0	29.3	0.0%	29.3	29.3	0.0	0.0%
Mixed chaparral/chamise chaparral	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	23.7	0.0	23.7	0.0%	23.7	23.7	0.0	0.0%
Mixed chaparral/Tecate cypress	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	86.9	0.0	86.9	0.0%	86.9	86.9	0.0	0.0%
Coastal sage scrub/non-native grassland	9.0	0.0	9.0	0.0%	0.0	0.0	0.0	0.0%	119.2	242.9	362.1	67.1%	371.0	128.2	242.9	65.5%
Coastal sage scrub/mixed chaparral	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	94.9	2.4	97.3	2.5%	97.3	94.9	2.4	2.1%
Maritime succulent scrub	276.6	8.1	284.7	2.8%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	282.0	276.6	8.1	0.7%
Disturbed coastal sage scrub	0.9	0.4	1.3	31.7%	466.5	313.7	780.2	40.2%	0.0	0.0	0.0	0.0%	781.4	467.4	314.1	40.2%
SUBTOTAL	**2094.6**	**24.1**	**2118.7**	**1.1%**	**6610.0**	**546.3**	**7156.3**	**7.6%**	**3547.5**	**1274.3**	**4821.8**	**26.4%**	**14094.1**	**12252.1**	**1844.7**	**13.1%**
FLOODPLAIN SCRUB																
Baccharis scrub	18.8	0.0	18.8	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	18.8	18.8	0.0	0.0%
Tamarisk scrub	3.6	0.0	3.6	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	3.6	3.6	0.0	0.0%
Tamarisk/mulefat scrub	388.9	3.4	392.3	0.9%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	392.3	388.9	3.4	0.9%
Mulefat scrub	112.8	0.0	112.8	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	112.8	112.8	0.0	0.0%
SUBTOTAL	**524.1**	**3.4**	**527.5**	**0.6%**	**0.0**	**0.0**	**0.0**	**0.0%**	**0.0**	**0.0**	**0.0**	**0.0%**	**527.5**	**524.1**	**3.4**	**0.6%**
GRASSLAND / MEADOW																
Grassland	0.0	38.3	38.3	100.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	38.3	0.0	38.3	100.0%
Non-native grassland	1082.9	43.7	1126.6	3.9%	58.8	3.1	61.9	5.0%	8.5	88.9	97.4	91.3%	1285.9	1150.2	135.7	10.6%
Non-native grassland/coastal sage scrub	138.4	6.9	145.3	4.7%	0.0	0.0	0.0	0.0%	11.4	353.4	364.8	96.9%	510.1	149.8	360.3	70.6%
Disturbed non-native grassland	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	12.1	0.0	12.1	0.0%	12.1	12.1	0.0	0.0%
Valley needlegrass grassland	0.0	0.0	0.0	0.0%	49.1	0.0	49.1	0.0%	0.0	0.0	0.0	0.0%	49.1	49.1	0.0	0.0%
Alkali meadow	0.0	0.0	0.0	0.0%	127.0	10.6	137.6	7.7%	0.0	0.0	0.0	0.0%	137.6	127.0	10.6	7.7%
Disturbed alkali meadow	0.0	0.0	0.0	0.0%	7.6	4.8	12.4	38.5%	0.0	0.0	0.0	0.0%	12.4	7.6	4.8	38.5%
Disturbed valley needlegrass grassland	0.0	0.0	0.0	0.0%	113.9	100.7	214.6	46.9%	0.0	0.0	0.0	0.0%	214.6	113.9	100.7	46.9%
SUBTOTAL	**1221.3**	**88.9**	**1310.2**	**6.8%**	**356.5**	**119.2**	**475.6**	**25.1%**	**31.9**	**442.3**	**474.2**	**93.3%**	**2260.0**	**1609.7**	**650.3**	**28.8%**

Table 4.7.4-1 (Continued)

SUMMARY OF IMPACTS TO VEGETATIVE HABITATS
ENVIRONMENTAL ALTERNATIVE

HABITAT	OTAY RIVER Open Acres	OTAY RIVER Impacted Acres	OTAY RIVER Total Existing	OTAY RIVER % Impacted	PROCTOR VALLEY Open Acres	PROCTOR VALLEY Impacted Acres	PROCTOR VALLEY Total Existing	PROCTOR VALLEY % Impacted	SAN YSIDRO Open Acres	SAN YSIDRO Impacted Acres	SAN YSIDRO Total Existing	SAN YSIDRO % Impacted	TOTAL	Total Open	Total Impacted	Total % Impacted
WOODLANDS																
Coast live oak woodland	0.0	0.0	0.0	0.0%	175.6	0.0	175.6	0.0%	4.9	0.0	4.9	0.0%	180.5	180.5	0.0	0.0%
Southern live oak riparian forest	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	66.9	8.1	75.0	10.8%	75.0	66.9	8.1	11.0%
Southern interior cypress forest	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	164.5	0.0	164.5	0.0%	164.5	164.5	0.0	0.0%
Sycamore alluvial woodland	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	7.0	0.0	7.0	0.0%	7.0	7.0	0.0	0.0%
Southern willow scrub	12.3	0.0	12.3	0.0%	1.1	0.6	1.7	33.0%	0.0	0.0	0.0	0.0%	14.0	13.4	0.6	2.0%
SUBTOTAL	**12.3**	**0.0**	**12.3**	**0.0%**	**176.7**	**0.6**	**177.3**	**0.3%**	**243.3**	**8.1**	**251.4**	**3.2%**	**441.0**	**432.3**	**8.7**	**2.0%**
WETLANDS																
Vernal Pool*	162.0	0.0	162.0	0.0%	14.5	0.4	14.9	2.7%	1.0	0.0	1.0	0.0%	177.9	177.5	0.4	0.2%
Coastal and valley freshwater marsh	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	3.3	0.0	3.3	0.0%	3.3	3.3	0.0	0.0%
Aquatic habitat	0.0	0.0	0.0	0.0%	2.5	0.0	2.5	0.0%	0.0	0.0	0.0	0.0%	2.5	2.5	0.0	0.0%
SUBTOTAL	**0.0**	**0.0**	**0.0**	**0.0%**	**2.5**	**0.0**	**2.5**	**0.0%**	**3.3**	**0.0**	**3.3**	**0.0%**	**5.8**	**5.8**	**0.0**	**0.0%**
OTHER																
Developed	0.0	9.8	9.8	100.0%	0.0	97.9	97.9	100.0%	0.0	0.0	0.0	0.0%	107.7	0.0	107.7	100.0%
Exotic trees	21.1	3.9	25.0	15.5%	4.6	0.0	4.6	0.0%	3.2	0.0	3.2	0.0%	32.9	29.0	3.9	11.8%
RANCH EXOTIC	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%
Agriculture	2123.3	3490.4	5613.7	62.2%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	5613.7	2123.3	3490.4	62.2%
SUBTOTAL	**2144.4**	**3504.1**	**5648.5**	**62.0%**	**4.6**	**97.9**	**102.5**	**95.5%**	**3.2**	**0.0**	**3.2**	**0.0%**	**5754.3**	**2152.3**	**3602.0**	**62.6%**
Grand Total	*5997*	*3620*	*9617*	*37.6%*	*7150*	*764*	*7914*	*9.7%*	*3829*	*1725*	*5554*	*31.1%*	*23083*	*16976*	*6109*	*26.5%*

*Not included in acreage total because these acres are covered by other habitats.

Table 4.7.4-2 (Revised)

IMPACTS OF THE ENVIRONMENTAL ALTERNATIVE ON SENSITIVE HABITATS

Cover Type	Existing Acres	Impacted Acres	% Impacted
Upland Communities			
Diegan coastal sage scrub[1]	11,146	1,720	15.4%
Maritime succulant scrub	282	8	2.9%
Southern interior cypress forest	165	0	0
Coast live oak woodland	181	0	0
Valley needlegrass grassland[2]	264	101	38.2%
Subtotal	12038	1829	15.2%
Wetlands			
Baccharis scrub	19	0	0
Tamarisk scrub	4	0	0
Tamarisk scrub/mulefat scrub	392	3	0.9
Mulefat scrub	113	0	0
Alkali meadow	138	11	7.7%
Disturbed alkali meadow	12	5	38.7%
Southern live oak riparian forest	75	8	10.8%
Sycamore alluvial woodland	7	0	0
Southern willow scrub	14	1	4.3%
Vernal pool[3]	179	<1	<1%
Coastal and valley freshwater marsh	3	0	0
Aquatic habitat	3	0	0
Subtotal	780	28	3.6%
TOTALS	**12,604**	**1756**	**13.9%**

1 This includes both disturbed (40.2 percent impacted) and undisturbed (13.6 percent impacted) Diegan coastal sage scrub.
2 This includes both disturbed (46.9 percent impacted) and undisturbed (0 percent impacted) Valley needlegrass grassland.
3 Not included in acreage total since these acres are covered by other habitats.

San Diego Thorn-mint (*Acanthomintha ilicifolia*). Both locations of San Diego thorn-mint (100 percent) would be lost on the Proctor Valley parcel. This is considered a significant impact.

Otay Tarweed (*Hemizonia conjugens*). Approximately 2 percent of the points of occurrence of this species would be impacted by implementation of the Environmental Alternative. This impact would occur in the Salt Creek area. Additionally, roadway development in Wolf Canyon, the southern Otay River Valley (Otay Lakes Parkway), and at the upper end of Salt Creek Canyon would affect this species. These impacts are considered significant.

Second Priority Species

The following set of second-priority plant species would not be affected by the implementation of the Environmental Alternative:

Otay Manzanita (*Arctostaphylos otayensis*)
Orcutt's Brodiaea (*Brodiaea orcuttii*)
Dense Reed Grass (*Calamagrostis densa*)
San Miguel Savory (*Calamintha chandleri*)
Summer-holly (*Comarostaphylos diversifolia* ssp. *diversifolia*)
Gander's Pitcher Sage (*Lepechinia ganderi*)
Little Mousetail (*Myosurus minimus* var. *apus*)
San Diego Navarretia (*Navarretia fossalis*)

Tecate Cypress (*Cupressus forbesii*). An estimated 2 percent of the point localities known on Otay Ranch would be developed by the Environmental Alternative. The impacts would occur to scattered trees in the eastern portion of the San Ysidro parcel. The impacts to Tecate cypress are not considered significant.

Variegated Dudleya (*Dudleya variegata*). Approximately 7 percent of the point localities recorded for this species on Otay Ranch would be impacted by implementation of this alternative. These minor impacts would occur in the Jamul and San Ysidro mountains. The most extensive populations of the species occurring on Otay Mesa would be retained in open space. Additional extensive populations in Otay Valley, on the western slope of Rock Mountain, and in the Jamul and San Ysidro Mountains would be preserved. These impacts to variegated dudleya would not be considered significant.

San Diego Barrel Cactus (*Ferocactus viridescens*). Approximately 5 percent of the point localities recorded for this species on Otay Ranch would be developed. Impacts would occur north of Otay Valley and in the Jamul Mountains. The highest concentration of the species located on the Otay River parcel would be preserved in open space. Additional populations west of the San Ysidro Mountains and in the Jamul Mountains would also be preserved. Impacts to this species would not be considered significant.

San Diego Goldenstar (*Muilla clevelandii*). Approximately 22 percent of the point localities recorded for San Diego goldenstar on Otay Ranch would be developed by this alternative. Extensive populations west of Sycamore Canyon would be lost; additional impacts would occur near the Minnewawa Truck Trail. Populations of the species would be preserved in open space near the Minnewawa Truck Trail, east of the San Diego Air Sports Center, in Upper Proctor Valley, on the inverted "L" parcel west of Proctor Valley in the Jamul Mountains, and on Otay Mesa. Impacts to this species would be considered significant.

Snake cholla (*Opuntia parryi* var. *serpentina*). Approximately 15 percent of the point localities of this species recorded on Otay Ranch would be developed. Impacts would occur on the north side of Otay Valley and in Poggi Canyon. A portion of these populations and the remaining localities would be preserved. Impacts ~~would not be~~ are considered significant.

Narrow-leaved Nightshade (*Solanum tenuilobatum*). Approximately 5 percent of the point localities of this species would be impacted. The small population north of Cedar Canyon would be lost. The widespread scattered occurrences of this species in the Jamul Mountains would be preserved. Impacts to narrow-leaved nightshade are not considered significant.

Third-priority Species

The following third-priority plant species would not be directly affected by the Environmental Alternative:

California Spinebush *(Adolphia californica)*
San Diego Bur-sage *(Ambrosia chenopodiifolia)*
Campo Clarkia *(Clarkia delicata)*
Orcutt's Birds-beak *(Cordylanthus orcuttianus)*
Greene's Ground-cherry *(Physalis greenei)*

Of the above species, however, San Diego bur-sage (*Ambrosia chenopodiifolia*), could potentially be impacted. The construction of SR-125 could remove a population at the top of Otay Mesa on the edge of Johnson Canyon. This is one of only two recorded populations on Otay Ranch and could potentially be avoided.

San Diego Sagewort (*Artemisia palmeri*). Approximately 16 percent of the known occurrences of this species would be affected by the Environmental Alternative in Proctor Valley. This is not considered a significant impact.

Palmer's Grappling-hook (*Harpagonella palmeri* var. *palmeri*). Approximately 5 percent of the known point localities of this species on Otay Ranch would be developed. All occurrences in the upper Proctor Valley area would be impacted. Populations located in Johnson Canyon, near the mouth of Salt Creek, and on the south slopes of the Otay River Valley would be retained in open space. These impacts would not be considered significant.

San Diego Marsh-elder (*Iva hayesiana*). A small portion of the distribution of this species on each of the three parcels would be impacted. Approximately 7 percent of the known point localities of this species on the ranch would be developed. These impacts are not considered significant.

Munz's Sage (*Salvia munzii*). This species would be reduced by approximately 5 percent of its point occurrences on the Proctor Valley parcel and would be retained completely in open space on the San Ysidro and Otay River parcels. Impacts to this species are not considered significant.

San Diego County Stipa (*Stipa diegoensis*). This species would be reduced by approximately 8 percent of its point occurrences on the San Ysidro Parcel and would be retained completely in open space on the Proctor Valley and Otay River parcels. Impacts to this species are not considered significant.

San Diego Sunflower (*Viguiera laciniata*). This species would be reduced by approximately 19 percent of its point occurrences on the Ranch. It would be affected on all three parcels. The only development area which would substantially affect San Diego sunflower, however, is the far eastern end of the San Ysidro parcel. This species would be expected to be partially retained in this area on slopes and in internal open space areas associated with the low density residential development in that area. These impacts are not considered significant.

Fourth Priority Species

The following fourth priority species would be unaffected by implementation of the Environmental Alternative:

Mountain Misery (*Chamaebatia australis*)
Chaparral Pea (*Pickeringia montana* ssp. *tomentosa*)
Engelmann Oak (*Quercus engelmannii*)

Western Dichondra (*Dichondra occidentalis*). Approximately 33 percent of the point localities of this species recorded on Otay Ranch would be developed. Impacts would occur near Cedar Canyon and in the southern Jamul Mountains. The remaining populations at these same regions would be preserved in open space. Impacts would not be considered significant.

Spiny Rush (*Juncus acutus* var. *sphaerocarpus*). An estimated 5 percent of the point localities of this species on Otay Ranch would be developed. Impacts would occur in Proctor Valley and on the Otay River parcel. Additional populations located on these two parcels as well as on the San Ysidro parcel would be preserved in open space. Impacts would not be considered significant.

California Adder's-tongue fern (*Ophioglossum lusitanicum* ssp. *californicum*). An estimated 20 percent (1 of 5) of the point localities of this species on Otay Ranch would be developed. One location in the northern portion of Proctor Valley would be impacted. This species would be retained in the R 2 vernal pool complex in Proctor Valley and north of Lower Otay Lake. The impacts to California adder's-tongue fern are not considered significant.

Coulter's Matilija Poppy (*Romneya coulteri*). Approximately 55 percent of the point localities of this species recorded on Otay Ranch would be lost to development. Impacts would be restricted to occurrences of this species in the eastern San Ysidro Mountains. Some localities in the eastern San Ysidro Mountains, east of O'Neal Canyon, and in the Jamul Mountains would be retained in open space. Impacts to this species ~~would not be~~ are considered significant.

Ashy Spike-moss (*Selaginella cinerascens*). This species would be reduced by an estimated 5 percent of its point localities. Impacts would occur in the Proctor Valley and San Ysidro parcels. No impacts are anticipated in the Otay River parcel. As a common element of coastal sage scrub on Otay Ranch, this species is well preserved by the Environmental Alternative. No significant impacts to ashy spike-moss would result.

Reduction of Sensitive Animals

An overlay of the Environmental Alternative on the sensitive wildlife map for Otay Ranch is included in Appendix A-9. Table 4.7.4-3 presents impacts to sensitive wildlife species based on point of occurrence and habitat development data. Criteria for determining

Table 4.7.4-3 (Revised)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

Species Name	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Signif-icance[3]	Standards[4]	Recommended Measures to Reduce Impacts to a Level Below Significance
	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]			
First Priority Species									
Endangered Species									
Southwestern willow flycatcher	—	N	—	N	—	N	PS		See measure 1 below.
Least Bell's vireo	0/8	N	—	N	—	N	PS		1. See measure 1a-c for New Town Pan (Table 3.3-7). a Potential indirect impacts from construction of SR-125 and any expansion or new crossing of Otay Lakes Road across Dulzura Creek need to be assessed in more detail at next level of review. b. Appropriate mitigation measures for any impacts shall be formulated and implemented; the plan shall include as applicable: • Measures 3a, 3b, 4, and 5 for New Town Plan (Table 3.3-7). • Elevate SR-125 above Otay Valley River to minimize noise impacts.
Streptocephalus woottoni	—	N	—	N	—	N	NS		
Branchinecta sandiegensis	—	N	—	N	—	N	NS		
Harbison's dun skipper	—	N	—	N	—	N	NS		
Herme's copper	—	N	—	N	—	N	NS		
Thorne's hairstreak	—	N	—	N	—	N	NS		
California red-legged frog	—	N	—	N	—	N	NS		
Southwestern pond turtle	—	N	—	N	—	N	NS		
Quino checkerspot	—	N	—	N	—	N	NS		

Table 4.7.4-3 (Revised) (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel				
Species Name	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]	Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
Cactus wren								100% or HCP/MSCP	2. To reduce impacts to this species the following measures are required: a. Redesign to avoid or minimize impacts in the Salt Creek and Poggi Canyon areas including: • Relocating Hunte Parkway to west of Salt Creek Canyon. • Redesign low residential housing at north-east boundary of Poggi Canyon to reduce impacts. • Otay Valley Road across Wolf Canyon. Eliminate this crossing of Wolf Canyon. If infeasible to eliminate, then avoid impacts to occupied habitat. • East Orange Avenue through Poggi Canyon and across Upper Salt Creek Canyon. Avoid occupied and potential habitat within Poggi Canyon and across Salt Creek Canyon. b. If redesign not feasible, enhance or restore agriculture (AG) or disturbed coastal sage scrub habitats to undisturbed maritime succulent scrub (MSS). Restored areas should be close to the impacted areas and should be connected with undisturbed MSS. Areas that are recommended for restoration include: • Restore AG to CSS/MSS west of Salt Creek Canyon. • Restore AG to CSS/MSS between Poggi and Wolf canyons to form a corridor linking the two areas • Restore appropriate AG to CSS/MSS on north slopes of the Otay River Valley between patches of undisturbed CSS/MSS. • Restore a patch of AG in lower Salt Creek • Restore suitable AG between patches of MSS in Poggi Canyon • Enhance a patch of coastal sage scrub/non-native grassland (CSS/NG) on east rim of Wolf Canyon • Enhance/restore non-native grassland/coastal sage scrub (NG/CSS) to MSS on slopes east of Johnson Canyon. • Enhance/restore non-native grassland (NG) to MSS west of Johnson Canyon.
Development Impacts[5]:	2/60	L	—	N	—	N			
Road Impacts[6]:	9/60								
Total Impacts[7]:	11/60	L		N		N	S		

Table 4.7.4-3 (Revised) (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

Species Name	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]			
Cactus wren (Continued)									c. All enhancement/restoration shall occur prior to impact of occupied habitat. d. A study of enhanced/restored habitat shall document occupancy by the impacted species prior to development of occupied habitat. e. Avoid construction during the breeding season (February 15 - August 31). f. Further assess indirect impacts from roads (e.g., noise habitat degradation, and fragmentation) and recommend mitigation measures.
California gnatcatcher Development Impacts[4]: Road Impacts[5]: Total Impacts[6]:	 4/73 8/73 12/73	 L L	 6/40 2/40 8/40	 L L	 2/31 0/31 2/31	 M M	 S	100% or HCP/ MSCP	3. a. Impacts to California gnatcatchers could be partially fulfilled in conjunction with mitigation for cactus wren impacts (measure 2). Additional mitigation may be called for at the next level of review. b. Assess impacts from roads. Prepare and implement a mitigation plan for impacts. Alignments to consider include: • Proctor Valley Road–avoid occupied or potential habitat. • Otay Lakes Road–avoid occupied or potential habitat. c. Additional areas that would be suitable for enhancement/restoration include: • Restoration/enhancement to CSS in areas of the Otay River Valley (floor and slopes) that are not being restored through measures 3-4. • Restoration/enhancement of habitats on west side of Otay River parcel that are not restored by implementation of measures 2-3.
Tricolored blackbird	2/6	M	—	H	—	H	PS	100% of Breeding Habitat or HCP/MSCP	4. Potential measures to mitigating colony at SR-125 crossing of Otay River include: a. Redesign to avoid or reduce impacts to nesting colony. b. Restore/enhance suitable breeding marsh along Otay River. c. Avoidance of construction during breeding season (April 1 to August 31). d. Assess noise impacts from traffic to breeding colony at next level of review.
Second priority species									
Reptiles & Amphibians:									
Western s[illegible] foot toad	—	N	—	L	—	N	NS		

Table 4.7.4-3 (Revised) (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel				
Species Name	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]	Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
Arroyo southwestern toad	—	N	—	L	—	L	NS		
San Diego banded gecko	—	N	—	L	—	L	NS		
San Diego horned lizard	0/1	L	0/3	L	1/2	M	NS		
Sandstone night lizard	—	L	—	M	—	M	NS		
Orange-throated whiptail	0/5	L	0/2	L	—	M	NS		
Coastal western whiptail	—	L	—	L	—	M	NS		
Silvery legless lizard	—	L	—	L	—	M	NS		
Coastal rosy boa	—	L	0/1	L	—	M	NS		
San Diego ringneck snake	—	N	—	N	—	L	NS		
Coast patch-nosed snake	—	N	—	L	—	L	NS		
San Diego mountain kingsnake	—	N	—	N	—	L	NS		
Two-striped garter snake	—	N	0/2	N	0/1	N	NS		
Northern red-diamondback	—	L	—	L	—	M	NS		
Birds:									
Least bittern	—	N	—	N	—	N	NS		
Osprey	0/1	N	—	N	—	N	NS		
Black-shouldered kite	0/13	M	0/1	M	—	H	NS		
Northern harrier	6/41	M	9/20	M	2/11	H	S	100% of Breeding Population and 80% of Non-Breeding Population.	See measures 33f, h, and 34a, 35 for New Town Plan (Table 3.3-7).
Sharp-shinned hawk	0/1	N	0/2	N	1/1	L	NS		

Table 4.7.4-3 (Revised) (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel				
Species Name	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]	Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
Cooper's hawk	1/1	N	0/2	N	0/6	L	NS		
Ferruginous hawk	2/4	M	2/3	M	—	H	NS		
Golden eagle	2/10	M	2/23	M	0/5	H	NS		
Prairie falcon	0/4	M	4/5	M	—	H	NS		
Mountain plover	—	M	—	M	—	H	NS		
Long-billed curlew	—	M	—	N	—	N	NS		
Burrowing owl	0/3	M	0/1	M	—	H	NS		
Long-eared owl	—	N	—	N	—	L	NS		
Short-eared owl	—	M	—	N	—	H	NS		
California horned lark	—	M	—	M	—	H	NS		
Purple martin	—	M	—	M	—	H	NS		
Loggerhead shrike	2/15	M	0/3	M	—	H	NS		
Yellow warbler	0/1	N	—	N	—	N	NS		
Yellow-breasted chat	1/8	N	—	N	—	N	NS		
Blue grosbeak	2/21	L	0/7	N	0/1	N	NS		
Southern California rufous-crowned sparrow	—	L	0/4	L	0/6	M	NS		
Bell's sage sparrow	0/12	L	1/6	M	4/6	M	NS		
Grasshopper sparrow	3/9	M	2/15	H	—	H	NS		

Table 4.7.4-3 (Revised) (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel				
Species Name	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[1]	Detected Impact[1]	Potential Impact[2]	Signif-icance[3]	Standards[4]	Required Measures to Reduce Impacts to a Level Below Significance
Mammals:									
California leaf-nosed bat	—	N	—	N	—	N	NS		
Pallid bat	—	N	—	N	—	N	NS		
Townsend's big-eared bat	—	N	—	N	—	N	NS		
California mastiff bat	—	N	—	N	—	N	NS		
San Diego black-tailed jackrabbit	—	L	—	M	—	M	NS		
Pacific little pocket mouse	—	L	—	N	—	N	NS		
Northwestern San Diego pocket mouse	—	L	—	M	—	M	NS		
Dulzura California pocket mouse	—	L	—	M	—	M	NS		
Southern grasshopper mouse	—	L	—	M	—	M	NS		
San Diego desert woodrat	—	L	—	M	—	M	NS		
American badger	0/1	M	—	N	—	N	NS		

Table 4.7.4-3 (Revised) (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE ENVIRONMENTAL ALTERNATIVE

1 The detected direct impacts is the number of detected points of occurrence eliminated by proposed development over the total number of points of occurrence in that parcel. The total number of points of occurrence for California gnatcatchers represents an estimate of the pairs based on extensive data bases (ASI 1988; MBA 1989 and 1991; Ogden 1991; and RECON 1989)

2 The potential direct impacts are based on loss to development of potential habitat for that species.

3 The significance of impacts are based on detected impacts, potential impacts from habitat loss to proposed development, and on available distribution and abundance information for each sensitive wildlife species within the project area. Also taken into account were microhabitat use patterns that could reduce or increase the potential for impact to that species. Any adverse impacts to Priority 1 species were considered significant. In most cases, impacts to Priority 2 species that are presumed to be widespread on Otay Ranch were significant if greater than 20% of points of occurrence and/or greater than 20% of potential habitat were lost to development. Species with only a few points of occurrence were evaluated individually.

4 Standards presented in this table are the minimum presentation requirements for each species which is significantly or potentially significantly impacted in the proposed development of the Environmental Alternative. The preservation standards for a particular species may change at the SPA Level if there is a change in sensitivity status for that species.

5 "Development Impacts" would be due to habitat loss from proposed residential and commercial development.

6 "Road Impacts" would be due to road construction and would only apply to onsite individuals not already affected by "Development Impacts", sightings locations which would be impacted by both road construction and habitat loss to development are included in the "Development Impacts" category.

7 Total impacts combines the Development and Road Impact categories.

Legend:
- — = Insufficient quantitative data recording presence of species within parcel
- H = High probability for direct impact through >40% reduction of potential habitat
- M = Moderate (34 - 667) probability for direct impact through 20-39% reduction of potential habitat
- L = Low (1 - 337) probability for direct impact through 1-19% reduction of potential habitat
- N = No potential impact expected
- NS = No significant impacts
- S = Significant impacts
- PS = Potential significant impacts

significance of impacts is presented in the New Town Plan (see Section 3.3.2.4). Two species, one proposed by the USFWS for endangered status and the other petitioned for consideration for listing as endangered, could be significantly impacted by the Environmental Alternative. This alternative would also significantly impact one federal C2 candidate and one CDFG Species of Special Concern.

Significant impacts to sensitive animals are reviewed below by species.

Highest Priority Species

Least Bell's Vireo. This species would not be directly affected by the Environmental Alternative, but indirect effects associated with noise and road construction/expansion should be analyzed at the next level of review.

California Gnatcatcher. Approximately 12 of the 140 to 150 gnatcatcher pairs on Otay Ranch would be directly impacted by loss of habitat to development under the Environmental Alternative. Another seven percent could be impacted by road construction. Of the presumed 50 current pairs on the Otay River parcel, 3-4 would be minimally impacted by development adjacent to Salt Creek, Poggi, and Wolf canyons. Road construction would impact eight gnatcatcher locations within the Otay River parcel. Two of these pairs would be affected by construction of SR-125 on the north side of the Otay River Valley. This low level of impact is consistent with the estimated low impact acreage for Diegan sage scrub (45 acres) and maritime succulent scrub (2 acres) in this parcel. Roadway construction in Poggi Canyon (East Orange Avenue) on the mesa north of Poggi Canyon, across Wolf Canyon (Otay Valley Road), and along the west side of Salt Creek Canyon (Otay Lakes Road) would also affect this species.

Six of 40 points of occurrence for gnatcatchers are impacted in Proctor Valley. Impacts occur on the southwest slope of Jamul Mountain, along the southwest edge of Upper Otay Lake, and at the north end of the parcel. Most of these sightings occur in suboptimal coastal sage scrub. The habitat to be developed is disturbed coastal sage scrub in upper Proctor Valley, and a mosaic of chamise chaparral, disturbed native grassland, and Diegan coastal sage scrub near the reservoirs. Proctor Valley Road could impact one to two gnatcatcher sighting locations.

It is expected that 2 of the 31 territories on the San Ysidro parcel would be affected by low density residential development near the eastern parcel boundary. One point of occurrence is within a drainage and may be retained within internal open space areas. There would be no road impacts in this parcel.

Overall, the reduction of California gnatcatcher on Otay Ranch could be 8 to 10 pairs from a worst-case perspective. This is considered a significant impact.

Coastal Cactus Wren. Two points of occurrence of this species would be directly impacted by development in Poggi Canyon and Salt Creek. Approximately another 15 percent of cactus wren sighting locations would be impacted by road construction. Two sightings would be adversely affected by construction of SR-125 through Johnson Canyon. An additional seven points could be indirectly affected by the alignment of East Orange Avenue in Poggi Canyon, and Otay Lakes Road in western Salt Creek Canyon. The potential impact to 11 points of cactus wren occurrence represents about 18 percent of the points of occurrence and would be considered a significant impact.

Second Priority Species

Tricolored Blackbird. A nesting colony numbering over 300 birds was observed by Ogden in spring 1991 on the Otay River parcel. This species was located in a freshwater marsh in the central floodplain of the Otay River Valley adjacent to the mouth of Johnson Canyon. SR-125 and the transit corridor would potentially impact this species' nesting habitat. Specific mitigation measures are presented in Table 4.7.4-3.

Raptor nest areas would not be significantly impacted as only 4 out of 27 would be developed. There would be no known sensitive raptor nest sites impacted.

The regional raptor population which utilizes agriculture fields and grassland habitats for foraging could be significantly affected by the approximate 50 percent reduction of these habitats. However, the majority of Key Resource areas identified in the Otay Ranch Raptor Management Study (Ogden 1992) have been fully or partially preserved under this alternative. Point of occurrence data show 23.8 percent (121/509) of all raptor locations would be developed. Data from the focused raptor study show there would be no significant impact to nine of the ten sensitive raptor species observed in the area. Northern harrier would be the only sensitive raptor significantly affected with 23.6 percent of points of occurrence developed. ~~Most of the key raptor foraging areas would be retained with this alternative~~. Areas of high raptor use that would be impacted are the lower southwest edge of Upper Otay Lake, the north end of the Proctor Valley parcel, and the southwest lower slope of Jamul Mountain above Lower Otay Lake.

Other sensitive wildlife species are not expected to be significantly impacted due to the low amount of affected habitat which these species may utilize. The largest block of habitat affected is the development area at the eastern end of the San Ysidro parcel. This area is proposed for very low residential development. The provision of internal open space within this area along canyons and drainages would reduce the incremental reduction of potential habitat affected for these species. The potential habitat reduction is incremental, but is not considered significant.

Analysis of Open Space Design

Adjacent Natural Areas

The Environmental Alternative would maintain open space linkage between Otay Mountain, Lower Otay Lake, Jamul Mountain, Otay River Valley, and San Miguel Mountain. This alternative would have no major conflict with BLM acquisition of Cedar Canyon or the inholding parcel on Otay Mountain as recommended in the recent BLM Resource Management Plan and EIS (BLM 1991). Whereas this alternative would retain a substantial portion of the ranch as open space, some incremental effects to that open space system may occur and are discussed in the following subsections.

Infrastructure

Details of the infrastructure to service the proposed development is not available for this alternative. However, some water pipeline and reservoir development may be presumed in natural open space to service development in the upper Proctor Valley and eastern San Ysidro parcel. Such infrastructure may be sighted to avoid sensitive habitats and species and would not be expected to significantly degrade the natural open space system. This is due to the low numbers of such facilities anticipated.

Regional Parks

The Environmental Alternative does not include any regional parks in any of the planning parcels.

~~University Site~~

~~The Environmental Alternative proposes a university site within the plan; however, this area is internal within the main development complex on the Otay River parcel. The area is currently agriculture.~~

Conference Center

A conference center is proposed for the disjunctive parcel between Upper and Lower Otay Lakes. The majority of this area has been previously disturbed by ranching operations, the presence of ranch buildings and a landing strip. The easternmost portion of this area previously supported California gnatcatchers (3 points of occurrence) within Diegan coastal sage scrub; however, this area has subsequently been brushed.

Roadways

Otay Valley Road. This roadway would cross Wolf Canyon and run easterly up a canyon into the development area. This road would cause a barrier to wildlife; this effect could be reduced through provision of an adequate underpass in the canyon. This roadway would have substantially less overall incremental effect on sensitive habitats (Diegan sage scrub and maritime succulent scrub) and sensitive species (Otay tarweed) if it were routed out of the eastern tributary canyon bottom.

East Orange Avenue and Palomar Street. Both of these east-west roadways would break up open space continuity. Alignments for these roadways would need to be sensitive to the resource values of the Poggi Canyon area, specifically the sensitive habitats and species in the slopes of the canyon.

SR-125. As currently aligned, this roadway would bypass the vernal pools on Otay Mesa and would cross the Otay River Valley via Johnson Canyon. Since Johnson Canyon is not a key wildlife movement corridor, the placement of the roadway is not considered adverse. Given the lack of proposed development on the mesa top west of Johnson Canyon and in the river valley, wildlife access to the vernal pool area on the mesa top would not be restricted by the Johnson Canyon alignment of SR-125. The roadway alignment should avoid the more south-facing slopes of Johnson Canyon to minimize potential impacts to key resources (maritime succulent scrub, cactus wren). This roadway should provide an adequate underpass to ensure east-west wildlife movement the in Otay River Valley, preferably by bridging. This roadway would potentially impact wetland habitat in the Otay River Valley and affect a nesting colony of the sensitive tricolored blackbird in marsh habitat in the floodplain. This roadway alignment should tie into disturbed, more level agricultural areas on the north side of the valley rather than run up the smaller tributary drainages where key resources could be affected (maritime sage scrub, Diegan coastal sage scrub and cactus wren).

Otay Lakes Road (Hunte Parkway). This roadway would skirt the west side of Salt Creek Canyon. Impacts to sensitive wildlife, specially the California gnatcatcher and cactus wren, were addressed earlier under sensitive species impacts. Given the high resource value of Salt Creek Canyon, the placement of this roadway in the open space is considered a significant effect.

Otay Lakes Road. This roadway would run east-west.through the southern portion of the Proctor Valley parcel. Whereas this roadway may be aligned to avoid many of the sensitive resources in this area, the concern here is the need for two roadways and the cumulative incremental effects on sensitive resources and north-south wildlife movement in this area.

Wildlife Corridors

The Environmental Alternative potentially impacts nine of the 17 identified regional and major local wildlife corridors. Eight of the thirteen regional corridors could be impacted by road development. Five regional corridors would not be impacted. One major local corridor could also be impacted by road crossing and the remaining three would not be affected. Road crossing impacts could occur at the Wolf Canyon to Salt Creek, Wolf Canyon to Otay River Valley, and Salt Creek to Otay River Valley corridors. Corridors 1, 2, 4, 5, 10, and 11 could also be affected by road crossings.

Preservation of Key Resource Areas

Based on an overlay of the Environmental Alternative on the composite map of key resources (Appendix A-9), the open space areas are very similar. Overall, this alternative covers 99 percent of the acreage delineated on the idealized configuration (see Table 4.7.4-4). Only two areas of difference are apparent. One is along the northeastern boundary of the Poggi Canyon open space in the Otay River parcel. The proposed land use in this area is low density residential. It is very likely that this difference would not be apparent at the SPA planning level. The other difference is on the Proctor Valley parcel where very low density residential (L3) is proposed in the area of alkali meadow. This wetland area is on the edge of the development boundary and may also be avoided at the SPA planning level.

4.7.4.2 Proposed Mitigation

An overlay of the boundaries of Environmental Alternative onto disturbed habitats on the ranch is included in Appendix A-9. The overlay shows the extent and distribution of habitat available for enhancement, restoration, and habitat re-establishment. Table 4.7.4-5 shows extensive disturbed upland acreage available (4,273 acres including agriculture) which could potentially be utilized in habitat restoration of coastal sage scrub and maritime sage scrub. Similarly, there is adequate disturbed wetland acreage available to compensate for unavoidable wetland impacts.

The applicant does not propose to implement an RMP as part of the Environmental Alternative. Thus, the mitigation program outlined in the RMP would not apply to this alternative. The following measures are proposed to mitigate potential impacts of the Environmental Alternative.

Sensitive Habitats

A summary of impacts and mitigation measures for sensitive habitats is included as Table 4.7.4-6.

Vernal Pools

The loss of the R-1 vernal pool area shall require mitigation. Avoidance of this impact may be possible given its position next to the property boundary. Since the R-4+ vernal pool is located on a small ridge, the watershed support area for the pool would be expected to be

Table 4.7.4-4

COMPARISON OF OPEN SPACE DESIGN OF ENVIRONMENTAL ALTERNATIVE TO COMPOSITE KEY RESOURCES MAP

Planning Parcels/ Subareas	Planned Open Space within Environmental Alternative (acres)	Composite Key Resources (acres)	Differences Between Plan and Key Resource Areas (acres)	% Planned Open Space Within Composite Key Resource Area (acres)
Otay River				
Poggi Canyon	433	462	-29	94
Wolf Canyon	304	305	-2	99
Salt Creek Canyon	790	791	-2	100
Otay River Valley	2147	2147	0	100
Otay Mesa	633	633	0	100
SUBTOTAL	**4307**	**4339**	**-33**	**99**
Proctor Valley/Jamul Mountains				
Proctor Valley/Callahan Mtn	687	737	-51	93
San Miguel Mtn	360	360	0	100
Jamul Mtn	3059	3059	0	100
Otay Reservoir	135	135	0	100
SUBTOTAL	**4241**	**4291**	**-51**	**99**
San Ysidro Mountains				
West Otay Mtn	630	630	0	100
San Diego Air Sports Center	337	337	0	100
North Otay Mtn	398	398	0	100
Otay Mtn	175	175	0	100
Cedar Canyon/Hubbard Spring	1196	1196	0	100
SUBTOTAL	**2735**	**2735**	**0**	**100**
TOTAL	**11282**	**11366**	**-83**	**99**

Table 4.7.4-5

ENVIRONMENTAL ALTERNATIVE: DISTURBED AREAS AVAILABLE FOR ENHANCEMENT, RESTORATION, AND HABITAT RE-ESTABLISHMENT

HABITAT	OTAY RIVER		PROCTOR VALLEY		SAN YSIDRO		Total Acres in Open Space	Total Acres Impacted
	Acres in Open Space	Impacted Acres	Acres in Open Space	Impacted Acres	Acres in Open Space	Impacted Acres		
Coastal sage scrub/non-native grassland	9	0	0	0	120	243	129	243
Non-native grassland/coastal sage scrub	138	7	0	0	11	353	149	360
Disturbed coastal sage scrub	1	0	467	314	0	0	468	314
Baccharis scrub	19	0	0	0	0	0	19	0
Tamarisk scrub	4	0	0	0	0	0	4	0
Tamerisk scrub/mulefat scrub	389	0	0	0	0	0	389	0
Mulefat scrub	113	0	0	0	0	0	113	0
Non-native grassland	1083	44	59	3	9	89	1151	136
Disturbed non-native grassland	0	0	0	0	12	0	12	0
Disturbed alkali meadow	0	0	8	5	0	0	8	5
Disturbed valley needlegrass grassland	0	0	114	101	0	0	114	101
Agriculture	2123	3090	0	0	0	0	2123	3090
Vernal pool restorable areas(1,2)	294	0	38	0	0	0	332	0
Clay soils(1)	1422	107					1422	107
TOTAL	3879	3141	648	422	152	685	4679	4249

(1)Not included in acreage total since these acres are covered by other habitats.
(2)Restorable acreages are taken from Report on Hydrology Flora of the Otay Ranch Vernal Pools (MBA 1991).

Table 4.7.4-6

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
ENVIRONMENTAL ALTERNATIVE

Habitats	Acres[1] Impacted	RMP Goals[2]	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Partially Mitigable (PM) Non-Mitigable (NM)	Mitigation
<u>Upland Scrub Communities</u>							
Diegan Coastal Sage Scrub	1712 (15%	75%	> 5 ac.	0%	S	M	1. The majority of the impact to this habitat type (95 percent) is at the eastern end of San Ysidro parcel and in upper Proctor Valley which are less sensitive overall than the same habitat farther west. Generally, the numbers and abundances of sensitive species are greatly reduced in these eastern areas. It is also likely that given the very low density of residential development planned for these eastern areas (L3 designation), the actual impact to this habitat would be substantially reduced by the retention of canyons and natural drainages. The extent of impact acreage on the Otay River parcel is very low (estimated 15.6 acres) and is a cumulative total from the impact areas. Minor redesign may preserve some of these smaller areas. Overall, there

Table 4.7.4-6 (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
ENVIRONMENTAL ALTERNATIVE

Habitats	Acres[1] Impacted	RMP Goals[2]	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Partially Mitigable (PM) Non-Mitigable (NM)	Mitigation
Diegan Coastal Sage Scrub (Continued)							are extensive opportunities (over 4,000 acres available) to restore this habitat where it has been previously disturbed throughout the ranch. given further reductions of impact acreage at the next planning level and the recovery of previously disturbed habitats, this impact would be considered mitigated by the overall project design and open space retention.
Maritime Succulent Scrub	2 (3%)	75% --	> 5 ac. --	>0%	S N	M	2. This effect is very minor and should be avoided at the SPA planning level if possible.
Chaparral	111 (4%						
Floodplain Scrub	0		> 0	>0%	N		
Coastal Fresh-water Marsh/Aquatic	0		> 0	>0%	N		
Vernal Pool	<1	Preserve J23 J24, J25, J30 and portion of J29	>0	>0%	S	M	3. Avoid impact if possible to R-1 and R-4+ pools or remove trash and limit access to the R-3+ pools.

Table 4.7.4-6 (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
ENVIRONMENTAL ALTERNATIVE

Habitats	Acres[1] Impacted	RMP Goals[2]	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Partially Mitigable (PM) Non-Mitigable (NM)	Mitigation
Grassland/Meadow							
Non-native Grassland	467 (29%		--	--	N		4. This effect represents a cumulatively significant reduction of open space and foraging habitat and is mitigated by the overall project open space design and configuration.
Valley Needlegrass Grassland	101 (38%		> 5 ac.	>10%	S	M	5. This effect should be avoided if possible at the SPA planning level. Extensive restoration acreage with appropriate clay soils is available.

Table 4.7.4-6 (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
ENVIRONMENTAL ALTERNATIVE

Habitats	Acres[1] Impacted	RMP Goals[2]	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Partially Mitigable (PM) Non-Mitigable (NM)	Mitigation
Alkali Meadow	12 (8%		> 0	>0%	S	M	6. Development would potentially affect alkali meadow and southern willow scrub in Proctor Valley and southern live oak riparian forest in the San Ysidro parcel. Given the proposed very low density residential development in the potential areas of impact, it is likely these effects can be avoided at the next planning stage. If they cannot, they shall be mitigated through restoration of disturbed habitats on the ranch. Disturbed alkali meadow habitat is available, and the Otay River Valley provides extensive opportunities for wetland restoration and enhancement.
Woodlands							
Coast Live Oak Woodland	0	100%	--	>0%	N		
Southern Live Oak Riparian Forest	8 (11%)	100%	> 0	>0%	S	M	Preseve 100 percent of this habitat at the SPA planning level.
Southern Interior Cypress Forest	0	100%	--	--	N		
Sycamore Alluvial Woodland	0	100%	> 0	>0%	N		

Table 4.7.4-6 (Continued)

SUMMARY OF IMPACTS AND MITIGATION MEASURES
SENSITIVE HABITATS
ENVIRONMENTAL ALTERNATIVE

Habitats	Acres[1] Impacted	RMP Goals[2]	Thresholds: Chula Vista GP	Thresholds: County of San Diego	Significant (S) Non-Significant (N)	Mitigable (M) Partially Mitigable (PM) Non-Mitigable (NM)	Mitigation
Woodlands (Continued)							
Southern Willow Scrub	1 (4%		> 0	>0%	S	M	See mitigation measure 5.
Cumulative Habitat Reduction	5,601			--	S	M	See mitigation measure 1.

[1] Some specific habitat areas may be significant if they provide critical cover within or continuity of a wildlife corridor.

[2] Not applicable to this alternative.

small and avoidance also achievable. Mitigation opportunities onsite include removal of trash and limiting access for the R-3+ vernal pools also in Proctor Valley.

Other Wetlands

Development would potentially affect alkali meadow and southern willow scrub in Proctor Valley and southern live oak riparian forest in the San Ysidro parcel. Given the proposed very low density residential development in the potential areas of impact, it is likely these effects can be avoided at the next planning stage. If they cannot, they shall be mitigated through restoration of disturbed habitats on the ranch. Disturbed alkali meadow habitat is available, and the Otay River Valley provides extensive opportunities for wetland restoration and enhancement.

Maritime Succulent Scrub

This potential impact totals only a few acres on the Otay River parcel. This impact shall be avoided at the next planning level.

Diegan Coastal Sage Scrub

The majority of the impact to this habitat type (95 percent) is at the eastern end of San Ysidro parcel and in upper Proctor Valley which are less sensitive overall than the same habitat farther west. Generally, the numbers and abundances of sensitive species are greatly reduced in these eastern areas. It is also likely that given the very low density of residential development planned for these eastern areas (L3 designation), the actual impact to this habitat would be substantially reduced by the retention of canyons and natural drainages. The extent of impact acreage on the Otay Valley parcel is very low (estimated 12 acres) and is a cumulative total from the impact areas. Minor redesign may preserve some of these smaller areas. Overall, there are extensive opportunities (over 4,000 acres available) to restore this habitat where it has been previously disturbed throughout the ranch.

Sensitive Plants

Mitigation recommendations for each of the sensitive plants impacted by the Environmental Alternative are presented in Table 4.7.4-7. Please refer to Section 3.3.3.5 for general guidelines on mitigation for sensitive plant species.

Sensitive Animals

The Environmental Alternative would significantly impact only three sensitive species and would potentially impact two other species. Mitigation measures are provided in Table 4.7.4-3. Mitigation shall follow general mitigation requirements under the sensitive animals section of the New Town Plan (Section 3.3.3). Impacts to the regional raptor population could be mitigated by the preparation and implementation of a raptor management plan (see measure 35 in New Town Plan, Table 3.3-7), redesign to avoid key raptor resource areas, and by restoration or enhancement of raptor habitats (see measure 34 in New Town Plan Table 3.3-7).

Open Space Design

Recommendations to ensure the long-term viability of the natural open space areas follows:

- Minimize width of roadways where they cross through natural open space.

Table 4.7.4-7

SUMMARY OF SIGNIFICANCE OF IMPACTS TO SENSITIVE PLANT SPECIES AND RECOMMENDED MITIGATION ENVIRONMENTAL ALTERNATIVE

Species	Significance of Impacts	Recommended Mitigation
High Priority Species (State-listed Endangered)		
San Diego Thorn-mint (*Acanthomintha ilicifolia*)	Significant	• Project redesign to preserve both populations with adequate buffer north of Otay Lakes Road, or • Redesign to preserve largest population, including watershed, associated critical habitat, and at least a 100-foot width buffer zone; and introduce the species on appropriate soils on the ranch; creation of artificial population should involve seed salvage of impacted population; nursery propagation to increase seed; sowing of seed; mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required.
Dunn's Mariposa Lily (*Calochortus dunnii*)	Not Significant	No mitigation required.
Slender-pod Caulanthus (*Caulanthus stenocarpus*)	Not Significant	No mitigation required.
San Diego Button-Celery (*Eryngium aristulatum* var. *parishii*)	Not Significant	No mitigation required.
Mexican Flannelbush (*Fremontodendron mexicanum*)	Not Significant	No mitigation required.
Otay Tarweed (*Hemizonia conjugens*)	Significant	• Introduction of species in areas with appropriate soils, including seed salvage and nursery propagation to increase seed source. Mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program required.
Willowy Monardella (*Monardella linoides* ssp. *viminea*)	Not Significant	No mitigation required.

Table 4.7.4-7 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS TO SENSITIVE PLANT SPECIES AND RECOMMENDED MITIGATION ENVIRONMENTAL ALTERNATIVE

Species	Significance of Impacts	Recommended Mitigation
California Orcutt Grass (*Orcuttia californica*)	Not Significant	No mitigation required.
Otay Mesa-mint *Pogogyne nudiuscula*	Not Significant	No mitigation required.
Second Priority Species (Federal C2; CNPS List 1B)		
Otay Manzanita (*Arctostaphylos otayensis*)	Not Significant	No mitigation required.
Orcutt's Brodiaea (*Brodiaea orcuttii*)	Not Significant	No mitigation required.
Dense Reed Grass (*Calamagrostis densa*)	Not Significant	No mitigation required.
San Miguel Savory (*Calamintha chandleri*)	Not Significant	No mitigation required.
Summer-holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)	Not Significant	No mitigation required.
Tecate Cypress (*Cupressus forbesii*)	Not Significant	No mitigation required.
Variegated Hasseanthus (*Dudleya variegata*)	Not Significant	No mitigation required.
San Diego Coast Barrel Cactus (*Ferocactus viridescens*)	Not Significant	No mitigation required.

Table 4.7.4-7 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS TO SENSITIVE PLANT SPECIES AND RECOMMENDED MITIGATION ENVIRONMENTAL ALTERNATIVE

Species	Significance of Impacts	Recommended Mitigation
San Diego Goldenstar (*Muilla clevelandii*)		• Minor project redesign to preserve additional populations near Minnewawa Truck Trail or west of Sycamore Canyon; or • Salvage corms and soil and introduce species in appropriate soils and habitat; detailed mitigation plan including 2-3 year experimental phase and 5-8 years monitoring program required.
Little Mousetail (*Myosurus minimus* var. *apus*)	Not Significant	No mitigation required.
San Diego Navarretia (*Navarretia fossalis*)	Not Significant	No mitigation required.
Snake Cholla (*Opuntia parryi* var. *serpentina*)	Significant	• Preserve additonal populations in North Otay Valley and Poggi Canyon; or • Transplant impacted plants to restored coastal sage scrub in open space. Would require mitigation plan including 2-3 year experimental phase and 5-8 year maintenance and monitoring program.
Narrow-leaved Nightshade (*Solanum tenuilobatum*)	Not Significant	No mitigation required.
Gander's Pitcher-sage (*Lepechinia ganderi*)	Not Significant	No mitigation required.
Third Priority Species (CNPS List 2 and 3)		
California Spinebush (*Adolphia californica*)	Not Significant	No mitigation required.
San Diego Bur-sage (*Ambrosia chenopodiifolia*)	Not Significant	No mitigation required.
San Diego Sagewort (*Artemisia palmeri*)	Not Significant	No mitigation required.

Table 4.7.4-7 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS TO SENSITIVE PLANT SPECIES AND RECOMMENDED MITIGATION ENVIRONMENTAL ALTERNATIVE

Species	Significance of Impacts	Recommended Mitigation
Delicate Clarkia (*Clarkia delicata*)	Not Significant	No mitigation required.
Orcutt's Bird-beak (*Cordylanthus orcuttianus*)	Not Significant	No mitigation required.
Palmer's Grappling-hook (*Harpagonella palmeri* var. *palmeri*)	Not Significant	No mitigation required.
San Diego Marsh-elder (*Iva hayesiana*)	Not Significant	No mitigation required.
Munz's Sage (*Salvia munzii*)	Not Significant	No mitigation required.
Greene's Ground-cherry (*Physalis greenei*)	Not Significant	No mitigation required.
San Diego County Stipa (*Stipa diegoensis*)	Not Significant	No mitigation required.
San Diego Sunflower (*Viguiera laciniata*)	Not Significant	No mitigation required.
Fourth Priority Species (CNPS List 4)		
Southern Mountain Misery (*Chamaebatia australis*)	Not Significant	No mitigation required.
Western Dichondra (*Dichondra occidentalis*)	Not Significant	No mitigation required.
Spiny Rush (*Juncus acutus* var. *sphaerocarpus*)	Not Significant	No mitigation required.
Chaparral Pea (*Pickeringia montana* ssp. *tomentosa*)	Not Significant	No mitigation required.

Table 4.7.4-7 (Continued)

SUMMARY OF SIGNIFICANCE OF IMPACTS TO SENSITIVE PLANT SPECIES AND RECOMMENDED MITIGATION ENVIRONMENTAL ALTERNATIVE

Species	Significance of Impacts	Recommended Mitigation
California Adder's-tongue Fern (*Ophioglossum lusitanicum* ssp. *californicum*)	Not Significant	No mitigation required.
Engelmann Oak (*Quercus engelmannii*)	Not Significant	No mitigation required.
Coulter's Matilija Poppy (*Romneya coulteri*)	Significant	Preservation of at least 50 percent of species required; minor redesign of project.
Ashy Spike-moss (*Selaginella cinerascens*)	Not Significant	No mitigation required.

- Provide appropriate undercrossings for wildlife where natural drainages exist. Preferably bridges or oversized culverts may be used. Specific corridor design requirements for widths and underpasses at road crossings are presented in the Baldwin Otay Ranch Wildlife Corridor Studies (Ogden 1992b). Specific attention shall be given to the location, design, and number of undercrossings for each roadway. Given the size and traffic load of SR-125, a bridge over a portion of the Otay River Valley would be recommended to avoid disruption of wildlife movement while also providing for pedestrian trails.

- ~~Consolidate Telegraph Canyon Road and the existing Otay Lakes Road on the north side of Lower Otay Lake, if feasible, to minimize road crossings for wildlife moving between San Ysidro and Jamul mountains.~~

- Move Otay Lakes Road westward out of the Salt Creek Canyon open space to mitigate impacts to California gnatcatchers, cactus wrens, and Diegan coastal sage scrub.

4.7.4.3 Analysis of Significance

This alternative would retain an estimated 76 percent of the existing open space and over 90 percent of the sensitive habitats. The Environmental Alternative would retain over 99 percent of the key resource areas on Otay Ranch. Significant impacts would occur with the potential loss of a large San Diego thorn-mint population and the placement of Otay Lakes Road along the western side of Salt Creek Canyon. These impacts could be mitigated through avoidance and relocation, respectively.

Impacts to the following sensitive habitats are considered significant but mitigable to below a level of significance:

Diegan coastal sage scrub
Maritime sage scrub
Vernal pools
Valley needlegrass grassland
Alkali meadow
Southern live oak riparian forest
Southern willow scrub

Impacts to the following sensitive plant species are considered significant but mitigable to below a level of significance:

San Diego thorn-mint (*Acanthomintha ilicifolia*)
Otay tarweed (*Hemizonia conjugens*)
San Diego goldenstar (*Muilla clevelandii*)
Snake cholla (*Opuntia parryi* var. *serpentina*)
Coulter's Matilija poppy (*Romneya coulteri*)

At this level of review, impacts to the following sensitive animal species are considered significant but mitigable to below a level of significance through minor project redesign and other mitigation measures:

Coastal cactus wren
California gnatcatcher
Northern harrier

Two species (least Bells vireo and tricolored blackbird) in the impact analysis that are potentially significant based on available data are ~~not~~ considered significantly impacted at this level of review. These impacts are considered mitigable through minor project redesign.

Impacts to regional raptor populations are considered significant but mitigable to a level below significance through minor project redesign and other mitigation measures.

Impacts to wildlife movement are considered significant but mitigable to a level below significance with minor project redesign.

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4.7.5 Cultural Resources

4.7.5.1 Impacts to Prehistoric Resources

Impacts to prehistoric resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria; therefore, all of the 213 prehistoric sites currently known to be on the property are considered to be important at this stage of planning. With this assumption of importance, the Environmental Alternative is assessed for potential impacts to prehistoric resources based on the proposed land use, with areas proposed for development assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture. Table 4.7.5-1 indicates, by parcel, the land uses proposed for the Environmental Alternative, the prehistoric site types, and the occurrences of the sites in the various land uses (Figure 4.7.5-1).

Over the the entire Otay Ranch property, of the currently known 213 prehistoric sites on the property, 82 fall all or partially within areas proposed for development by the Environmental Alternative. With 131 prehistoric sites falling completely into open space, parks, or agricultural areas, the Environmental Alternative has 49 48 more than the next closest plan, the ~~Low Density Alternative~~ Phase II Progress Plan with 83~~2~~.

4.7.5.2 Impacts to Historic Resources

As with the prehistoric sites, impacts to historic resources can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 49 historic sites currently known to be present on the property are considered to be important at this stage of planning. With this assumption, the Environmental Alternative is assessed for impacts to historic sites based on the proposed land use, with areas proposed for development assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture. Table 4.7.5-2 indicates, by parcel, the land uses proposed for the Environmental Alternative, the historic site types, and the occurrences of the sites in the various land uses.

The Environmental Alternative has 14 historic sites occurring all or partially within areas to be developed; it has 35 sites lying completely within areas proposed for undeveloped land use such as Open Space, Parks, or Agriculture. This ratio (14/35) is substantially ~~somewhat~~ better than the ~~closest alternative~~ next closest ~~three~~ four plans, the Phase II-Progress Plan (~~18/31~~ 23/26), ~~and better than the~~ the Fourth Alternative (25/24), the Project Team Alternative (25/24), and the Phase I-Progress Plan (24/25).

4.7.5.3 Impacts to Prehistoric/Historic Resources

Impacts to prehistoric/historic resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 30 prehistoric/historic sites currently known to be on the property are considered to be important at this stage of planning. With this assumption of importance for all of the prehistoric/historic sites, the Environmental Alternative is assessed below based on the proposed land use, with areas proposed for development (as defined above) assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture. Table 4.7.5-3 indicates, by parcel, the land use proposed for the Environmental Alternative, the prehistoric/historic site types, and the occurrences of the sites in the various land uses.

Table 4.7.5-1

ENVIRONMENTAL ALTERNATIVE
PREHISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-10,452	OS	Temporary Camp	CA-SDi-11,967	OS/OA	Temporary Camp
CA-SDi-10,622	OS/OA	Lithic Scatter	CA-SDi-11,968	OS/OA	Lithic Scatter
CA-SDi-10,875	OS	Lithic Scatter	CA-SDi-4,726	OS	Lithic Scatter
CA-SDi-11,157	LM	Temporary Camp	CA-SDi-4,727	OS	Lithic Scatter
CA-SDi-11,158	LM/OA	Temporary Camp	CA-SDi-4,728 A & B	OS	Lithic Scatter
CA-SDi-11,210	OS	Lithic Scatter	CA-SDi-4,729	OS	Lithic Scatter
CA-SDi-11,211	OS	Lithic Scatter	CA-SDi-4,730	OS	Lithic Scatter
CA-SDi-11,212	OS	Lithic Scatter	CA-SDi-4,731	OS	Lithic Scatter
CA-SDi-11,213	OS	Temporary Camp	CA-SDi-4,732	OS	Lithic Scatter
CA-SDi-11,214	OA/OS	Lithic Scatter	CA-SDi-4,733	OS	Lithic Scatter
CA-SDi-11,215	OA/OS	Lithic Scatter	CA-SDi-4,734	OS	Lithic Scatter
CA-SDi-11,216	OA/OS	Lithic Scatter	CA-SDi-4,735	OS	Lithic Scatter
CA-SDi-11,220	OS	Lithic Scatter	CA-SDi-4,736	OS	Lithic Scatter
CA-SDi-11,362	OA/OS	Lithic Scatter	CA-SDi-4,737	OS	Lithic Scatter
CA-SDi-11,363	OS	Lithic Scatter	CA-SDi-4,739	OS	Lithic Scatter
CA-SDi-11,364	OS	Milling Station	CA-SDi-4,740	OS	Lithic Scatter
CA-SDi-11,365	OS	Lithic Scatter	CA-SDi-4,741	OS	Lithic Scatter
CA-SDi-11,366	OS	Lithic Scatter	CA-SDi-4,742	OS	Lithic Scatter
CA-SDi-11,369/SDi-11,376	OS	Habitation Site	CA-SDi-4,743	OS	Lithic Scatter
CA-SDi-11,372	LM	Lithic Scatter	CA-SDi-4,789/SDi-4,988	OS	Temporary Camp
CA-SDi-11,373	LM/OS	Lithic Scatter	CA-SDi-4,790	OS	Temporary Camp
CA-SDi-11,378	OS	Habitation Site	CA-SDi-4,989	OS	Temporary Camp
CA-SDi-11,379	OS	Lithic Scatter	CA-SDi-7,212	OS	Habitation Site
CA-SDi-11,381	OS	Lithic Scatter	CA-SDi-7,217 A-E	OS	Temporary Camp
CA-SDi-11,412	L/OS	Lithic Scatter	CA-SDi-8,649	OS	Temporary Camp
CA-SDi-11,951	OS	Lithic Scatter	CA-SDi-8,650	OS	Lithic Scatter
CA-SDi-11,952	OS	Lithic Scatter	CA-SDi-9,970	OS/OA	Lithic Scatter
CA-SDi-4,738	OS	Lithic Scatter	CA-SDi-9,975	OS/OA	Quarry
CA-SDi-5,352	FI/OS/OA	Temporary Camp	CA-SDi-9,976	OS	Temporary Camp
CA-SDi-8,651	L/OS	Lithic Scatter	CA-SDi-9,977	OS	Quarry
CA-SDi-9,974	OA/OS	Lithic Scatter	CA-SDi-9,978	OS	Quarry
CA-SDi-12,465	LM	Temporary Camp	CA-SDi-9,979	OS	Lithic Scatter
CA-SDi-12,467	LM	Lithic Scatter	CA-SDi-9,980	OS	Temporary Camp
CA-SDi-12,276	LM	Lithic Scatter	CA-SDi-9,981	OS	Temporary Camp
CA-SDi-12,285	LM/C	Temporary Camp	CA-SDi-12,466	(OS)/LM	Temporary Camp
CA-SDi-12,287	L/OS	Temporary Camp	CA-SDi-12,286	FQ	Temporary Camp
CA-SDi-12,288	LM/OS	Lithic Scatter	CA-SDi-12,289	OS	Temporary Camp
CA-SDi-12,292	OA/OS	Lithic Scatter	CA-SDi-12,290	OS	Lithic Scatter
CA-SDi-12,277	L/OS	Lithic Scatter	CA-SDi-12,293	OS	Lithic Scatter
CA-SDi-12,279	ES/NP	Lithic Scatter	CA-SDi-12,291	OS	Lithic Scatter
CA-SDi-12,280	LM	Lithic Scatter	CA-SDi-12,278	OS	Lithic Scatter
CA-SDi-12,281	L/OS	Temporary Camp	CA-SDi-12,284	OS	Lithic Scatter
CA-SDi-12,282	LM/OS	Temporary Camp	SDM-W-170	OS	Habitation Site
CA-SDi-12,283	LM/OS	Lithic Scatter	CA-SDi-12,656	HS	Temporary Camp

TOTALS:

(Elementary School)	ES	1
(Freeway Interchange)	FI	1
(Low Density Residential)	L	5
(Low-Medium Density Residential)	LM	13
(High School)	HS	1
(Neighborhood Park)	NP	1
(Outside of Area)	OA	13
(Open Space)	OS	76
(Man-made Open Space)	(OS)	1
(Public and Quasi-public)	FQ	1

Table 4.7.5-3

ENVIRONMENTAL ALTERNATIVE
PREHISTORIC/HISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,217	OS	Lithic Scatter/Historic Structure
CA-SDi-11,218	OS	Lithic Scatter/Historic Structure
CA-SDi-11,219	OS	Lithic Scatter/Historic Structure
CA-SDi-11,367/CA-SDi-11,368	OS	Lithic Scatter/Historic Rock Feature

TOTALS:	(Open Space)	OS	4

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,391 Locus A- C	OS/(OS)/OA	Historic Structure/Lithic Scatter/Milling Station/Temporary Camp
CA-SDi-11,396/H	OS/OA	Historic Structure/Lithic Scatter
CA-SDi-11,399H	OS	Historic Structure/Lithic Scatter
CA-SDi-11,409	L1/OS	Lithic Scatter/Historic Rock Feature
CA-SDi-11,411 A-D	L3/OS	Milling Station/Historic Refuse
CA-SDi-11,415	OS	Milling Station/Lithic Scatter/Historic Rock Feature
CA-SDi-11,417H	L3/OS	Historic Structure/Lithic Scatter/Milling Station
CA-SDi-6,695 A & B	OS	Lithic Scatter/Historic Rock Feature
CA-SDi-6,965/CA-SDi-11,398H	OS/OA	Historic Archaeological Complex/Lithic Scatter
CA-SDi-12,328/H	OS	Lithic Scatter/Historic Rock Feature
CA-SDi-12,362/H	OS/(OS)/OA	Lithic Scatter/ Historic Refuse
CA-SDi-12,373/H	OS	Habitation Site/Historic Structure
CA-SDi-12,380/H	L3	Lithic Scatter/Historic Rock Feature
CA-SDi-12,382/H	L3	Historic Rock Feature/Lithic Scatter
CA-SDi-12,393/H	L3/OS	Lithic Scatter/Historic Rock Feature
SDM-W-1,932	OS	Lithic Scatter/Historic Rock Feature/Milling Station

TOTALS:	(Open Space)	OS	14
	(Low Density Residential 1 (.5-1 du/ac))	L1	1
	(Low Density Residential 3 (.05-.25 du/ac))	L3	5
	(Outside of Area)	OA	4
	(Man-made Open Space)	(OS)	2

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,355	OS	Lithic Scatter/Historic Rock Feature
CA-SDi-11,356	OS/OA	Lithic Scatter/Historic Structure
CA-SDi-11,358	OS/OA	Lithic Scatter/Historic Rock Feature
CA-SDi-11,359H	OS	Lithic Scatter/Historic Refuse
CA-SDi-11,360H A-C	OS	Historic Structure/Lithic Scatter
CA-SDi-12,150	OS	Historic Structure/Lithic Scatter
CA-SDi-12,346/H	OS	Temporary Camp/Lithic Scatter/Historic Rock Feature
CA-SDi-12,347/H	OS	Historic Structure/Lithic Scatter
CA-SDi-12,348/H	OS	Lithic Scatter/Historic Rock Feature
CA-SDi-12,350/H	OS/OA	Lithic Scatter/Historic Rock Feature

TOTALS:	(Outside of Area)	OA	3
	(Open Space)	OS	10

Over the the entire Otay Ranch property, 6 of the 30 prehistoric/historic sites known to be present on the property fall all or partially within areas proposed for intense development, with 24 prehistoric/historic sites located entirely within areas proposed for non-construction oriented land use in the Environmental Alternative. This ratio (6/24) is the same as the Composite General Plans Alternative. When compared with the six other development plan alternatives: New Town Plan (28/2), Phase I-Progress Plan (28/2), Low Density Plan (27/3), Project Team Plan (26/4), Fourth Alternative (24/6), and Phase II-Progress Plan (22/8); the Composite General Plans Alternative and the Environmental Alternative have a substantially lower incidence of prehistoric/historic sites occurring in all or partially within areas proposed for development. The Composite General Plans Alternative, however, proposes development on only the Otay River Parcel, while the Environmental Alternative like all of the other plans proposes development on all three of the Ranch parcels. Of the plans which proposed development on all three parcels, the Environmental Alternative most successfully avoids impacts to prehistoric/historic resources.

4.7.5.4 Proposed Mitigation

At this stage of planning, not all of the prehistoric resources have been identified; importance of the resources is assumed rather than verified. Impacts are still problematic rather than specific, and development plans are still highly conceptual; therefore, development of a comprehensive mitigation plan must be conceptual and necessarily programmatic rather than resource-specific. For conciseness, the mitigation plan is presented as a series of interrelated stages or phases (see Section 3.4.3 for additional detail).

- Stage 1: The applicant shall complete an intensive, systematic survey of the remaining 17,000 acres for cultural resources in compliance with the county's requirements. Completion of the survey shall occur as soon as feasible with the survey of the first SPA being completed no later than filing of the first SPA Plan application. The survey of the remaining portion of Otay Ranch shall be completed prior to ~~approval~~ public review of the first SPA Plan.

- Stage 2: The applicant shall complete importance and boundary testing for each resource identified within the first SPA and for a sample of site types beyond the SPA but within the overall project. All Stage 2 work must be in compliance with CEQA and local guidelines to include county policies.

- Stage 3: The applicant shall implement appropriate mitigation measures for resources determined as important during the Stage 2 importance evaluation phase. These forms of mitigation would include:

  1) Site avoidance by preservation of the site in open space easements.

  2) Site avoidance by preservation through capping the site and placing landscaping on top of the fill.

  3) Data recovery through implementation of an agency-approved excavation and analysis data recovery program.

  4) A combination of one or more of the above measures.

Additionally, the applicant shall develop a plan shall be developed for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This shall be accomplished through adaptive reuse of one of the historic

structures within the project or through construction of a building within one of the parks or community centers. It is expected that this interpretive center will only be for temporary curation of those materials being actively used for interpretation and display, and that permanent curation of artifacts and data will be at a regional repository when one is established.

Historic Resources

Mitigating measures for historic resources are essentially the same as the measures for prehistoric resources as described above. The same steps and stages shall be followed although archival research and historical documentation may be used to augment Stage 2 field testing programs. Mitigation of impacts to historic resources through preservation may be more feasible for historic sites than for prehistoric sites because they generally comprise a smaller area and can often be synthesized into a development plan. In the case of historic resources, Stage 3 data recovery programs shall be integrated with comprehensive programs of corresponding archival research to provide the context for, and make possible a full evaluation of, the material found on the sites. As indicated under the prehistoric mitigation measures, a plan shall also be developed for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This shall be accomplished through adaptive reuse of one of the historic structures within the project or through construction of a building within one of the parks or community centers.

Prehistoric/Historic Resources

Mitigating measures for prehistoric/historic resources are essentially the same as for prehistoric and historic resources as described above. The same steps and stages should be followed although archival research and historical documentation may be used to augment field testing programs. Mitigation of impacts to historic components of prehistoric/historic resources through preservation may in some instances be more feasible than for the prehistoric components because they generally comprise a smaller area and can often be synthesized into a development plan.

If in situ preservation is not possible, recovery of a representative amount or sample of information, both surface and subsurface, is the only other acceptable alternative. For historic components, the data recovery program will be integrated with a corresponding archival research program to fully assess the significance of the material found on the sites. By creating a complementary research program that fully incorporates the archival material with the field results, many important research questions can be addressed.

4.7.5.5 Analysis of Significance

At this program-level of analysis, all prehistoric, historic, and prehistoric/historic resources are considered significant (see Section 3.4.4).

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4.7.6 Geology and Soils

4.7.6.1 Impact Analysis

Geologic Impacts

The Environmental Alternative proposes significantly reduced development on all of the parcels relative to the New Town Plan or Phase I-Progress Plan. Therefore, less acreage underlain by potentially adverse geology (i.e., landslides, unstable slopes, etc.) would be incorporated into the development, thus reducing the overall impact. The general types of geologic and soil impacts that can be anticipated include slope instability (742 acres of the Otay River parcel proposed for development are underlain by slopes with gradients of 15 percent or greater, composed of potentially unstable geologic formations), rippability, seismic ground shaking, expansive and erodable soils, liquefaction, and landslides.

4.7.6.2 Proposed Mitigation

The mitigation measures outlined in the geology and soils section concerning the New Town Plan (see Section 3.5.3) would mitigate potential impacts to levels below significance. A brief summary of the proposed mitigation measures is as follows:

- Slope instability - Perform site-specific geotechnical investigation and slope stability analyses and implement appropriate design measures.
- Rippability - Perform site-specific geotechnical investigation. Where non-excavatable materials are encountered, blasting may be required to achieve proposed grades.
- Seismic ground shaking - Perform site-specific geotechnical investigation, incorporate seismic parameters into the design and construction of the project, design according to appropriate building codes.
- Expansive/erodable soils - Performs selective grading and design foundations in accordance with UBC standards. Incorporate erosion control measures into design and construction of the project.
- Liquefaction - Perform site-specific geotechnical investigation to evaluate liquefaction potential. Perform vibrofloatation or dynamic compaction techniques, or remove and recompact soils as appropriate to mitigate liquefaction potential.
- Landslides - Perform site-specific geotechnical investigation to delineate limits of landslides. Landslides may be completely removed or buttressed during site grading.

4.7.6.3 Analysis of Significance

Implementation of the proposed mitigation measures would reduce impacts to below a level of significance.

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4.7.7 Paleontological Resources

4.7.7.1 Impact Analysis

The Environmental Alternative proposes significantly reduced development on all of the parcels. Development in paleontologically sensitive rock units on the Proctor Valley and San Ysidro parcels would be significantly reduced compared to the other alternatives. Development on the Otay River parcel would also be reduced, but a large portion of the parcel would be developed, and all of that development would occur in sensitive rock units.

An analysis of the disturbance of the paleontologically sensitive rock formations found onsite was completed for the Environmental Alternative. This alternative would result in the disturbance of approximately 566 acres of the highly sensitive San Diego formation, approximately 2,435 acres of the highly sensitive Otay formation, and approximately 796 acres of the highly sensitive Sweetwater formation. Total disturbance in high sensitivity formations would involve approximately 3,797 acres. The majority of this disturbance would occur on the Otay River parcel.

4.7.7.2 Proposed Mitigation

The mitigation measures outlined in the paleontology section concerning the New Town Plan (Section 3.6.3) would mitigate potential impacts to paleontological resources to levels below significance. The following general mitigation measures shall be implemented:

- A qualified paleontologist shall be retained. The paleontologist shall be present at all times during original cutting in highly sensitive formations and to a lesser extent in less sensitive formations.
- When fossils are discovered, the paleontologist shall be allowed to recover them.
- Prepared fossils and notes shall be given to a scientific institution, and a final summary report shall be prepared by the paleontologist at the end of excavation.
- Geologic/paleontologic preserves shall be created in designated areas not planned for mass excavation.

4.7.7.3 Analysis of Significance

Implementation of the Environmental Alternative would result in adverse impacts to paleontological resources (3,340 acres of disturbance in sensitive formations). The significance of these impacts would vary depending upon the paleontological resource sensitivity of individual affected formations. Implementation of the proposed mitigation measures would reduce impacts to below a level of significance.

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4.7.8 Agricultural Resources

4.7.8.1 Impact Analysis

Approximately 737 acres of Prime Farmland are located in the Otay Ranch property. Approximately 143 acres (20 percent) of Prime Farmland would be developed, while approximately 593 acres (80 percent) of the land would be retained as open space. The Environmental Alternative would preserve more Prime Farmland located in the Otay River parcel than the New Town Plan; however, the open space areas with Prime Farmland would not be available for agricultural activity. Prime Farmland (264 acres) in the Proctor Valley parcel would be affected by residential development in the northern portion of the site. CEQA states the loss of any amount of Prime Farmland or impairment of its use for agricultural activity, is a significant and irreversible impact. Therefore, the Environmental Alternative would result in a significant impact due to the loss and impairment of approximately 737 acres of Prime Farmland.

Land with Statewide and Local Farmland Important soils is located throughout the Otay Ranch property and would be developed to urban land uses under the Environmental Alternative. Approximately 3,307 acres of Statewide Important Farmland and 762 acres of Local Important Farmland would be developed by the Environmental Alternative, while 2,243 acres of Statewide and 2,665 acres of Local Important Farmlands would be retained as open space. Approximately 9,714 acres of the Otay Ranch property are suitable for the cultivation of five principal crops including avocados, citrus, truck crops, tomatoes and flowers. The land uses proposed throughout the project site would either convert or impair the use of these agricultural soils for the potential production of coastal-dependent crops. Loss of this type of agricultural land would be a significant and irreversible impact of the Environmental Alternative.

Crop Production

Existing cattle grazing and barley cultivation operations would cease with development of the Otay Ranch property under the Environmental Alternative. Limited agricultural activities could potentially occur in the Otay River and Proctor Valley parcels; however, no agricultural designations are included on these parcels under the Environmental Alternative Plan.

The loss of barley production would not be a significant impact since it is a low cost, low yield, low return crop. Field crops as a whole are not significant in terms of their countywide agricultural value. Approximately 20,000 cattle and calves were reported in the county for 1990; approximately 600 cows or three percent are within the Otay Ranch property. The net income received from both cattle and barley operations are used towards the cost of production, and the payment of property taxes which exceed $100 per acre, including land not in agricultural use. The incremental loss of agricultural production in the Otay Ranch property would have a minimal impact on the county's cattle production since less than three percent of the number of cattle in the county would be lost.

The change in the county's existing land use and zoning designations, as proposed by the Environmental Alternative, would allow the conversion of agricultural land uses to urban uses. Although less development would occur under this alternative, the conversion of agricultural land suitable for coastal-dependent crops is considered a significant and irreversible impact. The Environmental Alternative would develop residential uses along the upper portions of the Proctor Valley parcel and the northern and eastern portions of the San Ysidro parcel. These residential uses would be directly adjacent to existing offsite agricultural land uses associated with Daley Ranch to the east. Potential land use interface

impacts related to agricultural activity (noise, dust, odors, use of pesticides) could occur without adequate buffering measures between these land uses. No agricultural-related interface impacts would occur within the northern and eastern portion of the Otay River parcel since the surrounding lands are being developed or are planned for urban development (e.g., EastLake and Salt Creek Ranch projects to the north).

Indirect, growth inducing impacts would be similar to the New Town Plan as roads and public infrastructure are extending further east towards agricultural land. Urbanizing pressures for the early conversion of agricultural lands is associated with appreciation of land values and the extension of public services. Since the entire Otay Subregion is undergoing rapid urban development, the conversion of agricultural lands to urban uses is a significant and cumulative impact of the Environmental Alternative as discussed in Section 6.9 (Agricultural Resources).

The upper portion of the Proctor Valley parcel would be developed with large lot, low-density residential uses and natural open spaces would be maintained. The Jamul-Dulzura Subregional Plan recommends the keeping of animals and other agricultural uses on large, low-density lots to maintain the community's rural character. Agricultural uses could occur on the proposed low-density residential lots which would be developed at 0.05-0.25 dwelling units per acre. No policy inconsistency impacts would occur with the Jamul-Dulzura Subregional Plan unless agricultural uses on the low-density lots in the Proctor Valley parcel are restricted.

Interim agricultural uses would be allowed under the Environmental Alternative. An agricultural plan would be required to ensure that agricultural activity occurs on portions of the site not yet scheduled for development. The plan would tie into the project's phasing plan and would include measures to reduce potential interface impacts that could occur between interim agricultural activity and the developed areas of the Otay Ranch property. Interim agricultural use of the site would be consistent with the Otay Mesa Subregional Plan's goal which encourages interim agricultural uses on land proposed for future urban uses. As previously discussed, the permanent loss of agricultural land at ultimate buildout would result in a significant and unmitigable impact.

This alternative would not be consistent with the goals and policies of the City of Chula Vista Open Space and Conservation Element. Most of the property's potentially highly productive land, which lies within the Otay River parcel, would be converted to urban uses or preserved as natural open space. Additionally, the plan does not include agricultural designations which would maintain agricultural land uses on the site. This would be a significant project inconsistency impact of the Environmental Alternative.

Portions of the Otay River parcel are designated as a Special Study Area by LAFCO. Any development on this parcel is subject to LAFCO's review which will occur when the annexation process begins to incorporate the land to the City of San Diego or the City of Chula Vista.

4.7.8.2 Proposed Mitigation

The following measures will partially mitigate the loss of agricultural land suitable for the production of coastal-dependent crops.

1. An Agricultural Plan shall be prepared by the project applicant prior to approval of any SPA Plans affecting agricultural resources and will be required for each subsequent development proposal. The plan shall indicate the type of agricultural activity that will be allowed as an interim use. Specifications shall

include buffering guidelines designed to prevent potential land use interface impacts related to noise, odors, dust, insects, rodents, and chemicals that may accompany agricultural activities and operations. Adequate buffering shall be provided between the proposed development area and the interim agricultural use. Buffering measures may include:

- a 200-foot distance between property boundaries and agricultural operations;
- if permitted interim agricultural uses require the use of pesticide, then limits shall be set as to the time of day and the type of pesticide application that may occur;
- use of vegetation along the field edges adjacent to development that can be used for shielding (i.e., corn); and
- notification of adjacent property owners of potential pesticide applications and use of fencing.

The plan shall be reviewed by the city or county planning department that has jurisdiction over these areas to verify that proposed guidelines are adequate to prevent significant interface impacts from occurring. This measure would partially mitigate the incremental loss of agricultural land.

2. Landscaping and buffering guidelines shall be included in the development plans at the SPA level for the areas planned adjacent to existing agricultural uses. These areas include the northeast edges of the Proctor Valley parcel and the northern and eastern edges of the San Ysidro parcel where low-density residential uses would be developed adjacent to the Daley Ranch where agricultural activities such as crop cultivation and cattle ranging occur.

3. The loss of Prime Farmland is an unmitigable impact. However, a small portion of the Otay River parcel where prime soils are located should be set aside for a community garden. A possible location for the community garden would be in the southwest portion of the Otay River parcel. This area is considered suitable since it contains Prime Agricultural soils and is designated as a regional park by the New Town Plan. Development of this garden will depend on the feasibility of maintaining it within the proposed park. If the community garden is deemed feasible, its size and exact location will be determined at the SPA level. Schools proposed within the Otay Ranch property could promote educational activities in regard to agriculture through the use of the community garden.

4. Agricultural activity and the keeping of animals shall be allowed within the large, low density lots planned along the northern edge of the Proctor Valley parcel, as recommended in the Jamul-Dulzura Subregional Plan. Development plans for this area shall contain landscaping and buffering guidelines designed to prevent potential nuisance impacts related to noise, odor, dust and use of chemicals from occurring between adjacent internal residential uses.

5. The Environmental Alternative would retain large areas of natural, open space along the lower portion of the Otay River parcel and most of the Proctor Valley parcel. Both of these parcels contain soils of Prime, Statewide and Local Important Farmland . To prevent the loss of these lands, agricultural activity

should be allowed to occur along the planned open space areas which do not conflict with biological or cultural resources. This would require consultation with the project biologist and archaeologist to determine where agricultural uses could take place. This information will then be submitted to the SPA which is currently overseeing the Otay Valley Regional Park planning effort for their decision. Those areas with suitable agricultural soils not recommended for restoration by the project biologist would potentially be available for agricultural use. Agricultural use of these lands would require adequate buffering if proposed adjacent to onsite/offsite urban uses. This mitigation measure would maintain suitable agricultural land in use, as well as preserve land for the potential production of coastal-dependent crops.

4.7.8.3 Analysis of Significance

The Environmental Alternative would result in significant impacts to agricultural resources because open space areas on the Otay River Proctor Valley, and San Ysdiro parcel would not be available for farming operations and other prime agricultural areas within the Otay River parcel would be converted to residential uses. Development of the Otay River parcel would result in the conversion or impairment of land suitable for the production of coastal-dependent crops. Existing agricultural uses on the parcel would also be precluded. Proposed mitigation in Section 4.7.4.2 (Biology) would include habitat restoration within the open space areas, including approximately 4,273 acres of agricultural land. Implementation of this measure would eliminate use of the Otay Ranch site for all farming and row crop activities. According to state, county, and the City of Chula Vista open space policies and goals, the loss of an agricultural resource (Prime Farmland and land suitable for production of coastal-dependent crops) is considered a significant and unmitigable impact, regardless of the feasibility of maintaining the property in agricultural production (i.e., lack of an adequate water supply).

4.7.9 Mineral Resources

4.7.9.1 Impact Analysis

The Environmental Alternative proposes open space land uses for the Otay River Valley and Rock Mountain. In terms of the Otay River Valley, this alternative would not result in significant impacts, as aggregate minerals and bentonite clay are no longer considered to be a significant resource in the segment of the valley within the project site The open space land use designation (Impact Sensitive, LUD #24) for Rock Mountain, could preclude or limit mineral extraction activities, resulting in significant impacts. If mineral extraction were allowed within the areas designated as open space, no impacts would occur.

The Environmental Alternative would result in greater amounts of open space and less residential development on the Proctor Valley and San Ysidro parcels than any of the other alternatives (except for development under the Existing General Plans Alternative), and would result in fewer potential impacts.

4.7.9.2 Proposed Mitigation

The Otay River Valley segment within the Otay Ranch project is no longer considered to be a source of significant mineral resources (see Section 3.8, New Town Plan). Therefore, no impacts to mineral resources would result from the proposed development, and mitigation measures are not necessary.

The Environmental Alternative should include measures in its development plan to allow for mineral extraction on Rock Mountain and mineral extraction should be designated as the primary land use. Rock Mountain shall be placed in a mineral extractive overlay designation or an RCA in accordance with the policies of the soon-to-be adopted Mineral Resource Management Plan.

Development of the San Ysidro and Proctor Valley parcels shall be phased, if possible, to allow for mineral extraction if the county's Mineral Resources Element determines that significant mineral resources are located on the Otay Ranch property. Where possible, compatible land uses shall be developed near the locations of future mineral extraction activities (EIR proposed). Should project phasing not be possible, the impact to mineral resources would be significant and unmitigable.

The bentonite deposits onsite are not considered to be regionally significant (see Section 3.8, New Town Plan). Therefore, no impacts to mineral resources would result from the proposed development and mitigation measures are not necessary.

4.7.9.3 Analysis of Significance

The phasing of development of the San Ysidro and Proctor Valley parcels to allow for the extraction of mineral resources before construction would effectively mitigate impacts to mineral resources. However, should this not be feasible, the impact to mineral resources would be significant and unmitigable. Actions that preclude the extraction of significant mineral resources would be significant and would result in unmitigable adverse impacts.

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4.7.10 Water Resources and Water Quality

4.7.10.1 Impact Analysis

The Environmental Alternative proposes development of 5,641 acres which correspondingly would reduce the amount of impermeable surface area (25 percent as compared to 57 percent for New Town Plan) and runoff in comparison to the New Town Plan. In addition, impacts to water quality and the need for detention/retention basins would be reduced.

The types of impacts that can be anticipated are generally similar to those of the New Town Plan and include inundation of project features, changes in surface water flow rates, surface water quality, and ground-water quality and quantity.

4.7.10.2 Proposed Mitigation

Further analysis is necessary to determine the magnitude of the impacts and to identify measures appropriate to mitigate significant effects. All future studies shall be conducted by a qualified hydrologic engineer and meet the City of Chula Vista, County of San Diego, and Regional Water Quality Control Board standards for urban runoff, sedimentation, floodplain, encroachment, and water quality, as appropriate. A brief summary of the proposed mitigation measures is as follows:

- Floodplain encroachment - determine floodplain/floodway width; avoid floodplain encroachment.

- Inundation of project features - perform appropriate detailed hydrologic and hydraulic studies and incorporate the findings, conclusions, and recommendations into the design and construction of the project. Upgrade existing facilities or install retention/detention basins, as appropriate, to contain surface flows, etc.

- Changes in surface flow rates - perform appropriate detailed hydrologic and hydraulic studies and incorporate findings, conclusions, and recommendations into the design and construction of the project. Incorporate erosion control measures, siltation basins, etc. into project design.

- Ground-water quality - Implement the improvements and plans provided in the Urban Runoff Reservoir study. Details on study contents are provided in Section 3.9.3.

- Ground-water quantity - Implement measures to enhance recharge to aquifer systems.

- Urban runoff to Lower Otay Lake - prepare and implement Urban Runoff Master Plan.

4.7.10.3 Analysis of Significance

At this level of analysis, impacts to ground-water and surface water resources and quality are considered significant upon development of the Environmental Alternative. Implementation of the proposed mitigation measures at the SPA and project design levels would reduce the ground-water and surface water impacts to below a level of significance.

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4.7.11 Transportation, Circulation, and Access

4.7.11.1 Impact Analysis

This section documents the results of the impact analysis for the Environmental Alternative. The following topics will be discussed in this section: trip generation, proposed circulation network, arterial segment and freeway impacts, and intersection impacts.

Appendix B of this document contains a detailed discussion of the impact analysis methodologies and threshold standards used to identify impacts of the Environmental Alternative. In addition, Appendix B explains why the land uses contained in the trip generation tables prepared for the Environmental Alternative may not directly correspond to the land use acreages and dwelling unit estimates contained in Table 4.7-1. Finally, Appendix B contains information regarding local and regional transportation topics related to project impacts and mitigation.

Trip Generation

This alternative was developed with a major emphasis on minimizing environmental impacts, especially to steep slopes and sensitive biologic and archaeologic resources. Major features of this plan include the following:

- a single road crossing of the Otay River Valley (SR-125) to accommodate all regional and subregional traffic;
- an emphasis on large lot residential uses on the Proctor Valley and San Ysidro parcels;
- emphasis on single-family detached uses on the Otay River parcel; and
- a major transit corridor paralleling SR-125.

This alternative does not utilize the village design concept to minimize transportation impacts through the encouragement of pedestrian and bicycle transportation, mixed use, village centers, and discouragement of through trips travelling through the project.

Table 4.7.11-1 summarizes the proposed land uses and daily trips for the Environmental Alternative. It shows that under SANDAG trip generation standards, the proposed land uses for this alternative would generate approximately 316,725 daily trips on Otay Ranch.

Proposed Circulation Network

The Environmental Alternative identifies a circulation system which would include only one Otay River Valley road crossing (SR-125) and a pattern of major streets which form a modified grid, with the exception of a loop formed by Palomar Street as it curves around to the Eastern Urban Center.

Figure 4.7.11-1 shows a graphic description of the proposed onsite and offsite circulation network for the study area under the Environmental Alternative.

Arterial Segment and Freeway Impacts

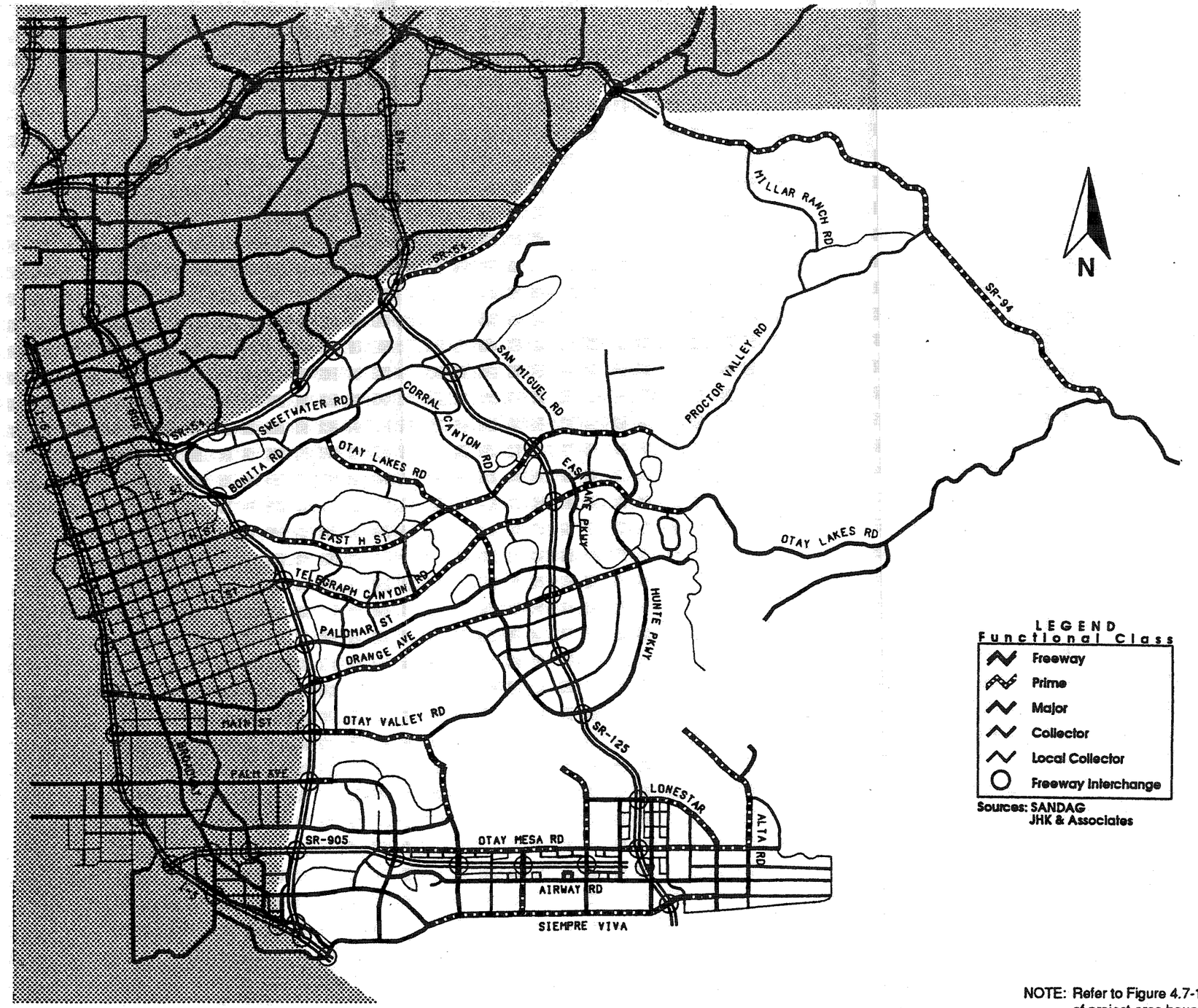
Figure 4.7.11-2 shows the projected network levels of service for the entire Southbay study area as provided by SANDAG. Of the 283 roadway miles that make up the total circulation network within the study area (east of I-805) for the Environmental Alternative, 24 miles of roadway (approximately 9 percent) are expected to operate above the maximum recommended ADT volume, i.e., at LOS D or worse for arterials and LOS F for freeways.

Table 4.7.11-1

LAND USE AND TRIP GENERATION SUMMARY
ENVIRONMENTAL ALTERNATIVE
OTAY RANCH TOTAL

Land Use	Land Use Intensity	Trip Rate	Daily Trips
Single-family Residential	7,266 du	10/du	72,660
Multifamily Residential	3,415 du	7/du	23,905
Total Dwelling Units	10,681 du		
Total Residential Trips			96,355
Office/Commercial			
Auto Dealer	68 AC	400/AC	27,200
Community Shopping Center (10-30 acres each)	81 AC	650/AC	52,650
Resort Commercial	40 AC	100/AC	4,000
Industrial			
Research Industrial (Light Industry)	65 AC	130/AC	8,450
Public/Quasi-public			
Elementary/Jr. High School	103 AC	40/AC	4,120
High School	59 AC	50/AC	2,950
Other Services	61,000 sq. ft.	50/1000 sq. ft.	3,050
University	225 AC	80/AC	18,000
Parks (Developed)	113 AC	50/AC	5,650
Eastern Urban Center (EUC)			
General Office (less than 100,000 sq. ft. each)	1,140,000 sq. ft.	20/1000 sq. ft.	22,800
Multifamily Residential	1155 du	*	*
Regional Shopping Center (Less than 10 acres each)	37 AC	1000/AC	37,000
Other Retail	19 AC	350/AC	6,650
Parks (Developed)	29 AC	50/AC	1,450
Conference Center (Hotel)	132 AC	200/AC	26,400
Total Non-Residential Trips			220,370
TOTAL DAILY TRIPS			316,725

* The 8,085 trips that are generated by the multifamily dwelling units in the EUC are reflected in the total residential dwelling unit count and trip generation figures.



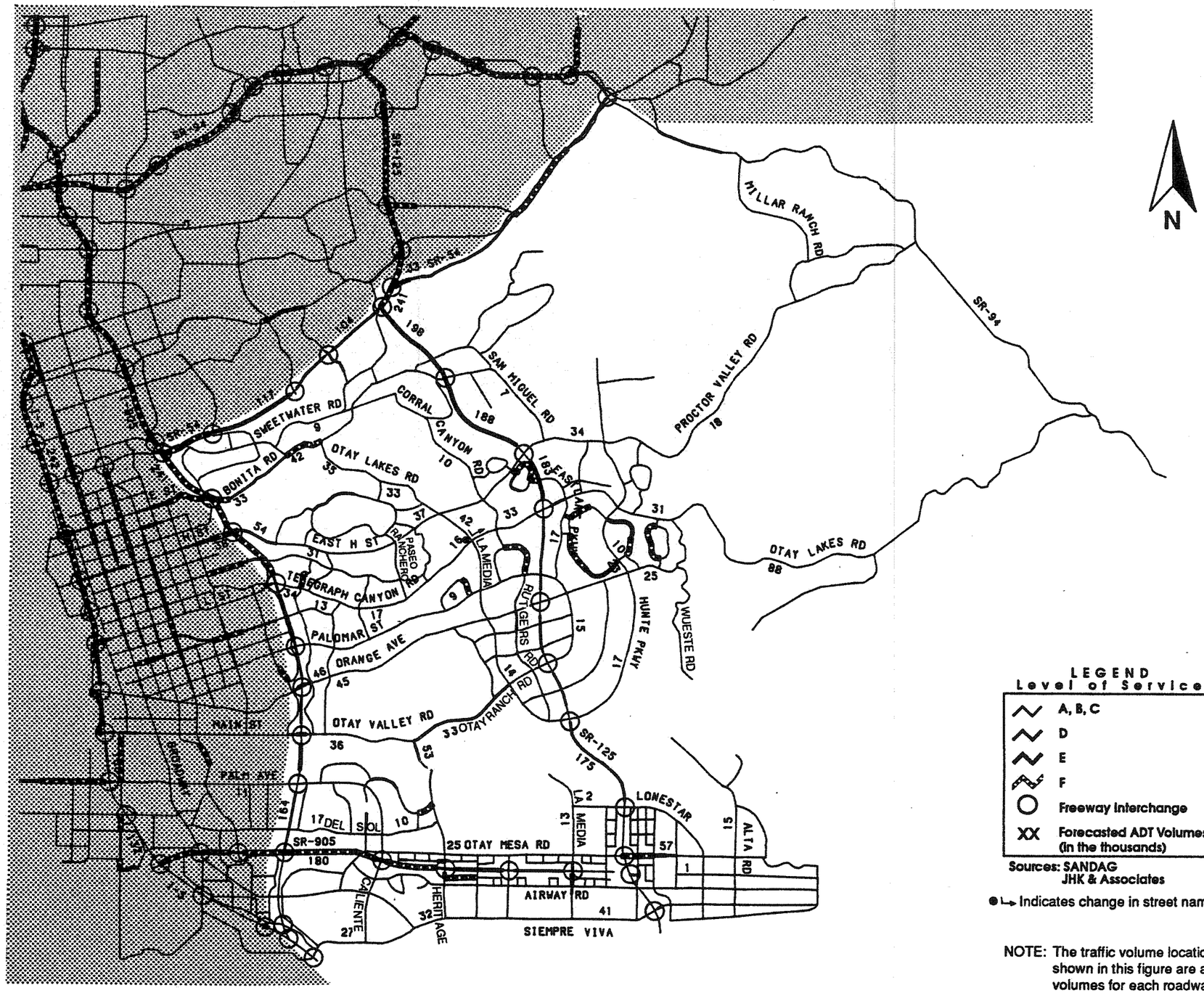
NOTE: Refer to Figure 4.7-1 for an illustration of project area boundaries.

OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.7.11-1

ENVIRONMENTAL ALTERNATIVE CIRCULATION NETWORK



NOTE: The traffic volume locations and numbers shown in this figure are approximate; actual volumes for each roadway segment are provided in Tables 4.7.13-1 and 4.7.13-2.

OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.7.11-2

ENVIRONMENTAL ALTERNATIVE CIRCULATION NETWORK LEVEL OF SERVICE (Prior to Mitigation)

A review of freeway impacts (excluding arterial segments) revealed that of the 31 freeway miles in the study area, 8 miles (approximately 26 percent) are forecasted to experience ADT volumes in excess of the maximum recommended ADT volume (i.e. at LOS F).

Of the total 252 arterial roadway miles that make up the arterial circulation network for the Environmental Alternative, 16 miles of roadway (approximately 6 percent) are predicted to operate above the maximum recommended ADT volume at LOS D or worse.

Table 4.7.11-2 summarizes the impacted roadway miles by level of service and facility classification.

Intersection Impacts

Figure 4.7.11-3 shows the location of critical intersections that would experience high total entering volumes in excess of 65,000 vehicles per day (vpd); these intersections would typically require special treatment to provide acceptable peak hour operations. Table 4.7.11-3 summarizes these critical intersection locations and entering volumes. Table 4.7.11-3 also defines the level of potential impact based on the type of design solution needed to facilitate the forecasted demand volumes entering the intersection. Table 4.7.11-3 shows that a total of three intersections are predicted to experience high entering volumes in excess of 65,000 vpd under the Environmental Alternative. Only one of the three intersections (EastLake Parkway/Orange Avenue) is located within the project site. All three intersections may require special at-grade design to accommodate expected demand. Detailed study of peak hour turn movement volume is required at the subarea planning stage of development to determine the specific mitigation measures needed at these impacted intersections.

Table 4.7.11-3

SUMMARY OF HIGH VOLUME INTERSECTION LOCATIONS
ENVIRONMENTAL ALTERNATIVE
(Prior to Mitigation)

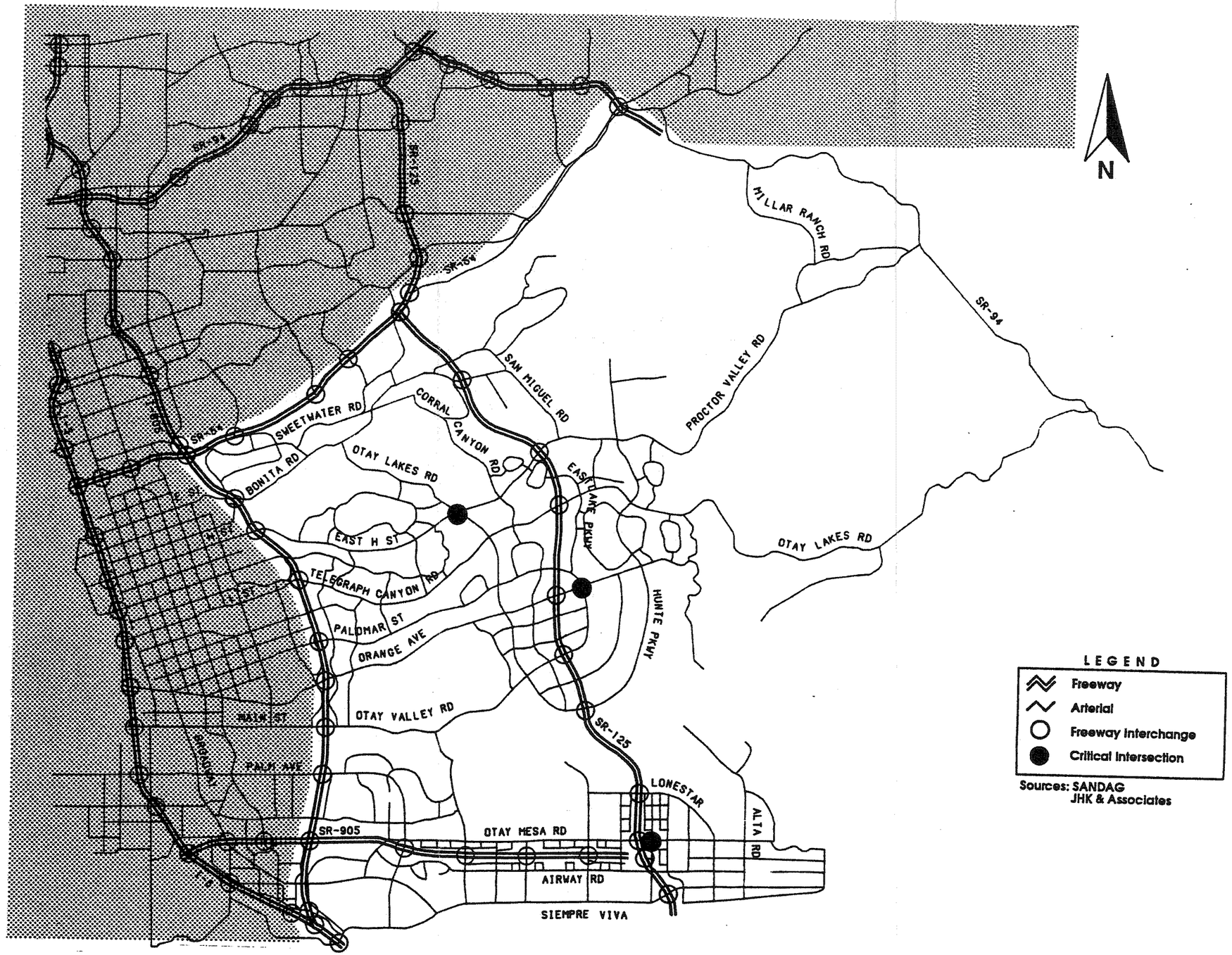
Intersection	Total Entering Volume	Special At-grade Design Required	Special Grade Separated Design Required
Onsite Impacts			
EastLake Parkway/Orange Avenue	65,100	Yes	No
Offsite Impacts			
Harvest Road/Otay Mesa Road	70,950	Yes	No
Otay Lakes Road/East H Street	71,900	Yes	No

Table 4.7.11-2

IMPACTED ROADWAY MILES BY LEVEL OF SERVICE
ENVIRONMENTAL ALTERNATIVE
(Prior to Mitigation)

Facility Class (# of lanes)	LOS D	LOS E	LOS F	Total Miles
Onsite Impacts				
Local Collector (2)	0.00	0.00	1.02	1.02
Collector (4)	0.32	0.00	0.00	0.32
Major (4)	1.82	0.00	0.00	1.82
TOTAL	2.14	0.00	1.02	3.16
Offsite Impacts				
Local Collector (2)	0.72	0.11	5.26	6.09
Collector (4)	0.39	0.00	0.71	1.10
Major (4)	0.69	0.00	3.58	4.27
Prime (6)	1.60	0.00	0.00	1.60
Freeway	0.00	0.00	8.00	8.00
TOTAL	3.40	0.11	17.55	21.06
Combined Onsite/Offsite Impacts				
Local Collector (2)	0.72	0.11	6.28	7.11
Collector (4)	0.71	0.00	0.71	1.42
Major (4)	2.51	0.00	3.58	6.09
Prime (6)	1.60	0.00	0.00	1.60
Freeway	0.00	0.00	8.00	8.00
TOTAL	5.54	0.11	18.57	24.22

Facility Class (# of lanes)	Total Roadway Miles	Total Impacted Roadway Miles	Percent Impacted Roadway Miles
Combined Onsite/Offsite Network			
Local Collector (2)	49.92	7.11	14%
Collector (4)	69.72	1.42	2%
Major (4)	74.78	6.09	8%
Prime (6)	57.39	1.60	3%
Freeway	31.32	8.00	26%
TOTAL	283.13	24.22	9%



OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.7.11-3

ENVIRONMENTAL ALTERNATIVE CRITICAL INTERSECTION LOCATIONS (Prior to Mitigation)

Comparative Analysis of Impacts

It is important to note that the impacts to the Otay Ranch study area circulation network under any development alternative must be mitigated to achieve acceptable levels of service and conform to the adopted performance standards. For review purposes, the Environmental Alternative impacts are compared to those impacts occurring under the Composite General Plans Alternative. As discussed in Section 4.5.11, the Composite General Plans Alternative is a combination of the adopted general plans for each of the jurisdictions in the study area. As the Adopted Chula Vista General Plan contains the most detailed land use and circulation network information for the area of eastern Chula Vista on and adjacent to the project site, this general plan was used as the primary plan for analysis purposes. This direction was provided by the Interjurisdictional Task Force during the early stages of the review process. This comparative analyses will enable the reviewer to clearly understand project and cumulative impacts resulting from a particular alternative. However, at this program level review, the definition of project-only impacts is not provided and specific measures are recommended in the mitigation section to define precisely the process to be followed during development of the project, which will result in the accurate definition of project-only impacts associated with each phase of development.

Project-level impacts are impossible to fully identify and address at this stage of development because of uncertainty relating to the ultimate street system to be approved for the area. For example, will SR-125 be a freeway or a toll facility? Will there be two, three, or four river crossings? These major circulation issues significantly impact trips through the project area; consequently, project-level impacts cannot be adequately identified at this time. During the subsequent planning efforts and preparation of SPA plans, these issues can be quantified and mitigated.

Table 4.7.11-4 provides a summary comparison of the circulation network impacts under the Environmental Alternative and the Composite General Plans Alternative. This table shows that approximately three miles of the onsite roadway network, and 21 miles of the offsite roadway network would be impacted under the Composite General Plans Alternative and 3 miles of the onsite roadway network and 24 miles of the offsite roadway network would be impacted. Thus, no additional onsite roadway miles and two fewer offsite roadway miles would be impacted under the Environmental Alternative. Table 4.7.11-4 also compares the number of impacted major signalized intersections. As shown, one less onsite intersection and five less offsite intersections would be impacted under the Environmental Alternative.

4.7.11.2 Proposed Mitigation

This section provides a detailed discussion of the proposed mitigation measures required for the Environmental Alternative. These mitigation measures include both specific geometric mitigation measures for the study area arterial roadways and major intersections. These measures have been divided into two separate categories: those which are required mitigation measures for the project and those in which the project proponent shall participate, as a major developer in the Southbay region. Appendix B of this document contains a detailed discussion of the various forms of circulation system mitigation measures required for the Otay Ranch study area under all of the development alternatives. A separate section of Appendix B contains a detailed discussion of policy-related mitigation measures applicable to the Otay Ranch study area and the Southbay region.

Table 4.7.11-4

COMPARATIVE ANALYSIS OF IMPACTS PRIOR TO MITIGATION ENVIRONMENTAL ALTERNATIVE VERSUS COMPOSITE GENERAL PLANS ALTERNATIVE

Impacted Roadway Miles by Facility Class and Level of Service

	Environmental Alternative				Composite General Plans Alternative			
Facility Class	**LOS D**	**LOS E**	**LOS F**	**TOTAL**	**LOS D**	**LOS E**	**LOS F**	**TOTAL**
On-Site Impacts								
Local Collector (2LN)	0.00	0.00	1.02	1.02	0.00	0.00	0.00	0.00
Collector (4LN)	0.32	0.00	0.00	0.32	0.00	0.58	0.00	0.58
Major (4LN)	1.82	0.00	0.00	1.82	0.55	0.00	1.25	1.80
Major (6LN)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Prime (6LN)	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.36
Total	**2.14**	**0.00**	**1.02**	**3.16**	**0.55**	**0.94**	**1.25**	**2.74**
Off-Site Impacts								
Local Collector (2LN)	0.72	0.11	5.26	6.04	0.00	1.63	3.79	5.42
Collector (2LN)	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
Collector (4LN)	0.39	0.00	0.71	1.10	0.00	0.00	9.87	9.87
Major (2LN)	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.77
Major (4LN)	0.69	0.00	3.58	4.27	0.76	0.62	4.27	5.65
Prime (6LN)	1.60	0.00	0.00	1.60	3.69	1.92	0.00	5.61
Freeway	0.00	0.00	8.00	8.00	0.00	0.00	6.00	6.00
Total	**3.40**	**0.11**	**17.55**	**21.06**	**4.45**	**4.94**	**23.98**	**33.37**
Total Impacts	**5.54**	**0.11**	**18.57**	**24.22**	**5.00**	**5.88**	**25.23**	**36.11**

Impacted Major Signalized Intersections by Stage of Required Mitigation

On-Site Intersections	**Environmental Alternative**	**Composite General Plans Alternative**
Stage 1	1	0
Stage 2	0	0
Stage 3	0	2
Total	1	2
Off-Site Intersections		
Stage 1	2	4
Stage 2	0	0
Stage 3	0	2
Total	2	6
Total Impacted Intersections	13	8

General Mitigation Measures

This section identifies the applicable specific and general mitigation measures from Appendix B which shall be applied to the Environmental Alternative as required mitigation. The following table summaries the specific and general mitigation meausres from Appendix B which are specifically applied to this alternative.

Required Mitigation Measures

Overall Measures

	Participatory	Required
• Develop Transportation Demand Management Mitigation Strategies	X	
• Update General Plans	X	X
• Prepare Transportation Phasing Plans	X	X
• Provide Parallel Arterial System	X	
• Improve Mode Split	X	
• Increase Local/Regional Trip Capture	X	
Regional Freeway System Mitigation		
• Increase Freeway Capacities	X	
Arterial Segment Mitigation		
• Increase Intersection Capacities	X	
Other Mitigation Strategies		
• Implement Transportation System Management Strategies	X	
• Implement Traffic Control Strategies	X	X

Potential Transportation Demand Management Benefits

This section summarizes the potential benefits to circulation system operations with the successful implementation of Transportation Demand Management (TDM) strategies proposed by SANDAG and the Air Pollution Control District. Both of these plans would increase average vehicle occupancy (passengers per vehicle) during commute trips from the current level of less than 1.1 to at least 1.5 in the future.

SANDAG estimates that through TDM, commuting trips region-wide could be reduced by 17 percent. As a regional program, implementation of an aggressive TDM program clearly has a significant positive impact on peak hour operating LOS on the regional circulation system, when roads are usually operating at or near capacity.

Based on the modeled results using the Phase I-Progress Plan Alternative, with TDM benefits included in the model, it can be expected that the TDM policies would decrease total vehicle miles traveled (VMT) by approximately 8 percent. This reduction in traffic activity could potentially reduce both arterial and intersection impacts by one third. A peak hour analysis will be conducted on the conceptually approved plan under TDM and non-TDM conditions prior to each SPA Plan approval. This analysis will more precisely

define the extent and location of impacts and identify specific mitigation measures that will be required under the selected development scenario for the Otay Ranch.

Transit System Mitigation

The proposed rail lines for the Southbay area are not included in MTDB's Long Range Rail Plan and, therefore, these lines and the supporting bus services are not funded at the present time. Otay Ranch shall contribute to the capital and operating costs associated with the new transit system. This shall be done through provisions in facility financing plans at the SPA level. Further, benefit assessment districts shall be established to fund new transit routes under MTDB Board Policy No. 40, Non Transit Funding of New Transit Services.

Summary

It is critical to note that the plans for Otay Ranch provide a comprehensive, efficient, and safe system for a variety of transportation modes. Automobile-oriented improvements do not entirely define the scope of these improvements. Rather, they are just one element of an integrated mobility system which includes bus, fixed guideway transit, carts, bicycles, pedestrian ways, and trails all linked to minimize or avoid automobile travel.

The next section details the project-specific mitigation measures to individual impacted segments and intersections identified in the impact analysis conducted for this alternative. These specific mitigation measures are defined in Appendix B and detailed below.

Project-specific Mitigation Measures

Introduction

This traffic analysis is oriented toward future traffic conditions at the full buildout of the project. However, buildout will occur over a number of years, and it will be necessary to provide an adequate transportation system for interim periods of development. The following paragraphs describe the recommendations to deal with the phasing of development and transportation improvements.

Primary regional transportation facilities which impact the project area are SR-125 and regional transit service (light rail or express bus). With these regional transportation facilities in place, it will be feasible to implement any major portion of development. If some of the development is proposed to occur before regional transportation facilities are implemented, project phasing will require that a local transportation traffic phasing analysis be conducted to identify alternative transportation mitigation measures which may be necessary.

Additional traffic analyses will be conducted to determine appropriate phasing of transportation improvements as interim phases of project development occur. As documented by the Transportation Phasing Plan (TPP) developed by Chula Vista for the Eastern Territories area, trip patterns and traffic impacts may change significantly in the course of project development. Thus, it will be important to adequately assess the impacts of the Otay Ranch Project at various phases of development. This will require the development of a comprehensive transportation phasing program which will be coordinated with each phase of land use development. This Otay Ranch Transportation Phasing Program will be coordinated with the TPP conducted by the City of Chula Vista. The development and implementation of each SPA or village will receive a site-specific traffic impact evaluation to identify the potential impacts to the current transportation network and recommend appropriate mitigation to maintain high quality service to the local system.

Table 4.7.11-5 summarizes the required mitigation measures for network arterial segments to accommodate expected demand. Table 4.7.11-6 summarizes the required arterial intersection mitigation under this alternative. Figure 4.7.11-4 shows the location of all arterial impacts under this alternative. Impacted arterial segments are coded with letters that correspond to those in Table 4.7.11-5. Impacted intersections are coded with numbers that correspond with those found in Table 4.7.11-6.

The information shown on the mitigation figure and tables for this alternative indicates that the following facilities will require special attention during final review:

Critical East/West Roadway Facilities

- Bonita Road - I-805 to Otay Lakes Road
- Otay Valley Parkway - Paseo Ranchero to La Media Road
- Otay Mesa Road - SR-125 to Enrico Fermi

Critical North/South Roadway Facilities

- Paseo Ranchero - Otay Valley Road to Del Sol Road

These critical arterial facilities would be heavily impacted by the anticipated traffic operations at the major signalized intersections located along their lengths. As shown in Figure 4.7.11-4, both segment and intersection mitigation measures are required to achieve acceptable levels of service where possible.

Mitigation Implementation Review

In order to clearly identify potential difficulties in implementing the required mitigation measures for critical offsite segments and intersections, additional research has been conducted to identify existing constraints. These existing circulation system constraints may consist of the following factors:

- Existing residential or commercial development
- Previous general plan roadway classification
- Limited ability to acquire additional right-of-way
- Non-conformance with existing community character

Utilizing data compiled by the County of San Diego and the City of Chula Vista Public Works Departments relating to the existence of constraints on existing or planned offsite circulation facilities, JHK has prepared Table 4.7.11-7 which summarizes the anticipated difficulties which may occur if required mitigation measures are implemented for a given alternative. This preliminary review of potential constraints is intended to provide insight towards the feasibility of implementing a particular mitigation measure. The information provided at this General Plan level project review is also intended to provide citizens, staff, and decision-makers with adequate data on which to base project findings.

Table 4.7.11-7 indicates that certain offsite roadway segments would require upgrading of their classification and a change in the Circulation Element in order to mitigate significant traffic impacts of the Environmental Alternative; these offsite road segments would require a General Plan Amendment as indicated in Table 4.2.11-7.

Table 4.7.11-5

ENVIRONMENTAL ALTERNATIVE
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED ARTERIAL SEGMENTS

SEGMENT MITIGATION			DESCRIPTION OF SEGMENT MITIGATION					
No.	Segment	From - To	Increase Segment Capacity *	Require Enhanced Intersection Capacity**	Increase Regional/ Local Trip Capture	Improve Mode Split	Level of Significance***	Comments
On-Site Network								
A.	Local Ranch 1	N/O Palomar Street	X				1	(1) Local Collector (2LN) - Collector (3LN)
B.	Local Ranch 2	Rutgers Avenue - Palomar Street	X				1	(1) Local Collector (2LN) - Collector (3LN)
C.	Otay Valley Parkway	Paseo Ranchero - Local Ranch 3	X				1	(1) Major (4LN) - Major (6LN)
D.	Otay Valley Parkway	Local Ranch 3 - La Media Road	X				1	(1) Major (4LN) - Major (6LN)
E.	Rutgers Avenue	Orange Avenue - Local Ranch 4	X				1	(1) Collector (4LN) - Major (4LN)
Off-Site Network								
G.	Bonita Road	I-805 - Plaza Bonita Road	X		X	X	2	(1) Major (4LN) - Major (6LN)
H.	Bonita Road	Plaza Bonita Road - Willow Street	X		X	X	2	(1) Major (4LN) - Major (6LN)
I.	Bonita Road	Willow Street - Otay Lakes Road	X		X	X	2	(1) Major (4LN) - Major (6LN)
J.	Briarwood Road	SR 54 - Sweetwater Road	X		X	X	2	(1) Collector (4LN) - Major (4LN)
K.	Crest Drive	East J Street - Telegraph Canyon Rd.	X		X	X	1	(1) †
L.	Eastlake Drive	East H Street - SR 125	X		X	X	1	(1) †
M.	Eastlake Greens	Eastlake Parkway - Eastlake Greens	X				1	(1) Local Collector (2LN) - Collector (4LN)
N.	Eastlake Greens	Eastlake Greens - Hunte Parkway	X				1	(1) Local Collector (2LN) - Collector (3LN)
O.	Eastlake Greens	Hunte Parkway - Eastlake Trails	X				1	(1) Local Collector (2LN) - Collector (3LN)
P.	Eastlake Vista	Eastlake Vista - Eastlake Vista	X				1	(1) Local Collector (2LN) - Collector (4LN)
Q.	East H Street	I-805 - Terra Nova Road	X				1	(1) Prime (6LN) - Prime (8LN)
R.	Paseo Ranchero	Otay Valley Parkway - Del Sol Road			X	X	2	Maximum Segment Classifications
S.	La Media Road	Otay Mesa Road - SR 905	X				1	(1) Major (4LN) - Major (6LN)
T.	La Media Road	SR 905 - Airway Road	X		X	X	2	(1) Major (4LN) - Major (6LN)
U.	La Media Road	Airway Road - Siempre Viva Road	X				1	(1) Major (4LN) - Major (6LN)
V.	Orange Avenue	I-805 - Oleander Avenue	X		X	X	3	(1) Prime (6LN) - Prime (8LN)
W.	Otay Lakes Road	SR 125 - Eastlake Parkway	X		X	X	2	(1) Prime (6LN) - Prime (8LN)
X.	Otay Mesa Road	SR 125 - Harvest Road	X				1	(1) Major (4LN) - Prime (6LN)
Y.	Otay Mesa Road	Harvest Road - Sanyo Road	X	X (Stage 2)			1	(1) Major (4LN) - Prime (6LN)
Z.	Otay Mesa Road	Sanyo Road - Enrico Fermi	X		X	X	2	(1) Major (4LN) - Prime (6LN)
AA.	Ranchero Del Rey Pkwy	N/O Terra Nova Road	X				1	(1) Local Collector (2LN) - Collector (3LN)
AB.	Lakeshore Drive	S/O East H Street	X		X	X	1	(1) †
AC.	Camino Maquiladora	Heritage Road - Cactus Road	X				1	(1) Local Collector (2LN) - Collector (3LN)
AD.	Unnamed Otay	Palm Avenue - Paseo Ranchero	X				1	(1) Local Collector (2LN) - Collector (3LN)
AE.	Siempre Viva Road	SR 125 - Paseo Del Las Americas	X		X	X	2	(1) Major (4LN) - Major (6LN)

Table 4.7.11-5 (Continued)

ENVIRONMENTAL ALTERNATIVE
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED ARTERIAL SEGMENTS

SEGMENT MITIGATION			DESCRIPTION OF SEGMENT MITIGATION					
No.	Segment	From - To	Increase Segment Capacity *	Require Enhanced Intersection Capacity**	Increase Regional/ Local Trip Capture	Improve Mode Split	Level of Significance***	Comments
Off-Site Network (Continued)								
AF.	Siempre Viva Road	Paseo De Las Americas - Enrico Fermi	X				1	(1) Major (4LN) - Major (6LN)
AG.	Otay Mesa Road	Enrico Fermi - Alta Road	X				1	(1) Major (4LN) - Major (6LN)

Notes:

* See Comment (1) - The description under this column details the required change in roadway capacity and facility classification which is necessary to achieve acceptable performance on the referenced arterial segment.

**Stages of Intersection Mitigation

Stage 1 - Special At-Grade Intersection Design Required

Stage 2 - Special At-Grade or Grade Separated Intersection Design Required

Stage 3 - Grade Separated Intersection Design Required

***Level of Significance

1 - Significant and Mitigable

2 - Significant and Not Mitigable at the GDP Level Due to the Lack of Design Information

3 - Significant and Not Mitigable

† The City of Chula Vista considers the identification of this roadway segment as impacted represents an anomaly of the model; therefore, a Significant and Mitigable impact is defined for this segment.

See Appendix B for more information.

Table 4.7.11-6

ENVIRONMENTAL ALTERNATIVE
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED SIGNALIZED INTERSECTIONS

INTERSECTION MITIGATION		DESCRIPTION OF INTERSECTION MITIGATION				
No.	Location	Special At-Grade Design Required	Special At-Grade or Grade Separated Design Required	Special Grade Separated Design Required	Increase Regional/ Local Trip Capture	Level of Significance*
On-Site Intersections						
1.	Eastlake Parkway/Orange Avenue	X			X	1
Off-Site Intersections						
2.	Harvest Road/Otay Mesa Road	X			X	1
3.	Otay Lakes Road/East H Street	X			X	1

Note:

* Level of Significance

1 - Significant and Mitigable

2 - Significant and Not Mitigable at the GDP Level Due to Lack of Design Information

3 - Significant and Not Mitigable

See Appendix B for more information

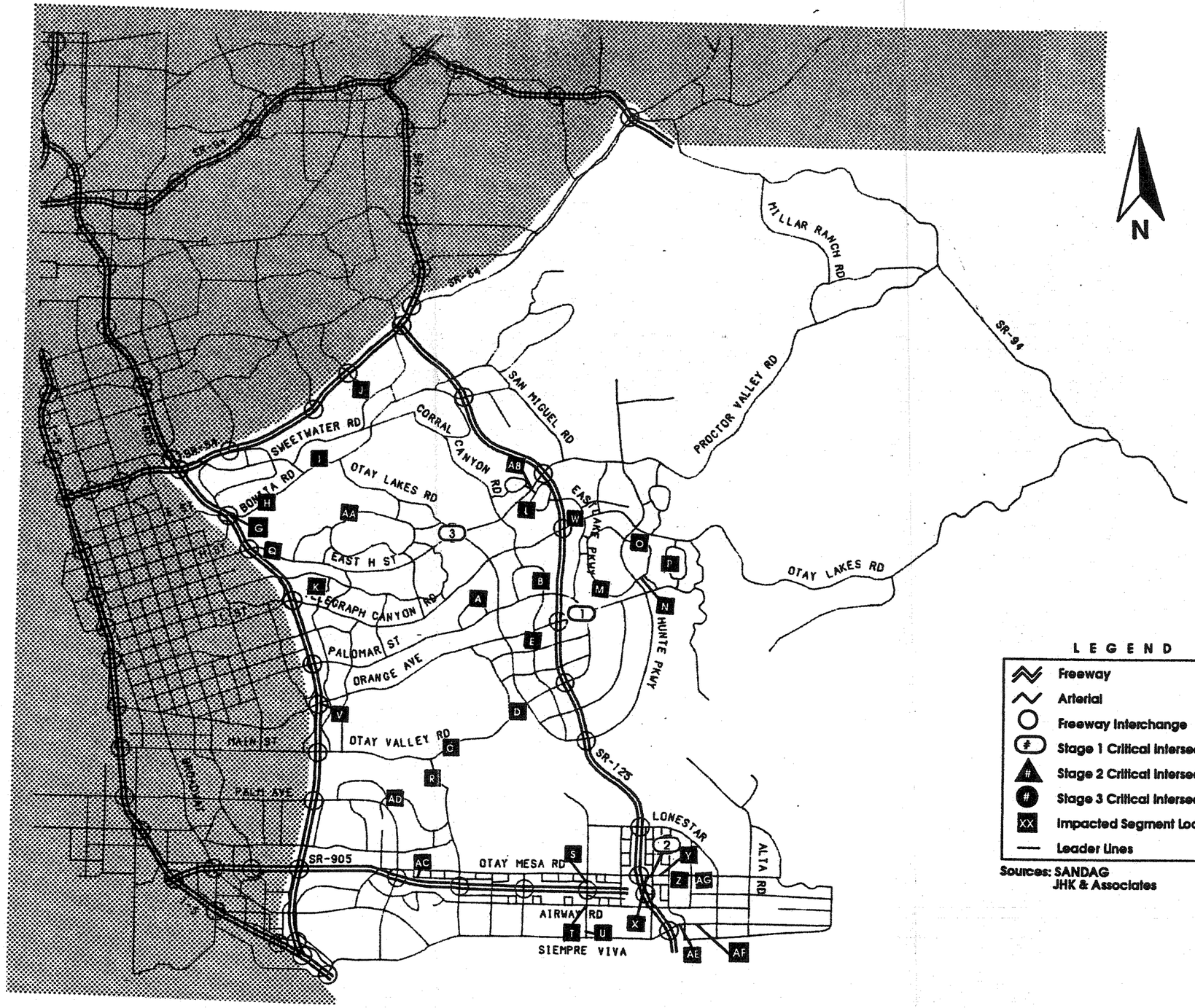


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Figure 4.7.11-4

ENVIRONMENTAL ALTERNATIVE REQUIRED MITIGATION MEASURES

Table 4.7.11-7

MITIGATION IMPLEMENTATION REVIEW
ENVIRONMENTAL ALTERNATIVE

Segment	From - To	Jurisdiction	Adopted Circulation Plan Class	Recommended Circulation Plan Class Mitigation	Difficulty of Implementation (1)	Level of Significance (2)	Comments (3)
Off-Site Network							
Bonita Road	I-805 - Plaza Bonita Road	County of San Diego/ City of Chula Vista/ Caltrans	Major (4LN)	Prime (6LN)	2	2	GPA
Bonita Road	Plaza Bonita Road - Willow Street	County of San Diego/ City of Chula Vista	Major (4LN)	Major (6LN)	2	2	GPA
Bonita Road	Willow Street - Otay Lakes Road	City of Chula Vista	Major (4LN)	Prime (6LN)	2	2	GPA
Briarwood Road	SR 54 - Sweetwater Road	County of San Diego	Class 1 Collector	Major (4LN)	2	2	GPA
Paseo Ranchero	Otay Valley Parkway - Del Sol Road	City of San Diego	Prime (6LN)	Prime (6LN)	2	2	
La Media Road	SR 905 - Airway Road	City of San Diego	Major (4LN)	Prime (6LN)	2	2	
Orange Avenue	I-805 - Oleander Avenue	City of Chula Vista	Prime (6LN)	Major (6LN)	3	3	GPA
Otay Lakes Road	SR 125 - Eastlake Parkway	City of Chula Vista	Major (4LN)	Prime (8LN)	2	2	GPA
Otay Mesa Road	Sanyo Road - Enrico Fermi	County of San Diego	Major (4LN)	Prime (6LN)	2	2	
Otay Mesa Road	Enrico Fermi - Alta Road	County of San Diego	Major (4LN)	Prime (6LN)	2	2	
Siempre Viva Road	SR 125 - Paseo Del Las Americas	County of San Diego	Prime (6LN)	Prime (6LN)	2	2	

Notes:

1. Difficulty of Implementation
   - 1 - Achievable
   - 2 - Moderate Level of Difficulty
   - 3 - High Level of Difficulty
2. Level of Significance
   - 1 - Significant and Mitigable
   - 2 - Significant and Not Mitigable at the GDP Level Due to Lack of Design Information
   - 3 - Significant and Not Mitigable
3. Comments
   - GPA - General Plan Amendment Required

See Appendix B for more information.

Indirect Impacts of Offsite Roadway Improvements

Additional impacts to the environment that could occur as a result of roadway improvements to mitigate traffic impacts of the Environmental Alternative include biological impacts, land use impacts, and landform alteration/visual resources impacts. (Based on a literature and record search, no known cultural resources would be impacted. However, surveys may be required once the actual road alignments are known.) Potential impacts have been summarized in Table 4.2.11-8. Noise impacts would also occur as a result of the increase in average daily traffic as discussed in Section 4.7.13. In all cases, actual impacts and mitigation for the impacts would need to be determined on a segment-by-segment basis as the actual widening is proposed and the specific alignments are known.

4.7.11.3 Analysis of Significance

This section provides a discussion of the analysis of significance of unmitigable impacts under the Environmental Alternative. The methodology used to define the significance of these impacts is defined in Appendix B of this document. Based on the level of significance column shown of the mitigation tables and the review of mitigation implementation tables, those impacts which have a Level 2 (significant and not mitigable at the GDP level due to lack of design information), or a Level 3 (significant and not mitigable) are summarized in this section.

Table 4.7.11-9 shows the remaining impacts to the study area circulation network after implementation of the required mitigation measures for this alternative. This table shows that of the 61 roadway miles that make up the onsite circulation network for this alternative and the 3.16 roadway miles (approximately 5 percent) that would be impacted by this alternative before mitigation, no roadway miles would remain significant after mitigation.

Of the 222 offsite roadway miles in this alternative circulation network, 21.06 miles (approximately 9 percent) would be impacted by the project. After mitigation, 10.89 miles (approximately 5 percent) would remain significant.

Of the 283 total roadway miles that make up the circulation network in the study area under this alternative, 24.22 miles (approximately 9 percent) would be impacted by the project. After mitigation, 10.89 miles (approximately 4 percent) would be significant. Of the three critically impacted intersections, none would be significant after mitigation.

Figure 4.7.11-5 shows the location of the remaining circulation network impacts after mitigation.

Table 4.7.11-8

IMPACTS OF THE ENVIRONMENTAL ALTERNATIVE OFFSITE ROADWAY IMPROVEMENTS

	IMPACT SIGNIFICANCE			
Road Segment	Biological Resources	Cultural Resources	Land Use	Landform Alteration/Visual Resources
<u>Bonita Road</u> I-805 to Willow Street	Significant - Southern willow scrub habitat in Sweetwater Regional Park could be . impacted.	Not Significant - Based on a literature and record search. A survey may be required when an actual alignment is known.	Significant - Displacement of existing commercial, residential, or recreational land uses may be necessary.	Significant - Extensive grading and construction of retaining walls may be necessary in several locations along this segment.
Willow Street to Otay Lakes Road	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - This area is already disturbed and developed with urban uses.	Significant - Displacement of existing commercial and office buildings and/or recreational land uses may be necessary.	Not Significant (although existing landscaping along the street frontage would need to be replaced.)
<u>East H Street</u> I-805 to Terra Nova Road	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant	Significant - Extensive grading and construction of retaining walls may be necessary. Landscaping along the street frontage would be removed.

Table 4.7.11-8 (Continued)

IMPACTS OF THE ENVIRONMENTAL ALTERNATIVE OFFSITE ROADWAY IMPROVEMENTS

	IMPACT SIGNIFICANCE			
Road Segment	Biological Resources	Cultural Resources	Land Use	Landform Alteration/Visual Resources
Orange Avenue I-805 to Oleander Avenue	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - This area is already disturbed and developed with urban uses.	Significant - Displacement of existing single-family houses that front along the street may be necessary.	Not Significant
Otay Lakes Road Bonita Road to East H Street	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - Widening would only affect landscaping and manufactured slopes.	Significant - Construction of retaining walls may be necessary.
East H Street to Telegraph Canyon Road	Not Significant - This area is already disturbed and developed with urban uses.	Not Significant - This area is already disturbed and developed with urban uses.	Significant - Displacement of existing single-family houses that front along the street may be necessary.	Significant - Extensive grading and/or construction of retaining walls may be necessary.
SR 125 to East-Lake Parkway	Not Significant - This area is already graded for urban development.	Not Significant - This area is already graded for urban development.	Significant - Planned commercial development of EastLake Green's could be adversely affected.	Not Significant`

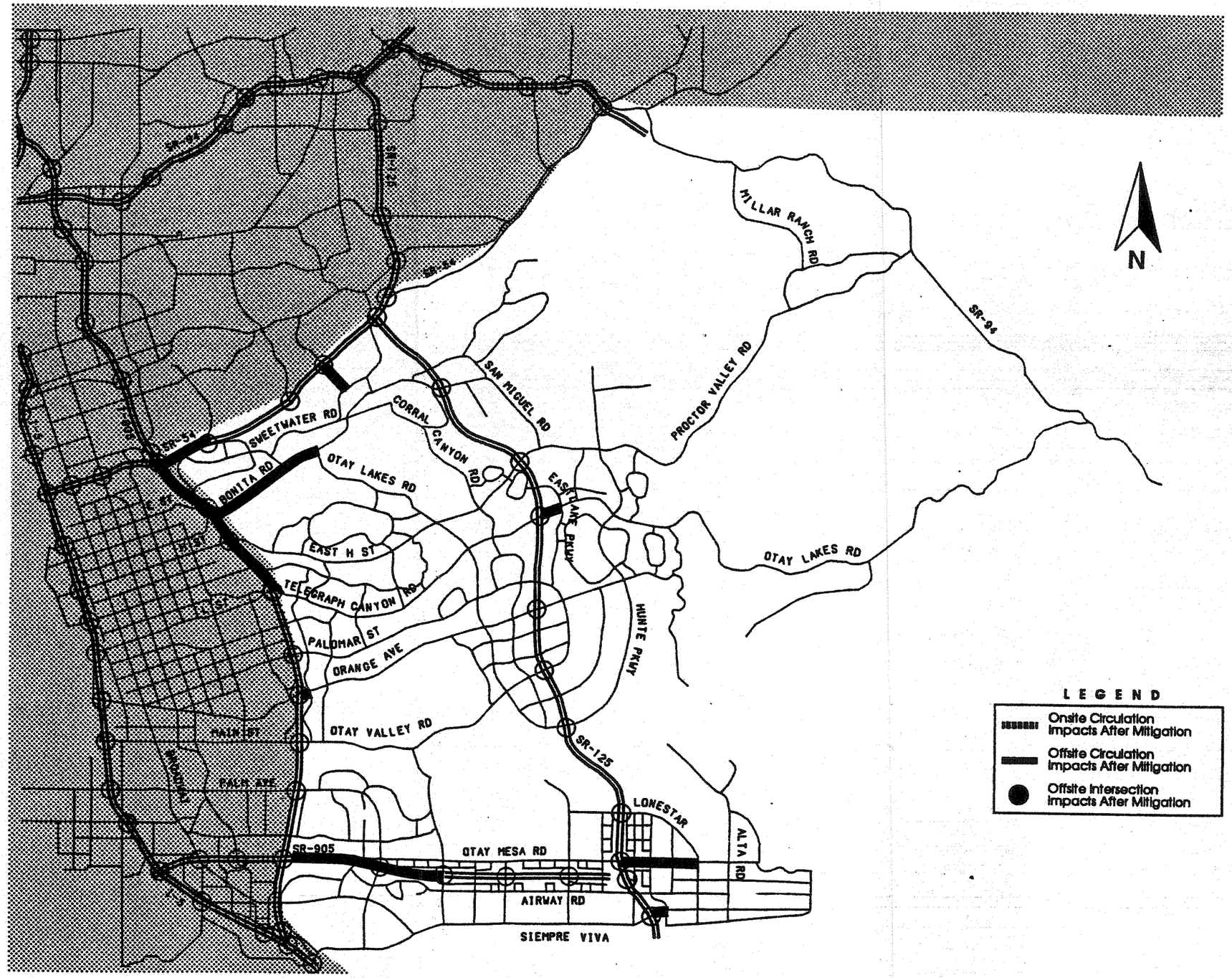

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Figure 4.7.11-5

ENVIRONMENTAL ALTERNATIVE LOCATION OF SIGNIFICANT IMPACTS AFTER MITIGATION

jhk & associates

Table 4.7.11-9

SIGNIFICANT UNMITIGABLE IMPACTS AFTER MITIGATION STUDY AREA CIRCULATION NETWORK ENVIRONMENTAL ALTERNATIVE (Offsite Impacted Roadway Miles)

Arterial Segment	From	To	Distance
Bonita Road	I-805	Otay Lakes Road	0.99 miles
Briarwood Road	SR-54	Sweetwater Road	0.54 miles
Orange Avenue	I-805	Oleander Avenue	0.11 miles
Otay Lakes Road	SR-125	EastLake Parkway	0.27 miles
Otay Mesa Road	Sanyo Road	Enrico Fermi	0.78 miles
Siempre Viva Road	SR-125	Paseo De Las Americas	0.20 miles
Total Residual Impacts -	Offsite Roadway Miles		2.89 miles
	Offsite Freeway Miles		8.00 miles
Total Residual Impacts -	Study Area Circulation Network		10.89 miles

See Appendix B for more information.

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4.7.12 Air Quality

4.7.12.1 Impact Analysis

Construction Impacts

Construction impacts for the Environmental Alternative would consist of fugitive dust generated during grading activities and by vehicular traffic on unpaved surfaces, and tailpipe pollutant emissions produced by construction equipment and workers' vehicles. Emission rates are not quantifiable at this time, but the emissions would be less than those associated with the New Town Plan or the Phase I-Progress Plan Alternative, as the amount of development would be considerably less for the Environmental Alternative. The Specific Plan or SPA Plan EIRs for the development will address construction emissions.

Vehicular Impacts

The URBEMIS3 model and San Diego County vehicle burden mix were used to estimate emission rates of the five main vehicular pollutants from traffic associated with the Environmental Alternative. The methodology used is explained in Section 3.11.2.2. The output data from the URBEMIS3 model runs are provided in Appendix C-1. The emission rates are summarized in Table 4.7.12-1. As shown in the table, predicted vehicular emissions are found to decrease for ROC and CO in the year 2010. This decrease would occur because assumed improvements in vehicular pollution control for these contaminants would have a larger effect than the population growth rate between 2000 and 2010. For the other alternatives this was not the case, as the growth rate in 2010 was about twice as high for the New Town Plan and Phase I-Progress Plan Alternative as for the Environmental Alternative. However, the lower density of this alternative precludes the development of villages and implementation of a mass transit system. As a result, residents would probably drive farther to reach employment, commercial, and recreational facilities. Since pollutant emissions are related to the trip length as well as the number of trips, this alternative may not, in fact, represent a lower air quality impact.

Stationary Source Impacts

The methodology used to estimate emissions from the stationary sources of the Environmental Alternative is the same as that employed for the New Town Plan and described in Section 3.11.2.2. The following equivalent designations were assumed: L1, and L3 would be estates, L would be semi custom, LM would be large lot, and M would be duplex and patio. Appendix C-2 contains the spreadsheets for natural gas consumption and emission rates.

<u>Predicted Emissions from Stationary Sources (Year 2000)</u>

The housing construction for this alternative in 2000 would include 58 estates (L3), 88 estates (L1), 875 semi-custom homes, 3,185 large lots, and 2,465 duplex/patio homes (Baldwin Vista 1991). Approximately 1,822 swimming pools were assumed to be located in the residential areas. The areas occupied by industrial buildings and resorts wold be 457,384 and 200,000 square feet, respectively. In the community area, 3 elementary schools, 2 junior high schools, and 14 other facilities are proposed. The annual natural gas consumption of all of the activities was computed as described previously, and the results of the calculations are illustrated in Table 4.7.12-2. The emissions from stationary sources for the Environmental Alternative were calculated using equation (1) in Section 3.11.2.3; these results are also provided in Table 4.7.12-2.

Table 4.7.12-1

VEHICULAR POLLUTANT EMISSIONS, ENVIRONMENTAL ALTERNATIVE (Tons/Year)

Year	ROC	CO	NO_x	PM_{10}[a]	SO_x[b]
2000	172.8	2,112.5	229.4	76.9	16.9
2010	217.9	2,738.8	313.6	161.4	22.6
2020	338.9	4,190.3	498.0	255.3	35.7

(a) As explained in Table 3.11-3, PM_{10} model results for year 2020 are thought to be erroneous. Therefore, the PM_{10} result reported in in the table for year 2020 was obtained by multiplying the 2010 value by the factor increase in fuel usage between the two years (in this case, a factor of 1.58).

(b) Similar to the 2020 PM_{10} results, the URBEMIS3 model predicted anomalously high SO_2 values in the years 2010 and 2020. As explained in Table 3.11-3, SO_2 emissions for 2010 and 2020 were scaled from the year 2000 result using a factor equal to the increase in fuel use for the two time periods (i.e., 1.33 for year 2010 and 1.58 for year 2020).

Table 4.7.12-2

STATIONARY SOURCE EMISSIONS, ENVIRONMENTAL ALTERNATIVE

Year	Natural Gas Combusted (Cu ft/yr)	Emissions NO_x (T/yr)	PM_{10} (T/yr)	SO_x (T/yr)	CO (T/yr)	ROG (T/yr)
2000	498×10^6	24.9	0.7	0.1	5.0	1.3
2010	695×10^6	34.8	1.0	0.2	7.0	1.8
2020	773×10^6	38.7	1.2	0.2	7.7	2.0

Predicted Emissions from Stationary Sources (Year 2010)

In this alternative, the dwelling units would include 178 estates (L3), 156 estates (L1), 1,500 semi-custom (L), 4,513 large lots (LM), 2,465 duplex/patio homes, and 2,870 swimming pools (Baldwin Vista 1991). The commercial construction would consist of 609,840 square feet of industrial buildings, 381,150 square feet of offices, 200,000 square feet of resorts, as well as 174,240 square feet of retail stores. Four elementary schools, 2 junior high schools, and 19 other community facilities would also be constructed. The estimations of natural gas consumption for 2010 and the predicted emissions of NO_x, PM_{10}, CO, SO_x, and ROG are summarized in Table 4.7.12-2.

Predicted Emissions from Stationary Sources (Year 2020)

In 2020, most of the dwelling units would stay at the same numbers as those in 2010 with 156 estates (L1), 4,513 large lots, and 2,465 duplex/patio homes. Estates (L3) and semi-custom homes would increase to 281 and 1,836 units, respectively (Baldwin Vista 1991). With the increase of estates, the number of swimming pools was assumed to be 1,455 by the year 2020. The areas occupied by offices and retail stores would extend to 1,829,520 and 348,480 square feet, respectively. The other occupied areas for commercial activities would remain the same as those in the year 2010. There would be 4 elementary schools, 2 junior high schools, and 20 other community facilities) The total natural gas consumption from this alternative is shown in Table 4.7.12-2, along with the estimated emissions from the stationary sources.

Emissions from Existing Sources

The Otay Landfill generates fugitive dust emissions associated with waste hauling and disposal and waste covering operations, but is expected to close by 1999. The Nelson and Sloan quarry and Daley quarry operations emit fugitive dust which may impact adjacent land uses. Site-specific analyses of fugitive dust emissions from these sources are necessary, prior to development of adjacent lands, to determine the potential air quality impacts and any health hazards of these operations. Since the proposed development would remove agricultural lands from production, fugitive dust emissions from farming operations would decrease, as would dust emissions from the landfill after it closes.

Power Plant Emissions

Pollutant emissions associated with electrical power generation in response to demand under the Environmental Alternative are summarized in Table 4.7.12-3. The predicted emissions for this alternative are about 78 percent of those under the New Town Plan Alternative in the year 2020 and about 94 percent of those under the Phase I-Progress Plan Alternative.

Energy Analysis

Using the same methodology to calculate energy consumption that was used for the New Town Plan (Section 3.11.2.4), energy usage under the Environmental Alternative was estimated. The following changes to the assumptions in the New Town Plan calculations were made:

- About 302 acres of commercial development are planned. An average acreage of 1.1 acres per establishment was assumed, resulting in a projection of 275 new commercial establishments at buildout.
- The 50 acres of planned industrial development were assumed to be divided among 3 new establishments, based on an average plot size of about 20 acres per facility.
- For transportation facilities, the projected vehicle miles traveled (VMT) in the study area for the No Project Alternative were subtracted from the VMT expected for the Environmental Alternative at buildout to yield a VMT associated with the alternative.

The results in Table 4.7.12-4 show that transportation is the largest energy usage category, representing about 78 percent of the total.

Total energy consumption for this alternative, shown in Table 4.7.12-4, is predicted to be about 78 percent of the New Town Plan consumption and about 60 percent that of the Phase I-Progress Plan Alternative.

Summary of Impacts

As indicated earlier, construction impacts will be quantified at the Specific Plan or SPA Plan level. Because construction activities add air pollutants to the regional pollution background, they are considered significant, temporary impacts and require mitigation measures, as specified below.

Table 4.7.12-5 summarizes pollutant emissions from stationary and mobile sources associated with development under the Environmental Alternative. All pollutants are estimated to be lower than those under the New Town Plan and the Phase I-Progress Plan Alternative. The two most critical pollutants in ozone formation, NO_x and ROG, are predicted to be about 20 percent of the New Town Plan levels for the same pollutants in the year 2020. In comparison to the Phase I-Progress Plan Alternative, NO_x and ROG levels are estimated to be about 75 percent less for the Environmental Alternative. The Environmental Alternative projects growth at a level less than presently assumed in the Series 7 growth forecast and the RAQS. Therefore, the emissions associated with this growth are not considered significant.

Table 4.7.12-3

ESTIMATED POLLUTANT EMISSIONS FROM LOCAL POWER PLANTS TO PROVIDE ELECTRIC POWER FOR THE ENVIRONMENTAL ALTERNATIVE

Year	Estimated Electricity Demand for Proposed Otay Ranch Development (10^6 kw-hr/year)	Natural Gas Burned at Local Power Plants to Produce RequiredElectricity (10^6 cu ft/year)[1]	Pollutant Emissions for Power Generation (tons/year)[2]				
			CO	NO_x	ROG	PM_{10}	SO_x
2000	55.96	336	6.7	29.4	0.2	0.8	0.1
2010	70.62	424	8.5	37.1	0.3	1.1	0.1
2020	80.09	481	9.6	42.1	0.3	1.2	0.1

1 Assume 60 percent of incremental electricity demand is generated locally; assume 10,500 Btu of fuel input per kw/hr generated and 1,050 Btu/cu ft for natural gas.

2 Emission factors taken from U.S. EPA document AP-42, except for NO_x. Since the San Diego APCD's regulations disallow NO_x emissions above 175 lb/10^6 ft^3, this figure was used.

Table 4.7.12-4

ESTIMATED ANNUAL ENERGY CONSUMPTION FOR ENVIRONMENTAL ALTERNATIVE AT BUILDOUT

Project Development Category	Energy Usage Type	Unit Consumption Factor	Projected Units at Buildout	Total Energy Consumption	Total Energy Consumption in 10^{11} Btu/year
Residential	Electricity	5,580 kw-hr/dwelling/year	9,251 dwellings	51.6million kw hr/year.	1.76
	Nat. Gas	522 therms/dwelling/year		25.9 million therms/year.	4.83
Commercial	Electricity	51,066 kw-hr/ establishment/year.	275 establishments	14.0 million kw/year.	0.48
	Nat. Gas	4,281 therms/ establishment/year.		4.3 million therms/year.	1.18
Industrial	Electricity	4.9 million kw-hr/ establishment/year	3 establishments	14.7 million kw hr/year.	0.50
	Nat. Gas	0.95 million therms/ establishment/year.		38 million therms.	2.85
Street Lighting	Electricity	70 kw-hr/residential unit/year	9,251 dwellings	0.65 million kw hr/year	0.02
Transportation		6,034 Btu/vehicle mile	302.95 million miles per year	50.5×10^{11} Btu/year	18.28
TOTAL					29.90

Table 4.7.12-5

SUMMARY OF POLLUTANT EMISSIONS, ENVIRONMENTAL ALTERNATIVE

		Emissions				
Source	Year	NOx (T/yr)	PM_{10} (a) (T/yr)	SO_2 (b) (T/yr)	CO (T/yr)	ROG (T/yr)
Vehicles	2000	229.4	76.9	16.9	2,112.5	172.8
Stationary Sources	2000	24.9	0.7	0.1	5.0	1.3
Power Plants	2000	29.4	0.8	0.1	6.7	0.2
Year 2000 Total		283.7	78.4	17.1	2,124.2	174.3
Vehicles	2010	313.6	161.4	22.6	2,738.8	217.9
Stationary Sources	2010	34.8	1.0	0.2	7.0	1.8
Power Plants	2010	37.1	1.1	0.1	8.5	0.3
Year 2010 Total		385.5	163.5	22.9	2,754.3	220.0
Vehicles	2020	498.0	255.3	35.7	4,190.3	338.9
Stationary Sources	2020	38.7	1.2	0.2	7.7	2.0
Power Plants	2020	42.1	1.2	0.1	9.6	0.3
Year 2020 Total		578.8	257.7	36.0	4,207.6	341.2

(a) As explained in Table 3.11-3, PM_{10} model results for year 2020 are thought to be erroneous. Therefore, the PM_{10} result reported in the table for year 2020 was obtained by multiplying the 2010 value by the factor increase in fuel usage between the two years (in this case, a factor of 1.58).

(b) Similar to the 2020 PM_{10} results, the URBEMIS3 model predicted anomalously high SO_2 values in the years 2010 and 2020. As explained in Table 3.11-3, SO_2 emissions for 2010 and 2020 were scaled from the year 2000 result using a factor equal to the increase in fuel use for the two time periods (i.e., 1.33 for year 2010 and 1.58 for year 2020).

4.7.12.2 Proposed Mitigation

Mitigation measures are not required as the impacts under this alternative are not considered significant. The project design does include, however, some features of the mitigation measures described in Table 4.7.12-6. Because this alternative covers a smaller area than the New Town Plan or Phase I-Progress Plan Alternative, commercial facilities and parks should be within walking distance of residents. A major transit corridor parallel to SR-125 is also incorporated in the design. The percentage of roads with poor LOS under the Environmental Alternative (Figure 4.7.11-2) is the lowest of the alternatives, with the exception of the No Project Alternative. However, access to mass transit would be more limited than under the New Town Plan or the Phase I-Progress Plan Alternative.

4.7.12.3 Analysis of Significance

Impacts under this alternative are not considered significant.

Table 4.7.12-6 (Revised)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Construction Sources

- Minimize simultaneous operation of multiple construction equipment units (i.e., phase construction to minimize impacts).
- Use low pollutant-emitting construction equipment.
- Use electrical construction equipment as practical.
- Use catalytic reduction for gasoline-powered equipment.
- Use injection timing retard for diesel-powered equipment.
- Water the construction area to minimize fugitive dust.
- Stabilize (for example, hydroseed) graded areas as quickly as possible to minimize fugitive dust.
- Pave permanent roads as quickly as possible to minimize dust.

Land Use Policies

- Provide neighborhood shopping and personal services adjacent to residential areas to minimize auto trips and reduce mileage travelled to service areas.*
- Provide open space and recreational facilities within or adjacent to the residential areas.*
- Provide employee services within walking distance (i.e., banking, childcare, restaurants, etc.).*
- Provide a balanced mix of housing and employment possibilities to reduce trips and vehicle miles traveled.**

Siting/Design Policies

- Site-specific analysis for potentially incompatible projects (for example, a residential development near one of the quarries or the landfill) shall be reviewed in the SPA Plan.
- Provide dedicated bike lanes to encourage use of bicycles.*
- Provide bicycle storage facilities at employment and retail centers.*
- Provide shower and locker facilities at offices to encourage bicycle use.*

Table 4.7.12-6 (Revised) (Continued)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Siting/Design Policies (Continued)

- Provide sidewalks and curbs to ensure safe pedestrian travel within residential areas and to commercial centers.*
- Provide street designs that promote pedestrian safety (i.e., safe islands in center of major arterials, "Walk" signals, night lighting, etc.).*
- Orient shopping centers to promote use by mass transit (i.e., provide bus turnouts), pedestrians, and bicyclists.**
- Design parking lots to promote use of mass transit and car pools.**
- Control emissions of NO_x by installing heat transfer modules on gas-fired furnaces.
- Utilize solar heating technology as practical. Generally, solar panels can be cost-effectively used to heat water for domestic use and for swimming pools. Advances in solar technology in the future may make other applications appropriate.
- Utilize low-NO_x residential and commercial water heaters.
- Enhance energy efficiency in building designs and landscaping plans.
- Minimize "drive-through" establishments to reduce emissions from idling vehicles.**
- Minimize on-street parking to reduce congestion and avoid back-up and idling of vehicles.
- Identify an environmental coordinator to be responsible for education and disseminating information on ridesharing and/or mass transit opportunities, recycling, energy conservation programs, etc.

Transportation-related Management Actions

The City of Chula Vista is responsible for the transportation-related management actions in which they shall coordinate these development plans with the Metropolitan Transit Development Board (MTDB).

Table 4.7.12-6 (Revised) (Continued)

SUMMARY OF AIR QUALITY MITIGATION MEASURES

Transportation-related Management Actions (Continued)

- Provide land for transit support facilities such as bus stops, park-n-ride lots, etc.*
- Provide amenities to increase convenience and attractiveness of transit stops (i.e., passenger staging areas, waiting shelters, etc.).*
- Provide minibus, jitney, or other para-transit service to provide access from residential areas to commercial areas.**
- Require major employers to provide ridesharing or mass transit incentives.
- Provide demand-responsive traffic signals.*
- Achieve transit agency agreement to institute new routes or express bus service, or to expand existing service, related to the demand caused by the proposed project.**

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* Measure is feasible in areas with relatively high residential densities.
** Measure is infeasible because: 1) few of these land use combinations are proposed for this alternative or 2) conflicts with village design concept.

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4.7.13 Noise

4.7.13.1 Impact Analysis

Roadways

The primary noise source throughout the project area at full buildout of the Environmental Alternative would be from vehicular traffic. Onsite noise impacts would occur as development is completed on Otay Ranch, whereas offsite impacts would be realized as regional traffic volumes increase due to area growth and roadway segments are widened to accommodate the increased traffic. Additional noise impacts are anticipated when existing roadways are re-aligned in accordance with planned or proposed circulation element improvements. The degree of the impact would depend on the location of the noise-sensitive receptors in relation to those roadway as well as the project design.

The FHWA Stamina 2.0 Vehicle Noise Prediction Model was used to assess potential noise impacts. The roadways were modeled in a similar manner as the New Town Plan. The modeling results and roadway parameters used in the analysis of onsite and offsite vehicular noise impacts are summarized in Table 4.7.13-1 and 4.7.13-2. Review of the tables shows that the sound level within 100 feet of the centerline of all roadways exceeds 60 CNEL. The 60 CNEL contours along many of the roadways are significantly farther than 100 feet from the centerline. Residential land uses located within the 60 CNEL contour would be significantly impacted by vehicular traffic noise. Some of the residential land uses along East H Street, Orange Avenue, Otay Lakes Road, Otay Mesa Road, SR-54 and SR-94 may be impacted by sound levels greater than 75 CNEL. Sound levels greater than 75 CNEL are incompatible with residential development. Vehicular traffic noise from this alternative would affect significantly fewer residences than any of the other alternatives. In general, the impacts would be limited to the eastern portion of the site and the area west of Otay Lakes and south of Telegraph Canyon Road and Otay Lakes Road. The proposed open space along Telegraph Canyon Road and Otay Lakes Road may buffer noise to the adjacent residences.

Noise generated by project-related traffic is expected to increase the noise level at the existing sensitive receptors located along the offsite access roadways. Based on the transportation analysis in Section 4.7.11, the project-generated traffic would impact a approximately 9 percent (or 21 miles) of the offsite roadway miles. In comparison to buildout under the Composite General Plan, the Environmental Alternative traffic reduces of impacted offsite by 12 miles roadway mileage (refer to Table 4.7.11-4 for details on impacted roadway miles). Although there is not a direct correspondence between impacted mileage and noise impacts, comparison with the Composite General Plans Alternative should provide a general degree of vehicular noise impacts. The amount of noise increase is dependent on such factors as roadway design, ADT, distance from the roadway, the orientation of the usable outdoor living areas to the roadway, and intervening topography. In general, a doubling of the traffic volume would be expected to increase the sound level by 3 dBA. This is considered significant if usable outdoor living areas such as balconies, patios, children's playing areas, and swimming pools are affected. Major roadways which may impact existing residences include East H Street, Otay Valley Road, East Orange Avenue, Palomar Street, and Telegraph Canyon Road. There may be other smaller roadways which may cause a noise impact.

At this level of analysis, noise from onsite and offsite roadways is considered to be a significant and potentially unmitigable impact wihtin 1250 feet of the facility. A site-specific acoustical study will be required during the SPA Plan review and prior to adoption of any circulation element General Plan Amendments. The study shall provide a

Table 4.7.13-1

ENVIRONMENTAL ALTERNATIVE ONSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
EastLake Parkway												
Fenton-Otay Lakes	Major	4	18,306	96	2	2	45	–	–	60	150	480
Otay Lakes-EastLake Greens	Major	4	28,070	96	2	2	45	–	–	110	230	730
EastLake Greens-Palomar	Major	4	19,306	96	2	2	45	–	–	70	160	500
Eastern Urban Village												
Orange-SR 125	Major	4	28,563	96	2	2	45	–	–	120	240	740
Hunte Parkway												
Orange-SR 125	Major	4	12,401	96	2	2	45	–	–	–	100	320
La Media												
Otay Lakes-Palomar	Prime	6	29,110	96	2	2	55	–	–	120	240	750
Palomar-Orange	Major	4	27,841	96	2	2	45	–	–	110	230	750
Orange-Otay Ranch	Major	4	24,527	96	2	2	45	–	–	90	200	640
Otay Ranch-SR 125	Major	4	27,841	96	2	2	45	–	–	110	230	730
Lonestar-Otay Mesa	Prime	6	19,187	96	2	2	55	–	–	100	210	650
Local Ranch 1												
n/o Palomar	Local Collector	2	9,854	98	1	1	35	–	–	–	50	160
Local Ranch 2												
Rutgers-Palomar	Local Collector	2	10,303	98	1	1	35	–	–	–	60	170
Local Ranch 3												
Orange-Otay Ranch	Collector	4	10,527	96	2	2	45	–	–	–	90	270
Local Ranch 5												
Local Ranch 3-Eastern Urban Village	Collector	4	16,849	96	2	2	45	–	–	–	140	440
Local Ranch 8												
Orange-SR 125	Collector	4	13,055	96	2	2	45	–	–	–	110	340

Table 4.7.13-1 (Continued)

ENVIRONMENTAL ALTERNATIVE ONSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Lonestar Road												
La Media-SR 125	Major	4	23,383	96	2	2	45	–	–	90	190	600
SR 125-Harvest	Prime	6	29,454	96	2	2	55	–	–	150	320	1000
Orange Avenue												
Medical Center-Local Ranch 3	Prime	6	45,037	96	2	2	55	–	60	230	490	1540
Local Ranch 3-La Media	Prime	6	33,019	96	2	2	55	–	50	170	360	1130
La Media-Rutgers	Prime	6	32,770	96	2	2	55	–	50	170	360	1130
Rutgers-SR 125	Prime	6	34,486	96	2	2	55	–	60	180	370	1180
SR 125-Palomar	Prime	6	38,707	96	2	2	55	–	60	200	420	1320
Palomar-Local Ranch 8	Prime	6	37,723	96	2	2	55	–	60	190	410	1290
Local Ranch 8-Hunte Pkwy	Prime	6	31,985	96	2	2	55	–	50	170	360	1130
e/o Hunte Parkway	Prime	6	26,000	96	2	2	55	–	–	140	280	890
Otay Lakes Road												
La Media-Rutgers	Prime	6	32,908	96	2	2	55	–	50	170	360	1120
Rutgers-SR 125	Prime	6	40,527	96	2	2	55	–	70	210	450	1380
Hunte Pkwy-Wueste	Prime	6	32,200	96	2	2	55	–	50	170	350	1100
Wueste-Old Otay Lakes	Major	4	11,026	96	2	2	45	–	–	–	90	290
Otay Ranch Road												
La Media-Rutgers	Major	4	16,970	96	2	2	45	–	–	–	140	440
Rutgers-SR 125	Major	4	19,760	96	2	2	45	–	–	70	160	510
Otay Valley Road												
Heritage-Local Ranch 3	Major	4	33,239	96	2	2	45	–	–	140	270	850
Local Ranch 3-La Media	Major	4	30,230	96	2	2	45	–	–	120	250	790
Palomar Street												
Eagle Ridge-La Media	Major	4	16,496	96	2	2	45	–	–	–	140	430
La Media-Rutgers	Major	4	13,530	96	2	2	45	–	–	–	110	350
Rutgers-EastLake Pkwy	Major	4	20,654	96	2	2	45	–	–	70	170	540
EastLake Pkwy-Orange	Major	4	25,347	96	2	2	45	–	–	100	210	660

Table 4.7.13-1 (Continued)

ENVIRONMENTAL ALTERNATIVE ONSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Proctor Valley Road												
Old Proctor Valley Road-Miller Ranch	Collector	4	17,809	96	2	2	45	–	–	60	150	460
Miller Ranch-SR 94	Collector	4	8,754	96	2	2	45	–	–	–	70	230
Rutgers Avenue												
Otay Lakes-Palomar	Collector	4	13,787	96	2	2	45	–	–	–	110	360
Palomar-Orange	Collector	4	11,896	96	2	2	45	–	–	–	100	310
Orange-Otay Ranch	Collector	4	23,600	96	2	2	45	–	–	90	190	610
Otay Ranch-University	Collector	4	13,888	96	2	2	45	–	–	–	120	360
State Route 125												
SR 125	Freeway	8	*198,000	95	3	2	55	100	290	860	1900	6000
Telegraph Canyon Road												
Medical Center-Paseo Ranchero	Prime	6	16,953	96	2	2	55	–	–	80	180	580
Paseo Ranchero-La Media	Prime	6	16,862	96	2	2	55	–	–	80	180	570

*Maximum volume projected for SR 125 along project area.

Table 4.7.13-2

ENVIRONMENTAL ALTERNATIVE OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Airway Road												
Otay Mesa-Heritage	Major	4	19,810	96	2	2	45	–	–	70	160	520
Heritage-La Media	Major	4	21,715	96	2	2	45	–	–	80	180	560
La Media-Harvest	Major	4	16,560	96	2	2	45	–	–	–	140	430
Alta Road												
Otay Mesa-Siempre Viva	Major	4	13,305	96	2	2	45	–	–	–	110	350
Bonita Road												
I 805-Willow	Major	4	46,351	96	2	2	45	–	–	140	300	940
Willow-Otay Lakes	Major	4	42,206	96	2	2	45	–	50	170	350	1070
Otay Lakes-Corral Canyon	Major	4	29,811	96	2	2	45	–	–	90	240	770
Caliente												
Otay Mesa-Airway	Major	6	24,111	96	2	2	45	–	–	90	200	630
Airway-Siempre Viva	Major	4	19,841	96	2	2	45	–	–	70	160	510
Corral Canyon Road												
Bonita-East H	Collector	4	12,701	96	2	2	45	–	–	–	110	330
Crest Drive												
East J-Telegraph Canyon	Local Collector	2	11,205	98	1	1	35	–	–	–	–	160
Del Sol Boulevard												
I 805-Palm	Major	4	18,040	96	2	2	45	–	–	–	130	420
Palm-Heritage	Major	4	10,232	96	2	2	45	–	–	–	90	270
East H Street												
I 805-Ridgeback	Prime	6	53,665	96	2	2	55	–	80	280	580	1850
Ridgeback-Paseo Ranchero	Prime	6	35,677	96	2	2	55	–	60	190	390	1220
Paseo Ranchero-Otay Lakes	Prime	6	36,607	96	2	2	55	–	60	200	410	1300
Otay Lakes-Rutgers	Prime	6	31,264	96	2	2	55	–	50	165	440	1070
Rutgers-SR125	Prime	6	37,900	96	2	2	55	–	60	200	420	1290
East J Street												
I 805-Paseo Ranchero	Local Collector	2	6,648	98	1	1	35	–	–	–	–	100

Table 4.7.13-2 (Continued)

ENVIRONMENTAL ALTERNATIVE
OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Eastlake Greens												
Eastlake Pkwy-Hunte Pkwy	Local Collector	2	15,000	98	1	1	35	–	–	–	70	210
Hunte Pkwy-Eastlake Trails	Local Collector	2	11,146	98	1	1	35	–	–	–	50	160
Eastlake Vista												
Otay Lakes-Orange	Local Collector	2	15,278	98	1	1	35	–	–	–	70	220
Harvest Road												
Lonestar-Otay Mesa	Major	4	5,974	96	2	2	45	–	–	–	–	160
Otay Mesa-SR 905	Major	4	12,534	96	2	2	45	–	–	–	110	330
SR 905-Airway	Major	4	22,127	96	2	2	45	–	–	80	180	580
Airway-Siempre Viva	Major	4	20,136	98	2	2	45	–	–	70	170	260
Heritage Road												
Otay Valley-Del Sol	Prime	6	42,012	96	2	2	55	–	60	220	450	1430
Del Sol-Otay Mesa	Major	6	38,865	96	2	2	45	–	–	150	320	1000
Otay Mesa-SR 905	Prime	6	47,576	96	2	2	55	–	70	230	510	1610
SR 905-Airway	Prime	6	58,134	96	2	2	55	–	90	300	630	2000
Airway-Siempre Viva	Major	6	30,476	96	2	2	45	–	–	120	250	790
Hunte Parkway												
Proctor Valley-Otay Lakes	Major	4	11,101	96	2	2	45	–	–	–	90	290
Otay Lakes-Orange	Major	4	23,104	96	2	2	45	–	–	90	190	600
Interstate 805												
SR 54-East H	Freeway	10	240,905	96	2	2	55	130	420	1360	2720	6500
East H-Telegraph Canyon	Freeway	10	210,560	96	2	2	55	120	370	1170	2360	6150
Telegraph Canyon-Orange	Freeway	10	198,409	96	2	2	55	110	350	1110	2240	5920
Orange-Otay Valley	Freeway	10	175,709	96	2	2	55	90	300	990	1980	5780
Otay Valley-Palm	Freeway	10	181,381	96	2	2	55	90	300	990	1980	5780
Palm-SR 905	Freeway	10	163,918	96	2	2	55	80	270	880	1770	5550
La Media Road												
Otay Mesa-SR 905	Major	4	33,704	96	2	2	45	–	–	130	270	880
SR 905-Airway	Major	4	50,802	96	2	2	45	–	60	200	420	1300
A[illegible]-Siempre Viva	Major	4	32,765	96	2	2	45	–	–	130	270	88[illegible]

Table 4.7.13-2 (Continued)

ENVIRONMENTAL ALTERNATIVE OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Lane Avenue												
East H-Otay Lakes	Collector	4	13,516	96	2	2	45	–	–	–	110	350
Lonestar Road												
Harvest-Sanyo	Prime	6	25,574	96	2	2	55	–	–	130	280	870
Medical Center												
Telegraph Canyon-Naples	Collector	4	7,071	96	2	2	45	–	–	–	60	180
Naples-Palomar	Collector	4	7,525	96	2	2	45	–	–	–	70	200
Palomar-Orange	Collector	4	15,723	96	2	2	45	–	–	–	125	410
Orange-Otay Valley	Collector	4	17,109	96	2	2	45	–	–	–	140	450
Naples												
I 805-Oleander	Local Collector	2	6,486	98	1	1	35	–	–	–	–	100
Oleander-Medical Center	Local Collector	2	4,141	98	1	1	35	–	–	–	–	60
Oleander												
Telegraph Canyon-Naples	Collector	4	8,693	96	2	2	45	–	–	–	70	220
Naples-Palomar	Local Collector	2	5,669	98	1	1	35	–	–	–	–	80
Palomar-Orange	Local Collector	2	5,654	98	1	1	35	–	–	–	–	80
Orange-Otay Valley	Local Collector	2	4,661	98	1	1	35	–	–	–	–	70
Orange Avenue												
I 805-Oleander	Prime	6	54,271	96	2	2	55	–	90	290	580	1820
Oleander-Medical Center	Prime	6	46,370	96	2	2	55	–	–	190	370	1200
Otay Lakes Road												
Bonita-East H	Prime	6	37,647	96	2	2	55	–	–	200	410	1300
East H-La Media	Prime	6	43,672	96	2	2	55	–	60	220	470	1490
SR 125-EastLake Pkwy	Prime	6	56,048	96	2	2	55	–	90	290	580	1820
Eastlake Pkwy-Hunte Pkwy	Prime	6	39,031	96	2	2	55	–	60	210	430	1340
Old Otay Lakes-SR 94	Major	4	6,591	96	2	2	45	–	–	–	60	170
Otay Mesa Road												
SR 905-Caliente	Prime	6	19,094	96	2	2	55	–	–	80	160	650
Caliente-Heritage	Prime	6	34,065	96	2	2	55	–	60	180	370	1160
Heritage-La Media	Major	6	26,677	96	2	2	45	–	–	110	220	690

Table 4.7.13-2 (Continued)

ENVIRONMENTAL ALTERNATIVE
OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
La Media-SR 125	Prime	6	33,785	96	2	2	55	–	60	180	370	1170
SR 125-Harvest	Major	4	72,158	96	2	2	45	–	90	270	600	1900
Harvest-Sanyo	Major	4	63,386	96	2	2	45	–	70	260	530	1650
Sanyo-Enrico Fermi	Major	4	56,654	96	2	2	45	–	60	230	460	1500
Enrico Fermi-Alta	Major	4	41,153	96	2	2	45	–	–	165	330	1070
<u>Otay Valley Road</u>												
I 805-Oleander	Prime	6	41,308	96	2	2	55	–	60	220	450	1410
Oleander-Medical Center	Prime	6	39,563	96	2	2	55	–	60	210	430	1350
Medical Center-Heritage	Prime	6	36,282	96	2	2	55	–	60	200	390	1240
<u>Palm Avenue</u>												
I 805-Del Sol	Prime	6	42,029	96	2	2	55	–	60	220	450	1440
Del Sol-Otay Mesa	Major	6	20,178	96	2	2	45	–	–	80	160	520
<u>Palomar Street</u>												
I 805-Oleander	Major	4	23,362	96	2	2	45	–	–	90	190	600
Oleander-Medical Center	Major	4	19,111	96	2	2	45	–	–	70	160	50
Medical Center-Eagle Ridge	Major	4	23,927	96	2	2	45	–	–	90	190	600
<u>Paseo Ranchero</u>												
East H-Telegraph Canyon	Major	4	14,187	96	2	2	45	–	–	–	120	370
<u>Proctor Valley Road</u>												
SR 125-San Miguel	Prime	6	45,672	96	2	2	55	–	60	230	400	1550
San Miguel-Hunte Pkwy	Prime	6	34,674	96	2	2	55	–	60	190	380	1190
Hunte Pkwy-Fenton Ranch	Prime	6	24,504	96	2	2	55	–	–	120	260	820
Fenton Ranch-Old Proctor Valley	Collector	4	17,508	96	2	2	45	–	–	60	150	460
<u>Rutgers Avenue</u>												
East H-Otay Lakes	Collector	4	10,403	96	2	2	45	–	–	–	90	250
<u>Siempre Viva</u>												
East Beyer-Caliente	Major	4	27,357	96	2	2	45	–	–	110	230	710
Caliente-Heritage	Prime	6	40,636	96	2	2	55	–	–	210	440	1390
Heri[illegible]e-La Media	Prime	6	44,939	96	2	2	55	–	60	220	490	15[illegible]
L[illegible]a-SR 125	Prime	6	48,069	[illegible]	2	2	55	–	70	260	520	1[illegible]

Table 4.7.13-2 (Continued)

ENVIRONMENTAL ALTERNATIVE OFFSITE ROADWAY NOISE IMPACTS

Roadway	Class	Lanes	Volume	Vehicle Mix (%) Cars	Medium Trucks	Heavy Trucks	Design Speed (mph)	Distances to CNEL Contours (feet) From Roadway Centerline 80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
SR 125-Paseo de las Americas	Major	4	51,203	96	2	2	45	–	80	270	550	1750
Paseo de las Americas-Enrico Fermi	Major	4	41,159	96	2	2	45	–	60	210	440	1390
State Route 54												
I 805-Woodman	Freeway	6	128,958	96	2	2	55	60	220	730	1460	4500
Woodman-SR 125	Freeway	6	106,088	96	2	2	55	60	190	600	1200	3800
SR 125-SR 94	Prime	4	38,937	96	2	2	55	–	60	210	420	1330
State Route 94												
SR 54-Jamacha Blvd	Freeway	4	58,821	96	2	2	55	–	90	330	660	2100
Jamacha-Miller Ranch	Prime	6	50,702	96	2	2	55	–	80	270	545	1730
Miller Ranch-Proctor Valley	Prime	6	13,036	96	2	2	55	–	–	60	150	450
Proctor Valley-Otay Lakes	Prime	6	7,622	96	2	2	55	–	–	–	90	260
State Route 125												
n/o Otay Lakes	Freeway	10	*241,454	96	2	2	55	130	420	1350	2720	6500
s/o Lonestar	Freeway	10	*144,621	26	2	2	55	70	260	820	1640	5450
State Route 905 (formerly SR 117)												
I 805-Otay Mesa	Freeway	8	180,791	96	2	2	55	100	320	1020	2020	5600
Otay Mesa-Caliente	Freeway	8	166,442	96	2	2	55	80	270	880	1770	5550
Caliente-Heritage	Freeway	8	161,875	96	2	2	55	80	270	880	1770	5550
Heritage-La Media	Freeway	8	145,431	96	2	2	55	70	260	820	1650	5450
La Media-SR 125	Freeway	8	112,639	96	2	2	55	60	200	632	1270	4000
SR 125-Harvest	Prime	6	20,980	96	2	2	55	–	–	110	230	720
Telegraph Canyon Road												
I 805-Oleander	Prime	6	34,254	96	2	2	55	–	60	180	370	1170
Oleander-Medical Center	Prime	6	23,037	96	2	2	55	–	–	120	250	790

* Maximum volume projected for SR 125 north and south of project site within study area.

description of the proposed project, /the existing noise environment, the future noise environment, noise impacts, and the required mitigation measures. If development within the effected area is phased in subsequent to the landfill closure, the impacts would be avoided.

Gun Ranges

Two gun ranges are currently located on the project site. A small private shooting range is located north of the Otay River. Target Tossers Gun Club, a public shooting range, is located at the western property boundary south of the Otay River. It is assumed that both gun ranges would be relocated prior to development and would not result in an adverse impact.

Rock Quarries

The Environmental Alternative proposes residential land uses approximately 2500 feet to the northeast of the Nelson and Sloan Mining Operation. No residential development is proposed within 2 miles of the Daley Quarry. Compliance with the applicable noise ordinances is the responsibility of the Nelson and Sloan Mining Operation. As discussed for the New Town Plan, calculations show that a 9300-foot buffer from the quarry property line would be required to achieve the residential noise standard of 45 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume the receiver is in direct line-of-sight with the noise source. No consideration was given to the noise attenuating effects of intervening topography. The intervening knolls and ridgelines will tend to block sound transmission which may result in a reduced buffer area. The 45 dBA residential standard assumes that quarry operations begin prior to 7:00 a.m. Even if the Nelson and Sloan Mining Operation can comply with the applicable noise ordinances, noise at residential receptors within 9300 feet of the quarry may still be sufficiently audible to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Nelson and Sloan Mining Operation is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during the SPA Plan review. The study shall provide a description of the proposed project, the existing noise environment, the future noise environment, noise impacts, and the required mitigation measures. The study will consider the effects of intervening topography which may tend to attenuate sound.

Recycling Center

A small wood recycling center is in operation at the west end of the Otay River parcel on Otay Valley Road. The recycling center would be relocated prior to project development and would not result in significant impacts.

Landfills

The Environmental Alternative proposes residential land uses approximately 1000 feet to the northeast of the landfill. Based on a measured sound level of 72 dBA at 100 feet from the active work surface (ERCE 1991), similar operations would result in a sound level of 75 dBA at 70 feet. Based on a 70-foot reference distance, calculations show that a 1250-foot buffer from the landfill property line would be required to achieve the daytime residential noise standard of 50 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume that the receiver is in direct line-of-sight with the noise source. No consideration was given to the noise attenuating effects of intervening topography. The 50 dBA residential standard assumes that landfill

operations are limited to the hours of 7:00 a.m. to 7:00 p.m. Compliance with the County of San Diego Noise Ordinance is the responsibility of the landfill operator. Even if the landfill can comply with the applicable noise ordinances, noise at residential receptors within 1250 feet of the landfill may still be sufficiently audible to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Otay Landfill is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during SPA Plan review. The study shall provide a description of the proposed project, the existing noise environment, the future acoustical environment, noise impacts, and the required mitigation measures. The study will consider the effects of intervening topography which may tend to attenuate sound.

Industrial Activities

There are numerous industrial land uses adjacent to the Otay River parcel along Otay Valley Road. Auto wrecking yards are located in this area along with other types of industrial activity. Noise associated with each industry is specific to the type of activity. The permitted sound level at an industrial property line would be the arithmetic mean of the permitted sound level of the business and the adjacent properties zones. The result would permit higher sound levels at adjacent residences than would be permitted in a strictly residential neighborhood. Assuming that each business can comply with applicable noise ordinances, noise may still be sufficiently audible at the residential receptors to result in a significant impact. A site-specific analysis will be required during SPA Plan review. The study will provide a description of the proposed project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation measures.

Airfields

Brown Field

Brown Field is located immediately south of the Otay River parcel. The existing noise contours depicted in the Brown Field Municipal Airport Master Plan, Adopted in 1978, and the more current noise contours in the updated Draft Brown Field Master Plan (unadopted) show that the project site lies outside of the 60 CNEL noise contour. Noise from Brown Field aircraft operations is not expected to cause a significant impact.

San Diego Air Sports Center

The Environmental Alternative proposes to develop residential land uses more than one mile to the northwest and northeast of the San Diego Air Sports Center. Due to the significant distance to proposed residential development, noise from the Air Sports Center is not expected to result in a significant noise impact.

Regional Airport

The City of San Diego is currently studying the concept of constructing a regional/binational airport in Otay Valley south of the project site. The proposal is in the very preliminary planning stages, and potential noise impacts from the proposed airport are currently unknown.

Light Rail Transit

The San Diego Metropolitan Transit Development Board (MTDB) is currently studying the concept of constructing a light rail transit (trolley) expansion into the study area. The proposal is in the preliminary planning stages, and potential noise impacts are unknown.

4.7.13.2 Proposed Mitigation

Site-specific Noise Studies

Potentially significant noise impacts have been identified from onsite roadways, the Nelson and Sloan Mining Operation, the Otay Landfill, and various industrial activities in close proximity to the project site. Site-specific acoustical analyses will be required during SPA Plan review. The study will provide a description of the proposed project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation measures. A "D" designator for noise shall be created to identify areas where a site-specific study is required. The "D" designator impact area should include the following:

- All areas within 9300 feet of the Nelson and Sloan Mining Operation;
- All areas within the 60 CNEL noise contour of onsite and offsite roadways, which shall include all roadways on the Otay River parcel and all roadways assigned a future ADT of 3,000 trips or greater on the Valley and San Ysidro parcels;
- All areas within 1250 feet of the landfill; and
- All areas adjacent to least Bell's vireo habitat.

Residential development within the impact area may be allowed if the site-specific noise study shows that mitigation to below a level of significance is feasible.

Potentially significant noise impacts have been identified from offsite roadways. Site-specific acoustical analyses will be required for all areas adjacent to roadways proposed for widening, realignment, and/or an upgrade in roadway classification through a General Plan Amendment.

Noise Mitigation Measures

<u>Vehicular Traffic</u>

Noise mitigation is required for all residential land uses located in areas where the CNEL from vehicular traffic exceeds 60 dBA. The estimated 60 CNEL contour is located approximately 120 feet from the roadway centerline for collector streets, 400 to 2400 feet from the roadway centerline for major and prime arterials, and over 4000 feet from the centerline of the freeways. The modeled contours are considered a worst-case condition because the roadways were modeled at grade with the surrounding area, and the effects of intervening topography were not considered.

<u>Onsite</u>. In general, roadway noise impacts can be mitigated by setbacks, by the construction of barriers, or a combination of both. However, depending on the roadway design and surrounding topography, barriers such as noise walls and earthen berms in excess of 10 feet high may be necessary and are often not considered to be feasible or

aesthetically desirable. The setback distance necessary to lower the wall height can be considerable, possibly several hundred to more than a thousand feet. Therefore, noise impacts from vehicular traffic are considered to be potentially unmitigable at residences proposed closest to the roadways. The required setbacks may result in lower residential densities.

Offsite. Mitigation of noise impacts resulting from project-related vehicular traffic on offsite roadways may require construction of barriers on public or private property to mitigate exterior noise impacts, and possibly retrofitting residences with noise insulation for interior noise impacts. In areas where the residences have been built along the roadway, mitigation to below a level of significance may not be possible.

Rock Quarries

Noise associated with the Nelson and Sloan Mining Operation is considered to be a significant impact. Based on the County of San Diego Noise Ordinance, sound levels from the quarry are permitted to be as high as 75 dBA L_{eq} at the source property line. Compliance with the noise ordinance is the responsibility of the quarry operator. Sound levels were calculated to be 45 dBA L_{eq} at approximately 9300 feet from the source property line. Mitigation of noise impacts may not be feasible at residences within 9300 feet and in direct line-of-sight of the quarry. However, mitigation may be possible as a result of intervening topography such as hills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate the impacts to below a level of significance. Residential development within 9300 feet of the quarry should be staged such that construction not take place unless the quarry has been mined-out and mining operations ceased or noise impacts can be mitigated as demonstrated in the site-specific noise study.

Otay Landfill

Noise associated with the Otay Landfill is considered to be a significant impact. Sound levels were calculated to meet the 50 dBA L_{eq} daytime noise standard at approximately 1250 feet from the landfill property line. Mitigation of noise impacts may not be feasible at residences within 1250 feet and in direct line-of-sight of the landfill. However, mitigation may be possible as a result of intervening topography such as hills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate impacts to below a level of significance. Residential development within 1250 feet of the landfill should be staged such that construction not take place unless the landfill has undergone closure or noise impacts can be mitigated as demonstrated in the site-specific noise study.

4.7.13.3 Noise Reduction Techniques

Effective noise mitigation measures are unique for each situation. The physical techniques to mitigate noise vary in their noise reduction capabilities. Factors to consider when evaluating potential noise mitigation include the amount of noise reduction desired, situations where physical techniques would be most effective and feasible, and aesthetics. The following measures should be used as a guideline to mitigate noise impacts.

Exterior Noise

Proper site planning to reduce noise impacts shall be considered for all noise sensitive land uses. Buildings can be oriented on a site in such a way as to exploit the site's features. By consideration of a site's natural topography, size, and shape, it is often possible to reduce and possibly eliminate noise impacts. Site planning techniques include the following:

- Place commercial uses adjacent to the high noise roadways such as Heritage Road, Orange Avenue, Otay Valley Road, Paseo Ranchero, and State Route 125. These non noise-sensitive land uses will buffer the noise for the residences.

- Place less noise-sensitive land uses on parcels closest to significant noise generators such as the Nelson and Sloan Mining Operation, the Daley Quarry, the Otay Landfill, and adjacent to the various industrial activities.

- Increase the distance from the noise source to sensitive receptors by creation of setbacks.

- Place noise-sensitive land uses outside of the 60 CNEL noise contour of roadways.

- Place non-noise sensitive uses such as parking lots and utility areas between the noise source and receiver.

- Orient usable outdoor living space such as balconies, patios, and children play areas away from roadways.

Noise barriers such as walls and earthen berms are commonly used to mitigate noise from ground transportation sources. Noise barriers can be used to reduce the noise level both outdoors and indoors. The effectiveness of a barrier depends upon factors such as the relative height of the barrier to the line-of-sight of the sound, distance of the barrier to the source and receiver, and reflections of sound. To be effective, a barrier must block the line-of-sight from the source to the receiver. A barrier must also be of solid construction (e.g., masonry) without holes or gaps and be long enough to prevent sound from passing around the ends. A properly designed noise barrier can reduce noise as much as 15 decibels. However, walls greater than 6-feet high and wall/berm combinations greater than 10-feet high are often considered unaesthetic from a visual prospective. High barriers also tend to block views. When high barriers are not feasible, setbacks in conjunction with barriers may be required. A site-specific acoustical analysis is required to determine the proper height and placement of a barrier.

Interior Noise

An interior acoustical analysis will be required for all residential buildings located within the 60 CNEL noise contour to ensure that the building's design limits the interior noise level to 45 CNEL or below. The analysis shall be conducted upon submittal of building plans by a qualified acoustician. Indoor noise is controlled by the noise reduction characteristics of the building shell. In general, noise enters through doors and windows; therefore, careful consideration should be given to their placement. By limiting the number and size of these opening on the side of the building exposed to noise, interior noise levels will be reduced. Often it is necessary to close windows to control interior noise. When this occurs, an alternative means of ventilation such as heat pumps or forced air unit is

required to meet the Uniform Building Code requirements. Heavy pane or double-pane windows are frequently required to increase the sound insulation within a room.

4.7.13.4 Analysis of Significance

Significant noise impacts have been identified from roadways, the Nelson and Sloan Mining Operation, the Otay Landfill, and the various industrial activities in close proximity to the project site. Reduction of noise impacts from these noise sources to below a level of significance may not be feasible. At this level of analysis, noise from these sources are considered to be a significant and unmitigated impact.

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4.7.14 Public Services and Utilities

4.7.14.1 Impact Analysis

The Environmental Alternative would result in the development of 9,251 homes and a population of 28,863 (Baldwin Vista 1991). The following analysis is based on the same generation/demand rates utilized in Section 3.13 for the New Town Plan.

Water Availability and Demand

Demand Generated

The total water demand for this alternative is estimated at 8.6 mgd for average day use. Water conservation measures would reduce the potable demand 121 gpd per dwelling unit, for a savings of 1.1 mgd or 13 percent. Although the demand for water under this alternative would be greatly reduced, significant impacts with respect to jurisdictional alternatives and supply of water would still occur.

Reclaimed Water. The estimated reclaimed water demand for the Otay River parcel under the Environmental Alternative is 0.76 mgd.

Due to the lack of detailed development and facility plans at this time, the Environmental Alternative would require further environmental review at the SPA Plan level similar to the proposed project.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- Annexation of land to the appropriate water jurisdiction.
- The preparation of a Water Master Plan by the project applicant in accordance with the engineering and facility standards of the appropriate water jurisdiction. Water Master Plan contents are detailed in Section 3.13.1.3.
- Written verification, if required by the appropriate water district, that water will be adequately provided.

Wastewater and Sewer Service

Demand Generated

The total sewage generation for this alternative is estimated at 4.4 mgd for average flows. This alternative would provide gravity flow through the Poggi and Telegraph Canyon drainage basins. The estimated flow from the Poggi and Telegraph Canyon drainage basins is 0.96 mgd. Under this alternative, 3.3 million gpd of wastewater flow would be conveyed to the Otay River Valley. Due to the low sewage flows projected and the low reclaimed water demand, this alternative proposes the future flows outside Poggi and Telegraph Canyon be conveyed to the City of San Diego's Otay River Valley Interceptor. It is possible the location of the proposed low density development on the San Ysidro and

Proctor Valley parcels would allow the use of septic systems. This option would avoid construction of interceptor sewers to serve the eastern two parcels. This alternative would decrease the wastewater generated by the project; however, impacts with respect to jurisdictional alternatives, provision of service, and funding would still occur. Further environmental review at the SPA Plan level would be required under this alternative, similar to the proposed project, to ensure that adequate facilities are provided.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- Annexation of land to the appropriate sewer jurisdiction.
- The preparation of a Sewer Master Plan by the project applicant in accordance with the engineering and facility siting standards of the appropriate sewer jurisdiction. Sewer Master Plan contents are detailed in Section 3.13.2.3.
- Written verification, if required by the appropriate sewer district, that sewer service will be adequately provided.

Integrated Waste Management

Demand Generated

The total waste generation for this alternative would be approximately 103 tpd, or 37,595 tpy. Through the use of integrated waste management techniques, it is anticipated that the amount of waste which would ultimately require landfill disposal would be approximately 51 tpd, or 18,615 tpy. The proposed facilities would not change, although the MRF and composting facility may be scaled back to serve the projected demand. Waste generation would be significantly reduced under this alternative; however, at this level of analysis significant impacts would still occur. Further environmental analysis of this issue would be required at the SPA Plan level.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required under the Environmental Alternative include the preparation of an Integrated Waste Management Program by the project applicant prior to SPA plan approval, ~~and~~ the project's participation in this program during all phases of SPA development, and compliance with County and City programs and regulations concerning long-term solid waste capacity.

Police Protection

Demand Generated

The Environmental Alternative would result in a demand for approximately 40 law enforcement personnel and 8,142 square feet of office space. An 8,142-square-foot police station would be located in the Eastern Urban Center to act as a substation for the designated jurisdiction.

Due to the fact that detailed development and facility plans are not available at this time, the project-specific impacts of the Environmental Alternative cannot be determined. Further environmental review would be required at the SPA Plan level, similar to the proposed project, to ensure adequate facilities and staff are available to serve the project. At this stage of review, it has been determined that the unresolved issues with respect to the provision and funding of services and facilities constitute significant impacts.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to the approval of any SPA Plan under the alternative include:

- The preparation of a comprehensive Law Enforcement Master Plan by the project applicant in accordance with the standards of the appropriate service provider.

Fire Protection and Emergency Medical Service

Demand Generated

Under the Environmental Alternative, fire and emergency service demand would result in the need for two fire protection facilities and one emergency services facility. These facilities are proposed to be located on the Otay River parcel on either side of SR-125.

The Environmental Alternative would result in potentially significant impacts to the provision of fire protection and emergency medical service. This determination has been made due to the current lack of detailed development and facility plans which would be made available during the SPA Plan review process. Further environmental review of fire protection service would be required at the SPA Plan level to ensure adequate facilities and staff are provided to serve the project.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to any SPA Plan approval under this alternative include the preparation of a comprehensive Fire Master Plan by the project applicant in accordance with the appropriate service provider requirements. The master plan shall demonstrate compliance with the City of Chula Vista and County of San Diego fire equipment and

response standards and that provisions for emergency medical service are included in the plan.

Schools

Demand Generated

The estimated 28,863 total population under the Environmental Alternative would generate a demand for facilities necessary to serve 5,751 students. Approximately six schools on approximately 99 acres would be required. According to the Facilities Implementation Plan for schools; four elementary schools, one junior high school, and one high school are proposed on the Otay River Parcel under this alternative. The six schools proposed would be considered adequate to serve the project.

Policy Consequences

Both the County of San Diego and the City of Chula Visa identify joint planning and siting of schools with other related public facilities as a planning objects. The population in this alternative would not generate sufficient demand to warrant integration of school facilities with social, health, and/or day care programs. Co-location of complementing services would be difficult to realize due to decreased population demand for multiple services; therefore, the joint planning and siting objective would not be met under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include the preparation of a Schools Master Plan by the project applicant in close coordination with the affected school districts. Each SPA shall be required to meet the criteria outlined in the approved master plan. The project applicant shall also provide documentation to the appropriate jurisdiction confirming school district satisfaction of facility funding.

Library Service

Demand Generated

The estimated 28,863 total population under the Environmental Alternative would generate a demand for 14,059 square feet of library space. The population distribution projects the following geographic demand:

• Otay River Parcel	13,189 square feet
• Proctor Valley Parcel	230 square feet
• San Ysidro Parcel	640 square feet
Total	14,059 square feet

One 14,059-square-foot branch library would be required in the most densely populated area of the Otay River parcel. This library is proposed as a branch library of an existing library system.

An additional 86,589 books would also be required to serve the residents of Otay Ranch under this alternative.

Although a total of 14,059 square feet of library space is proposed under the Environmental Alternative, the lack of detailed development and facility plans at this stage of analysis make it difficult to determine the project-specific impacts on libraries. Further environmental

review would be required prior to SPA Plan level, similar to the proposed project, to ensure adequate facilities and staff would be available to serve the proposed project. At this stage of review, it has been determined that the unresolved issues with respect to the provision and funding of services and facilities constitute significant impacts.

Policy Consequences

The County of San Diego's Public Facility Element for library service identifies the following factors for siting of libraries (Implementation Measure 3.1.3):

- Access to the intended service population;
- Availability of the property;
- Existing library deficiency in intended service area;
- Suitability of site to meet identified needs; and
- Location of the site relative to complementary facilities, such as schools, parks, and civic centers.

The Environmental Alternative may disperse the population in such a way as to decrease access to library service by the intended service population which would conflict with the objects outlined above.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- The preparation of a Library Master Plan by the project applicant in accordance with the criteria of the applicable jurisdiction.

Parks Recreation and Open Space

Demand Generated

Under the Environmental Alternative, the demand for neighborhood and community parks is 87 acres. The regional park demand would be for 433 acres.

Under the Environmental Alternative, 16,981 acres of the 23,088 acre property would remain as open space, including the San Ysidro and Jamul Mountain areas. A large portion of the Proctor Valley and San Ysidro parcels would be contained in the proposed open space system. A total of 118 acres of community and neighborhood parks are also planned under the Environmental Alternative, which is in excess of the required 87 acres. No regional park land is proposed; however, plans for the proposed Otay Valley Regional Park would continue to evolve. The proposed park is currently the subject of a Joint Exercise of Power Agreement (JEPA) intended to acquire property and develop a regional park in southern San Diego County. The park is the subject of a planning and environmental review process independent of Otay Ranch.

The lack of detailed development and facility plans at this stage of analysis make the full extent of this alternative's impact on parks, recreation, and open space difficult to determine. Further environmental review would be required prior to SPA Plan approval to ensure the provision of adequate parks, recreation, and open space. Until that time, this

alternative is considered to have potentially significant impacts on parks, recreation and open space with respect to siting, funding and phasing.

Policy Consequences

The County's Public Facility Element for Parks and Recreation calls for the co-location of local and regional parks with other public facilities such as schools, parks, and other public lands when appropriate (Implementation Measure 3.2.1). This may be difficult to realize under the Environmental Alternative due to the proposed distribution of development.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval include the preparation of a Parks, Recreation and Open Space Master Plan by the project applicant in accordance with applicable City of Chula Vista and County of San Diego standards for parkland acreage. Dedication of land in accordance with applicable requirements or payment of fees in lieu of dedication would mitigate any impacts to below a level of significance.

Electricity and Gas

Demand Generated

Additional substations and associated distribution lines would be required to serve development under the Environmental Alternative; placement of these facilities and associated impacts would be determined at the SPA Plan level.

SDG&E does not anticipate any significant impacts associated with the provision of electric and gas facilities for Otay Ranch, provided the following mitigation measures are implemented.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

- The project applicant shall work with SDG&E during all stages of electrical and gas facilities planning to minimize disturbance to sensitive resources (EIR proposed).
- Land uses adjacent to the SDG&E transmission lines shall be subject to review and comment by SDG&E (EIR proposed).

Health and Medical Facilities

Demand Generated

Based on the same methodology utilized in Section 3.13.11, it was estimated that the following health and medical facilities would be required under the Environmental Alternative:

- 8 99-bed nursing homes
- 2 commercial home health care offices

- 49 commercial physician, dentist, chiropractic, mental health, therapeutic, laboratory, and medical services and supply offices

Policy Consequences

This alternative recommends that public health services for the residents of Otay Ranch be provided offsite. Satellite offices for public services and small scale village medical services are not proposed under this alternative, reducing the opportunities for co-location. Adequate alternate transportation may not exist within Otay Ranch under this alternative, resulting in limited access to offsite medical service providers. This alternative therefore conflicts with the county's Public Facility Element for health services resulting in a significant impact.

Proposed Mitigation

Mitigation measures under this alternative include the involvement of appropriate governmental agencies and service providers during all stages of planning. Specific needs and siting of appropriate facilities shall be identified by the project applicant in cooperation with health care providers prior to SPA Plan approval.

Senior and Social Service Facilities

Demand Generated

Demand for senior and social service facilities is dependent upon the number, location and demographics of the proposed project's population. Although there are currently no statutory requirements for the provision of senior and social services, it is expected that the Environmental Alternative would have potentially significant impacts on the provision of these services as the proportion of the population over the age of sixty continues to increase and the demand for social services in the region continues to grow.

Policy Consequences

Under this alternative, fewer onsite services would be available to the residents of the proposed project and the co-location of services would be less likely.

Proposed Mitigation

Mitigation measures under this alternative include the involvement of appropriate governmental agencies and service providers during all stages of planning. Specific needs and siting of appropriate facilities shall be identified by the project applicant in cooperation with service providers prior to SPA Plan approval.

Cemeteries

Demand Generated

The Environmental Alternative would not generate enough demand to warrant the development of cemetery facilities, and existing facilities would be adequate; therefore, no impacts would occur and no mitigation would be required.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Child Care

Demand Generated

The estimated population of 28,863 residents would generate a demand for 1,152 formal child care slots. It is estimated that 52 percent of needed child care would be provided by large group facilities with an average capacity of 90 children. Therefore, the Environmental Alternative would generate a demand for seven 90-slot child care facilities.

Although there are currently no mandated requirements for the provision of child care facilities, the development of the proposed project is expected to have significant impacts on the provision of these services as the population increases in the project area. Further environmental review of this issue is required at the SPA Plan level to ensure that adequate child care facilities are available to serve Otay Ranch.

Policy Consequences

Under this alternative, the overall lower demand for child care may limit the child care options available, such as workplace and family co-op child care. The potential for co-location or sharing of facilities may be difficult to achieve.

Proposed Mitigation

Mitigation measures include the provision of child care facilities as deemed necessary during the policy development process.

Animal Control

Demand Generated

The additional population in the South County area generated by the development under the Environmental Alternative would increase the demand for animal control facilities, resulting in a potentially significant impact.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures require the project applicant participate in programs to equitably share the funding of animal control facilities and designate animal control facilities to provide adequate square footage of shelter space per dwelling unit to the satisfaction of the appropriate jurisdiction.

4.7.14.2 Analysis of Significance

At this level of analysis, impacts to public services and utilities would be considered significant under the Environmental Alternative. Implementation of the mitigation measures outlined above at the SPA level for the provision of adequate public services and facilities would mitigate project-specific public service and utility impacts to below a level of significance.

4.7.15 Risk of Upset

4.7.15.1 Impact Analysis

The potential risks of upset associated with the Environmental Alternative would be similar to the risks associated with the New Town Plan. Soils contaminated with petroleum hydrocarbons and pesticides have been identified in the area of the ranch operations center on the Otay River parcel (Woodward-Clyde 1989). The Environmental Alternative proposes low and low-medium density residential development in the area of the ranch operations center; therefore, the potential exists for exposure to contaminated material in excess of State of California standards.

The area in the southern part of the Otay River parcel, previously used as the Brown Field Bombing Range, would be allocated to open space under this alternative. There is potential danger of an accident occurring due to disturbance of any unexploded ordnance in this area.

4.7.15.2 Proposed Mitigation

The mitigation measures proposed for the New Town Plan (Section 3.14.3) would also be applicable to the Environmental Alternative. These measures include:

1. Soil and ground-water testing shall occur in the ranch operations center area potentially affected by the previous disposal of hazardous waste or historic pesticide use. The purpose of the testing shall be to identify areas of contamination in excess of federal and state standards. Should areas of excess contamination be identified, remediation shall occur prior to residential development. (EIR proposed.)

2. The applicant shall notify prospective buyers and the California Department of Health Services (DHS) as required, regarding their intention to develop the area adjacent to the Otay Landfill. (EIR proposed.)

3. A survey shall be conducted of the Brown Field Bombing Range by the Army to identify the presence of any unexploded ammunition. Should unexploded ordnance be located on the property, appropriate measures shall be taken for removal of the material. (EIR proposed.)

4. The transport of hazardous waste on existing and future roadways shall be conducted in accordance with the California Code of Regulations (CCR) and the Code of Federal Resolution (CFR). These regulations identify Department of Transportation (DOT) approved methods for packaging and containerizing hazardous waste and site appropriate options and procedures relative to the handling and transportation of these wastes. (EIR proposed.)

4.7.15.3 Analysis of Significance

Implementation of the measures identified above would mitigate health risks to below a level of significance.

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4.8 NO PROJECT ALTERNATIVE

4.8.1 Description

Under the No Project Alternative, a coordinated planned community would not be developed, and the property would remain in its present condition as rural agricultural land and undeveloped open space (refer to Section 3 for a description of the existing conditions). It is anticipated that dry farming and grazing uses would continue to occur on the majority of the property. No formal resource management plan for the protection of biological and cultural resources would be implemented. The eastern extension of East Orange Avenue and construction of Hunte Parkway would still occur to accommodate regional traffic from the EastLake development, but both roadways would terminate at the edges of EastLake. The SR-125 could still be extended through the Otay Ranch property by Caltrans.

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4.8.2 Land Use, Planning, and Zoning

No significant land use impacts would occur as a result of the No Project Alternative. This alternative would not preclude the implementation of County of San Diego, City of San Diego, or City of Chula Vista goals, policies, and land use designations for portions of the project site at some time in the future, nor would it preclude amendments to those designations.

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4.8.3 Landform Alteration/Aesthetics

No landform alteration or visual impacts would result if the No Project Alternative were selected. No grading would occur, and thus no alteration to the viewshed around Lower Otay Lake, along Proctor Valley Road, or along Otay Lakes Road between Lower Otay Lake and Highway 94 would occur take place.

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4.8.4 Biological Resources

The No Project Alternative would retain the existing land use. If agricultural use remained at the existing level within the current acreage, biological resources would be expected to remain in their existing condition. However, an increase in the intensity of agriculture or an expansion of acreage devoted to agriculture would potentially degrade and adversely impact certain sensitive biological resources such as upland scrub and wetland species. Other species, specifically wildlife inhabiting open grassland could benefit from the increase of certain agriculture practices which reduce vegetative cover. Conversely, a reduction in certain agriculture practices, especially grazing, could benefit sensitive upland scrub species. Natural fluctuations in populations of plants and animals would occur, affected principally by weather patterns, drought, fire, and natural interactions. The project area would be affected by increasing population growth in the surrounding communities. Increased human presence, increased fire potential, as well as increased traffic would all potentially degrade the habitats and thus reduce the diversity and abundances of sensitive species. If security on the ranch were reduced, human related impacts could be expected to increase. An increase in off-road vehicle activity, illegal campfires, target shooting, hunting, and hiking would increase the potential for wildfire on Otay Ranch. Increased wildfire could significantly impact sensitive biological resources. Other impacts from increased human activity include degradation of habitat and sensitive plants by roads, trails, and illegal dumping. An increase in adverse effects to wildlife could occur from increased shooting and human activity. These effects would be counter-balanced to some extent by the mere size of the ranch and its continuity with both public lands and other steep relatively inaccessible lands. If ranch security were maintained to limit access and off-road vehicle use on the property, this would also counter-balance negative human activity impacts. It is possible that SR-125 could still be built across the ranch as well as other roadways required for other projects (e.g., East Orange Avenue). Mitigation would be required for significant environmental impacts associated with those projects, especially in the Otay River Valley in the case of SR-125.

Given the large number of sensitive species and habitats on Otay Ranch, it is probable that these resources would become more sensitive in the years to come which may further limit development and require stronger mitigation measures commensurate with the increased sensitivity. The longer the ranch remains undeveloped, the greater its potential mitigation value.

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4.8.5 Cultural Resources

4.8.5.1 Impacts to Prehistoric Resources

The No Project Alternative presents the potential for both adverse and beneficial impacts to prehistoric resources. Prehistoric archaeological sites would continue to be subject to loss of site integrity and information through agriculture, natural erosion, and vandalism that would not be easily checked if the No Project Alternative was selected. Additionally, the information that would be gained about the prehistory of the area from the investigation of these resources as a result of project development would not occur. On the other hand, the benefits from the No Project Alternative that would derive from the large-scale preservation of the prehistoric sites on the property in their original settings outweighs any loss of information that could be gained at the present time. Selection of the No Project Alternative, therefore, would be the most preferable alternative from the standpoint of cultural resource protection.

4.8.5.2 Impacts to Historic Resources

The No Project Alternative presents the potential for both adverse and beneficial impacts to historic resources. The historic archaeological sites, continue to be subject to loss of site integrity and information through erosion and vandalism that would not be easily checked if the No Project Alternative was selected. The historic ranch complexes, the Otay Ranch (CA-SDi-11,384H), the Rancho del Otay (CA-SDi-11,419H), and the Bird Ranch (CA-SDi-11,386H) would benefit from the No Project Alternative through the retention of their original settings and surroundings, and the continuation of their intended uses. Selection of the No Project Alternative, however, would mean the loss of an opportunity to fully record and document these ranch complexes. In the foreseeable future, the loss of structures within the historic complexes to possible neglect, vacancy, or significant alterations might occur before their existing conditions could be substantially documented.

4.8.5.3 Impacts to Prehistoric/Historic Resources

The No Project Alternative presents the potential for both adverse and beneficial impacts to prehistoric/historic resources. The prehistoric/historic sites continue to be subject to loss of site integrity and information through agriculture, natural erosion and vandalism that would not be easily checked if the No Project Alternative was selected. Additionally, the information that would be gained about both the prehistory and the history of the area from the investigation of these resources as a result of project development, and the recordation and documentation of these resources, would not occur. However the benefits from the No Project Alternative include the large-scale preservation of the prehistoric/historic sites on the property in their original settings.

4.8.5.4 Proposed Mitigation

No mitigation is proposed for the No Project Alternative.

4.8.5.5 Analysis of Significance

No significant impacts are associated with the No Project Alternative.

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4.8.6 Geology and Soils

The No Project Alternative would not result in impacts to or from geology and soils. No mitigation measures are necessary.

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4.8.7 Paleontological Resources

The No Project Alternative would result in no development of any kind on any of the Otay Ranch parcels and thus no development-related impacts to paleontological resources. Impacts to paleontological resources could still potentially occur due to fossil collecting by amateur collectors. Scientifically important paleontologic resources would no doubt remain undiscovered under the No Project Alternative.

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4.8.8 Agricultural Resources

The No Project Alternative would permit, but not guarantee, the maintenance of existing agricultural activity on the Otay Ranch property. Land overlain with Prime, Statewide, and Local Important Farmland soils would be preserved for the potential production of coastal-dependent crops. Without development of the San Ysidro and Proctor Valley parcels, the rural character of the Jamul-Dulzura community would be maintained and the pressure for early conversion of offsite agricultural land would be minimized.

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4.8.9 Mineral Resources

The No Project Alternative would result in no development on any of the Otay Ranch parcels. This would leave the potential open for mineral extraction activities within the project area. The No Project Alternative would not result in any land use conflicts or uses which would preclude mineral extraction activities. No loss or destruction of mineral resources would occur other than that caused by the continuation of present mineral extraction activities.

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4.8.10 Water Resources and Water Quality

The No Project Alternative would cause no surface water or ground-water impacts; therefore, no mitigation measures would be required.

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4.8.11 Transportation, Circulation, and Access

4.8.11.1 Impact Analysis

This section documents the results of the impact analysis for the No Project Alternative. It is important to note that the impacts associated with the No Project Alternative are not the responsibility of the project applicant. These analyses are provided for informational and comparative purposes only. The following topics will be discussed in this section: trip generation, proposed circulation network, arterial segment and freeway impacts, and intersection impacts.

Appendix B of this document contains a detailed discussion of the impact analysis methodologies and threshold standards used to identify the impacts of the No Project Alternative. In addition, Appendix B contains information regarding local and regional transportation topics related to project impacts and mitigation.

Trip Generation

Under this alternative, no development would occur on Otay Ranch. Regional facilities such as roads and parks would not be built without significant expenditures for land and facilities by public agencies. No university would be built, no permanent protection would be afforded to existing environmental resources, and no land would be set aside as permanent open space. Figure 4.8.11-1 shows the boundaries of the four major trip generating centers within the study area. The following list identifies each of those centers by area and jurisdiction:

1. Otay Mesa Community - City of San Diego;
2. East Otay Mesa - County of San Diego;
3. Chula Vista General Plan Area (without Otay Ranch parcels) - City of Chula Vista; and
4. San Diego General Plan Area (without Otay Ranch parcels) - County of San Diego.

Table 4.8.11-1 indicates that based on SANDAG trip generation standards, these four centers would generate approximately 2,740,848 trips daily under the No Project Alternative. It is important to note that the projected trip generation values for each of these areas remains constant throughout the evaluation of all land use alternatives on the Otay Ranch parcels including the proposed New Town Plan.

Proposed Circulation Network

The circulation network for the No Project Alternative is essentially identical to the City of Chula Vista Adopted General Plan Circulation Element, except that no connections would traverse the project site south of Telegraph Canyon Road. Only one facility (SR-125) would cross the Otay River Valley, and the Orange Avenue and Palomar Street extension would not be implemented. This plan does not include the Alta Road and La Media Road crossings of the Otay River Valley as shown in the County of San Diego Circulation Plan. However, the omission of these roadway facilities is consistent with the Adopted Chula Vista General Plan Circulation Element. Moreover, the proposed circulation system for this alternative does not utilize the village design concept (i.e., loop roads, discouragement of through trips, reduction of vehicular dependency, etc.). Figure 4.8.11-2 shows the assumed roadway network under the No Project Alternative.

Table 4.8.11-1

NO PROJECT ALTERNATIVE OFFSITE TRIP GENERATION

Trips Generating Centers	Average Daily Trips
City of Chula Vista General Plan	1,831,936
City of San Diego (Otay Mesa General Plan)	713,554
County of San Diego General Plan (East Otay Mesa, San Diego General Plan Area)	195,355
Total Daily Offsite Trip Generation	2,740,848

Arterial Segment and Freeway Impacts

This alternative represents no development on Otay Ranch. However, because critical roadway segments providing east-west and north-south connections across the Otay River Valley and the Otay Ranch property are not assumed to be implemented, the impacts would be greater than those of the Composite General Plans Alternative.

Figure 4.8.11-3 shows the projected network levels of service for the study area as provided by SANDAG. Of the 222 roadway miles that make up the total circulation network within the study area (east of I-805) for the No Project Alternative, 29 miles of roadway (approximately 13 percent) are predicted to operate above the maximum recommended ADT volume, i.e., at LOS D or worse for arterials and LOS F for freeways.

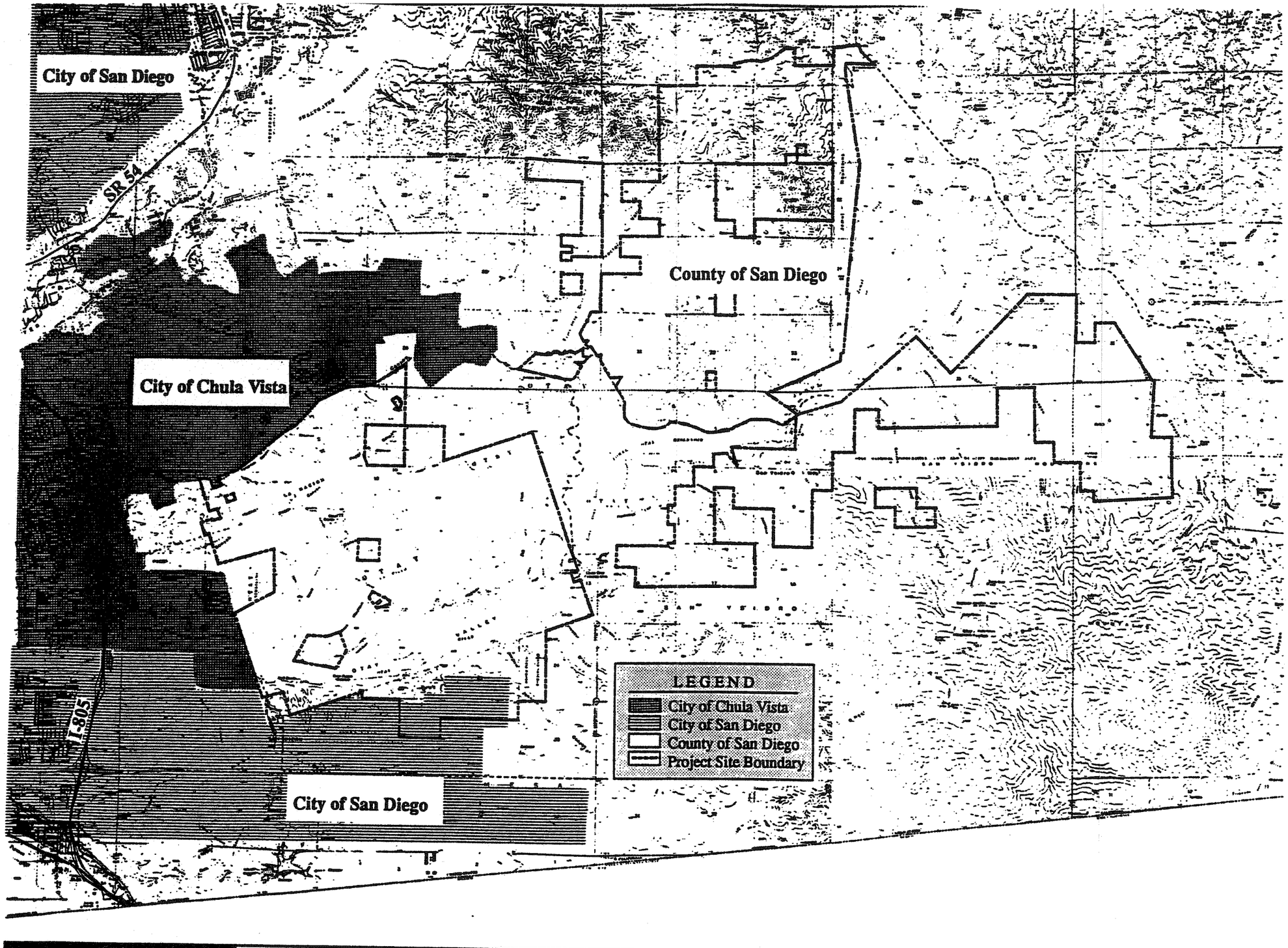
A review of freeway impacts (excluding arterial segments) revealed that of the 31 freeway miles in the study area, 7 miles (approximately 22 percent) are forecasted to experience ADT volumes in excess of the maximum recommended ADT volume (i.e., at LOS F).

Of the total 190 arterial roadway miles that make up the arterial circulation network within the study area (east of I-805) for the No Project Alternative, 21 miles of roadway (approximately 11 percent) are predicted to operate above the recommended maximum desirable ADT volume at LOS D or worse under the No Project land use scenario and circulation network.

Table 4.8.11-2 summaries the impacted roadway miles by level of service by roadway facility class.

Intersection Impacts

Figure 4.8.11-4 shows the location of critical intersections that would experience high total entering volumes in excess of 65,000. Table 4.8.11-3 summarizes these critical intersection locations and entering volumes. It shows that a total of four intersections are predicted to experience high entering volumes in excess of 65,000 vpd. Two intersections (La Media Road/Otay Mesa Road, La Media Road/Airway Road) may require special at-grade design to accommodate expected demand. The intersections of Otay Mesa Road/Heritage Road may require special at-grade design or grade separation to



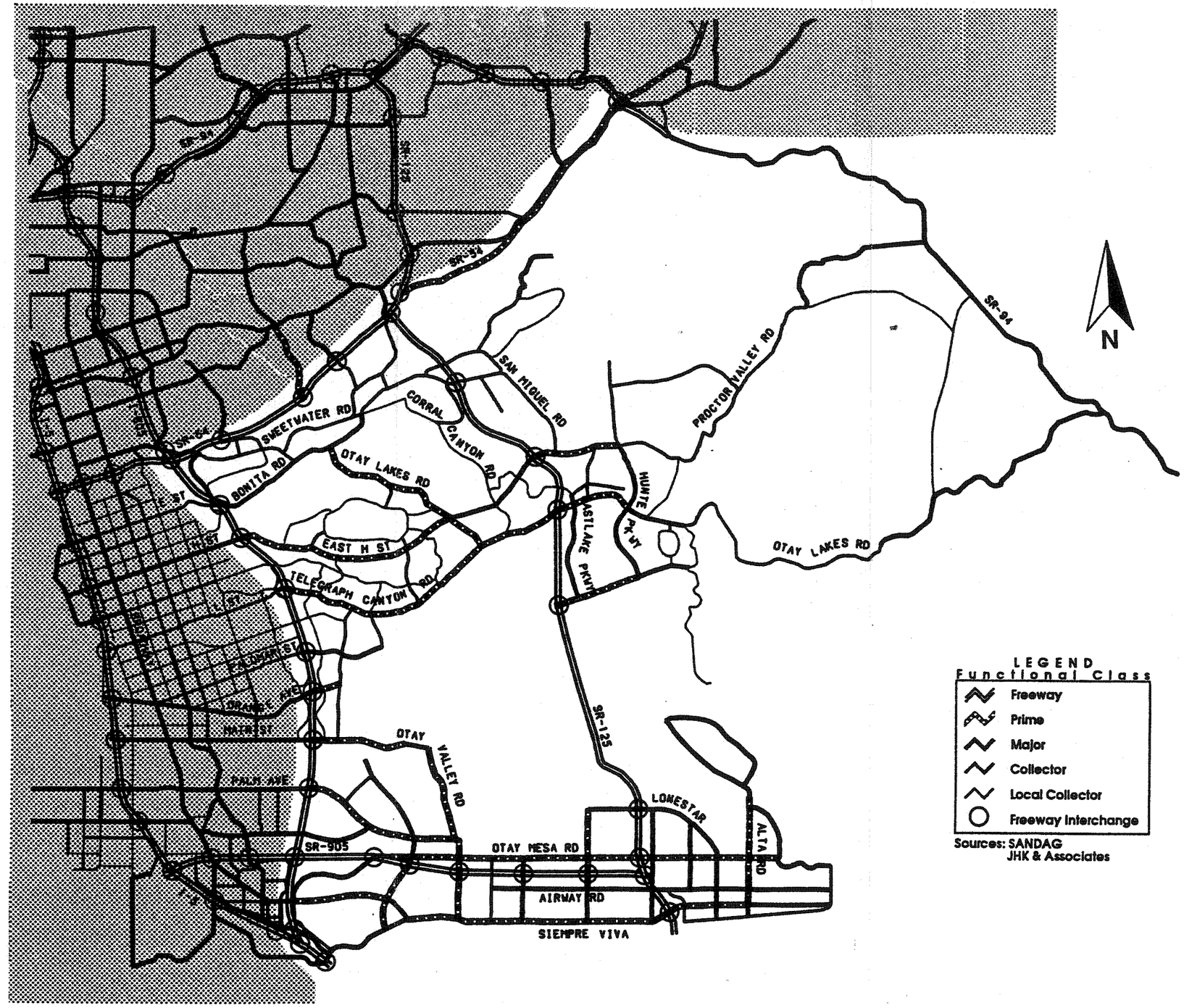
OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.8.11-1

JURISDICTIONAL BOUNDARIES

jhk & associates



OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.8.11-2

NO PROJECT ALTERNATIVE CIRCULATION NETWORK

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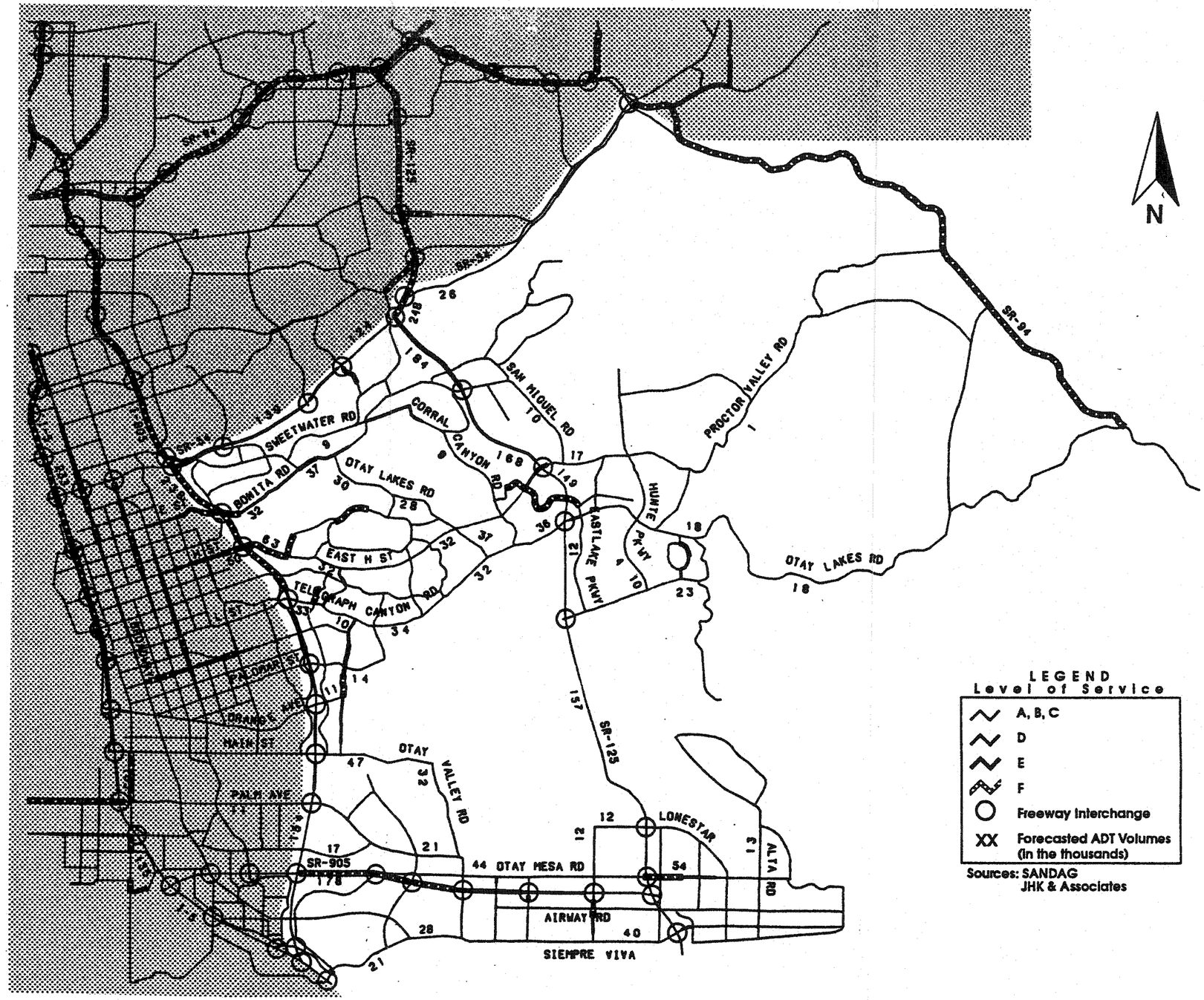

OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.8.11-3

NO PROJECT ALTERNATIVE CIRCULATION NETWORK LEVEL OF SERVICE (Prior to Mitigation)

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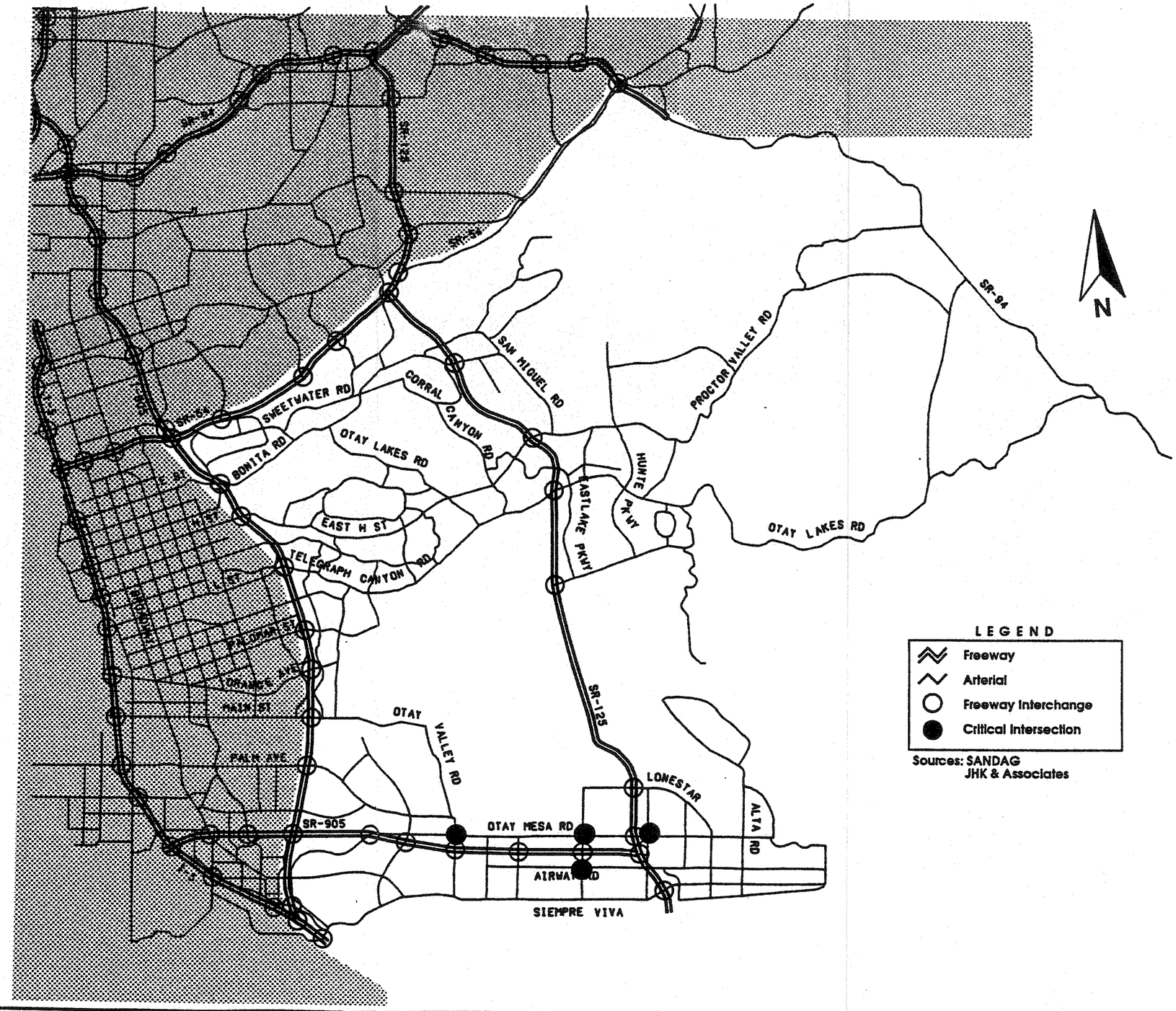


OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.8.11-4

NO PROJECT ALTERNATIVE CRITICAL INTERSECTION LOCATIONS (Prior to Mitigation)

Table 4.8.11-2

IMPACTED ROADWAY MILES BY LEVEL OF SERVICE
NO PROJECT ALTERNATIVE
(Prior to Mitigation)

Facility Class (# of lanes)	LOS D	LOS E	LOS F	Total Miles
Offsite Impacts				
Local Collector (2)	2.19	0.79	3.33	6.31
Collector (4)	1.36	0.52	0.52	2.40
Major (4)	1.07	1.31	2.58	11.41
Prime (6)	0.34	0.75	6.45	1.09
Freeway	0.00	0.00	7.00	7.00
TOTAL	4.96	3.37	19.88	28.21

Offsite Network	Total Roadway Miles	Total Impacted Roadway Miles	Percent Impacted Roadway Miles
Local Collector (2)	34.95	6.31	18%
Collector (4)	40.18	2.40	6%
Major (4)	70.45	11.41	16%
Prime (6)	44.61	1.09	2%
Freeway	31.48	7.00	22%
TOTAL	221.67	28.21	13%

Table 4.8.11-3

SUMMARY OF HIGH VOLUME INTERSECTION LOCATIONS
NO PROJECT ALTERNATIVE
(Prior to Mitigation)

Intersection	Total Entering Volume	Special At-grade Design Required		Special Grade Separated Design Required
Onsite Impacts (N/A)				
Offsite Impacts				
Harvest Road/Otay Mesa Road	91,950	N/A		Yes
La Media Road/Otay Mesa Road	65,550	Yes		No
La Media Road/Airway Road	68,950	Yes		No
Otay Mesa Road/Heritage Road	77,050	Yes	or	Yes

accommodate expected demand. The remaining intersection (Otay Mesa Road/Harvest Road) may require grade separation based on the expected entering volumes under this alternative. Detailed study of peak-hour turn movement volumes is required at the SPA stage of development to determine the specific mitigation measures needed at these impacted intersections.

4.8.11.2 Proposed Mitigation

This section provides a detailed discussion of the proposed mitigation measures required for the No Project Alternative. It is important to note that the impacts associated with the No Project Alternative are not the responsibility of the project applicant. These analyses are provided for informational and comparative purposes only. These mitigation measures include specific geometric mitigation measures for both the study area arterial roadways and major intersections. Appendix B of this document contains a detailed discussion of the various forms of circulation system mitigation measures required for the Otay Ranch study area under all of the development alternatives. A separate section of Appendix B contains a detailed discussion of policy-related mitigation measures applicable to the Otay Ranch study area and the Southbay region.

General Mitigation Measures

This section identifies the applicable specific and general measures from Appendix B which shall be applied to the No Project Alternative as required mitigation.

Required Mitigation Measures

Overall Measures

- Develop Transportation Demand Management Mitigation Strategies
- Provide Parallel Arterial System
- Improve Mode Split
- Increase Local/Regional Trip Capture

Regional Freeway System Mitigation

- Increase Freeway Capacities

Arterial Segment Mitigation

- Increase Segment Capacities

Arterial Intersection Mitigation

- Increase Intersection Capacities

Other Mitigation Strategies

- Implement Transportation System Management Strategies
- Implement Traffic Control Strategies

Potential Transportation Demand Management Benefits

This section summarizes the potential benefits to circulation system operations with the successful implementation of Transportation Demand Management (TDM) strategies

proposed by SANDAG and the Air Pollution Control District. Both of these plans would increase average vehicle occupancy (passengers per vehicle) during commute trips from the current level of less than 1.1 to at least 1.5 in the future.

SANDAG estimates that through TDM, commuting trips region-wide could be reduced by 17 percent. As a regional program, implementation of an aggressive TDM program clearly has a significant positive impact on peak hour operating LOS on the regional circulation system, when roads are usually operating at or near capacity.

Based on the modeled results using the Phase I-Progress Plan Alternative, with TDM benefits included in the model, it can be expected that the TDM policies would decrease total vehicle miles traveled (VMT) by approximately 8 percent. This reduction in traffic activity could potentially reduce both arterial and intersection impacts by one third. A peak hour analysis will be conducted on the conceptually approved plan under TDM and non-TDM conditions prior to each SPA Plan approval. This analysis will more precisely define the extent and location of impacts and identify specific mitigation measures that will be required under the selected development scenario for the Otay Ranch.

The next section details the project-specific mitigation measures to individual impacted segments and intersections identified in the impact analysis conducted for this alternative. These specific mitigation measures are defined in Appendix B and detailed below.

Transit System Mitigation

The proposed rail lines for the Southbay area are not included in MTDB's Long Range Rail Plan and, therefore, these lines and the supporting bus services are not funded at the present time. Otay Ranch shall contribute to the capital and operating costs associated with the new transit system. This shall be done through provisions in facility financing plans at the SPA level. Further, benefit assessment districts shall be established to fund new transit routes under MTDB Board Policy No. 40, Non Transit Funding of New Transit Services.

Summary

It is critical to note that the plans for Otay Ranch provide a comprehensive, efficient, and safe system for a variety of transportation modes. Automobile-oriented improvements do not entirely define the scope of these improvements. Rather, they are just one element of an integrated mobility system which includes bus, fixed guideway transit, carts, bicycles, pedestrian ways, and trails all linked to minimize or avoid automobile travel.

Project-specific Mitigation Measures

Introduction

This traffic analysis is oriented toward future traffic conditions at the full buildout of the project. However, buildout will occur over a number of years, and it will be necessary to provide an adequate transportation system for interim periods of development. The following paragraphs describe the recommendations to deal with the phasing of development and transportation improvements.

Primary regional transportation facilities which impact the project area are SR-125 and regional transit service (light rail or express bus). With these regional transportation facilities in place, it will be feasible to implement any major portion of development. If some of the development is proposed to occur before regional transportation facilities are implemented, project phasing will require that a local transportation traffic phasing analysis

be conducted to identify alternative transportation mitigation measures which may be necessary.

Additional traffic analyses will be conducted to determine appropriate phasing of transportation improvements as interim phases of project development occur. As documented by the Transportation Phasing Plan (TPP) developed by Chula Vista for the Eastern Territories area, trip patterns and traffic impacts may change significantly in the course of project development. Thus, it will be important to adequately assess the impacts of the Otay Ranch Project at various phases of development. This will require the development of a comprehensive transportation phasing program which will be coordinated with each phase of land use development. This Otay Ranch Transportation Phasing Program will be coordinated with the TPP conducted by the City of Chula Vista. The development and implementation of each SPA or village will receive a site-specific traffic impact evaluation to identify the potential impacts to the current transportation network and recommend appropriate mitigation to maintain high quality service to the local system.

Table 4.8.11-4 summarizes the required mitigation measures for network arterial segments to accommodate expected demand. Table 4.8.11-5 summarizes the required arterial intersection mitigation under this alternative. Figure 4.8.11-5 shows the location of all arterial impacts found under this alternative. Impacted arterial segments are coded with letters that correspond to those in Table 4.8.11-4. Impacted intersections are coded with numbers that correspond with those in Table 4.8.11-5.

The information shown on the mitigation figure and tables for this alternative indicates that the following facilities will require special attention during final review:

Critical East/West Roadway Facilities

- Bonita Road - I-805 to Central Avenue
- Otay Mesa Road - SR-125 to Enrico Fermi

Critical North/South Roadway Facilities

- Medical Center Road - Telegraph Canyon Road to Otay Valley Road

These critical arterial facilities would be heavily impacted by the anticipated traffic operations at the major signalized intersections located along their lengths. As shown in Figure 4.8.11-5, both segment and intersection mitigation measures are required to achieve acceptable levels of service where possible.

Mitigation Implementation Review

In order to clearly identify potential difficulties in implementing the required mitigation measures for critical offsite segments and intersections, additional research has been conducted to identify existing constraints. These existing circulation system constraints may consist of the following factors:

- Existing residential or commercial development
- Previous general plan roadway classification
- Limited ability to acquire additional right-of-way
- Non-conformance with existing community character

Utilizing data compiled by the County of San Diego and the City of Chula Vista Public Works Departments relating to the existence of constraints on existing or planned offsite

Table 4.8.11-4

NO PROJECT ALTERNATIVE
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED ARTERIAL SEGMENTS

SEGMENT MITIGATION			DESCRIPTION OF SEGMENT MITIGATION					
No.	Segment	From - To	Increase Segment Capacity *	Require Enhanced Intersection Capacity**	Increase Regional/ Local Trip Capture	Improve Mode Split	Level of Significance***	Comments
Off-Site Network								
A.	Bonita Road	I-805 - Plaza Bonita Road	X				1	(1) Major (4LN) - Prime (6LN)
B.	Bonita Road	Plaza Bonita Road - Willow Street	X				1	(1) Major (4LN) - Major (6LN)
C.	Bonita Road	Willow Street - Otay Lakes Road	X		X	X	2	(1) Major (4LN) - Major (6LN)
D.	Bonita Road	Otay Lakes Road - Central Avenue	X		X	X	2	(1) Major (4LN) - Prime (6LN)
E.	Brandywine Road	Orange Avenue - Otay Valley Road	X				1	(1) Collector (4LN) - Major (4LN)
F.	Brittania Boulevard	SR 905 - Airway Road	X				1	(1) Major (4LN) - Major (6LN)
G.	Cactus Road	Otay Mesa Road - SR 905	X				1	(1) Collector (4LN) - Major (4LN)
H.	Corral Canyon Road	Central Avenue - Blacksmith Road	X				1	(1) Local Collector (2LN) - Major (4LN)
I.	Crest Drive	East J Street - Telegraph Canyon Road	X		X	X	1	(1) +
J.	East Beyer Road	Siempre Viva Road - San Ysidro Blvd.	X				1	(1) Local Collector (2LN) - Major (4LN)
K.	Eastlake Drive	Corral Canyon Road - East H Street	X				1	(1) Local Collector (2LN) - Collector (3LN)
L.	Eastlake Drive	East H Street - Eastlake Parkway	X				1	(1) Local Collector (2LN) - Collector (4LN)
M.	Eastlake Vista Drive	Telegraph Canyon Rd. - Orange Ave.	X				1	(1) Local Collector (2LN) - Collector (4LN)
N.	East H Street	I-805 - Terra Nova Road	X				1	(1) Prime (6LN) - Prime (8LN)
O.	East H Street	Eastlake Drive - SR 125	X				1	(1) Major (4LN) - Major (6LN)
P.	La Media Road	SR 905 - Airway Road		X (Stage 1)	X	X	3	Maximum Segment Classification
Q.	La Media Road	Airway Road - Siempre Viva Road	X	X (Stage 1)			1	(1) Major (4LN) - Major (6LN)
R.	Medical Center Road	Telegraph Canyon Rd. - Naples Ave.	X				1	(1) Collector (4LN) - Major (4LN)
S.	Medical Center Road	Naples Avenue - Palomar Street	X				1	(1) Collector (4LN) - Major (4LN)
T.	Medical Center Road	Palomar Street - Orange Avenue	X				1	(1) Collector (4LN) - Major (4LN)
U.	Otay Lakes Road	SR 125 - Eastlake Parkway	X		X	X	2	(1) Prime (6LN) - Prime (8LN)
V.	Otay Mesa Road	SR 125 - Harvest Road	X	X (Stage 3)			1	(1) Major (4LN) - Prime (6LN)
W.	Otay Mesa Road	Harvest Road - Sanyo Road	X	X (Stage 3)			1	(1) Major (4LN) - Prime (6LN)
X.	Otay Mesa Road	Sanyo Road - Enrico Fermi	X		X	X	2	(1) Major (4LN) - Prime (6LN)
Y.	Paseo Del Rey	East H Street - East J Street	X				1	(1) Local Collector (2LN) - Collector (4LN)
Z.	Paseo Del Rey	East J Street - Telegraph Canyon Road	X				1	(1) Local Collector (2LN) - Collector (4LN)
AA.	Ridgeback Road	N/O East H Street	X				1	(1) Local Collector (2LN) - Collector
AB.	State Route 94	Campo Road - Proctor Valley Road	X				1	(1) Local Collector (2LN) - Major (6LN)
AC.	State Route 94	Proctor Valley Rd. - Millar Ranch Rd.	X				1	(1) Local Collector (2LN) - Major (6LN)
AD.	State Route 94	Millar Ranch Road - Otay Lakes Road	X				1	(1) Local Collector (2LN) - Collector (3LN)
AE.	Ranchero Del Rey Pkwy	E/O Ridgeback Road	X				1	(1) Local Collector (2LN) - Collector (3LN)
AF.	Otay Mesa Road	Enrico Fermi - Alta Road	X				1	(1) Major (4LN) - Prime (6LN)
AG.	Siempre Viva Road	SR 125 - Paseo De Las Americas			X	X	2	Maximum Segment Classification

Table 4.8.11- ontinued)

NO PROJECT ALTERNATIVE
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED ARTERIAL SEGMENTS

SEGMENT MITIGATION			DESCRIPTION OF SEGMENT MITIGATION					
No.	Segment	From - To	Increase Segment Capacity *	Require Enhanced Intersection Capacity**	Increase Regional/ Local Trip Capture	Improve Mode Split	Level of Significance***	Comments
Off-Site Network (Continued)								
AH.	Siempre Viva Road	Paseo De Las Americas - Enrico Fermi	X				1	(1) Major (4LN) - Prime (6LN)

Notes:

* See Comment (1) - The description under this column details the required change in roadway capacity and facility classification which is necessary to achieve acceptable performance on the referenced arterial segment.

\+ The City of Chula Vista considers that the identification of this roadway segment as impacted represents an anomaly of the model; therefore, a Significant and Mitigable impact is defined for this segment.

**Stages of Intersection Mitigation

Stage 1 - Special At-Grade Intersection Design Required
Stage 2 - Special At-Grade or Grade Separated Intersection Design Required
Stage 3 - Grade Separated Intersection Design Required

***Level of Significance

1 - Significant and Mitigable
2 - Significant and Not Mitigable at the GDP Level Due to Lack of Design Information
3 - Significant and Not Mitigable

The mitigation measures recommended for the No Project Alternative are not the responsibility of the project applicant. This analysis is provided for informational and comparative purposes only.
See Appendix B for more information

Table 4.8.11-5

NO PROJECT ALTERNATIVE
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED SIGNALIZED INTERSECTIONS

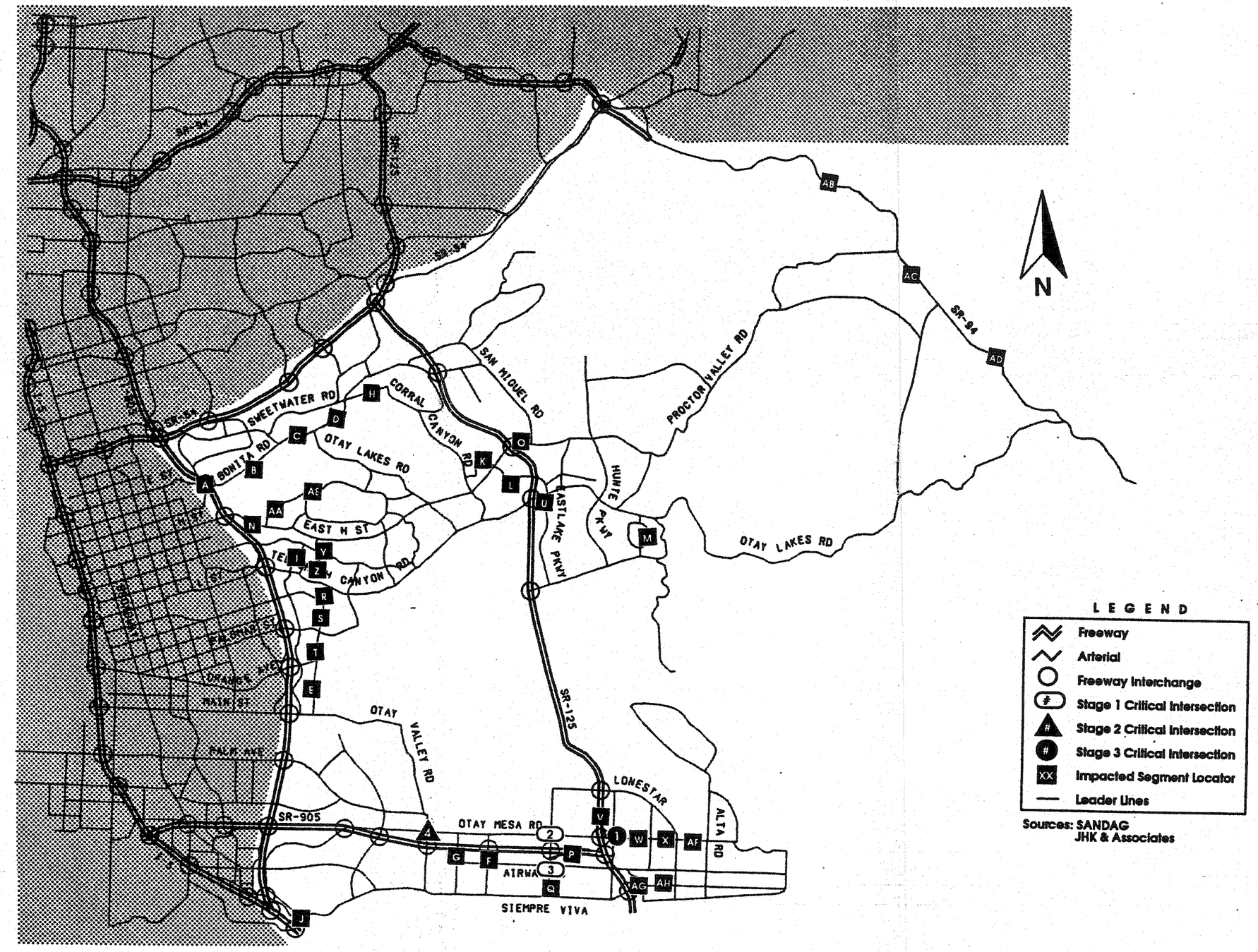
INTERSECTION MITIGATION		DESCRIPTION OF INTERSECTION MITIGATION				
No.	Intersection Location	Special At-Grade Design Required	Special At-Grade or Grade Separated Design Required	Special Grade Separated Design Required	Increase Regional/ Local Trip Capture	Level of Significance*
Off-Site Intersections						
1.	Harvest Road/Otay Mesa Road			X	X	1
2.	La Media Road/Otay Mesa Road	X				1
3.	La Media Road/Airway Road	X				1
4.	Heritage Road/Otay Mesa Road		X		X	1

Note:

* Level of Significance

1. Significant and Mitigable
2. Significant and Not Mitigable at the GDP Level Due to Lack of Design Information
3. Significant and Not Mitigable

The mitigation measures recommended for the No Project Alternative are not the responsibility of the project applicant. The analysis is provided for informational and comparative purposes only. See Appendix B for more information



OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.8.11-5

NO PROJECT ALTERNATIVE REQUIRED MITIGATION MEASURES

circulation facilities, JHK has prepared Table 4.8.11-6 which summarizes the anticipated difficulties which may occur if required mitigation measures are implemented for a given alternative. This preliminary review of potential constraints is intended to provide insight towards the feasibility of implementing a particular mitigation measure. The information provided at this General Plan level project review is also intended to provide citizens, staff, and decision-makers with adequate data on which to base project findings.

4.8.11.3 Analysis of Significance

This section provides a discussion of the analysis of significance of unmitigable impacts under the No Project Alternative. The methodology used to define the significance of these impacts is defined in Appendix B of this document. Based on the Level of Significance column shown on the mitigation tables and the review of mitigation implementation tables, those impacts which have a Level 2 (significant and not mitigable at the GDP level due to lack of design information), or a Level 3 (significant and not mitigable) are summarized in this section.

Table 4.8.11-7 shows the remaining impacts to the study area circulation network after implementation of the required mitigation measures for this alternative. This alternative assumed no onsite circulation facilities; therefore no onsite impacts are anticipated. Of the 222 offsite roadway miles in this alternative circulation network, 28.21 miles (approximately 13 percent) would be impacted by the project. After mitigation, only 9.76 miles (approximately 0.4 percent) would remain significant.

Of the four critically impacted intersections under the No Project Alternative, none would remain significant after mitigation.

Figure 4.8.11-6 shows the location of the remaining significant circulation network impacts after mitigation.

Table 4.8.11-6

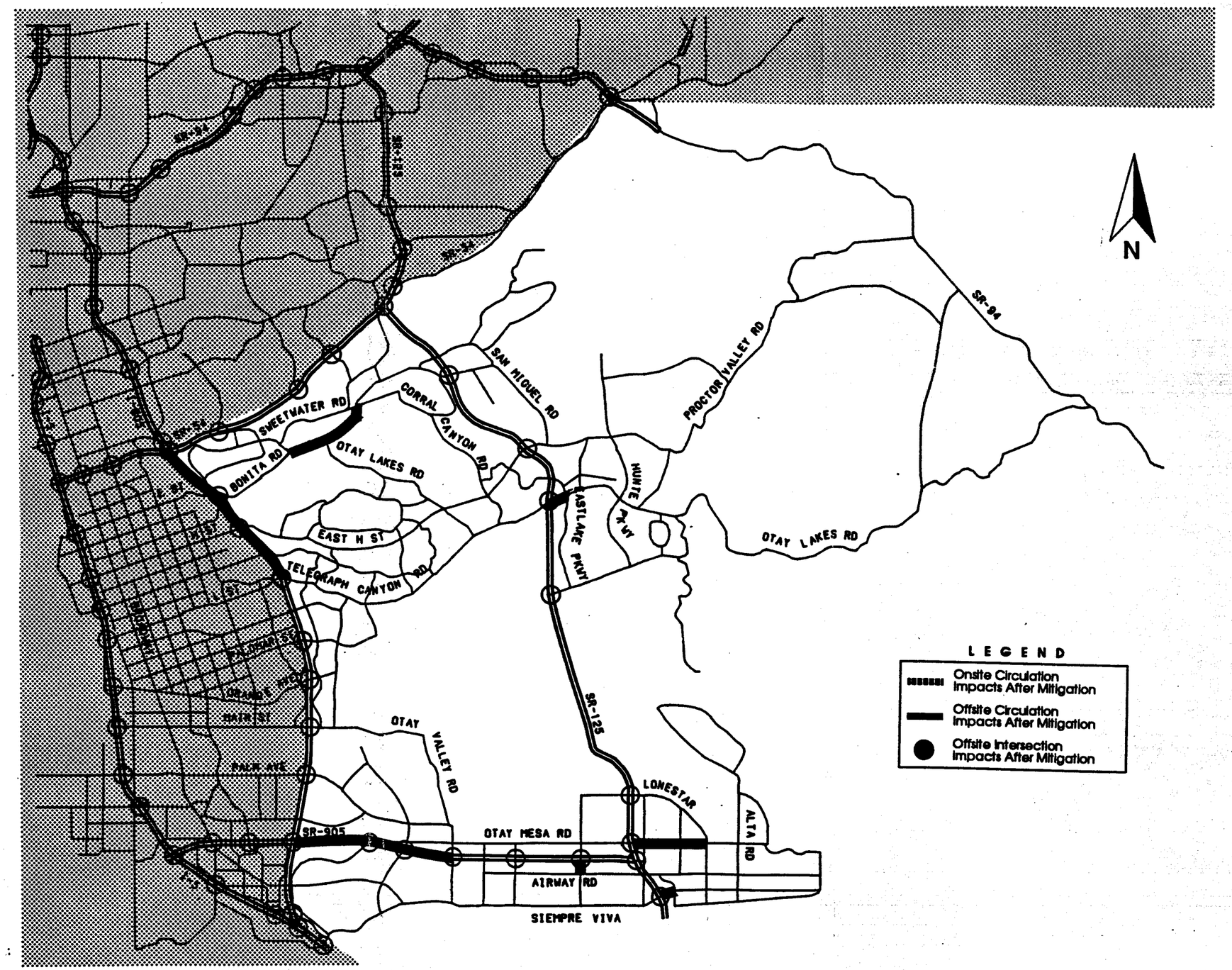
MITIGATION IMPLEMENTATION REVIEW
NO PROJECT ALTERNATIVE

Segment	From - To	Jurisdication	Adopted Circulation Plan Class	Recommended Circulation Plan Class Mitigation	Difficulty of Implementation (1)	Level of Significance (2)	Comments (3)
Off-Site Network							
Bonita Road	Willow Street - Otay Lakes Road	City of Chula Vista	Major (4LN)	Major (6LN)	2	2	GPA
Bonita Road	Otay Lakes Road - Central Avenue	County of San Diego/ City of Chula Vista	Major (4LN)	Prime (6LN)	2	2	GPA
East Beyer Road	Siempre Viva Road - San Ysidro Blvd.	Ctiy of San Diego	Major (6LN)	Major (4LN)	3	3	
La Media Road	SR 905 - Airway Road	City of San Diego	Prime (6LN)	Prime (6LN)	3	3	
Otay Lakes Road	SR 125 - Eastlake Parkway	City of Chula Vista	Prime (6LN)	Prime (8LN)	3	3	GPA
Otay Mesa Road	Sanyo Road - Enrico Fermi Road	City of San Diego	Major (4LN)	Prime (6LN)	2	2	
Siempre Viva Road	SR 125 - Paseo De Las Americas	City of San Diego	Prime (6LN)	Prime (6LN)	2	2	

Notes:

1. Difficulty of Implementation
   - 1 - Achievable
   - 2 - Moderate Level of Difficulty
   - 3 - High Level of Difficulty
2. Level of Significance
   - 1 - Significant and Mitigable
   - 2 - Significant and Not Mitigable at the GDP Level Due to Lack of Design Information
   - 3 - Significant and Not Mitigable
3. Comments
   - GPA - General Plan Amendment Required

The recommended mitigation measures recommended for the No Project alternatives are not the responsibility of the project applicant. The analysis is provided for informational and comparative purposes only.



OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.8.11-6

NO PROJECT ALTERNATIVE LOCATION OF SIGNIFICANT IMPACTS AFTER MITIGATION

jhk & associates

Table 4.8.11-7

SIGNIFICANT UNMITIGABLE IMPACTS AFTER MITIGATION
STUDY AREA CIRCULATION NETWORK
NO PROJECT ALTERNATIVE

Arterial Segment	From	To	Distance
Offsite Impacted Roadway Miles			
Bonita Road	Willow Street	Central Avenue	1.38 miles
La Media Road	SR-905	Airway Road	0.13 miles
Otay Lakes Road	SR-125	EastLake Parkway	0.27 miles
Otay Mesa Road	Sanyo Road	Enrico Fermi	0.78 miles
Siempre Viva Road	SR-125	Paseo De Las Americas	0.20 miles
Total Residual Impacts -	Offsite Roadway Miles		2.76 miles
	Offsite Freeway Miles		7.00 miles
Total Residual Impacts -	Study Area Circulation Network		9.76 miles

See Appendix B for more information.

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4.8.12 Air Quality

Under the No Project Alternative, current levels of air pollution emissions from agricultural activities, traffic, and housing in the area would remain at the same levels. No construction impacts would occur. Residents of adjacent residential developments would continue to drive somewhat longer distances to employment and commercial centers that would be necessary if Otay Ranch facilities were utilized, causing vehicular emissions. No significant air quality impacts would occur.

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4.8.13 Noise

No significant noise impacts would occur as a result of the No Project Alternative. The existing noise levels associated with current activities on the property would continue.

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4.8.14 Public Services and Utilities

The No Project Alternative would entail no development on the Otay Ranch property at the present time; therefore, there would not be a need for the following public services and utilities:

- Water/Reclaimed Water
- Wastewater and Sewer Service
- Solid Waste Disposal
- Police Protection
- Fire Protection
- Emergency Medical Service
- Schools
- Library Service
- Parks, Recreation, and Open Space
- Electricity and Gas
- Health and Medical Service
- Social and Senior Service
- Cemeteries
- Animal Control

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4.8.15 Risk of Upset

Although existing risks would continue, implementation of the No Project Alternative would preclude public health risks associated with development of the property under the other alternatives. Otay Ranch would remain undeveloped with continued use for agricultural purposes. The remediation of the soils at the ranch operations center which are contaminated with residual pesticides and petroleum hydrocarbons would be required in compliance with state requirements. The applicant is also responsible for ensuring that additional contamination does not occur from ongoing fueling operations at this location. The contamination associated with the previous disposal of hazardous wastes at the Otay Landfill would not be of concern under the No Project Alternative, although remediation by the former operator of the disposal site will be required. Survey and remediation of unexploded ordnance at the site of the former Brown Field Bombing Range is the responsibility of the Army. In summary, the public health risk from existing operations on Otay Ranch is minimal.

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4.9 PHASE II-PROGRESS PLAN ALTERNATIVE

4.9.1 Description

The most recent land use plan developed for the Otay Ranch property is the Phase II-Progress Plan Alternative. Under the Phase II-Progress Plan Alternative, a maximum of 28,908 dwelling units would be constructed, resulting in a population of approximately 83,980. An additional 1,151 dwelling units and 2,982 persons would be allowed on approximately 170 acres of development on the Otay River parcel that will be transferred to EastLake for inclusion in a separate General Development Plan (refer to Table 4.9-1 for details). The EastLake acreage and its associated population was included in this alternative to enable the EIR to evaluate the same land area (23,088 acres) as the other project alternatives. However, it is acknowledged that the Phase II-Progress Plan represents a smaller development acreage than the other project alternatives analyzed in this document. In addition to residential acreage, the EastLake portion of this alternative contains land designated for office, freeway commercial, and open space use.

The Phase II-Progress Plan falls between the Phase I-Progress Plan Alternative and the Fourth Alternative in terms of developed area. Residential uses would be located on 8,038 acres, approximately 55 percent of the total being detached homes. Figure 4.9-1 illustrates land uses proposed for the Phase II-Progress Plan Alternative. Land uses would generally be arranged in villages, with most of the proposed homes (23,913 residences) located in the 12 villages located on the Otay River parcel. The Proctor Valley parcel would feature two villages, while San Ysidro would be developed with one village. Rural estate development is also planned for the eastern parcels. Overall, residential densities would generally decrease from west to east, ranging from 1 to 35 du/ac near the urban/suburban uses in Chula Vista to 0.5 du/ac in the more rural areas of Jamul and Dulzura. An extensive open space system and circulation system, including greenbelt parkways and hiking trails, would connect the various development areas and parcels of Otay Ranch. A Resource Management Plan (RMP), including a management preserve, would be implemented for this alternative.

The Otay River parcel would be dominated by the Eastern Urban Center (EUC). This mixed use area of 289 acres would feature a wide variety of office-professional, retail commercial, commercial, civic, cultural, park, and high density residential uses. Within the EUC, pedestrian traffic would be encouraged by the close proximity and mixed nature of the uses. The extension of the Light Rail Transit (LRT) line, which would run north to south through the EUC, would also encourage non-vehicular travel. An east-west linear park would connect the EUC to the other villages and the open space preserves in Salt and Wolf Canyons. In general, villages around the EUC would decrease in residential density with distance from the EUC. Each village would be internally designed to encourage pedestrian traffic featuring mixed-use village centers near the core. All villages would be connected by a system of paths and trails.

Other major uses on the Otay River parcel would include a regional park in the Otay River Valley and City of San Diego industrial land south of Otay River. The regional park would be part of a 12,509-acre open space system for this alternative. A major four-year university may locate in the far eastern portion of the Otay River parcel adjacent to Wueste Road, although actual acreage has not been allocated under this land use plan. Should a university site be identified on the parcel, the approval would require appropriate discretionary action by the relevant jurisdiction and associated environmental review.

Table 4.9-1

LAND USE STATISTICS
FOR PHASE II-PROGRESS PLAN

Land Use Designation	Residential Density (du/ac)	Otay River Parcel Acres	Otay River Parcel Dwelling Units	Proctor Valley Parcel Acres	Proctor Valley Parcel Dwelling Units	San Ysidro Parcel Acres	San Ysidro Parcel Dwelling Units	Otay Ranch Total Acres	Otay Ranch Total Dwelling Units
RESIDENTIAL									
Very Low	0 to 1	—		686	272	858	144	1,544	416
Low	1 to 3	242	367	863	1,406	109	307	1,214	2080
Low-Medium	3 to 6	2,435	10,561	348	924	197	535	2,980	12,020
Medium	6 to 11	244	1,876	83	489	—	—	327	2,365
Medium-High	11 to 18	556	7,358	105	1,181	36	508	697	9,047
Limited Development Area		—		369	126	816	104	1,185	230
Subtotal Residential:		3,477	20,162	2,454	4,398	2,016	1,598	7,941	26,158
COMMERCIAL									
Freeway Commercial		77		—		—		77	
Mixed Use*		270	—	86	150	23	—	379	150
INDUSTRIAL									
Limited Manufacturing		313		—		—		313	
PUBLIC/QUASI-PUBLIC									
Public Facilities		77		—		—		77	
Schools		67		4		5		76**	
PARKS		76		8		—		84***	
EASTERN URBAN CENTER									
Residential		70	2,600	N/A		N/A		70	2,600
Commercial		45						45	
Office		105						105	
Public/Quasi-public		14						14	
School		10						10	
Park		45						45	
RESORT		—		213		—		213	
OPEN SPACE									
Sensitive Resources Study Area		—		62		14		76	
Manufactured		582		107		41		730	
Scenic Corridor		812		261		34		1,107	
Natural		3,212		4,768		3,422		11,402	
FREEWAY		182		—		—		182	
Otay Ranch Subtotal:		9,449	22,762	7,915	4,548	5,555	1,598	22,919	28,908

Table 4.9-1 (Continued)

LAND USE STATISTICS
FOR PHASE II-PROGRESS PLAN

Land Use Designation	Residential Density (du/ac)	Otay River Parcel Acres	Otay River Parcel Dwelling Units	Proctor Valley Parcel Acres	Proctor Valley Parcel Dwelling Units	San Ysidro Parcel Acres	San Ysidro Parcel Dwelling Units	Otay Ranch Total Acres	Otay Ranch Total Dwelling Units
EASTLAKE									
Low-Medium Residential		28	72					28	72
Medium-High Residential		45	596	N/A		N/A		45	726
High Residential		24	483					24	483
Office		22						22	
Freeway Commercial		45						45	
Open Space		5						5	
EastLake Subtotal:		169	1,151	—	—	—	—	169	1,151
TOTALS		9,618	23,913	7,915	4,548	5,555	1,598	23,088	30,059

* Mixed use category varies by village and includes acreage for commercial, community purpose facilities and parkland.
** Additional 280 acres of schools combined with mixed use and residential acreage.
*** Additional 122 acres of parks combined with mixed use and residential acreage.
Source: FORMA Systems, 1992; as revised by Ogden, 1992.

Land uses on the Proctor Valley parcel would generally be confined to three geographically distinct areas arranged around the Jamul Mountains. These three areas include the resort center village, Central Proctor Valley Village, and North Proctor Valley.

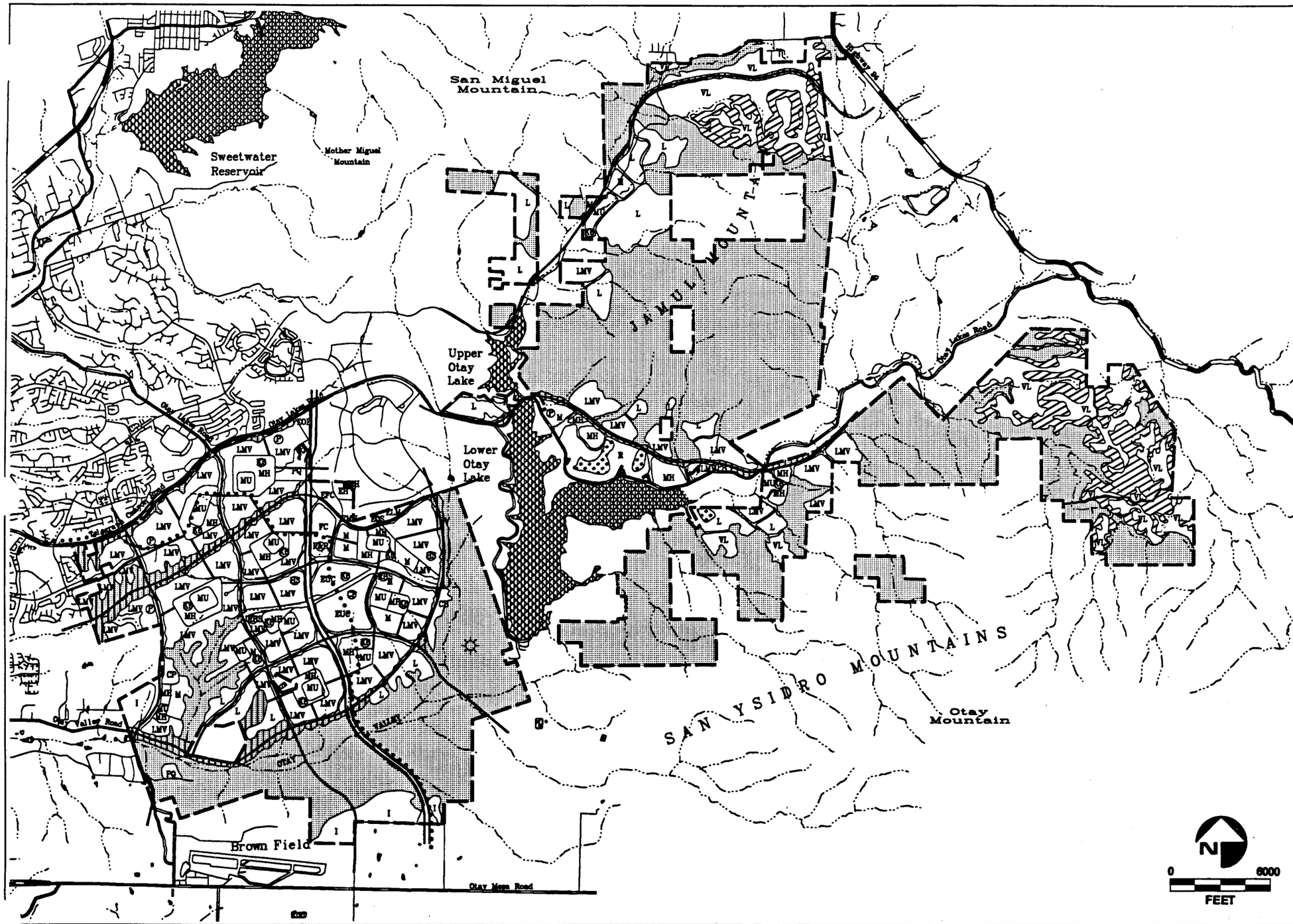
The resort center village consists of 793 acres and would include 2,438 homes and a destination resort. This village would be located on the mesa northeast of Lower Otay Lake. It is anticipated that the resort would be developed with a village concept, residential neighborhoods being arranged around the resort. Public and visual access would be preserved and enhanced through a promenade (currently Otay Lakes Road) around the southern boundary of the resort next to the northern lakeshore. The Central Proctor Valley village would be located in a gently rolling valley, bounded by San Miguel Mountain on the west and the Jamul Mountains to the east. Residential densities would vary from low to low-medium to medium, with one village center. Approximately 1,712 homes would be located in this 827-acre village. A golf course or equestrian complex would be situated within this portion of the project. The 1,104-acre North Proctor Valley area would allow for 398 residences. Lots would be a minimum of 2 acres in size, with most areas featuring lots of 3-acre average size. No villages would be placed in this area.

Land uses on the San Ysidro parcel would be clustered in two distinct areas. A small Estate Village would be located on the western portion of the parcel in a village of approximately 1,350 homes located on 409 acres. A mixed-use village center would also be situated near the residences. Circulation would be provided by rural roads, which would attempt to follow natural topographic contours. The eastern portion of this parcel would feature very low density residential intermingled with "limited development" on steeper slopes. Residential densities would vary based on terrain, slope, and proximity to developed areas; a lot minimum of 4 acres would be required in the northern region near Otay Lakes Road, minimum lot sizes increasing east and southward to approximately 8 acres in the more remote locations of the parcel near Dulzura.

Commercial and institutional uses, schools, and parks proposed in the Phase II-Progress Plan Alternative would be distributed throughout the entire Otay Ranch. The majority of commercial uses would be located in the EUC. Each of the 15 village centers would also contain a small component of commercial, office, and quasi-public/public uses. Freeway commercial would be situated on the Otay River parcel adjacent to SR-125.

The Phase II-Progress Plan Alternative proposes the allocation of 12,509 acres of natural open space, encompassing the Otay River Valley, Jamul Mountains, and San Ysidro Mountains. A RMP would be established to preserve and manage the resources and ensure their viability. In addition, a system of paths and trails would connect the urban villages and their parks, forming a passive and active recreation network throughout the project.

The circulation system would feature an integrated system of prime arterials, major roads, and collectors to maximize circulation efficiency. Three Otay River crossings would be provided to carry traffic to and from Otay Mesa: SR-125, Heritage Road, and La Media with reservation to provide a fourth crossing east of SR-125 (Alta Road), if necessary. The roadway network would be supplemented by a system of paths and trails to encourage bike and pedestrian uses. A public transit system (e.g., LRT, buses) would parallel Telegraph Canyon Road and traverse the central portions of the Otay River parcel before paralleling the southern extension of SR-125 through the Otay River Valley. These pedestrian and public transit components would provide the project with alternative means of transportation.



LEGEND

- Open Space
- Scenic Corridor/Open Space
- Sensitive Resource Study Area
- Man Made Open Space
- Limited Development
- Special Study Area

Residential
- VL Very Low
- L Low
- LMV Low-Medium Village
- M Medium
- MH Medium-High

Commercial
- FC Freeway Commercial
- MU Mixed Use

Industrial
- I Industrial

Public & Open Space
- PQ Public & Quasi-Public
- P Park
- CP Community Park
- HS High School
- JH Junior High School
- K6 K-6 Elementary School
- P&R Park & Ride Facility

Special Plan Area
- EUC Eastern Urban Center
- R Resort

EastLake
- ELM EastLake - Low/Medium Residential
- EMH EastLake - Medium/High Residential
- EH EastLake - High Residential
- EOF EastLake - Office
- EFC EastLake - Freeway Commercial
- EOS EastLake - Open Space

- Hwy 125
- Parkway
- Transit corridor
- Primary arterials
- Otay Ranch property

OGDEN

Phase II - Progress Plan Alternative

FIGURE 4.9-1

4.9.2 Land Use, Planning, and Zoning

4.9.2.1 Impact Analysis

The Phase II-Progress Plan Alternative would result in a significant change in the character of the site from open space to urban and semi-rural development. Potential adverse impacts could occur due to residential land uses planned in proximity to the Otay Landfill, onsite industrially-designated land, the Nelson and Sloan quarry, the San Diego Air Sports Center, SR-125, and the Daley quarry site, and adjacent to the EastLake Greens project. No land use impacts would occur near Sunbow because the Phase II-Progress Plan proposes a scenic corridor/open space and low-medium density residential development in this area, which would be consistent with the low-medium density residential development planned for the Sunbow site. Impacts to adjacent rural lands may occur indirectly due to growth induced by the extension of infrastructure and the Urban Limit Line (see Section 7, Growth Inducement).

This alternative is generally consistent with County of San Diego policies to preserve the rural atmosphere of existing rural lands (Goal 1, Jamul-Dulzura Subregional Plan; Overall Goal 1.1, Land Use Goals 2.2 and 2.3 of the Regional Land Use Element). Development proposed adjacent to Jamul would be very low density residential development (minimum lot size of two acres) in keeping with the large lot development pattern in Jamul. However, the project is inconsistent with Land Use Goals 2.4 and 3.1 that limit urban densities to country towns, since development just southwest of Jamul on 827 acres in the central part of Proctor Valley would be at an average density of 1 du/ac up to 15 du/ac. Similarly, development proposed for the San Ysidro parcel just east of Lower Otay Lake, in a 409-acre area currently used for cattle grazing, would range from 1 du/ac to 15 du/ac.

This alternative also proposes development within several of the county's Resource Conservation Areas (RCAs). While development within RCAs is not prohibited by the county, the overlay requires that special attention be paid to avoiding impacts to sensitive resources. If the same special consideration is applied to the Subregional Plan for the area, the intent of the county RCAs to protect sensitive resources would be satisfied.

No significant inconsistencies with City of San Diego industrial policies would occur with this alternative.

The Phase II-Progress Plan is inconsistent with City of Chula Vista's Land Use Element Goal 3 - Objective 14 to develop the Eastern Territories primarily with low-medium density residential development, since approximately 24 percent of the residential acreage and 48 percent of the total residential units would be medium, medium high, or high density residential development. ~~The Phase II-Progress Plan is also not consistent with the City of Chula Vista's Goal 4 - Objective 14 to develop a four-year college or university within its Eastern Territories.~~

4.9.2.2 Proposed Mitigation

The following measures are required at the GDP/Subregional Plan level, and will be implemented at the SPA plan level. Mitigation for land use impacts of the Phase II-Progress Plan include: the implementation of landscaping, grading, buffering, and/or phasing guidelines for areas of the project ~~within~~ adjacent to EastLake and where adjacent residential and industrial development is planned on the site; coordination with the FAA and implementation of their required measures to avoid impacts to the San Diego Air Sports Center (through the year 2002); mitigation, as described in the noise section, for areas near the Nelson and Sloan and Daley quarries; and the addition of overlays or other restrictions

on the Subregional Plan map (or an adopted RCA map) to protect the biological, cultural, and scenic resources that may need protection by existing and new county RCAs. (Refer to Section 3.1.3 for more details on the above mitigation.)

4.9.2.3 Analysis of Significance

The Phase II-Progress Plan would significantly change the character of the site from open space to urban and semi-rural land, including in or adjacent to Jamul, Proctor Valley, Lower Otay Lake, and the San Ysidro Mountains. Significant land use impacts due to inconsistency with county policies to preserve rural lands, and with City of Chula Vista goals for development of the Eastern Territories primarily with low-medium density residential development, ~~and a four-year university,~~ would also occur.

4.9.3 Landform Alteration/Aesthetics

4.9.3.1 Impact Analysis

The overall visual character of all three parcels of Otay Ranch would be changed from open space to development by implementation of the Phase II-Progress Plan Alternative. Although all three of the parcels would incorporate large amounts of open space, large developed areas would be visible from surrounding streets and developed areas, even in the Proctor Valley and San Ysidro parcels. Night lighting impacts would be less than significant since the project would have to comply with the county's Dark Sky Ordinance or similar city ordinances.

Proposed development in all three parcels would also necessitate significant landform alteration, including some grading of steep slopes (i.e., 25 percent gradient or steeper). Impacts to steep slopes in the Otay River parcel would be caused by proposed development in finger canyons leading into the northern slopes of the Otay River Valley, roads and development proposed along the west side of Salt Creek, and development proposed along the sides of and in tributaries to Poggi Canyon. Development proposed in central Proctor Valley in the Proctor Valley parcel and in the San Ysidro parcel could also result in impacts to steep slopes.

Visual impacts of grading and development would also occur since portions of the project would be visible to a large number of people. If the Phase II-Progress Plan were implemented, views from Otay Lakes Road, Wueste Road, and Lower Otay Lake would be adversely affected due to the proposed resort development to the northeast of Lower Otay Lake and due to development of a university west of Lower Otay Lake. Views from Proctor Valley Road would be significantly affected due to proposed development in central Proctor Valley, while views of the San Ysidro parcel from Otay Lakes Road would also be adversely affected. The realignment of Otay Lakes Road from the northern shore of Lower Otay Lake to a more northern alignment would have potentially significant visual and policy impacts, since the scenic aspects of the road may be reduced due to the new alignment and adjacent resort development.

4.9.3.2 Proposed Mitigation

Mitigation would be required if the Phase II-Progress Plan were implemented in order to reduce impacts associated with the grading of steep slopes and visual impacts of proposed development around Lower Otay Lake, in central Proctor Valley, and along Otay Lakes Road in the San Ysidro parcel. Measures related to grading and design are detailed in Section 3.2.3 and include: limiting the amount of grading allowed on ridgelines, steep slopes, and highly visible mesas; sensitively designing roadways on hillsides; maximizing use of contour grading; minimizing the number of large manufactured slopes, especially on steep terrain; limiting building and landscaping heights immediately adjacent to Proctor Valley and Otay Lakes roads to avoid obstructing open space views; reviewing and controling in detail resort building bulk, architectural treatments, and development scale; limiting building heights of the resort to three stories; using stepped building pads and clustered development; and integrating vistas and viewing areas into the realignment of Otay Lakes Road to promote views of the lake and surrounding hillsides. No measures are available to mitigate the unavoidable change in the the overall site character.

4.9.3.3 Analysis of Significance

Assuming that the above mitigation measures are implemented, significant impacts to sensitive landforms (i.e., steep slopes) due to grading, and to views from Otay Lakes

Road, Wueste Road, Lower Otay Lake, and Proctor Valley Road can be avoided. However, the actual site plans, building plans, and grading plans will need to be reviewed when available to ensure that all necessary mitigation has been implemented. Impacts related to an overall change in the existing character of the site from open space to development would remain significant and unmitigable.

4.9.4 Biological Resources

4.9.4.1 Impact Analysis

The following discussion of impacts to biological resources from implementation of the Phase II-Progress Plan does not take into account impacts associated with development of a university in eastern Salt Creek. The development of a university at this site would substantially increase impacts to sensitive maritime succulent scrub habitat and to several sensitive wildlife species including the coastal cactus wren and California gnatcatcher. Such impacts would need to be examined in closer detail at the next level of review.

Areas designated as scenic open space were assumed not to be impacted except for the impacts associated with proposed road construction. Scenic open space areas with sensitive biological resources would need to be retained as natural open space in order to be considered non-impacted. The introduction of non-native landscaping, changes to topography, and land uses other than passive recreation could impact sensitive biological resources and would need to be assessed in more detail at the next level of review. Manufactured open space was considered to be impacted.

Reduction of Vegetative Communities/Habitats

The level of impact to both natural and disturbed habitats that would result from implementation of the Phase II-Progress Plan is shown in Table 4.9.4-1. The overall reduction of open space is estimated at ~~45~~ 42 percent (~~10,409~~ 9,740 acres) for Otay Ranch, of which ~~58~~ 60 percent (~~5578~~ 5,791 acres) would occur on the Otay River parcel, ~~35~~ 23 percent (~~2746~~ 1,269 acres) in the Proctor Valley parcel, and ~~38~~ 34 percent (~~2085~~ 2,681 acres) in the San Ysidro parcel. These estimates are provided at a General Plan level of review and would be refined at the SPA Plan level of analysis. These figures include "limited development" acreage as biological open space. A conservation easement will cover the areas designated as "limited development area". These areas will be left as natural open space with the exception that roads and utilities are anticipated to cross or lie within these areas. The placement of roads and utilities in these areas should attempt to minimize disturbance by crossing perpendicular. Roadways and utilities should not follow canyon bottoms. "Limited development" areas may be included within private lots but would have the following set of restrictions. Removal of native vegetation would be prohibited except as necessary for construction of roads and utilities. There would be no buildings or other structures, agriculture, landscaping, livestock grazing, horses, or fences allowed within these areas. Fencing of the perimeter of the conservation easement is required to reduces the indirect effects to sensitive biological resources from trampling, trash disposal, landscaping or gardening by residents, and use by domestic animals. Brushing for fire control zones would not be allowed within the conservation easement.

Reduction of Sensitive Habitats

The Phase II-Progress Plan Alternative would reduce sensitive coastal sage scrub ~~and maritime succulent scrub~~ habitats by approximately ~~32~~ 26 percent (~~3681~~ 2851 acres). ~~Of this total, 970 acres are estimated to occur within the "limited development" category in the Proctor Valley (299q acres) and San Ysidro parcels (671 acres). Given that this area is not expected to be developed, this acreage is subtracted from the impact total leaving 2711 acres (24 percent) impacted~~. This acreage includes a disturbed coastal sage scrub component (~~494~~ 549 acres), principally in Proctor Valley. This would be a significant impact to coastal sage scrub habitats. Maritime succulent scrub habitat would be reduced by 21 percent (60 acres), and would be considered a significant impact. Wetland habitats would be reduced by an estimated 7 percent (~~51~~ 58 acres), which is also considered a

Table 4.9.4-1 (Revised)

SUMMARY OF IMPACTS TO VEGETATIVE HABITATS
PHASE II-PROGRESS PLAN ALTERNATIVE

HABITAT	OTAY RIVER Open Acres	OTAY RIVER Impacted Acres	OTAY RIVER Total Existing	OTAY RIVER % Impacted	PROCTOR VALLEY Open Acres	PROCTOR VALLEY Impacted Acres	PROCTOR VALLEY Total Existing	PROCTOR VALLEY % Impacted	SAN YSIDRO Open Acres	SAN YSIDRO Impacted Acres	SAN YSIDRO Total Existing	SAN YSIDRO % Impacted	TOTAL	Total Open	Total Impacted	Total % Impacted
UPLAND SCRUB COMMUNITIES																
Diegan coastal sage scrub	1526.5	324.2	1850.7	17.5%	3594.5	1045.4	4639.9	22.5%	1830.7	837.1	2667.8	31.4%	9158.3	6951.7	2206.7	24.1%
Southern mixed chaparral	0.0	0.0	0.0	0.0%	460.2	46.6	506.8	9.2%	504.9	4.3	509.2	0.8%	1016.0	965.1	50.9	5.0%
Chamise chaparral	7.0	0.0	7.0	0.0%	346.1	676.0	1022.1	66.1%	338.9	122.5	461.4	26.6%	1490.5	692.0	798.5	53.6%
Mixed chaparral/ coastal sage scrub	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	29.3	0.0	29.3	0.0%	29.3	29.3	0.0	0.0%
Mixed chaparral/chamise chaparral	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	23.7	0.0	23.7	0.0%	23.7	23.7	0.0	0.0%
Mixed chaparral/Tecate cypress	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	86.9	0.0	86.9	0.0%	86.9	86.9	0.0	0.0%
Coastal sage scrub/non-native grassland	9.0	0.0	9.0	0.0%	0.0	0.0	0.0	0.0%	176.3	84.5	260.8	32.4%	269.8	185.3	84.5	31.3%
Coastal sage scrub/mixed chaparral	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	85.7	11.6	97.3	11.9%	97.3	85.7	11.6	11.9%
Maritime succulent scrub	238.7	59.7	298.4	20.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	298.4	238.7	59.7	20.0%
Disturbed coastal sage scrub	0.0	1.2	1.2	100.0%	287.1	547.5	834.6	65.6%	0.0	0.0	0.0	0.0%	835.8	287.1	548.7	65.6%
TOTAL	1781.2	385.1	2166.3	17.8%	4687.9	2315.5	7003.4	33.1%	3076.3	1060.0	4136.3	25.6%	13306.0	9545.3	3760.6	28.3%
FLOODPLAIN SCRUB																
Baccharis scrub	18.8	3.9	22.7	17.2%	0.0	0.2	0.2	100.0%	1.2	2.2	3.3	65.0%	26.2	19.9	6.2	23.8%
Tamarisk scrub	3.6	0.0	3.6	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	3.6	3.6	0.0	0.0%
Tamarisk/mulefat scrub	389.6	2.7	392.3	0.7%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	392.3	389.6	2.7	0.7%
Mulefat scrub	112.8	0.0	112.8	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	112.8	112.8	0.0	0.0%
TOTAL	524.8	6.6	531.4	1.2%	0.0	0.2	0.2	100.0%	1.2	2.2	3.3	65.0%	534.9	526.0	8.9	1.7%
GRASSLAND / MEADOW																
Grassland	0.0	38.3	38.3	100.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	38.3	0.0	38.3	100.0%
Non-native grassland	867.9	261.1	1129.0	23.1%	0.1	61.8	61.9	99.8%	15.7	42.8	58.5	73.2%	1249.5	883.7	365.8	29.3%
Non-native grassland/coastal sage scrub	100.8	44.6	145.4	30.7%	0.0	0.0	0.0	0.0%	133.7	145.2	364.0	39.9%	509.4	234.5	189.8	37.3%
Disturbed non-native grassland	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	12.1	0.0	12.1	0.0%	12.1	12.1	0.0	0.0%
Valley needlegrass grassland	0.0	0.0	0.0	0.0%	40.5	8.6	49.1	17.5%	0.0	0.0	0.0	0.0%	49.1	40.5	8.6	17.5%
Alkali meadow	0.0	0.0	0.0	0.0%	115.7	30.8	146.5	21.0%	0.0	0.0	0.0	0.0%	146.5	115.7	30.8	21.0%
Disturbed alkali meadow	0.0	0.0	0.0	0.0%	5.1	7.3	12.4	58.9%	0.0	0.0	0.0	0.0%	12.4	5.1	7.3	58.9%
Disturbed valley needlegrass grassland	0.0	0.0	0.0	0.0%	51.4	173.3	224.7	77.1%	0.0	0.0	0.0	0.0%	224.7	51.4	173.3	77.1%
TOTAL	968.6	344.0	1312.7	26.2%	212.8	281.8	494.6	57.0%	161.5	188.0	434.6	43.3%	2241.9	1342.9	813.8	36.3%

..ble 4.9.4-1
(Continued)

SUMMARY OF IMPACTS TO VEGETATIVE HABITATS
PHASE II-PROGRESS PLAN ALTERNATIVE

HABITAT	OTAY RIVER Open Acres	OTAY RIVER Impacted Acres	OTAY RIVER Total Existing	OTAY RIVER % Impacted	PROCTOR VALLEY Open Acres	PROCTOR VALLEY Impacted Acres	PROCTOR VALLEY Total Existing	PROCTOR VALLEY % Impacted	SAN YSIDRO Open Acres	SAN YSIDRO Impacted Acres	SAN YSIDRO Total Existing	SAN YSIDRO % Impacted	TOTAL	Total Open	Total Impacted	Total % Impacted
WOODLANDS																
Coast live oak woodland	0.0	0.0	0.0	0.0%	168.4	0.0	168.4	0.0%	3.9	0.0	3.9	0.0%	172.3	172.3	0.0	0.0%
Southern live oak riparian forest	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	60.4	10.3	70.7	14.5%	70.7	60.4	10.3	14.5%
Southern interior cypress forest	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	156.4	8.2	164.6	5.0%	164.6	156.4	8.2	5.0%
Sycamore alluvial woodland	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	7.0	0.0	7.0	0.0%	7.0	7.0	0.0	0.0%
Southern willow scrub	12.3	0.0	12.3	0.0%	1.0	0.7	1.7	38.6%	0.0	0.0	0.0	0.0%	14.0	13.3	0.7	4.7%
TOTAL	12.3	0.0	12.3	0.0%	169.4	0.7	170.1	0.4%	227.7	18.5	246.1	7.5%	428.5	409.4	19.1	4.5%
WETLANDS																
Vernal Pool*	155.0	7.0	162.0	4.3%	9.0	6.0	15.0	40.0%	0.0	1.0	1.0	100.0%	178.0	164.0	14.0	7.9%
Coastal and valley freshwater marsh	0.0	0.0	0.0	0.0%	0.0	0.0	0.0	0.0%	2.3	1.0	3.3	30.3%	3.3	2.3	1.0	30.3%
Aquatic habitat	0.0	0.0	0.0	0.0%	0.1	1.1	1.2	88.2%	0.0	0.0	0.0	0.0%	1.2	0.1	1.1	88.2%
TOTAL	0.0	0.0	0.0	0.0%	0.1	1.1	1.2	88.2%	2.3	1.0	3.3	30.3%	4.5	2.4	2.1	46.1%
OTHER																
Developed	0.0	9.8	9.8	100.0%	0	97.9	97.9	100.0%	0.0	0.0	0.0	0.0%	107.7	0.0	107.7	100.0%
Exotic trees	18.5	6.5	25.0	25.9%	0.1	4.5	4.6	97.1%	1.8	1.4	3.2	43.2%	32.9	20.5	12.4	37.7%
Agriculture	723.9	5038.8	5762.7	87.4%	0	0	0.0	0.0%	0.0	0.0	0.0	0.0%	5762.7	723.9	5038.8	87.4%
TOTAL	742.4	5055.1	5797.5	87.2%	0.1	102.4	102.5	99.9%	1.8	1.4	3.2	43.2%	5903.3	744.4	5158.9	87.4%
Grand Total	*4029*	*5791*	*9820*	*59%*	*5070*	*2702*	*7772*	*35%*	*3471*	*1271*	*4827*	*26%*	*22419*	*12570*	*9764*	*43.5%*

* Not included in acreage total because these acres are covered by other habitats.
Acreage represents vernal pool habitat including intervening mima mounds. This acreage circumcribes the concentrations of vernal pools and is substantially greater than the vernal pool surface area.
The vernal pool habitat does not necessarily include or coincide with vernal pool watershed or buffer area.

significant impact. Wetland impacts consist of a ~~22~~ 38-acre (~~16~~ 25 percent) reduction in alkali meadow, ~~14.6~~ 10.3 acre (~~20~~ 14 percent) reduction in southern live oak riparian forest, 0.7 acre reduction in southern willow scrub, 2.7 acre reduction in floodplain scrub, and ~~3.4~~ 2.1 acre reduction in freshwater marsh/aquatic habitat. The largest wetland impacts occur to alkali meadow in the tributaries to upper Proctor Valley and on the lower southern slopes of the Jamul Mountains. A substantial proportion of the wetland impact also occurs to southern live oak riparian forest in Little Cedar Canyon in the San Ysidro parcel. Significant impacts to vernal pool habitat would occur as a result of industrial development of the southern extent of the J30 complex on Otay Mesa and development of several small vernal pool groups on all three parcels. Significant impacts would also occur to valley needlegrass grassland (~~172~~ 182 acres), coast live oak woodland (~~8.3~~ 0.019 acres), and southern interior cypress forest (8.2 acres). The majority of impact to perennial grassland habitat would result from development of the large area of disturbed valley needlegrass grassland north of Lower Otay Lake in the vicinity (north and west) of the K6 vernal pool complex. Impacts to coast live oak woodland would result from low density residential development north of Callahan Mountain, in the far northeastern corner of the Proctor Valley parcel, and near Hubbard Springs in the southeast portion of the San Ysidro parcel. Impacts to southern interior cypress forest would occur south of Dulzura Creek in wildlife corridor #8.

Reduction of Sensitive Plants

This alternative would significantly impact three of nine high priority state or federally-listed threatened or endangered plant species identified onsite--San Diego thorn-mint, San Diego button-celery, and Otay tarweed.

San Diego Thorn-mint (*Acanthomintha ilicifolia*)

The two populations found on Otay Ranch (100 percent) would be lost to development in the southwest portion of the Proctor Valley parcel near Lower Otay Lake. This would be a significant impact.

San Diego Button-celery (*Eryngium aristulatum* var. *parishii*)

~~Only 1~~ Four of ~~153~~ 159 (~~0.7~~ 3 percent) of the vernal pools supporting populations of San Diego button-celery would be impacted by the Phase II-Progress Plan Alternative. This impact would occur on Otay Mesa in the southern part of the J31+ complex and would be a significant impact.

Otay Tarweed (*Hemizonia conjugens*)

Approximately 18 of 106 points of occurrence of this species (17 percent) would be developed. Impacts would occur in Poggi and Wolf Canyons, on the north slope of Rock Mountain, on the slopes of the Otay River Valley, and at the northwest end of Salt Creek. Populations of Otay tarweed would also be retained in a portion of the above localities, and the entire extent of the population in the isolated parcel north of Upper Otay Lake would be retained. The impacts to this species would be significant.

The following six highly sensitive species would not be significantly affected by the Phase II-Progress Plan Alternative:

Slender-pod Caulanthus	*Caulanthus stenocarpus*
Dunn's Mariposa Lily	*Calochortus dunnii*
Mexican Flannelbush	*Fremontodendron mexicanum*

Willowy Monardella	*Monardella linoides* ssp. *viminea*
California Orcutt Grass	*Orcuttia californica*
Otay Mesa-mint	*Pogogyne nudiuscula*

~~Seven~~ Ten second priority sensitive plant species would be significantly impacted by the Phase II-Progress Plan Alternative; these include Otay manzanita, Orcutt's brodiaea, Orcutt's bird-beak, variegated hasseanthus, San Diego Navarretia, San Diego barrel cactus, San Diego goldenstar, snake cholla, and narrow-leaved nightshade, and Tecate cypress ~~would be affected by the Phase II-Progress Plan but would not be impacted significantly~~.

Five third priority sensitive plants would be impacted significantly by this alternative, including delicate clarkia, San Diego County Stipa ~~Orcutt's birds beak~~, Munz's sage, San Diego marsh elder, Greene's ground-cherry, and San Diego sunflower. One third priority sensitive plants would be affected but would not be impacted significantly: ~~these species include San Diego sagewort~~, Palmer's grappling-hook~~, San Diego marsh elder, and San Diego County stipa~~.

~~N~~One of the fourth priority species, California Adder's-tongue fern, would be impacted significantly by this alternative, ~~but five~~ Four species would be adversely affected, including western dichondra, spiny rush, ~~California Adder's-tongue fern,~~ Coulter's matilija poppy, and ashy spike-moss.

Potentially significant indirect impacts to sensitive plant species may occur within populations that are adjacent to proposed development areas. Indirect impacts occur when project-related activities affect biological resources in a manner other than direct. Indirect impacts would potentially include increased levels of human activity and disturbance including trampling of vegetation, dumping of trash, disturbance from domestic animals, and increased soil erosion. Introduction of exotic plant species from landscaped areas in backyards, along roads, businesses, and public parks potentially threaten sensitive plant populations. Development also may cause changes in drainage patterns, surface runoff, the amount of surface water within floodplain areas, surface water quality, and groundwater quality and quantity. These changes will in turn effect sensitive plant species.

Reduction of Sensitive Animals

The Phase II-Progress Plan Alternative would significantly impact three of the ~~five highest~~ 13 first priority wildlife species. Depending on distribution and abundance, the two other highest priority species could also be impacted. At least 22 second priority wildlife species would be affected by implementation of the Phase II-Progress Plan. Another 17 second priority species could be impacted if they occur within the project area. The significance of impacts to second priority species has not been determined and would need to be assessed at the next level of review.

Highest Priority Species

Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern willow flycatcher (*Empidonax trailli extimus*). ~~This species~~ The vireo would be significantly impacted by the La Media Road crossing of the Otay River in the Otay River parcel. Any road construction across Dulzura Creek adjacent to the San Ysidro parcel is also likely to directly affect this species. There may be indirect noise and disturbance impacts from road construction in the Otay River Valley (SR-125, Heritage Road, and Alta Road) and from development of the San Ysidro parcel adjacent to Dulzura Creek. These potential impacts need to be addressed at the next level of review. If the willow flycatcher occurs onsite it could also be adversely impacted in these areas.

Under the Phase II-Progress Plan Alternative, ~~two~~ three vernal pool invertebrates, ~~a species of~~ Riverside fairy shrimp (*Streptocephalus woottoni*) San Diego vernal pool fairy shrimp (*Branchinecta sandiegensis*) and Quino checkerspot (*Euphydryas editha quino*) could be impacted by development of vernal pool habitat. The fairy shrimp would be significantly impacted by development of the J30 vernal pool complex. Further information on distribution and abundance of these two species is necessary to assess the significance of any impacts.

Harbison's dun skipper (*Euphyes vestris harbisoni*)

Impacts to over 14 percent of southern live oak riparian forest in the San Ysidro parcel could impact this species if it occurs onsite.

Hermes copper (*Lycaena hermes*)

Reduction of upland habitats by over 28 percent could significantly impact this species if it occurs onsite.

Thorne's hairstreak (*Mitorera thornei*)

The 5 percent reduction in Tecate cypress impact may affect this species as it is so localized.

Reptiles and Amphibians

The reduction of 1.1 acres of aquatic habitat could impact California red-legged frog (*Rana aurora draytonii*) and southwestern pond turtle (*Clemmys marmorata pallida*) if they occur onsite. Focused surveys for these species are necessary to collect data to assess the significance of impacts from development of the Phase II-Progress Plan.

California Gnatcatcher (*Polioptila californica*). This species would be significantly impacted by implementation of the Phase II-Progress Plan Alternative. Approximately 46 percent of the estimated 144 gnatcatcher pairs would be impacted under this plan. An estimated 33 percent (45-48 pairs) of the historic and recent Otay Ranch California gnatcatcher population would be directly impacted by housing, commercial development and associated roads through developed areas. Greatest impacts would occur in the Otay River parcel from development adjacent to Salt Creek, along the northern edge of the Otay River Valley, and along the edges of Poggi Canyon. In the Proctor Valley parcel, impacts would occur on the lower south slopes of Jamul Mountain, at the northern end of the main parcel, and in the disjunct parcel south of Upper Otay Lake. Impacts to gnatcatchers in the San Ysidro parcel would be greatest south and southeast of the San Diego Air Sports Center. Road construction under the Phase II-Progress Plan Alternative would directly impact another 15 to 16 California gnatcatcher pairs. Road construction could also fragment habitat and impede movement for this species. Road alignments of concern in the Otay River parcel include: Otay Valley Road (along the northern rim of the Otay River Valley and the west side of Salt Creek), Heritage Road (across Poggi Canyon and through a potential gnatcatcher corridor), Palomar Street (north of Poggi Canyon), East Orange Avenue (through Poggi Canyon), SR-125 (on the north side of the Otay River Valley and through Johnson Canyon), and Alta Road (at O'Neal Canyon and Salt Creek). Road construction impacts in the Proctor Valley parcel would occur along the Proctor Valley Road and Otay Lakes Road alignments.

Cactus Wren (*Campylorhynchus brunneicapillus*). A total of 42 percent of cactus wren locations would be impacted by the Phase II-Progress Alternative. Approximately 15 (25 percent) of the points of occurrence of this species would be developed under the Phase II-Progress Plan Alternative. Another 10 (17 percent) of the points of occurrence could be impacted by road construction in the Otay River parcel. Impacts would occur at the same development locations and road alignments as described above for the California gnatcatcher in the Otay River parcel.

Second Priority Species

The Phase II-Progress Plan Alternative could significantly impact second priority sensitive wildlife species inhabiting upland scrub communities through an approximate ~~32~~ 28 percent reduction in existing habitat. The development of key raptor foraging areas in Proctor Valley (especially the north end), on the southern slopes of the Jamul Mountains, and on Otay Mesa would be considered significant impacts. Development in and adjacent to oak riparian forest at Hubbard Springs could significantly impact raptor nesting areas. Vernal pool species could be impacted significantly through the development of vernal pools on Otay Mesa.

Second priority species with USFWS candidacy and/or CDFG Species of Special Concern Status which would be impacted by implementation of the Phase II-Progress Plan Alternative include: San Diego horned lizard, orange-throated whiptail, coastal western whiptail, coastal rosy boa, two-striped garter snake, northern red diamond rattlesnake, northern harrier, sharp-shinned hawk, Cooper's hawk, ferruginous hawk, golden eagle, merlin, prairie falcon, burrowing owl, California horned lark, loggerhead shrike, yellow-breasted chat, southern California rufous-crowned sparrow, Bell's sage sparrow, ~~tricolored blackbird,~~ San Diego black-tailed jackrabbit, and American badger. The significance of these impacts was not evaluated in this qualitative review of the Phase II-Progress Plan Alternative. Other second priority species which could be impacted depending on their presence and distribution within proposed development areas include: ~~*Branchinecta sandiegensis*, Herme's copper, Harbison's dun skipper, Thorne's hairstreak,~~ western spadefoot toad, arroyo southwestern toad, ~~California red-legged frog, southwestern pond turtle,~~ San Diego banded gecko, Sandstone night lizard, Coronado skink, silvery legless lizard, San Diego ringneck snake, coast patch-nosed snake, San Diego mountain kingsnake, long-eared owl, southwestern willow flycatcher, yellow warbler, California leaf-nosed bat, Townsend's big-eared bat, pallid bat, California mastiff bat, Pacific little pocket mouse, northwestern San Diego pocket mouse, Dulzura California pocket mouse, southern grasshopper mouse, and San Diego desert woodrat.

Locally Sensitive Species

Species of local concern that would be affected by the Phase II-Progress Plan Alternative include black-shouldered kite, blue grosbeak, and grasshopper sparrow. The significance of impacts to these species was not determined at this level of review.

Wildlife Corridors

Regional wildlife corridors for the Otay Ranch area are depicted in Figure 3.3-7. Under the Phase II-Progress Plan Alternative, four major regional wildlife corridors would be blocked by development or manufactured open space. Another six regional corridors could be constrained, potentially blocked, or indirectly impacted by adjacent development and/or road construction. Three regional wildlife corridors would not be impacted. One local corridor would be significantly blocked by development and manufactured open space, and a second important local corridor could be constrained. Two major local wildlife corridors

would not be impacted by this plan. Wildlife movement would be blocked by development between Poggi and Wolf Canyons and in the Wolf Canyon to Salt Creek corridor. ~~and at~~ Development would also obstruct corridors 1, 2, ~~5,~~ and 8. Wildlife movement could be impeded by road construction at the ~~Wolf Canyon to Salt Creek,~~ Wolf Canyon to Otay River, Salt Creek to Otay River, and O'Neal Canyon corridors. Impacts from roads could also occur at corridors 1, 2, 4, 5, and 11. Adjacent development could constrain wildlife movement at corridors 4, 5, 10, and 11. There would be no impacts at the Salt Creek corridor or corridors 3, 6, 7, and 9. Impacts to wildlife movement under the existing Phase II-Progress Plan Alternative would be considered significant.

4.9.4.2 Proposed Mitigation

Compliance of the Phase II-Progress Plan with the RMP

The Phase II-Progress Plan comes close to meeting the RMP's goals for habitat preservation but falls short of the goals for sensitive animal and plant species (Section 3.3.3). Table 4.40-1.1 in Section 4.10 evaluates the compliance of this alternative with various RMP policies. It does not meet several specific objectives, policies, and standards set forth in the RMP. Modification and redesign is necessary to preserve certain sensitive habitats, to protect sensitive plants and animals, and to retain wildlife movement and habitat linkage within the Preserve area.

Sensitive Habitats

The Phase II-Progress Plan would preserve 69 percent of existing coastal sage scrub which is lower than the 70 percent required by the RMP (Policy 2.2). A 6.5 percent reduction in existing undisturbed and disturbed native needlegrass grasslands meets the RMP allowable loss of 75 percent. Wetlands would be reduced by 7 percent under the Phase II-Progress Plan. The RMP requires that 90 percent of identified wetlands be included in the Preserve and allows no net loss (Policy 2.10). The 7 percent of impacted wetlands on Otay Ranch would need to be mitigated through restoration of onsite habitat to wetlands for the Phase II-Progress Plan to meet RMP objectives. The Phase II-Progress Plan would not fulfill RMP Policy 2.9 as identified sensitive portions of vernal pools J29 and J30 would be developed. Without redesign, the Phase II-Progress Plan would not meet the 100 percent preservation requirements (Policy 2.4) for the following native woodland habitats, coast live oak woodland, oak riparian forest, and southern interior cypress forest.

Sensitive Plants

The Phase II-Progress Plan would not meet RMP standards (Policy 2.6) for one state and federally listed plant species--San Diego thorn-mint. Several federal Category 2 and California Native Plant Society sensitive species would not be preserved at the levels required by the RMP (Policies 2.7 and 2.8).

Sensitive Animals

Construction of roads for the Phase II-Progress Plan Alternative would impact more than ten percent of the known points of occurrence for the endangered least Bell's vireo. This would exceed the level of impacts allowed by the RMP (Policy 2.6). Further information on the distribution and abundance of this species is necessary to more accurately determine the level of impacts under this alternative. California gnatcatcher and coastal cactus wrens would be impacted at levels higher than those allowed by the RMP (Policy 2.5) which requires preservation of 80 percent of the California gnatcatcher population and 100% preservation of the coastal cactus wren. Based on available point location and habitat loss

data, at least seven federal candidate species would be reduced below the 25 percent level allowed by the RMP (Policy 2.8). These federal candidate species include San Diego horned lizard, orange-throated whiptail, two-striped garter snake, ferruginous hawk, loggerhead shrike, Bell's sage sparrow, and tricolored blackbird. Depending on the species distribution and abundance onsite, an additional 22 federal candidate species would also be impacted at higher levels than allowed by RMP Policy 2.8.

Wildlife Corridors

Four of 13 regional wildlife corridors would be blocked under the Phase II-Progress Plan and another six have the potential to be constrained or impacted by roads and adjacent development. Three regional wildlife corridors would not be impacted. One major local corridor would be significantly blocked and a second could be constrained under the Phase II-Progress Plan. Two major local corridors would not be affected under this plan. These impacts to wildlife movement do not meet the requirements for linkage and wildlife corridors set forth by the RMP (Policy 4.1).

Sensitive Habitats Mitigation

Mitigation to offset impacts to sensitive upland habitats and wetlands generally follows that for the Phase I-Progress Plan Alternative (Table 4.2.4-7), except where noted below.

The Phase II-Progress Plan Alternative would result in significant impacts to critical areas of grassland and maritime succulent scrub. Impacts to these habitats, as well as to alkali meadow would not be mitigable without major project redesign. Although a substantial acreage of alkali meadow may be retained in natural drainages at the SPA level of review, it is highly impacted and, therefore considered unmitigable at this level of review. Impacts to coastal sage scrub are significant but could potentially be mitigated through project redesign, ~~and~~ restoration, and offsite mitigation. Mitigability of this impact is predicated on restoration of high quality habitat for lower quality scrub impacts as implied by Table 4.2.4-3. The other wetland habitats, vernal pools, oak woodlands, and cypress forest would be impacted significantly but can be mitigated through minor redesign and habitat restoration. Nearly all of the mitigation measures mentioned in Table 4.2.4-7, 1 through 13, are applicable to the Phase II-Progress Plan Alternative; parts of measures 1a and 1c do not apply. The latter mitigation measures, to eliminate the conference center (in Jamul Mountains) and the westernmost area of development in the San Ysidro parcel (southwest of Buschalaugh Cove), are not applicable because these areas would be retained as open space under the Phase II-Progress Plan Alternative.

Additional mitigation recommendations are to move the proposed development and road alignment away from the west side of Salt Creek Canyon where impacts to gnatcatcher and cactus wren habitat are critical and, therefore, unmitigable. Recommended mitigation for loss of southern live oak riparian forest includes redesign to pull development out of Little Cedar Canyon, refrain from encroachment in restricted development zones near Hubbard Springs in the southeast portion of San Ysidro parcel, and habitat restoration to offset losses from any road crossings in these areas. Recommended mitigation for southern interior cypress forest includes pulling development back from the ravine south of Dulzura Creek and preserving this habitat as natural open space. Recommended mitigation for loss of vernal pool habitat includes pulling back the industrial development on Otay Mesa (300 to 800 feet) to retain all of the J30 complex including the undisturbed mima mound topography. Preservation of 100 percent of large or high value vernal pool complexes and 98 percent of all other complexes is required. High value vernal pool complex is defined in the vernal pool section below. Vernal pool surveys in a "wet year" shall further define the extent of redesign required. "Wet year" is defined as any year that has average or greater

than average precipitation and is preceded by one or more such years. Provision of adequate biological and planning buffers will be made at the SPA level of review. Minor redesign and habitat restoration or enhancement or also would be necessary to mitigate impacts to the Otay Valley and Poggi Canyon vernal pools and to the R1, R4+, K8, K9+, and K14+ vernal pool groups in the Proctor Valley and San Ysidro parcels.

Potential indirect impacts to sensitive habitats shall be mitigated by providing a minimum 100-foot buffer zone around sensitive habitat areas. No development, landscaping, or clearing for fire management shall be allowed within the buffer zone. In addition, active recreation areas shall be located a minimum of 100 feet away from areas occupied by sensitive biological resources.

The vegetation map will be refined at the SPA level of review to gain consistency with the MSCP vegetation mapping and to increase the accuracy of vegetation boundaries. The updated vegetation maps shall be based on aerial photographs and field surveys. Mitigation, however, shall be required for sensitive habitats mapped at the Program EIR level that have subsequently been disturbed or degraded.

Overall mitigation requirements for each sensitive habitat impacted are described below.

Coastal Sage Scrub

Mitigation of the 2851-acre impact to coastal sage scrub to below a level of significance will require implementation of the following measures:

(1) Major redesign of the project to retain 80 percent of the coastal sage scrub onsite and the key areas identified in the Phase I Plan mitigation table (Table 4.2.4-8).

(2) Restoration of approximately 1,500 acres of identified high priority areas within the Otay River parcel (Figure 3.3-8). Mitigation shall be complete and demonstrated successful prior to impact.

(3) Acquisition and long-term protection of approximately 1,000 acres of coastal sage scrub offsite. This will mitigate the impacts remaining after avoiding 80 percent of onsite habitat and restoring the high priority areas identified in Figure 3.3-8. Offsite mitigation shall not be used in place of avoidance or onsite restoration, but is necessary to reduce impacts to below a level of significance. Offsite mitigation shall be purchased in areas identified by the NCCP and MSCP programs as key areas for a South County biological preserve.

The mitigation program shall consist of a four-year experimental phase and an eight-year phase for the full-scale restoration. The mitigation shall be initiated with the first SPA. Because the restoration must be successfully completed prior to impact of sensitive habitats, the first SPA shall be located within non-sensitive habitats. The experimental phase of the mitigation program includes collection of biological data to refine the locations for restoration, to obtain baseline information on adjacent undisturbed habitats, and to develop the most effective restoration methodologies. The full-scale restoration shall include a one- to three-year period for site preparation (i.e., weed removal and planting) and a five-year period for quantitative monitoring and assessment of restoration success. Horticultural monitoring and remedial maintenance will be ongoing. The mitigation must meet the success criteria and be satisfactory to the appropriate jurisdiction before impact to

the original sensitive habitat can occur. Refer to the Habitat Restoration Guidelines (Section 3.3.3.4) below for conceptual restoration and enhancement approaches.

With major project redesign, approximately 1,500 acres of disturbed habitat would be available for restoration to coastal sage scrub in the identified high priority areas of the Otay River parcel (Figure 3.3-8). The actual acreage available for restoration will depend on the final approved plan and on the suitability of specific areas for restoration as determined by the revegetation designer, plant ecologist, and soil scientist. Note that more than 1,500 acres of restoration acreage are illustrated in Figure 3.3-8. The area shown in the Proctor Valley parcel in Figure 3.3-8 is mapped as disturbed valley needlegrass grassland and is available for native grassland restoration, rather than for mitigation of coastal sage scrub. Most of the disturbed coastal sage scrub in the Proctor Valley and San Ysidro parcels probably would regenerate naturally after the pressure from livestock grazing is removed

(H. Wier, T. Oberbauer, pers. comm. 11/92; comment number 7 from the California Native Plant Society, 10/6/92; comment number 44 from the Fish and Wildlife Service, 10/8/92). Therefore, intensive restoration would be of little value in these areas.

Within the floodplain terraces and north slopes of Otay River Valley, Salt Creek, and Wolf and Poggi canyons lies approximately 650 acres of agriculture and 350 acres of non-native grassland and non-native grassland/coastal sage scrub available for mitigation. Restoration in the majority of these areas would involve habitat type conversion rather than enhancement of existing disturbed scrub habitats. For this reason, and because restoration shall occur prior to project impacts, full mitigation credit is appropriate (i.e., 1:1 ratio of restored to impacted habitat). Coastal sage scrub mitigation for impacts associated with the first SPAs shall occur within the Otay River Valley, Salt Creek, and Wolf and Poggi Canyons. Restoration of these areas is critical for habitat and regional corridors for California gnatcatcher and cactus wren.

Approximately 340 acres of non-native grassland/clay lens habitat occupied by the endangered Otay tarweed exists on the south slopes of Otay River Valley. This area has more limited potential for restoration because of the high occurrence of Otay tarweed. Some of this area, however, may be appropriate for enhancement or restoration on slopes that are unoccupied by Otay tarweed. Otay tarweed typically occurs on clay soils, often in disturbed grassy areas, and attempts to rid the site of non-native grasses may also negatively impact tarweed. Micro-sites within this area shall be identified during the experimental phase for potential for restoration to coastal sage scrub, native grassland, or for introduction of sensitive plant species requiring clay soils. Full mitigation credit (1:1 ratio) shall be received for acreage restored/enhanced in the identified micro-sites. Thus, 170 acres credit would be given if one half of the 340-acre site was restored/enhanced.

A second large area (225 acres) with limited potential for restoration exists in the Otay Mesa J 29-30 vernal pool complex. This area has a high occurrence of endangered vernal pool species, and, therefore, has limited potential for some of the large-scale weed control techniques. More experimentation also is required in this area to develop effective methods of selectively removing weed species without damaging vernal pools or natural topographic and soil features. Restoration/enhancement of an open sparse phase of coastal sage scrub and native grassland would be appropriate in this area. Half to full credit (2:1 to 1:1 ratio) shall be received for restoring/enhancing this area, depending on results of experiments to determine how much and what type of manipulation is appropriate. Because this area may benefit most from minor enhancement, and because it still has high biological value in its present disturbed state, a mitigation ratio of 2:1 (half credit) may be most appropriate. Refer to vernal pool section below for vernal pool mitigation.

An estimated 1,000 to 1,500 acres of restoration acreage and, therefore, mitigation credit shall be received for restoring and enhancing coastal sage scrub in the high priority areas onsite. It should be reiterated that restoration of the high priority areas discussed above and shown in Figure 3.3-8 is required to the degree determined to be biologically appropriate and feasible by the restoration team including the revegetation designer, plant ecologist, and soil scientist.

With 80 percent preservation of coastal sage scrub, the mitigation burden is reduced to 2,305 acres. With restoration of 1,000 to 1,500 acres and an estimated credit of approximately 1,300 acres, the burden is further reduced to 1,005 acres. Acquisition and preservation of approximately 1,000 acres of coastal sage scrub offsite in coordination with NCCP and MSCP programs is required to complete the mitigation.

Potential indirect impacts shall be mitigated by providing a minimum 100-foot width buffer area around all preserved coastal sage scrub habitat. No development, landscaping or clearing for fire management shall be allowed within the buffer areas.

Maritime Succulent Scrub

Mitigation for the 60-acre impact to maritime succulent scrub will require redesign of the project to preserve 98 percent of this habitat onsite. Restoration of approximately 6 acres is required to offset the remaining impacts. Appropriate locations for restoration of this habitat within the Otay River parcel will be determined by subsequent field transect studies during the experimental phase of the mitigation program. High priority areas for upland restoration are identified in Figure 3.3-8. Replacement ratios and phasing of the mitigation program are discussed in conjunction with coastal sage scrub mitigation.

Valley Needlegrass Grassland

Mitigation for the 2524-acre impact to valley needlegrass grassland will require major redesign of the project to preserve 50 percent of this habitat onsite and restoration of disturbed habitats in the Proctor Valley and Otay River parcels to offset the remaining impacts. High priority areas for native grassland restoration are located within and adjacent to the K6 vernal pool complex north of Lower Otay Reservoir and in selected areas in the Otay River parcel to be determined by subsequent field transect studies (refer to Figure 3.3-8 for high priority upland restoration areas). A ratio of between 1:1 and 3:1 (restored to impacted habitat) would be appropriate depending on the condition of the habitat to be restored and what type of manipulation is appropriate. A mitigation program including a 4-year experimental phase and an 8-year maintenance and monitoring program would be required.

Alkali Meadow

Mitigation requirements for the 10-acre impact to alkali meadow includes redesign of the project to preserve 98 percent of this habitat onsite and restoration of disturbed alkali meadow habitat in the Proctor Valley parcel to offset the remaining impact. Creation of the appropriate hydrological requirements and micro-environmental conditions unique to alkali meadow from graded areas or even other wetland communities is not considered feasible. Restoration within the disturbed alkali meadow habitat area within Proctor Valley, however, is feasible and would be required to mitigate the 2 percent impact.

Potential indirect impacts shall be mitigated by providing a minimum 100-foot width buffer area on either side of all alkali meadow habitat. No development or landscaping shall be

allowed within the buffer areas. Impacts to alkali meadow from hydrological alterations (including potential displacement of native habitat with exotic and wetland species) shall be mitigated as described herein. The water runoff from surrounding development shall be diverted and controlled to retain the same amount and seasonality of water input existing before development. A study shall be required at the SPA level of analysis to determine existing hydrological conditions of streams containing alkali meadow and what hydrological changes will occur to these streams after development. The results of these studies shall be used to engineer the storm drain system to reflect pre-impact hydrological conditions over the long-term. A low-flow diversion shall be designed in such a way that normal daily nuisance flow would stay in the storm drain system. Flow from rain storms beyond the normal nuisance flow would be diverted into the sensitive resource area up to a designated rate of flow to be determined by the hydrological studies. Such a system would keep the nuisance flow out of the sensitive resource area to prevent the conversion of the drainage into a perennial stream and prevent habitat alteration. It also would protect the drainage from increased storm flows which often accompany development and sometimes damage downstream habitat.

Woodland Habitats

Mitigation for impacts to southern interior cypress forest, coast live oak woodland, and southern live oak riparian forest shall include redesign to preserve 100 percent of these habitats.

Potential indirect impacts shall be mitigated by providing a minimum 100-foot width buffer area around the sensitive habitat, within which no development or landscaping would be allowed. Impacts to these woodlands from hydrological alterations (including potential displacement of native woodland habitats with exotic and wetland species) shall be mitigated as described above for alkali meadow. Adverse impacts are anticipated to occur to the southern interior cypress forest, sycamore alluvial woodland, and possibly coast live oak woodland. Southern live oak riparian forest, however, may benefit from some nuisance flow. A system shall be devised to best reflect the pre-impact hydrology for each of the woodland habitat types. For the three former woodland types, a modified low-flow diversion as described above for alkali meadow may be most effective for protection of these habitats. The biologist, hydrologist, and engineer shall work together to design the system.

Floodplain Scrub, Southern Willow Scrub, and Aquatic/Freshwater Marsh

Mitigation for impacts to floodplain scrub, southern willow scrub, and aquatic/freshwater marsh habitats includes redesign of the project to retain 95 percent of these habitats and restoration/enhancement of disturbed wetland habitat to mitigate the remaining impacts. Restoration/enhancement shall occur in the Otay River Valley within tamarisk/mulefat scrub habitat (Figure 3.3-8).

Vernal Pools

Mitigation for impacts to vernal pools includes preservation of 100 percent of large or high value vernal pool complexes and 98 percent preservation of all other vernal pools. Restoration of disturbed vernal pool areas is required to offset the 2 percent impact. These preservation standards are consistent with the MSCP standards for vernal pool preservation. High value vernal pools are defined as those that contain sensitive species, a unique or diverse assemblage of species, or that occur within a mosaic of other identified sensitive habitats. The vernal pool complexes on Otay Ranch that are large or of high value and which require 100 percent preservation include J 23-24, J 25, J 29-30, and J 31+ on

Otay Mesa; K 1 and K 15+ in Otay River Valley; M 2 near Poggi Canyon; R 1, R 2, and R 3 in Proctor Valley; K 6 and K 8 north of Lower Otay Reservoir; and K 12 in the San Ysidro Parcel.

Mitigation shall include project redesign to include, at the minimum, the above mentioned vernal pool complexes. The allowed 2 percent impact to any of the other vernal pool complexes shall be mitigated by restoration/enhancement of damaged vernal pool habitat within disturbed areas of the preserved vernal pool complexes such that no net loss of vernal pool habitat value or area occurs. Mitigation must be consistent with the requirements of Section 404 of the Clean Water Act. Restoration may include decompaction, sculpting and recontouring, and seeding of basins disturbed by dirt roads, trails, or scraped areas. Several such areas are available for restoration in the J 23-24, J 25, and J 29-30 vernal pool complexes. Enhancement of vernal pools through removal of exotic plant species also may be an appropriate mitigation measure. Reintroduction of greatly declining vernal pool species to suitable areas for recolonization also should be considered. Vernal pool restoration/enhancement shall include a four-year experimental phase and an eight-year maintenance and monitoring period. Impacts to vernal pool habitat will occur only after successful completion of the restoration program. Success criteria shall be based on established standards relative to undisturbed (i.e., least disturbed) vernal pools within the same vernal pool complex. Attributes to be used include water retention, percent cover of native vernal pool species, and diversity of native vernal pool and associated species. Restoration and enhancement methodologies shall be developed during the experimental phase and initially shall follow the strategies outlined in the RMP.

Potential indirect impacts shall be mitigated by providing a minimum 100-foot width buffer area around the vernal pools, their watershed and critical habitat. A larger buffer area and implementation of other measures e.g., fencing, educational sinage, diversion of urban runoff, may be necessary to eliminate adverse effects of drainage, trampling, vehicles, dumping, and collecting and to provide sufficient resources to support appropriate pollinators and dispersal agents.

Sensitive Plants

Mitigation to below a level of significance shall involve the following: 1) project redesign to obtain the species-specific preservation standards (Table 3.3-6.1), 2) restoration or transplantation, and/or 3) offsite acquisition and preservation. After the preservation standards are met, habitat restoration with sensitive plant species or introduction of sensitive plants into the appropriate micro-environment and soil type will be employed to offset remaining impacts. To avoid genetic mixing of distinct populations, species introductions will be made only into appropriate habitat that presently is not occupied by existing populations. All restoration or transplantation programs will require a 2-3 year experimental phase and a 5-8 year maintenance and monitoring period as appropriate for each species mitigation program. The time period needed will depend upon the species growth form, the body of knowledge regarding propagation, soil requirements, etc., and whether restoration of associated habitat is involved. Successful completion of the experimental phase and maintenance and monitoring period as defined by specific success criteria is required before impacts to the original site containing the sensitive species can occur. If success criteria are not met, the project shall be redesigned to retain the original sensitive resource, or offsite mitigation may be pursued.

The initial mitigation plan shall provide a research phase, experimental phase, implementation phase, and goals for long-term maintenance and monitoring. The final mitigation plantings and long-term maintenance and monitoring shall be based on the results of a minimum of 2-3 years of data from species-specific experiments. The

experimental phase shall include experiments which focus on the species growth requirements and management including methods of propagation, edaphic factors, hydrological and topographic requirements, weed competition, and maintenance practices. Species that have been propagated successfully will require less horticultural work; however, experimental work still may be needed upon introduction into the appropriate site and management of the established population. The research phase shall involve literature review and preliminary tests to aid in the experimental design. Some information can be extrapolated, to a degree, from closely-related species. Tests that are fairly easy to do (but for which sufficient lead time will be required) include germination tests, seed/pollen viability tests, and seed dormancy tests. Habitat information shall be determined from field studies, soil sampling, and literature review. Seed banking shall be included as a mitigation component (i.e., in addition to experimental design), particularly for the more sensitive species. This is a "contingency" measure - it ensures that the gene pool is preserved, at least for the short-term.

A botanist, soil scientist, and revegetation specialist each with at least 5 years of experience in the local flora and ecology shall design and implement the mitigation program including the research, experimental, implementation, and monitoring phases of the program.

Sensitive plant surveys are required at the SPA level (see Table 3.3-6.1). A detailed mapping of areas occupied by sensitive species shall be provided. Plant densities within occupied polygons shall be estimated in the field based on total population counts or counts within defined sub-areas. Thus, the percent of a species to be impacted by a SPA shall be determined from a quantitative data base of acreages and sizes of populations. Mitigation shall be required for sensitive plant populations that were documented at the Program EIR level but that may not have been recorded in subsequent SPA level surveys.

Indirect impacts to preserved populations of all sensitive plant species shall be avoided or minimized to the extent possible by implementing the following mitigation measures:

- Provide buffers (i.e., set-backs from developed, landscaped, or other use areas) around the occupied and/or critical habitat (e.g., watershed for vernal pools, floodplain or drainage for willowy monardella) for all preserved populations. Buffers shall be of adequate size and configuration to eliminate adverse effects of trampling, vehicles, dumping, collecting, and adjacent construction, and, in conjunction with the preserved habitat, shall include sufficient resources to support appropriate pollinators. Buffer widths shall be a minimum of 50-100 feet for first, second, and third priority species and 25-100 feet for fourth priority species. Buffer widths shall be determined on a species-specific basis, and will be dependent on the sensitivity of the species, the susceptibility/tolerance of the species and/or its habitat to disturbance, and the adjacent land use. Additional measures, such as fencing and/or educational signage, may be required in some cases to ensure protection of preserved, buffered populations. The extent of occupied habitat for annual species shall be determined at the SPA level in several ways: 1) through multiple season surveys, including at least one survey during a year of optimal climatic conditions for the species of concern, 2) by delineating the extent of the habitat or microhabitat (e.g., clay lens), or 3) by calculating the occupied habitat during a single season survey, then adding 25% of additional, adjacent, in-kind habitat. This additional acreage is considered separate from the buffer, and is intended to allow for yearly fluctuations or shifts in population size and location that characterize many annual species. Occupied habitat for bulbous herbaceous perennials can be delineated in a similar fashion, although non-impactive

digging (for dormant bulbs or corms) can also be employed to determine the extent of the population.

- For sensitive species occurring within seasonal streams, the water runoff from surrounding development shall be diverted and controlled to retain the same amount and seasonality of water input existing before development. A study to determine existing hydrological conditions and a hydrological analysis of the streams within the proposed development that contain sensitive plant species shall be required at the SPA level of analysis. The results of these studies shall be used to engineer the storm drain system to reflect pre-impact hydrological conditions over the long-term. A low-flow diversion shall be designed in such a way that normal daily nuisance flow shall stay in the storm drain system. Flow from rainstorms beyond the normal nuisance flow would be diverted into the sensitive resource area up to a designated rate of flow to be determined by the hydrological studies in concert with species specific parameters.

  Such a system would keep the nuisance flow out of the sensitive resource area to prevent the conversion of the drainage into a perennial stream and prevent habitat alteration to the detriment of the identified sensitive species. It also would protect the drainage from the increased storm flows that often accompany development and sometimes damage downstream habitat through increased erosion, or sedimentation. Species occurring in intermittent streams for which the above mitigation would apply include willowy monardella, Otay manzanita, Orcutt's brodiaea, summer-holly, Tecate cypress, San Diego sagewort, Orcutt's bird-beak, San Diego marsh-elder, spiny rush, and potentially Campo clarkia, San Miguel savory, and Engelmann oak.

- A fire management plan shall be developed in accordance with the RMP to protect and appropriately manage populations of sensitive plant species. A fire management plan also shall be a requirement of the subsequent EIR's conducted at the SPA level. Published papers and current research involving the effects of fire and fire management on specific habitats and sensitive species occurring on Otay Ranch, e.g., coastal sage scrub, southern interior tecate cypress forest, Otay manzanita, Gander's pitcher-sage, etc. shall be used to develop the fire management plan.

Species specific mitigation requirements generally follow the Phase-I Progress Plan (Table 4.2.4-8) with some exceptions. Mitigation recommendations for the Phase I-Progress Plan (Table 4.2.4-8) would apply to the following highest priority plant species impacted by the Phase II-Progress Plan Alternative:

San Diego thorn-mint (*Acanthomintha ilicifolia*)
Otay tarweed (*Hemizonia conjugens*)
San Diego button-celery (*Eryngium aristulatum* var. *parishii*)

~~An alternative to vernal pool restoration as mitigation for San Diego button-celery described in Table 4.2.4-8 includes minor project redesign to avoid the impact to one vernal pool with this species in the J29 vernal pool complex.~~

Willowy monardella, California orcutt grass, and Otay mesa-mint which are impacted under the Phase I Progress Plan would not be impacted and therefore would not require mitigation under the Phase II-Progress Plan Alternative.

Impacts to second, third, and fourth priority sensitive plants were addressed qualitatively only. Mitigation for significant impacts to the following species should follow that recommended for the Phase I-Progress Plan in Table 4.2.4-8:

San Diego navarretia (*Navarretia fossalis*)
Otay manzanita (*Arctostaphylos otayensis*)
Orcutt's brodiaea (*Brodiaea orcuttii*)
Variegated hasseanthus (*Dudleya variegata*)
San Diego barrel cactus (*Ferocactus viridescens*)
San Diego goldenstar (*Muilla clevelandii*)
Snake cholla (*Opuntia parryi* var. *serpentina*)
Narrow-leaved nightshade (*Solanum tenuilobatum*)
Delicate clarkia (*Clarkia delicata*)
Orcutt's bird's beak (*Cordylanthus orcuttianus*)
Munz's sage (*Salvia munzii*)
San Diego marsh elder (*Iva hayesiana*)
Greene's ground-cherry (*Physalis greenei*)
San Diego sunflower (*Viguiera laciniata*)
San Diego County Stipa (*Stipa diegoensis*)
California Adder's-tongue fern (*Ophioglossum lusitanicum* ssp. *californicum*)

Sensitive Animals Mitigation

Summaries of mitigation recommendations for the highest priority wildlife species are presented below. General mitigation requirements are presented in sensitive animal mitigation for the New Town Plan (Section 3.3.3). Table 4.9.4-2 presents more detailed recommendations. Mitigation for second priority and locally sensitive species was not formulated at this qualitative level of review and should be undertaken at the next level of review.

Least Bell's Vireo and Southwestern Willow Flycatcher

~~Any net loss of individuals or occupied habitat is not allowable for this species.~~ To determine necessary mitigation for the least Bell's vireo, and southwestern willow flycatcher, more information on their distribution and abundance is required. A focused the study should be conducted to determine the distribution and abundance of each of these species along the onsite portion of the Otay River and the offsite portion of Dulzura Creek adjacent to proposed development. Data obtained from the focused study and previous baseline surveys should be used to assess direct and indirect impacts from implementation of the Phase II-Progress Plan Alternative. All road alignments crossing the Otay River and Dulzura Creek, and development in or adjacent to vireo habitat, should be evaluated for impacts to least Bell's vireo and willow flycatcher. Mitigation would require avoidance of occupied ~~vireo~~ riparian habitat through redesigning development and road alignments, and providing buffer zones for habitats adjacent to developed areas. Impacts to unoccupied vireo habitat could be mitigated by restoration of disturbed riparian habitat along the Otay River. Specific recommendations to mitigate the direct and indirect impacts to least Bell's vireo are listed in Table 4.9.4-2.

California Gnatcatcher

There is a maximum 20% net loss allowed for individuals or occupied habitat for this species. Mitigation involves redesign of development to avoid or minimize impacts. Certain areas are not mitigable for this species and should be retained in a natural open space preserve. These areas include Salt Creek, Poggi and Wolf Canyons, existing habitat

Table 4.9.4-2 (Revised)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE PHASE II–PROGRESS PLAN

Species Name	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Signi-ficance[3]	Standards[4]	Required Measures to Reduce Impacts Below a Level of Significance
	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]			
First Priority Species									
Endangered Species									
Birds:									
Southwestern willow flycatcher	—	L	—	L	—	N	PS	100% or HCP/MSCP	1. See measures 1b-d, 3b, 4, 5, and 6 for the New Town Plan (Table 3.3-7). See measures 2 and 3 below.
Least Bell's vireo	1/8	L	—	L	—	N	S	100% or HCP/MSCP	2. See measures 1b-d, 4, 5, and 6 for the New Town Plan (Table 3.3-7). 3. Assess direct impacts from construction or expansion of the following roads: a. Otay Valley Road in Otay River Valley b. Heritage Road crossing of Otay River c. La Media Road crossing of Otay River d. SR-125 crossing of Otay River e. Alta Road crossing of Otay River f. Otay Lakes Road at Dulzura Creek g. Any additional roads that could impact potential or occupied habitat 4. Prepare and implement a mitigation plan for any significant impacts from road construction. Measures in the plan shall include: a. Redesign to avoid or reduce impacts; see measure 3a for New Town Plan (Table 3.3-7). Potential realignments include: • Otay Valley Parkway–move alignment north, away from Otay River. Provide a minimum 200 foot open space buffer (see measure 1c for New Town Plan) between the road alignment and occupied, high quality potential, and restored habitats. The buffer width could change pending the result of the noise study (see measure 4b for New Town Plan) and consultations with, and approval by the resource agencies. • La Media Road - eliminate this crossing of Otay River, if feasible. If it is not feasible to eliminate alignment, then redesign to avoid occupied habitat. • SR-125–avoid impacts to potential or occupied habitat. Elevate alignment above the Otay River Valley to reduce noise impacts.

Table 4.9.4-2 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE PHASE II–PROGRESS PLAN

Species Name	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		Signi-ficance[3]	Standards[4]	Required Measures to Reduce Impacts Below a Level of Significance
	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]			
Least Bell's vireo (Continued)									• Alta Road – eliminate this crossing of the Otay River if feasible. If it is infeasible to eliminate this crossing, redesign to avoid occupied habitat. • Otay Lakes Road – keep within existing road corridor at Dulzura Creek. It this is not feasible, design the crossing to avoid or minimize impacts and mitigate impacted habitat through restoration. b. See measure 3b for New Town Plan (Table 3.3-7)
Species Petitioned for State or Federal Listing									
Invertebrates:									
Streptocephalus woottoni	—	L	—	H	—	H	PS	100% or HCP/MSCP	See measures 7-10 for New Town Plan (Table 3.3-7).
Branchinecta sandiegensis	—	L	—	H	—	H	PS	100% or HCP/MSCP	See measures 7-10 for New Town Plan (Table 3.3-7).
Harbison's dun skipper	—	L	—	L	—	M	PS	100% or HCP/MSCP	See measure 11 for New Town Plan (Table 3.3-7).
Hermes's copper	—	M	—	M	—	M	PS	100% or HCP/MSCP	See measure 12 for the New Town Plan (Table 3.3-7).
Thorne's hairstreak	—	N	—	N	—	L	PS	100% or HCP/MSCP	See measure 13 for New Town Plan (Table 3.3-7).
Quino checkerspot	—	L	—	L	—	L	PS		See measure 14 for New Town Plan (Table 3.3-7).
Reptiles and Amphibians									
California red-legged frog	—	L	—	L	—	L	PS	100% or HCP/MSCP	See measure 15 for New Town Plan (Table 3.3-7).
Southwestern pond turtle	—	L	—	L	—	L	PS	100% or HCP/MSCP	See measure 15 for New Town Plan (Table 3.3-7) and additional mitigation under the southwestern pond turtle.
Cactus wren									5. See measures 16-22 for New Town Plan (Tale 3.3-7).
Development Impacts[4]:	15/60	H	—	N	—	N	—		
Road Impacts[5]:	10/60	—	—	—	—	—	—		
Total Impacts[6]:	25/60	H	—	N	—	N	S		

Table 4.9.4-2 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE PHASE II–PROGRESS PLAN

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel				
Species Name	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]	Detected Impact[1]	Potential Impact[2]	Signi-ficance[3]	Standards[4]	Required Measures to Reduce Impacts Below a Level of Significance
California gnatcatcher									6. See measures 17, 18, 20b-c, 21, 22, 23, 24a-e, 25, and 26b-c for New Town Plan (Table 3.3-7).
Development Impacts[4]:	20/73	H	16/40	H	11/31	H			7. See measures 5-6 for Phase I-Progress Plan (Table 4.2.4-5).
Road Impacts[5]:	12/73	—	4/40	—	0	—			
Total Impacts[6]:	32/73	H	20/40	H	11/31	H	S		
Tricolored blackbird	2/6	H	—	H	—	N	S	100% of Breeding Habitat or HCP/MSCP	See measure 27 for New Town Plan (Table 3.3-7)

Table 4.9.4-2 (Continued)

SUMMARY OF IMPACTS AND REQUIRED MEASURES TO REDUCE IMPACTS FOR SENSITIVE WILDLIFE SPECIES UNDER THE PHASE II-PROGRESS PLAN

1 The detected direct impact is the number of detected points of occurrence eliminated by proposed development over the total number of points of occurrence in that parcel. The total number of points of occurrence for California gnatcatchers represents an estimate of the number of pairs based on extensive data bases (ASI 1988; MBA 1989; Ogden 1991; and RECON 1991)

2 The potential direct impacts are based on loss to development of potential habitat for that species.

3 Significance of impact is based on detected impacts, potential impacts from habitat loss to proposed development, and on available distribution and abundance information for each sensitive wildlife species within the project area. Also taken into account were microhabitat use patterns that could reduce or increase the potential for impact to that species. Any adverse impacts to Priority 1 species were considered significant. In most cases, impacts to Priority 2 species that are presumed to be widespread on Otay Ranch were significant if greater than 20% of points of occurrence and/or greater than 20% of potential habitat were lost to development. Species with only a few points of occurrence were evaluated individually.

4. Standards presented in this table are the minimum preservation requirements for each species which is significantly or potentially significantly impacted by the proposed development of the Phase II - Progress Plan. The preservation standards for a particular species may change at the SPA level if there is a change in the sensitivity status of that species.

5 "Development impacts" would be due to habitat loss from proposed commercial and residential development.

6 "Road Impacts" would be due to road construction and would only apply to onsite individuals not already affected by "Development Impacts." Sighting locations which would be impacted by both road construction and habitat loss to development are included in the "Development Impacts" category.

7 Total impacts combines the Development and Road impact categories.

Legend:

— = Insufficient quantitative data recording presence of species within parcel
H = High probability for direct impact through >40% reduction of potential habitat
M = Moderate probability for direct impact through 20-39% reduction of potential habitat
L = Low probability for direct impact through 1-19% reduction of potential habitat
N = No potential impact
NS = No significant impacts
S = Significant impacts
PS = Potentially significance impacts, more data needed on distribution and abundance

on the north side of the Otay River Valley, the southwest slopes of the Jamul Mountains east of Upper Otay Lake, and patches of coastal sage scrub south of Lower Otay Lake and San Diego Air Sports Center. Any impacts to other occupied habitat should be mitigated by the restoration or enhancement of disturbed habitats to high quality habitat. Enhancement and restoration should occur prior to destruction of occupied habitat. Occupancy of the enhanced and restored habitats by the impacted species must be documented through scientific study prior to impacting occupied habitats. Road construction impacts should be mitigated by relocation of alignments and design of alignments to bridge major drainages and wildlife corridors. Specific details of mitigation recommendations for this species are listed in Table 4.9.4-1.

~~Coastal~~ Cactus Wren

There is no allowable net loss of individuals or occupied habitat for this species. Mitigation follows that for the California gnatcatcher in the Otay River parcel (see above). Habitat restoration or enhancement involves restoring disturbed habitats to high quality maritime succulent scrub.

Species Petitioned for Federal or State Listing

Invertebrates

~~Fairy Shrimp (*Streptocephalus woottoni*)~~ and *Branchinecta sandiegensis*

A focused study of the distribution and abundance of ~~this~~ these species within vernal pool habitat on Otay Ranch is required to assess any impacts. Mitigation for impacts should include avoidance of impacts to ~~high~~ occupied ~~aney~~ vernal pools. Any impacts to ~~low or~~ potential ~~occupancy~~ vernal pools habitat should be avoided where feasible. If impacts are unavoidable, restoration, enhancement, or creation of new vernal pool habitat should be a measure to mitigate for impacts to potential habitat ~~and the introduction of the impacted species into this new habitat is recommended. Enhancement and restoration should occur prior to the impacting of occupied habitat. Impacted fairy shrimp populations should be successfully established in the new pools prior to development of existing occupied pools~~.

Quino Checkerspot

Mitigation measures for *Streptocephalus woottoni* (see above) also apply to this species. Enhancement and restoration of appropriate habitat involves the establishment of appropriate *Plantago* host species in new pools.

Wildlife Corridors

Appropriate wildlife corridor mitigation recommendations for the Phase II-Progress Plan Alternative involve redesign to maintain connectivity of the parcels and adjacent blocks of offsite open space. Specific mitigation for all corridors should follow detailed recommendations from the Baldwin Wildlife Corridor Study (in ~~preparation~~ Ogden 1992b). The following general recommendations apply to all regional and important local wildlife corridors. All wildlife corridors should be retained as natural open space, contain native vegetation, and be used for only passive recreation. All road underpasses and bridges should have natural vegetation underneath and be sufficiently wide to encourage wildlife use. Wildlife corridors through development should be sufficiently wide to encompass the natural topography and allow undisturbed wildlife movement. There should be no development along the edges of or within ravines used as wildlife corridors. Corridors with roads running along their length need sufficient natural habitat on either side to

facilitate wildlife movement. Landscaping along the borders of corridors and roads or development should consist of native plantings and should screen the road or development from the corridor. ~~All wildlife corridors should be preserved in natural open space. Native vegetation should be retained or enhanced/restored within corridors~~. Some corridors may need to be revegetated to provide cover for animals.

Within the Otay River parcel, development should be eliminated from the recommended California gnatcatcher/cactus wren corridor (Baldwin Wildlife Corridor Study) between Poggi and Wolf Canyons. This potential corridor along the western edge of the property would need to be restored to native coastal sage scrub vegetation. The alternative corridor identified in the corridor study would only be feasible if a natural open space easement through the northeastern corner of the landfill was secured. This easement would need to encompass the offsite portion of the corridor and any buffer zones recommended in the corridor study.

Impacts from road construction to four other regional corridors in the Otay River parcel should be mitigated by appropriate road design and potential realignment following the Baldwin Wildlife Corridor Study recommendations. The Wolf Canyon to Salt Creek gnatcatcher and cactus wren corridor is blocked by development on the north and east sides of the Quarry. To allow gnatcatcher and wren movement, a minimum 500 foot wide corridor is necessary around the quarry on Rock Mountain. The bobcat portion of the corridor between Wolf Canyon and the Otay River is crossed by Otay Valley Road which should be ~~raised over~~ designed with a 12 foot drainage culvert at the mouth of Wolf Canyon to allow ~~wildlife~~ bobcats to pass underneath the road. Residential development and the Otay Valley Road should also be moved north of the Otay River Valley, if feasible, to prevent impacts to the Wolf Canyon to Salt Creek corridor on the north slope of the valley. (This is also recommended for reducing impacts to coastal cactus wren and California gnatcatcher habitat.) The minimum width of this corridor is 500 feet from the be of the scope. Heritage Road, La Media Road, SR-125, and Alta Road should all be ~~elevated~~ bridged at Otay River Valley crossings and along the north slope of the Otay River Valley following Baldwin Wildlife Corridor Study recommendations. Major ravines and drainages should also be bridged to allow for movement of wildlife along the Otay River Valley. The Salt Creek to Otay River Valley corridor could be impacted by Otay Valley Road/Hunte Parkway on the western edge of Salt Creek. Any impacts to vegetation along this corridor would need to be restored to coastal sage scrub or maritime succulent scrub as appropriate. The Alta Road crossing of Salt Creek should also be bridged or eliminated to retain a corridor to the Otay River Valley. ~~If~~ Alta Road should be aligned west of ~~is widened through~~ O'Neal Canyon if the existing O/Neal Canyon Road crossing it should be fitted with a large underpass and bridges over major ravines to allow movement into the Otay River Valley.

In the Proctor Valley parcel, corridor 1 to the San Miguel Mountains should be retained by moving development out of the ravine onto the ridgetop on the east side of Proctor Valley. Proctor Valley Road should bridge this corridor where it crosses it in Proctor Valley. In Proctor Valley this corridor in 2200 feet wide because of the lack of topography. It is important that portions of this corridor are revegetated and adjacent development is screened from new. Corridor 4 running through Proctor Valley would be impacted by Proctor Valley Road which should be elevated across ravines along its alignment to allow for wildlife movement underneath and into the alternate corridor in the creekbed to the north of Proctor Valley Road.

To facilitate wildlife movement between the San Ysidro and Jamul Mountains, development which blocks or constrains corridors 2, 8, 10, and 11 would need to be redesigned. Manufactured open space and development at the south end of corridor 2 would need to be

pulled back and the ravine preserved from rim to rim as natural open space to allow for a functional corridor. Development and manufactured open space at the north end of corridor 8 in the San Ysidro parcel should be eliminated from the canyon southeast of the San Diego Air Sports Center to retain a major local wildlife corridor. This is also recommended to retain high occupancy gnatcatcher habitat. Development along the western portion of Little Cedar Canyon should be pulled back to avoid constraining wildlife movement in corridors 10 and 11. Within the San Ysidro parcel, development should be pulled back from Dulzura Creek at the Otay Lakes Road crossing and away from the east end of Lower Otay Lake to allow wildlife movement along Dulzura Creek to Otay Lake via corridor 5.

4.9.4.3 Analysis of Significance

The Phase II-Progress Plan Alternative would impact ~~45~~ 42 percent of existing open space including agriculture acreage on Otay Ranch. Sensitive upland habitats would be reduced by ~~32~~ 25 percent ~~(21 percent if "limited development" acreage subtracted)~~ and wetland habitats by ~~6.5~~ 7 percent. Vernal pool impacts are estimated at 8 percent or less. These impacts to sensitive habitats are significant and would require a combination of mitigation approaches including redesign of portions of the project and habitat restoration. Of ~~17~~ 13 major regional wildlife corridors identified on Otay Ranch, ~~12~~ 10 would be impacted by adjacent development and/or road construction. Recommendations to mitigate these impacts include project redesign to keep wildlife corridors open and habitat restoration in areas of potential corridors. Sensitive plant and animal species would also be impacted significantly by this alternative, including the following highest priority species: San Diego thornmint, San Diego button-celery, Otay tarweed, least Bell's vireo, California gnatcatcher, coastal cactus wren, and potentially Riverside fairy shrimp and Quino checkerspot. Adequate mitigation of impacts to these species would necessitate a combination of project redesign, habitat restoration, and species reestablishment. There also would be impacts to second and lower priority plant and wildlife species which were evaluated qualitatively only in this analysis of the Phase II-Progress Plan Alternative. These impacts would require further assessment and mitigation at the next level of review.

Impacts to the following sensitive habitats are considered significant but mitigable to below a level of significance with minor project redesign and habitat restoration:

Coast live oak woodland
Southern live oak riparian forest
Southern interior cypress forest
Southern willow scrub
Floodplain scrub
Coastal freshwater marsh/aquatic
Vernal pools
Diegan coastal sage scrub

Phase II vernal pool impacts are significant but mitigable if the industrial development on Otay Mesa is pulled back a minimum of approximately 300 to 800 feet to ~~encompass additional~~ preserve all vernal pool habitat as part of the J30 complex. Additional surveys in a "wet year" shall further define the extent of redesign required. Mitigation of vernal pool losses on all three parcels would include both minor redesign and habitat enhancement. These stipulations also apply to *Streptocephalus woottoni* and *Branchinecta sandiegensis* below.

Impacts to the following sensitive habitats are considered significant and unmitigable without major project redesign:

Maritime succulent scrub
Valley needlegrass grassland
Alkali meadow

Impacts to the following sensitive plant species are considered significant but mitigable to below a level of significance. Impacts will be evaluated quantitatively at the SPA level of review and, based on more detailed surveys, significance determinations may change at that time.

San Diego thorn-mint (*Acanthomintha ilicifolia*)
Otay tarweed (*Hemizonia conjugens*)
San Diego button-celery (*Eryngium aristulatum* var. *parishii*)
Orcutt's brodiaea (*Brodiaea orcuttii*)
Variegated hasseanthus (*Dudleya variegata*)
San Diego coast barrel cactus (*Ferocactus viridescens*)
Narrow-leaved nightshade (*Solanum tenuilobatum*)
Delicate clarkia (*Clarkia delicata*)
Orcutt's bird-beak (*Cordylanthus orcuttianus*)
San Diego marsh elder (*Iva hayesiana*)
Greene's ground-cherry (*Physalis greenei*)
San Diego sunflower (*Viguiera laciniata*)
San Diego navarretia (*Navarretia fossalis*)
San Diego County stipa (*Stipa diegoensis*)
California Adders-Tongue fern (*Ophioglossum lusitanicum ssp. Californicum*)

Impacts to the following sensitive plant species snake colla (*Opuntia parryi* var. *serpentina*) are considered significant and unmitigable without major project redesign.

Otay manzanita (*Arctostaphylos otayensis*)
San Diego goldenstar (*Muilla clevelandii*)
Munz's sage (*Salvia munzii*)

~~Impacts to *Streptocephalus woottoni* and Quino checkerspot are not considered significant at this level of review.~~

At this level of review, impacts to the following highest priority sensitive animal species are considered significant but mitigable through minor project redesign and other mitigation measures:

Streptcephalus woottoni
Branchinecta sandregensis
Southwestern willow flycatcher
Harbison's dun skipper
Hermes copper
Thorne's hairstreak
Quino checkerspot
California red-legged frog
Southwestern pond turtle
Least Bell's vireo
Tricolored blackbird

At this level of review, impacts to the following highest priority sensitive animal species are considered significant and unmitigable without major project design:

Coastal cactus wren
California gnatcatcher

The significance of impacts to 45 second priority sensitive animal species were not evaluated at this qualitative level of review.

At this level of review, impacts to regional raptor populations are considered significant and unmitigable without major project redesign.

At this level of review, impacts to wildlife movement are considered significant but mitigable to a level below significance with recommended project redesign.

4.9.5 Cultural Resources

4.9.5.1 Impacts to Prehistoric Resources

Impacts to prehistoric resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria; therefore, all of the 213 prehistoric sites currently known to lie within the property are considered to be important at this stage of planning. With this assumption of importance, the Phase II-Progress Plan Alternative is assessed for potential impacts to prehistoric resources based on proposed land use, with areas proposed for development (as defined previously) being assumed to have greater potential to impact resources than undeveloped land uses such as Open Space, Parks, or Agriculture. Table 4.9.5-1 indicates, by parcel, land uses proposed for the Phase II-Progress Plan Alternative, prehistoric site types, and occurrences of the sites in the various land uses.

Based on the land use proposed for the Phase II-Progress Plan Alternative, ~~133~~ 130 of the 213 prehistoric sites on the property would be located entirely or partly within a land use other than Open Space, Parks, or Agriculture, and ~~80~~ 83 prehistoric sites would be located within Open Space, Parks, or Agricultural areas.

4.9.5.2 Impacts to Historic Resources

As in the case of the prehistoric sites, impacts to historic resources can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 49 historic sites currently known to be present on the property are considered to be important at this stage of planning. With this assumption, the Phase II-Progress Plan Alternative is assessed for impacts to historic sites based on the proposed land use, areas proposed for development (as defined above) being assumed to have greater potential to impact resources than undeveloped land usages such as Open Space, Parks, or Agriculture. Table 4.9.5-2 indicates, by parcel, land uses proposed for the Phase II-Progress Plan Alternative, historic site types, and occurrences of the sites in the various land uses.

The Phase II-Progress Plan has the third best ratio (~~18/31~~ 28/26) of the plan alternatives of historic sites occurring, all or partially, within areas to be developed, to those lying completely within areas proposed for less impactive land uses such as Open Space, Parks, or Agricultural. The next closest ratios (higher and lower) of sites in development land uses to those in non-development uses, are the Phase I-Progress Plan Alternative (24/25) and the Environmental Plan Alternative (14/35).

4.9.5.3 Impacts to Prehistoric/Historic Resources

Impacts to prehistoric/historic resources for all of the development alternatives can only be fully addressed after each resource has been evaluated for importance under CEQA and local criteria. Consequently, all of the 30 prehistoric/historic sites currently known to be on the property are considered to be important at this stage of planning. With this assumption of importance for all of the prehistoric/historic sites, the Phase II-Progress Plan is assessed below based on the proposed land use, with areas proposed for development (as defined above) assumed to have greater potential for impacts to resources than undeveloped land usages, such as open space, parks, or agriculture. Table 4.9.5-3 indicates, by parcel, the land use proposed for the Phase II-Progress Plan, the prehistoric/historic site types, and the occurrences of the sites in the various land uses.

Table 4.9.5-1

PHASE II-PROGRESS PLAN
PREHISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-10,452	FQ/OS/SC	Temporary Camp	CA-SDi-4,741	LMV/SC	Lithic Scatter
CA-SDi-10,622	OS	Lithic Scatter	CA-SDi-4,742	LMV	Lithic Scatter
CA-SDi-10,875	OS	Lithic Scatter	CA-SDi-4,743	OS/SC	Lithic Scatter
CA-SDi-11,157	FQ	Temporary Camp	CA-SDi-4,789/SDi-4,988	OS/SC	Temporary Camp
CA-SDi-11,158	FQ	Temporary Camp	CA-SDi-4,790	SC	Temporary Camp
CA-SDi-11,210	OS	Lithic Scatter	CA-SDi-4,989	OS	Temporary Camp
CA-SDi-11,211	OS	Lithic Scatter	CA-SDi-5,352	F/OS	Temporary Camp
CA-SDi-11,212	OS	Lithic Scatter	CA-SDi-7,212	OS	Habitation Site
CA-SDi-11,213	I/OS	Temporary Camp	CA-SDi-7,217 A-E	CP/OS	Temporary Camp
CA-SDi-11,214	OA/OS	Lithic Scatter	CA-SDi-8,649	OS	Temporary Camp
CA-SDi-11,215	I/OA/OS	Lithic Scatter	CA-SDi-8,650	OS	Lithic Scatter
CA-SDi-11,216	OA/OS	Lithic Scatter	CA-SDi-8,651	LMV/M	Lithic Scatter
CA-SDi-11,220	I/OS	Lithic Scatter	CA-SDi-9,970	OS	Lithic Scatter
CA-SDi-11,362	SC	Lithic Scatter	CA-SDi-9,974	I/OA	Lithic Scatter
CA-SDi-11,363	F/I/OS	Lithic Scatter	CA-SDi-9,975	OS	Quarry
CA-SDi-11,364	OS	Milling Station	CA-SDi-9,976	OS	Temporary Camp
CA-SDi-11,365	OS	Lithic Scatter	CA-SDi-9,977 A & B	OS	Quarry
CA-SDi-11,366	OS	Lithic Scatter	CA-SDi-9,978	OS	Quarry
CA-SDi-11,369/SDi-11,376	F/OS	Habitation Site	CA-SDi-9,979	OS	Lithic Scatter
CA-SDi-11,372	MH/MU	Lithic Scatter	CA-SDi-9,980	F/OS	Temporary Camp
CA-SDi-11,373	LMV	Lithic Scatter	CA-SDi-9,981	OS	Temporary Camp
CA-SDi-11,378	OS/SC	Habitation Site	CA-SDi-12,465	LMV	Temporary Camp
CA-SDi-11,379	OS	Lithic Scatter	CA-SDi-12,466	SC/LMV	Temporary Camp
CA-SDi-11,381	OS	Lithic Scatter	CA-SDi-12,467	LMV	Lithic Scatter
CA-SDi-11,412	LMV	Lithic Scatter	CA-SDi-12,276	FC/H	Lithic Scatter
CA-SDi-11,951	OS	Lithic Scatter	CA-SDi-12,285	M/OSB	Temporary Camp
CA-SDi-11,952	OS	Lithic Scatter	CA-SDi-12,286	LMV	Temporary Camp
CA-SDi-11,967	LMV	Temporary Camp	CA-SDi-12,287	LMV	Temporary Camp
CA-SDi-11,968	I	Lithic Scatter	CA-SDi-12,288	LMV/MH/OSB	Lithic Scatter
CA-SDi-4,726	L/OS	Lithic Scatter	CA-SDi-12,289	LMV	Temporary Camp
CA-SDi-4,727	L/OS	Lithic Scatter	CA-SDi-12,290	M	Lithic Scatter
CA-SDi-4,728 A & B	L/OS	Lithic Scatter	CA-SDi-12,291	LMV/OS/SC	Lithic Scatter
CA-SDi-4,729	OS	Lithic Scatter	CA-SDi-12,292	OA/I	Lithic Scatter
CA-SDi-4,730	L/OS	Lithic Scatter	CA-SDi-12,293	LMV/OSB/SC	Lithic Scatter
CA-SDi-4,731	F/SC	Lithic Scatter	CA-SDi-12,277	LMV	Lithic Scatter
CA-SDi-4,732	OS	Lithic Scatter	CA-SDi-12,278	LMV/SC	Lithic Scatter
CA-SDi-4,733	OS	Lithic Scatter	CA-SDi-12,279	LMV	Lithic Scatter
CA-SDi-4,734	OS	Lithic Scatter	CA-SDi-12,280	LMV/MH	Lithic Scatter
CA-SDi-4,735	OS	Lithic Scatter	CA-SDi-12,281	LMV/P	Temporary Camp
CA-SDi-4,736	OS	Lithic Scatter	CA-SDi-12,282	LMV	Temporary Camp
CA-SDi-4,737	OS	Lithic Scatter	CA-SDi-12,283	LMV	Lithic Scatter
CA-SDi-4,738	OS	Lithic Scatter	CA-SDi-12,284	LMV	Lithic Scatter
CA-SDi-4,739	F/SC	Lithic Scatter	SDM-W-170	OS	Habitation Site
CA-SDi-4,740	OS/SC	Lithic Scatter	CA-SDi-12,656	E6/LMV/MH	Temporary Camp

TOTALS:

(Community Park)	CP	1	(Medium Density Residential)	M	2
(Freeway)	F	6	(Medium-High Density Residential)	MH	4
(Freeway Commercial)	FC	1	(Mixed Use)	MU	1
(High Density Residential)	H	1	(Outside of Area)	OA	13
(Limited Manufacturing)	I	8	(Open Space Buffer)	OSB	3
(Elementary School)	E6	1	(Park)	P	1
(Low Density Residential)	L	4	(Public & Quasi Public)	FQ	3
(Low-Medium Village Density Residential)	LMV	24	(Open Space)	OS	52
			(Scenic Corridors)	SC	14

Table 4.9.5-1 (Continued)

PHASE II-PROGRESS PLAN
PREHISTORIC SITES

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDi-11,388	LMV/OSB/SC	Quarry	CA-SDi-12,356	SC	Lithic Scatter
CA-SDi-11,389	LMV/P/SC	Lithic Scatter	CA-SDi-12,357	MH/OSB/SRSA	Lithic Scatter
CA-SDi-11,394	L	Milling Station	CA-SDi-12,358	LMV/OSB	Lithic Scatter
CA-SDi-11,395	OS	Lithic Scatter	CA-SDi-12,359	L/LMV/OSB/OS	Lithic Scatter
CA-SDi-11,401	MU	Lithic Scatter	CA-SDi-12,316	LMV	Lithic Scatter
CA-SDi-11,403 Locus F	OS	Lithic Scatter/Milling Station/Quarry	CA-SDi-12,360	MH/OSB/R	Lithic Scatter
CA-SDi-11,404	R	Lithic Scatter	CA-SDi-12,361	OSB/R	Lithic Scatter
CA-SDi-11,405	LMV	Lithic Scatter	CA-SDi-12,363	M/OSB/SC	Lithic Scatter
CA-SDi-11,406	LMV	Quarry	CA-SDi-12,364	SC	Lithic Scatter
CA-SDi-11,407	MH/OSB/R/SC	Lithic Scatter	CA-SDi-12,365	OS/SC	Lithic Scatter
CA-SDi-11,408	LMV/OSB	Lithic Scatter	CA-SDi-12,366	OS	Lithic Scatter
CA-SDi-11,410 A-E	OS	Habitation Site	CA-SDi-12,367	OS	Lithic Scatter
CA-SDi-11,414	L/OSB/OS	Lithic Scatter	CA-SDi-12,368	OS	Quarry
CA-SDi-12,604	OS	Milling Station	CA-SDi-12,369	LMV	Lithic Scatter
CA-SDi-8,886 A, B & C	OSB/OS/SC	Lithic Scatter	CA-SDi-12,317	L/LMV/OSB	Lithic Scatter
CA-SDi-12,313	LMV	Lithic Scatter	CA-SDi-12,370	LMV	Lithic Scatter
CA-SDi-12,321	OS	Lithic Scatter	CA-SDi-12,371	LMV/OS	Lithic Scatter
CA-SDi-12,322	LMV	Lithic Scatter	CA-SDi-12,372	LMV	Lithic Scatter
CA-SDi-12,324	L	Lithic Scatter	CA-SDi-12,374	OS	Quarry
CA-SDi-12,326	L	Lithic Scatter	CA-SDi-12,375	OS	Lithic Scatter
CA-SDi-12,327	OA/OSB	Lithic Scatter	CA-SDi-12,377	SC/VL	Quarry
CA-SDi-12,329	MU/SC	Lithic Scatter	CA-SDi-12,378	VL	Quarry/Lithic Scatter
CA-SDi-12,330	MU/SC	Lithic Scatter	CA-SDi-12,379	VL	Lithic Scatter
CA-SDi-12,314	LMV	Lithic Scatter	CA-SDi-12,381	VL	Milling Station
CA-SDi-12,331	OS	Milling Station	CA-SDi-12,383	VL	Lithic Scatter
CA-SDi-12,332	M/OS	Lithic Scatter	CA-SDi-12,384	VL	Milling Station
CA-SDi-12,333	M/OS	Lithic Scatter	CA-SDi-12,385	VL	Milling Station
CA-SDi-12,334	OS	Habitation Site	CA-SDi-12,386	VL	Lithic Scatter
CA-SDi-12,335	L	Lithic Scatter	CA-SDi-12,387	VL	Lithic Scatter
CA-SDi-12,336	LMV/OSB/SC	Lithic Scatter	CA-SDi-12,388	VL	Lithic Scatter
CA-SDi-12,338	OS	Milling Station	CA-SDi-12,319	LMV	Lithic Scatter
CA-SDi-12,339 A & B	L/OS	Lithic Scatter	CA-SDi-12,389	LD/VL	Milling Station
CA-SDi-12,340	MH/OSB/SC	Temporary Camp	CA-SDi-12,390	SC/VL	Lithic Scatter
CA-SDi-12,337/OR-I-3	L/OSB	Lithic Scatter	CA-SDi-12,391	VL	Milling Station
CA-SDi-12,341	R/SRSA	Lithic Scatter	CA-SDi-12,392	VL	Milling Station/Lithic Scatter
CA-SDi-12,342	LMV/OS	Quarry	CA-SDi-12,394	VL	Milling Station
CA-SDi-12,343	LMV/OS	Quarry	CA-SDi-12,397	OS/VL	Quarry/Lithic Scatter/Milling Station
CA-SDi-12,315	LMV	Lithic Scatter	CA-SDi-12,398	OS/VL	Quarry/Lithic Scatter/Milling Station
CA-SDi-12,353	R/SC/SRSA	Lithic Scatter	CA-SDi-12,320	L	Lithic Scatter
CA-SDi-12,355	LMV/OSB/OS/SC	Lithic Scatter	CA-SDi-12,635	OS	Lithic Scatter

TOTALS:

(Low Density Residential)	L	10	(Open Space Buffer)	OSB	17
(Limited Development Area)	LD	1	(Park)	P	1
(Low-Medium Village Density Residential)	LMV	22	(Resort)	R	6
(Medium Density Residential)	M	3	(Open Space)	OS	27
(Medium-High Density Residential)	MH	4	(Remote Campsite)	SC	16
(Mixed Use)	MU	3	(Sensitive Resource Study Area)	SRSA	3
(Outside of Area)	OA	11	(Very Low-Density Residential)	VL	17

Table 4.9.5-1 (Continued)

PHASE II-PROGRESS PLAN
PREHISTORIC SITES

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type	Site Number	Proposed Land Use	Site Type
CA-SDI-10,027	E6/MH/MU/OSB/SC	Quarry	CA-SDI-11,298	VL	Lithic Scatter
CA-SDI-11,294	LD/VL	Lithic Scatter	CA-SDI-11,300	OS	Lithic Scatter
CA-SDI-11,302	LD/VL	Habitation Site	CA-SDI-11,304	OS	Lithic Scatter
CA-SDI-11,303	LD	Lithic Scatter	CA-SDI-11,307	OS	Lithic Scatter
CA-SDI-11,308	LD/VL	Lithic Scatter	CA-SDI-11,309	VL	Lithic Scatter
CA-SDI-11,312	LD/OS	Lithic Scatter	CA-SDI-11,311	OS	Lithic Scatter
CA-SDI-11,314	LD/VL	Lithic Scatter	CA-SDI-11,313	VL	Lithic Scatter
CA-SDI-11,315	LD	Lithic Scatter	CA-SDI-11,317	VL	Quarry
CA-SDI-11,321	LD	Lithic Scatter	CA-SDI-11,325	VL	Lithic Scatter
CA-SDI-11,322	LD/OS	Lithic Scatter	CA-SDI-11,331	VL	Temporary Camp
CA-SDI-11,323	LD/VL	Lithic Scatter	CA-SDI-11,332	VL	Temporary Camp
CA-SDI-11,324	LD/OS	Lithic Scatter	CA-SDI-11,333	VL	Temporary Camp
CA-SDI-11,326	LD	Lithic Scatter	CA-SDI-11,342	LMV	Lithic Scatter
CA-SDI-11,327	LD	Lithic Scatter	CA-SDI-11,344	OS	Lithic Scatter
CA-SDI-11,328	LD	Lithic Scatter	CA-SDI-11,345	OS	Milling Station
CA-SDI-11,329	LD	Lithic Scatter	CA-SDI-11,346	OS	Quarry
CA-SDI-11,334	LD/OS	Habitation Site	CA-SDI-11,349	OS	Lithic Scatter
CA-SDI-11,342	LMV	Lithic Scatter	CA-SDI-11,350	OS	Lithic Scatter
CA-SDI-11,352	LD/VL	Lithic Scatter	CA-SDI-11,351	OS	Quarry
CA-SDI-11,353	LD/VL	Lithic Scatter	CA-SDI-12,147	OSB/SC	Milling Station
CA-SDI-11,354	LD/OS/VL	Lithic Scatter	CA-SDI-12,148	OSB/SC	Lithic Scatter
CA-SDI-12,345	L/OS	Milling Station	CA-SDI-12,149	LMV/OSB	Lithic Scatter
CA-SDI-12,349	L	Milling Station	CA-SDI-12,344	MH	Lithic Scatter

TOTALS:

(Elementary School)	E6	1	(Mixed Use)	MU
(Low Density Residential)	L	2	(Outside of Area)	OA
(Limited Development)	LD	19	(Open Space Buffer)	OSB
(Low-Medium Village Density Residential)	LMV	2	(Open Space)	OS
(Medium-High Density Residential)	MH	2	(Scenic Corridors)	SC
			(Very Low-Density Residential)	VL

Table 4.9.5-2

PHASE II-PROGRESS PLAN
HISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-10,155H	F/OS	Historic Rock Feature
CA-SDi-11,221	OS	Historic Refuse
CA-SDi-11,361H	OS	Historic Structure
CA-SDi-11,374	OS	Historic Refuse
CA-SDi-11,375H	L	Historic Structure
CA-SDi-11,377H	L	Historic Structure
CA-SDi-11,383H	F/OS	Historic Structure
CA-SDi-11,384H	LMV/MH/OSB	Historic Complex
CA-SDi-11,385H	OS	Historic Archaeological Complex
CA-SDi-11,386H	OS	Historic Complex
CA-SDi-11,387H	SC	Historic Structure
CA-SDi-12,271H	MH	Historic Refuse
CA-SDi-12,272H	MU	Historic Refuse
CA-SDi-12,273H	I	Historic Refuse
CA-SDi-12,274H A & B	F	Historic Refuse

TOTALS:

(Freeway)	F	3
(Limited Manufacturing)	I	1
(Low Density Residential)	L	2
(Low-Medium Village Density Residential)	LMV	1
(Medium-High Density Residential)	MH	2
(Mixed Use)	MU	1
(Open Space Buffer)	OSB	1
(Open Space)	OS	7
(Scenic Corridors)	SC	1

Table 4.9.5-2 (Continued)

PHASE II-PROGRESS PLAN
HISTORIC SITES

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,390H	LMV/OA/OSB/OS	Historic Structure
CA-SDi-11,393H	OS	Historic Structure
CA-SDi-11,418H	OS	Historic Camp
CA-SDi-11,419H	L/OA/OSB/R/SC	Historic Complex
CA-SDi-11,420H	OS	Historic Camp
CA-SDi-11,421H	LMV/OSB	Historic Structure
CA-SDi-11,422H	OS	Historic Structure/Historic Refuse
CA-SDi-6,723H	OS	Historic Structure
CA-SDi-6,968H	OS	Historic Structure
CA-SDi-12,323H	OS	Historic Rock Feature
CA-SDi-12,354H	OS/SC	Historic Rock Feature
CA-SDi-12,376H	OS	Historic Rock Feature
CA-SDi-12,318H	LMV	Historic Rock Feature
CA-SDi-12,395H	VL	Historic Refuse/Historic Rock Feature
CA-SDi-12,396H	VL	Historic Rock Feature

TOTALS:

(Low Density Residential)	L	1
(Low-Medium Village Density Residential)	LMV	3
(Outside of Area)	OA	2
(Open Space Buffer)	OSB	3
(Resort)	R	1
(Open Space)	OS	10
(Scenic Corridors)	SC	2
(Very Low-Density Residential)	VL	2

Table 4.9.5-2 (Continued)

PHASE II-PROGRESS PLAN
HISTORIC SITES

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDi-11,299H	OS	Historic Structure
CA-SDi-11,301H	OS	Historic Camp
CA-SDi-11,305	OS	Historic Rock Feature
CA-SDi-11,306H	OS	Historic Camp
CA-SDi-11,310	LD	Historic Rock Feature
CA-SDi-11,316H	OS	Historic Refuse
CA-SDi-11,318	LD	Historic Rock Feature
CA-SDi-11,319	VL	Historic Rock Feature
CA-SDi-11,320	VL	Historic Rock Feature
CA-SDi-11,330H	LD	Historic Refuse
CA-SDi-11,340H	OS	Historic Structure
CA-SDi-11,341H	OS	Historic Rock Feature
CA-SDi-11,343H	SRSA	Historic Structure
CA-SDi-11,347	VL	Historic Rock Feature
CA-SDi-11,348	LMV/OSB/OS	Historic Rock Feature
CA-SDi-11,357	K6/MH/MU/OSB/SC	Historic Rock Feature
CA-SDi-6,970	VL	Historic Archaeological Complex
CA-SDi-12,351H	L/OSB	Historic Rock Feature
CA-SDi-12,352H	L	Historic Rock Feature

TOTALS:

(Elementary School)	K6	1
(Low Density Residential)	L	1
(Limited Development)	LD	3
(Low-Medium Village Density Residential)	LMV	1
(Medium-High Density Residential)	MH	1
(Mixed Use)	MU	1
(Open Space Buffer)	OSB	3
(Open Space)	OS	8
(Scenic Corridors)	SC	1
(Sensitive Resource Study Area)	SRSA	1
(Very Low-Density Residential)	VL	4

Table 4.9.5-3

PHASE II-PROGRESS PLAN
PREHISTORIC/HISTORIC SITES

OTAY RIVER PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,217	OS	Lithic Scatter/Historic Structure
CA-SDI-11,218	I	Lithic Scatter/Historic Structure
CA-SDI-11,219	I	Lithic Scatter/Historic Structure
CA-SDI-11,367/CA-SDI-11,368	OS	Lithic Scatter/Historic Rock Feature

TOTALS:			
	(Open Space)	OS	2
	(Limited Manufacturing)	I	2

PROCTOR VALLEY PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,391 Locus A-C	LMV/MH/OA/OSB/R/OS/SC/SRSA	Historic Structure/Lithic Scatter/Milling Station/Temporary Camp
CA-SDI-11,396/H	LMV/OA	Historic Structure/Lithic Scatter
CA-SDI-11,399H	L/OS	Historic Structure/Lithic Scatter
CA-SDI-11,409	LMV/M/OSB/SC	Lithic Scatter/Historic Rock Feature
CA-SDI-11,411 A-D	OS/VL	Milling Station/Historic Refuse
CA-SDI-11,415	L	Milling Station/Lithic Scatter/Historic Rock Feature
CA-SDI-11,417H	VL	Historic Structure/Lithic Scatter/Milling Station
CA-SDI-6,695 A & B	K6/L/M/MU/OSB/OS/SC	Lithic Scatter/Historic Rock Feature
CA-SDI-6,965/CA-SDI-11,398H	OA/OS	Historic Archaeological Complex/Lithic Scatter
CA-SDI-12,328/H	L	Lithic Scatter/Historic Rock Feature
CA-SDI-12,362/H	M/OA/OSB/P	Lithic Scatter/ Historic Refuse
CA-SDI-12,373/H	OS	Habitation Site/Historic Structure
CA-SDI-12,380/H	VL	Lithic Scatter/Historic Rock Feature
CA-SDI-12,382/H	VL	Historic Rock Feature/Lithic Scatter
CA-SDI-12,393/H	VL	Lithic Scatter/Historic Rock Feature
SDM-W-1,932	OS/SC	Lithic Scatter/Historic Rock Feature/Milling Station

TOTALS:					
(Sensitive Resource Study Area)	SRSA	1	(Outside of Area)	OA	4
(Elementary School)	K6	1	(Open Space Buffer)	OSB	4
(Low Density Residential)	L	4	(Park)	P	1
(Low-Medium Village Density Residential)	LMV	3	(Resort)	R	1
(Medium Density Residential)	M	3	(Open Space)	OS	7
(Medium-High Density Residential)	MH	1	(Scenic Corridors)	SC	4
(Mixed Use)	MU	1	(Very Low-Density Residential)	VL	5

SAN YSIDRO PARCEL

Site Number	Proposed Land Use	Site Type
CA-SDI-11,355	SC	Lithic Scatter/Historic Rock Feature
CA-SDI-11,356	MH/MU/OA/SC	Lithic Scatter/Historic Structure
CA-SDI-11,358	MH/MU/OA/OSB/OS	Lithic Scatter/Historic Rock Feature
CA-SDI-11,359H	OS	Lithic Scatter/Historic Refuse
CA-SDI-11,360H A-C	OS	Historic Structure/Lithic Scatter
CA-SDI-12,150	MH/OSB/SC	Historic Structure/Lithic Scatter
CA-SDI-12,346/H	L/LMV/OSB	Temporary Camp/Lithic Scatter/Historic Rock Feature
CA-SDI-12,347/H	L/OSB/OS	Historic Structure/Lithic Scatter
CA-SDI-12,348/H	K6/MU	Lithic Scatter/Historic Rock Feature
CA-SDI-12,350/H	LMV/OA/OSB	Lithic Scatter/Historic Rock Feature

TOTALS:					
(Outside of Area)	OA	3	(Low Density Residential)	L	2
(Open Space Buffer)	OSB	4	(Low-Medium Village Density Residential)	LMV	2
(Open Space)	OS	4	(Medium-High Density Residential)	MH	3
(Scenic Corridors)	SC	3	(Mixed Use)	MU	3
(Elementary School)	K6	1			

Over the the entire Otay Ranch property, 22 of the 30 prehistoric/historic sites known to be present on the property fall all or partially within areas proposed for intense development, with only 8 prehistoric/historic sites located entirely within areas proposed for non-construction oriented land use, in the Phase II-Progress Plan. This ratio (22/8) is only slightly better than five of the other plans: the New Town Plan (28/2), the Phase I-Progress Plan (28/2), the Low Density Alternative (27/3), the Project Team Alternative (26/4), and the Fourth Alternative (24/6). While the Phase II-Progress Plan would impact the least of these plans, it would still impact a large percentage of the prehistoric/historic sites on the property.

4.9.5.4 Proposed Mitigation

Prehistoric Resources

At this stage of planning, not all of the prehistoric resources have been identified; therefore, importance of the resources is assumed rather than verified. Impacts are still general rather than specific, and development plans are still highly conceptual; therefore, development of a comprehensive mitigation plan must be conceptual and necessarily programmatic rather than resource-specific. The following plan is a synopsis of a more detailed program presented in the RMP and in the cultural resources technical report. For conciseness, the mitigation plan is presented as a series of interrelated stages or phases (see Section 3.4.3 for additional detail).

- Stage 1: The applicant shall complete an intensive, systematic survey of the remaining 17,000 acres for cultural resources in compliance with the county's requirements. Completion of the survey shall occur as soon as feasible with the survey of the first SPA being completed no later than filing of the first SPA Plan application. The survey of the remaining portion of Otay Ranch shall be completed prior to ~~approval~~ public review of the first SPA Plan.

- Stage 2: The applicant shall complete importance and boundary testing for each resource identified within the first SPA and for a sample of site types beyond the SPA but within the overall project. All Stage 2 work must be in compliance with CEQA and local guidelines to include county policies.

- Stage 3: The applicant shall implement appropriate mitigation measures for resources determined as important during the Stage 2 importance evaluation phase. These forms of mitigation would include:

    1) Site avoidance by preservation of the site in open space easements.

    2) Site avoidance by preservation through capping the site and placing landscaping on top of the fill.

    3) Data recovery through implementation of an agency approved excavation and analysis data recovery program.

    4) A combination of one or more of the above measures.

Additionally, the applicant shall develop a plan for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This shall be accomplished through adaptive reuse of one of the historic structures within the project or through construction of a building within one of the parks or community centers. It is expected that this interpretive center will only be for temporary curation of those materials

being actively used for interpretation and display, and that permanent curation of artifacts and data will be at a regional repository when one is established.

Historic Resources

Mitigating measures for historic resources are essentially the same as the measures for prehistoric resources described above. The same steps and stages should be followed, although, as described in the RMP, archival research and historical documentation shall be used to augment Stage 2 field testing programs. Mitigation of impacts to historic resources through preservation may be more feasible for historic sites than for prehistoric sites because they generally comprise a smaller area and can often be synthesized into a development plan. In the case of historic resources, Stage 3 data recovery programs shall be integrated with comprehensive programs of corresponding archival research to provide the context for, and make possible a full evaluation of, the material found on the sites. As indicated under the prehistoric mitigation measures, a plan shall also be developed for the onsite presentation and interpretation of the results of the archaeological studies at an interpretive center or museum. This shall be accomplished through adaptive reuse of one of the historic structures within the project or through construction of a building within one of the parks or community centers.

Prehistoric/Historic Resources

Mitigating measures for prehistoric/historic resources are essentially the same as for prehistoric and historic resources as described above. The same steps and stages should be followed although, as described in the RMP, archival research and historical documentation may be used to augment field testing programs. Mitigation of impacts to historic components of prehistoric/historic resources through preservation may in some instances be more feasible than for the prehistoric components because they generally comprise a smaller area and can often be synthesized into a development plan.

If in situ preservation is not possible, recovery of a representative amount or sample of information, both surface and subsurface, is the only other acceptable alternative. For historic components, the data recovery program will be integrated with a corresponding archival research program to fully assess the significance of the material found on the sites. By creating a complementary research program that fully incorporates the archival material with the field results, many important research questions can be addressed.

4.9.5.5 Analysis of Significance

At this program-level of analysis, all prehistoric, historic, and prehistoric/historic resources are considered significant (see Section 3.4.4).

4.9.6 Geology and Soils

4.9.6.1 Impact Analysis

The geologic and soils impacts associated with the Phase II-Progress Plan Alternative would include slope instability, rippability, seismic ground shaking, expansive and erodable soils, liquefaction, and landslides. These impacts are described in detail in Section 3.5.2 of this EIR.

4.9.6.2 Proposed Mitigation

The mitigation measures described below would mitigate potential impacts to levels below significance. (See Section 3.5.3 for additional details for these mitigation measures.)

- Slope instability - Perform site-specific geotechnical investigation and slope stability analyses and implement appropriate design measures.
- Rippability - Perform site-specific geotechnical investigation. Where non-excavatable materials are encountered, blasting may be required to achieve proposed grades.
- Seismic ground shaking - Perform site-specific geotechnical investigation, incorporate seismic parameters into the design and construction of the project, and design according to appropriate building codes.
- Expansive/erodable soils - Perform selective grading and design foundations in accordance with UBC standards. Incorporate erosion control measures into design and construction of the project.
- Liquefaction - Perform site-specific geotechnical investigation to evaluate liquefaction potential. Perform vibrofloatation or dynamic compaction techniques, or remove and recompact soils as appropriate to mitigate liquefaction potential.
- Landslides - Perform site-specific geotechnical investigation to delineate limits of landslides. Landslides may be completely removed or buttressed during site grading.

4.9.6.3 Analysis of Significance

Implementation of the proposed mitigation measures would reduce impacts to below a level of significance.

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4.9.7 Paleontological Resources

4.9.7.1 Impact Analysis

Impacts to paleontological resources most often occur when earth work activities cut into geological deposits (formations) within which fossils are buried. These impacts generally involve physical destruction of fossil remains. Other impacts may include burial of a fossiliferous locality by fill operations, casual fossil collecting by amateur collectors, or heavy landscaping of park areas.

Otay River Parcel

Development proposed under the Phase II-Progress Plan Alternative for this parcel would require excavation work which, if done in areas with highly sensitive paleontological resources, would result in significant impacts. Since the majority of the region is underlain by either the San Diego or Otay formations, significant impacts are anticipated throughout the parcel. The areas slated for inclusion in open space would preserve portions of these formations (e.g., Salt Creek, Wolf Canyon, and Poggi Canyon).

Proctor Valley Parcel

Development proposed under the Phase II-Progress Plan Alternative for this parcel would involve limited residential construction. The majority of this region (Jamul Mountains) is underlain by rocks with no resource sensitivity. Exceptions are areas immediately adjacent to Proctor Valley Road and along Otay Lakes Road north of Lower Otay Lake. These areas are underlain by highly sensitive formations (e.g., the Otay and Sweetwater formations). These are areas where extensive residential construction is planned; therefore significant impacts would result from this residential construction.

San Ysidro Parcel

Planned development of this parcel under the Phase II-Progress Plan Alternative would involve large areas of open space and limited residential construction. The majority of these open space areas are underlain by rocks with no resource sensitivity, and thus such development would have no significant impact. Areas proposed for limited residential construction are underlain by moderately sensitive formations. Impacts of moderate significance are anticipated in these areas.

4.9.7.2 Proposed Mitigation

The mitigation measures outlined below and described in detail in Section 3.6.3 would mitigate potential impacts to paleontological resources.

- A qualified paleontologist shall be retained. The paleontologist shall be present at all times during original grading of highly sensitive formations and to a lesser extent during grading of less sensitive formations.
- When fossils are discovered, the paleontologist shall be allowed to recover them.
- Prepared fossils and notes shall be given to a scientific institution, and a final summary report shall be prepared by the paleontologist at the end of excavation.
- Geologic/paleontologic preserves shall be created in designated areas not planned for mass excavation.

4.9.7.3 Analysis of Significance

Implementation of the Phase II-Progress Plan Alternative would result in adverse impacts to paleontological resources. The significance of these impacts would vary depending upon the paleontological resource sensitivity of individual formations. Implementation of the proposed mitigation measures would reduce impacts to below a level of significance.

4.9.8 Agricultural Resources

4.9.8.1 Impact Analysis

Under the Phase II-Progress Plan Alternative, Prime Farmland, as identified in Section 3.7.1, would either be converted to non-agricultural uses or impaired for agricultural activity. Prime Farmland located within the Otay River parcel would be maintained as scenic corridor/open space area. Small pockets of Prime Farmland located in the northern portion of the Proctor Valley parcel would be converted to very low-density residential uses or retained as natural open space; however, no agricultural uses would be allowed within the open space areas. The conversion or impairment of Prime Farmland is considered to be a significant impact regardless of the amount of Prime Farmland lost.

An additional 8,977 acres of land designated as having Statewide and Local Farming Importance and which are suitable for the agricultural production of coastal-dependent crops are located throughout the site. Land designated as having Statewide Farmland Importance is primarily located in the central portion of the Otay River parcel; this land would be developed for residential uses of varying densities or retained as open space by the Phase II-Progress Plan Alternative. Statewide and Local Important Farmland in the Proctor Valley parcel would be converted to residential uses, as in the New Town Plan. Limited development and residential uses would be located in the northern and eastern portions of the San Ysidro parcel which is overlain with Local Important Farmland soils.

Of the 23,088 acres of land within the Otay Ranch property, approximately 9,714 acres were determined to be suitable for the cultivation of five principal crops (avocados, citrus, truck crops, tomatoes, and flowers) based on the SCS's soil survey ratings. Consequently, development of the site under the Phase II-Progress Plan Alternative would result in the loss or impairment of 5 percent of the county's agricultural land suitable for the production of coastal-dependent crops. There would also be a loss of 3 percent of San Diego County agricultural land since approximately 4,000 to 5,000 acres of Otay Ranch property currently used for barley cultivation would be converted to non-agricultural uses. Although 20,000 acres of Otay Ranch are used for cattle grazing purposes, this acreage is not included in the countywide agricultural figure of 168,317 acres since the grazing land is not irrigated. Only the land used for barley cultivation can be added to the County figure of 168, 317 acres of agricultural land. The loss of agricultural land and land suitable for the potential production of coastal-dependent crops would be an incremental and significant impact of the Phase II-Progress Plan Alternative.

As indicated in the discussion of historical agricultural uses of the site (Section 3.7.1), tomatoes, celery, cucumbers, and other row crops were produced on the Otay Ranch site until the mid-1970s (JBF Associates 1989). Row crop production ceased due to the high cost of water for agricultural use. Although the site is suitable for production of coastal dependent crops, the high cost of water and storage would not make this feasible. In addition to the high cost of importing water for agricultural uses, an adequate water storage supply is needed since agriculture is the first use to have its water cut off during severe drought conditions because it is considered an "interruptable user" (OWD 1992). Water for urban uses is perceived to be more economically viable given the present economic and taxation system, which encourages intensification of uses to create additional economic activity and thus provide higher employment levels (San Diego Coast Regional Commission Report 1974).

Crop Production

As discussed in Section 3.7.2, the cost of production and the amount of property taxes paid exceed the average gross income generated by barley and cattle production. According to the property's farming operation personnel, revenues from barley or cattle production are used towards the payment of property taxes, property security, and maintenance. Therefore, the incremental loss of barley and cattle production at the Otay Ranch property would have a minimal impact on the county's overall production and value for these commodities. More important is the loss of resources for the potential production of coastal-dependent crops.

Applicable Agricultural Policies

Most of the Otay River parcel is currently designated as Intensive Agriculture, which allows 1 dwelling unit per 2-4-8 acres. The Proctor Valley and San Ysidro parcels are designated for Multiple Rural Use, allowing 1 dwelling unit per 4-8-20 acres. The Phase II-Progress Plan Alternative would change these existing land use designations, allowing for the conversion of agricultural land to urban uses. The area north of Otay Valley Road would be developed with residential uses of varying densities, commercial civic, and cultural uses. The southern portion would be retained as open space for a regional park with some industrial uses occurring at the southeast end of the parcel.

The change in land use designations on the Proctor Valley and San Ysidro parcels would allow residential uses to develop adjacent to existing offsite agriculture activities associated with Daley Ranch to the east. Potential interface land use impacts related to noise, dust, odors, and use of pesticides could occur between the proposed residences located on the eastern portion of the San Ysidro parcel and residences along the northeast section of the Proctor Valley parcel. No land use interface impacts related to agriculture would occur with the proposed land uses in the Otay River parcel since they are surrounded by existing and developing urban land uses to the north, east, and west.

The proposed land use designations would allow for the conversion of land currently in agricultural use to urban uses, which is a significant agricultural land use impact of the Phase II-Progress Plan Alternative.

The northern portion of the Proctor Valley parcel lies within the Jamul-Dulzura Subregional Planning Area, and is designated as an "Estate Development Area" and as a "Rural Development Area" along the parcel's northern boundary. Existing grazing activities which occur within the Proctor Valley parcel are consistent with the goals and polices of the subregional plan, which encourages agricultural activity to maintain the existing rural character of the community. This alternative would replace ongoing cattle grazing activities with single-family homes along the northern portion of the Proctor Valley parcel, and maintain natural open spaces to the east. The Phase II-Progress Plan Alternative would allow for very low residential uses on this parcel. These low-density, large lots would be adequate in size to allow agricultural activities such as the keeping of farm animals or the cultivation of vegetables and orchards. By allowing these agricultural uses, the Phase II-Progress Plan Alternative would be consistent with the Jamul-Dulzura Subregional Plan's goals. No significant policy inconsistency impacts would occur unless these agricultural activities are not allowed in the northern portion of the Proctor Valley parcel.

The Otay River parcel, San Ysidro parcel, and the southern portion of the Proctor Valley parcel lie within the Otay Mesa Subregional Planning Area. The Phase II-Progress Plan Alternative encourages agricultural production as an interim use on undeveloped lands planned for future urban use. This alternative would allow agricultural activities to occur as

an interim use on the undeveloped areas of the Otay Ranch property. An agricultural plan would be developed to tie into the project's phasing plan. Areas not scheduled for development and which are currently used for cattle grazing or barley cultivation would continue to operate as agricultural land. The plan would require measures to mitigate potential internal interface impacts related to interim agricultural activities. The Phase II-Progress Plan Alternative would be consistent with the goals of the Otay Subregional Plan by allowing agricultural activity as an interim use.

The Phase II-Progress Plan Alternative would not be consistent with Goal 2 - Objective 5, Open Space and Conservation Element of the Chula Vista General Plan which calls for the maintenance of agriculture as a viable land use and the preservation of highly productive agricultural land. The Phase II-Progress Plan Alternative would ultimately result in the conversion of approximately 20,000 acres of land currently used for cattle grazing, of which 4,000 to 5,000 acres are used for barley production, and 9,714 acres of potentially highly productive agricultural land, to urban uses. This is a significant open space and conservation policy inconsistency of the project. It should be noted that, contrary to the Open Space Element Alternative goals and objectives to preserve agricultural land, the City of Chula Vista General Plan map for the Eastern Territories does not include any agricultural designations within the Otay River parcel which would preserve agriculture as a viable land use.

The Local Agency Formation Commission (LAFCO) will review development plans for the Otay Ranch property to determine whether the project complies with their Agricultural Lands Preservation Policy when it considers the sphere of influence for the Otay River parcel. LAFCO's review and approval process is independent of this EIR analysis.

4.9.8.2 Proposed Mitigation

The following mitigation measures would be applicable to the Phase II-Progress Plan Alternative.

1. An Agricultural Plan shall be prepared by the project applicant prior to approval of any SPA Plans affecting onsite agricultural resources and will be required for each subsequent development proposal. The plan, which will tie into the project's phasing plan, shall indicate the type of agricultural activity that will be allowed as an interim use. Specifications shall include buffering guidelines designed to prevent potential land use interface impacts related to noise, odors, dust, insects, rodents, and chemicals that may accompany agricultural activities and operations. Adequate buffering shall be provided between the proposed development area and the interim agricultural use. Buffering measures may include:

   - a 200 foot distance between property boundaries and agricultural operations;
   - if permitted interim agricultural uses require the use of pesticide, then limits shall be set as to the time of day and the type of pesticide application that may occur;
   - use of vegetation along the field edges adjacent to development that can be used for shielding (i.e., corn); and
   - notification of adjacent property owners of potential pesticide applications and use of fencing.

The plan shall be reviewed by the city or county planning department that has jurisdiction over these areas to verify that proposed guidelines are adequate to prevent significant interface impacts from occurring. This measure would partially mitigate the incremental loss of agricultural land.

2. Landscaping and buffering guidelines shall be included in the development plans at the SPA level for the areas planned adjacent to existing agricultural uses. These areas include the northeastern edges of the Proctor Valley parcel and the eastern edges of the San Ysidro parcel where low-density residential uses would be developed near the Daley Ranch agricultural activities (i.e., crop cultivation and cattle ranging).

3. A small portion of the Otay River parcel where prime soils are located shall be set aside for a community garden. A possible location for the community garden would be in the southwest portion of the Otay River parcel. This area is considered suitable since it contains prime agricultural soils and is designated as a regional park by the Phase II-Progress Plan Alternative. Development of this garden will depend on the feasibility of maintaining it within the proposed park. If the community garden is deemed feasible its size and exact location will be determined at the SPA level. Schools proposed within the Otay Ranch property could promote educational activities related to agriculture through the use of the community garden.

4. Agricultural activity and the keeping of animals shall be allowed within the large, low-density lots planned along the northern edge of the Proctor Valley parcel, as recommended in the Jamul-Dulzura Subregional Plan. Development plans for this area shall contain landscaping and buffering guidelines designed to prevent potential nuisance impacts related to noise, odor, dust, and use of chemicals from occurring between adjacent internal residential uses.

4.9.8.3 Analysis of Significance

The conversion of agricultural land to urban uses and the loss of Prime Farmland is a significant, unmitigable impact of the Phase II-Progress Plan Alternative. According to state, county, and City of Chula Vista policies and goals, the loss of an agricultural resource which has the potential to produce coastal dependent crops (including the loss of Prime Farmland) is considered to be a significant, unmitigable impact, regardless of the feasibility of maintaining the land in agricultural production (i.e., due to the lack of an adequate water supply).

4.9.9 Mineral Resources

4.9.9.1 Impact Analysis

The Phase II-Progress Plan Alternative proposes natural open space land uses for the entire length of the Otay River Valley on the Otay River parcel. Aggregate minerals and bentonite clay are not considered to be significant mineral resources within the project site. Therefore, the proposed land uses will not result in a significant impact to mineral resources. Rock Mountain, which is designated as being regionally significant, is proposed to be developed for residential and scenic corridor/open space land uses. The residential land uses would result in significant impacts to mineral resources by precluding their extraction. However, this impact would not occur if mineral extraction activities take place before the structures are built. Proposed residential land uses are planned to the north of the Otay River Valley and are expected to be far enough away from any potential mineral extraction activities to preclude a conflict.

The mineral resources known to exist in the Proctor Valley and San Ysidro parcels have not been designated as being significant by the CDMG, but have been placed in a Resource Conservation Area by the County of San Diego. The state mineral surveys for significant aggregate minerals did not extend east of Lower Otay Lake. In addition, the eastern parcels of the Otay Ranch project were not surveyed by the CDMG for the presence of significant mineral resources because they are located beyond the zone of anticipated urbanization. Both parcels are primarily underlain by the Santiago Peak Volcanics Formation, which is known to be an important source of crushed rock materials and is the same material found on Rock Mountain, an area designated as MRZ-2.

The forthcoming Mineral Resources Element of the San Diego County General Plan will provide an analysis of the significance of the mineral resources in the Proctor Valley and San Ysidro parcels. It cannot be determined at this time whether the mineral resources contained on these parcels are of regional importance. Therefore, any development that would preclude mineral extraction or would be considered to be an incompatible land use would be a potentially significant impact until a determination of significance is made by the County of San Diego or the City of Chula Vista. If it is determined that no significant mineral resources exist on the two parcels, no impacts would occur.

4.9.9.2 Proposed Mitigation

The Otay River Valley segment within the Otay Ranch project is no longer considered to be a source of significant mineral resources (see Section 3.8, New Town Plan). Therefore, no impacts to mineral resources would result from the proposed development, and mitigation measures are not necessary.

The Phase II-Progress Plan Alternative should include measures in its development plan to allow for mineral extraction on Rock Mountain and mineral extraction should be designated as the primary land use. Rock Mountain shall be placed in a mineral extractive overlay designation or an RCA in accordance with the policies of the soon-to-be adopted Mineral Resource Management Plan.

Development of the San Ysidro and Proctor Valley parcels shall be phased, if possible, to allow for mineral extraction if the county's Mineral Resources Element determines that significant mineral resources are located on the Otay Ranch property. Where possible, compatible land uses shall be developed near the locations of future mineral extraction activities (EIR proposed). Should project phasing not be possible, the impact to mineral resources would be significant and unmitigable.

The bentonite deposits onsite are not considered to be regionally significant (see Section 3.8, New Town Plan). Therefore, no impacts to mineral resources would result from the proposed development and mitigation measures are not necessary.

4.9.9.3 Analysis of Significance

The phasing of development of the San Ysidro and Proctor Valley parcels to allow for the extraction of mineral resources before construction would effectively mitigate impacts to mineral resources. However, should this not be feasible, the impact to mineral resources would be significant and unmitigable. Actions that preclude the extraction of significant mineral resources would result in unmitigable adverse impacts.

4.9.10 Water Resources and Water Quality

4.9.10.1 Impact Analysis

The impacts of the Phase II-Progress Plan Alternative would be essentially the same as those of the Phase I-Progress Plan Alternative; however, there would be less impermeable surface area associated with the Phase II-Progress Plan Alternative. The smaller area of impermeable surface would result in less surface water flow (runoff) and a greater amount of ground-water recharge.

The types of impacts anticipated for the Phase II-Progress Plan Alternative include inundation of project features, changes in surface water flow rates, surface water quality, and ground-water quality and quantity.

4.9.10.2 Proposed Mitigation

Further analysis is necessary to determine the magnitude of the impacts and to identify measures appropriate to mitigate significant effects. All future studies shall be conducted by a qualified hydrologic engineer and meet the City of Chula Vista, County of San Diego, and Regional Water Quality Control Board standards for urban runoff, sedimentation, floodplain, encroachment, and water quality, as appropriate. The following mitigation measures apply to the Phase II-Progress Plan Alternative (see Section 3.9.3 for additional detail):

- Floodplain encroachment - determine floodplain/floodway width; avoid floodplain encroachment.

- Inundation of project features - perform appropriate detailed hydrologic and hydraulic studies and incorporate the findings, conclusions, and recommendations into the design and construction of the project. Upgrade existing facilities or install retention/detention basins, as appropriate, to contain surface flows, etc.

- Changes in surface water flow rates - perform appropriate detailed hydrologic and hydraulic studies and incorporate findings, conclusions, and recommendations into the design and construction of the project. Incorporate erosion control measures, siltation basins, etc. into project design.

- Ground-water quality - implement the improvements and plans provided in the Urban Runoff Reservoir study. Details on study contents are provided in Section 3.9.3.

- Ground-water quantity - implement measures to enhance recharge to aquifer systems.

- Urban runoff to Lower Otay Lake - prepare and implement Urban Runoff Master Plan.

4.9.10.3 Analysis of Significance

At this level of analysis, impacts to ground-water and surface water resources and quality are considered significant upon development of the Phase II-Progress Plan Alternative. Implementation of the recommended mitigation measures at the SPA and project design

levels of review would reduce the ground-water and surface water impacts to below a level of significance.

4.9.11 Transportation, Circulation, and Access

4.9.11.1 Impact Analysis

This section documents the results of the impact analysis for the Phase II-Progress Plan Alternative. The following topics will be discussed in this section: trip generation, proposed circulation network, arterial segment and freeway impacts, intersection impacts, and a comparative analysis of project-specific impacts under this alternative and the Composite General Plans Alternative.

Appendix B contains a detailed discussion of the impact analysis methodologies and threshold standards used to identify impacts of the Phase II-Progress Plan Alternative. In addition, Appendix B explains differences in specific land uses in the trip generation tables and the corresponding land use descriptions in Section 4 of the EIR. Finally, Appendix B contains information regarding local and regional transportation topics related to project impacts and mitigation.

Trip Generation

Table 4.9.11-1 summarizes the proposed land uses and daily trips for the Phase II-Progress Plan Alternative. It shows that under SANDAG trip generation standards, the proposed land uses for this alternative would generate 657,513 daily trips on Otay Ranch. This table also shows that 34,773 (approximately 5 percent) of these trips would be attributable to the segment of the property to be included in the EastLake General Development Plan (see Section 4.9.1).

Proposed Circulation Network

The Phase II-Progress Plan Alternative identifies a circulation network which features an integrated system of prime arterials, major roads, and collectors to maximize circulation efficiency. Four river crossings could be provided to carry traffic to and from Otay Mesa (Paseo Ranchero, La Media Road, SR-125, and Alta Road).

This circulation system utilizes the village concept to minimize transportation impacts, including loop roads to discourage through trips and to reduce vehicular usage. The circulation network would be supplemented by a system of paths and trails to encourage bike and pedestrian uses. A fixed guide transit system would provide another alternative means of transportation.

Figure 4.9.11-1 shows the proposed onsite and offsite circulation network for the study area under the Phase II-Progress Plan Alternative.

Arterial Segment and Freeway Impacts

Figure 4.9.11-2 shows the project network levels of service for the entire Otay Ranch study area as provided by SANDAG.

Of the 304 roadway miles that make up the total circulation network within the study area (east of I-805) for the Phase II-Progress Plan, 37 miles of roadway (approximately 12 percent) are expected to operate above their maximum recommended ADT volume (LOS D or worse for arterials and LOS F for freeways).

Table 4.9.11-1

LAND USE AND TRIP GENERATION SUMMARY
PHASE II-PROGRESS PLAN ALTERNATIVE
OTAY RANCH TOTAL

Land Use	Land Use Density	Trip Rate	Daily Trips
OTAY RANCH			
Single-Family Residential	15,848	10/du	158,480
Multifamily Residential	10,460	7/du	73,220
EUC Multifamily Residential	2,600	6/du	15,600
TOTAL OTAY RANCH DWELLING UNITS	28,908		
TOTAL OTAY RANCH RESIDENTIAL TRIPS			247,300
EASTLAKE (Land Swap)			
Single-Family Residential	72	10/du	720
Multifamily Residential	1,079	7/du	7,553
TOTAL EASTLAKE DWELLING UNITS	1,151		
TOTAL EASTLAKE RESIDENTIAL TRIPS			8,273
TOTAL PROJECT DWELLING UNITS	30,059		
TOTAL PROJECT RESIDENTIAL TRIPS			255,573
OTAY RANCH			
Office/Commercial			
General Office			
(Less than 100,000 sq.ft. each)	343 KSF	20/KSF	6,860
Freeway Commercial			
(More than 60 acres each)	848 KSF	50/KSF	42,400
Business Park	70 AC	200/AC	14,000
Industrial			
Light Industry	313 AC	130/AC	40,690
Public Quasi-public			
Elementary/Jr. High School	230 AC	40/AC	9,200
High School	100 AC	50/AC	5,000
Other Services	109 AC	50/AC	5,450
Parks (Developed)	155 AC	50/AC	7,750
Parks (Undeveloped)	873 AC	5/AC	4,365
Eastern Urban Center (EUC)			
Large Office	2000 KSF	17/KSF	34,000
Corporate Office	1000 KSF	10/KSF	10,000
Multifamily Residential	2600 du	*	*

Table 4.9.11-1 (Continued)

LAND USE AND TRIP GENERATION SUMMARY
PHASE II-PROGRESS PLAN ALTERNATIVE
OTAY RANCH TOTAL

Land Use	Land Use Intensity	Trip Rate	Daily Trips
Regional Shopping Center (More than 60 acres each)	1125 KSF	40/KSF	45,000
Civic/Cultural Center	200 KSF	30/KSF	6,000
Parks (Developed)	45 AC	50/AC	2,250
Village Centers			
Community Shopping Center (100,000 -300,000 sq.ft. each)	578 KSF	70/KSF	40,460
Neighborhood Shopping Center (Less than 100,000 sq.ft. each)	214 KSF	120/KSF	25,680
Destination Resort	1800 Rooms	7/Room	12,600
Visitor Commercial	720 KSF	40/KSF	28,800
University	12,500 Students	3/Student	37,500
Golf Course	3 Courses	600/Course	1,800
TOTAL OTAY RANCH NON RESIDENTIAL TRIPS			375,440
EASTLAKE			
Office/Commercial			
Freeway Commercial (More than 60 acres each)	440 KSF	50/KSF	22,000
General Office (less than 100,000 sq. ft. each)	15 AC	300/AC	9,500
TOTAL EASTLAKE NON RESIDENTIAL TRIPS			26,500
TOTAL OTAY RANCH DAILY TRIPS			622,740
TOTAL EASTLAKE DAILY TRIPS			34,773
TOTAL PROJECT DAILY TRIPS			657,513

* The 15,600 trips that are generated by the Multifamily dwelling units in the EUC are reflected in the Total Otay Ranch Dwelling Unit count.

A review of the freeway impacts (excluding arterial segments) revealed that of the 31 freeway miles in the study area, 8 miles (approximately 25 percent) are forecasted to experience ADT volumes in excess of the maximum recommended ADT volume (i.e., at LOS F).

Of the total 273 arterial roadway miles that make up the arterial circulation network for the Phase II-Progress Plan Alternative, 29 miles of roadway (approximately 11 percent) are predicted to operate above the maximum recommended ADT volume of LOS D or worse.

Table 4.9.11-2 summarizes the impacted roadway miles by level of service and facility classification.

Intersection Impacts

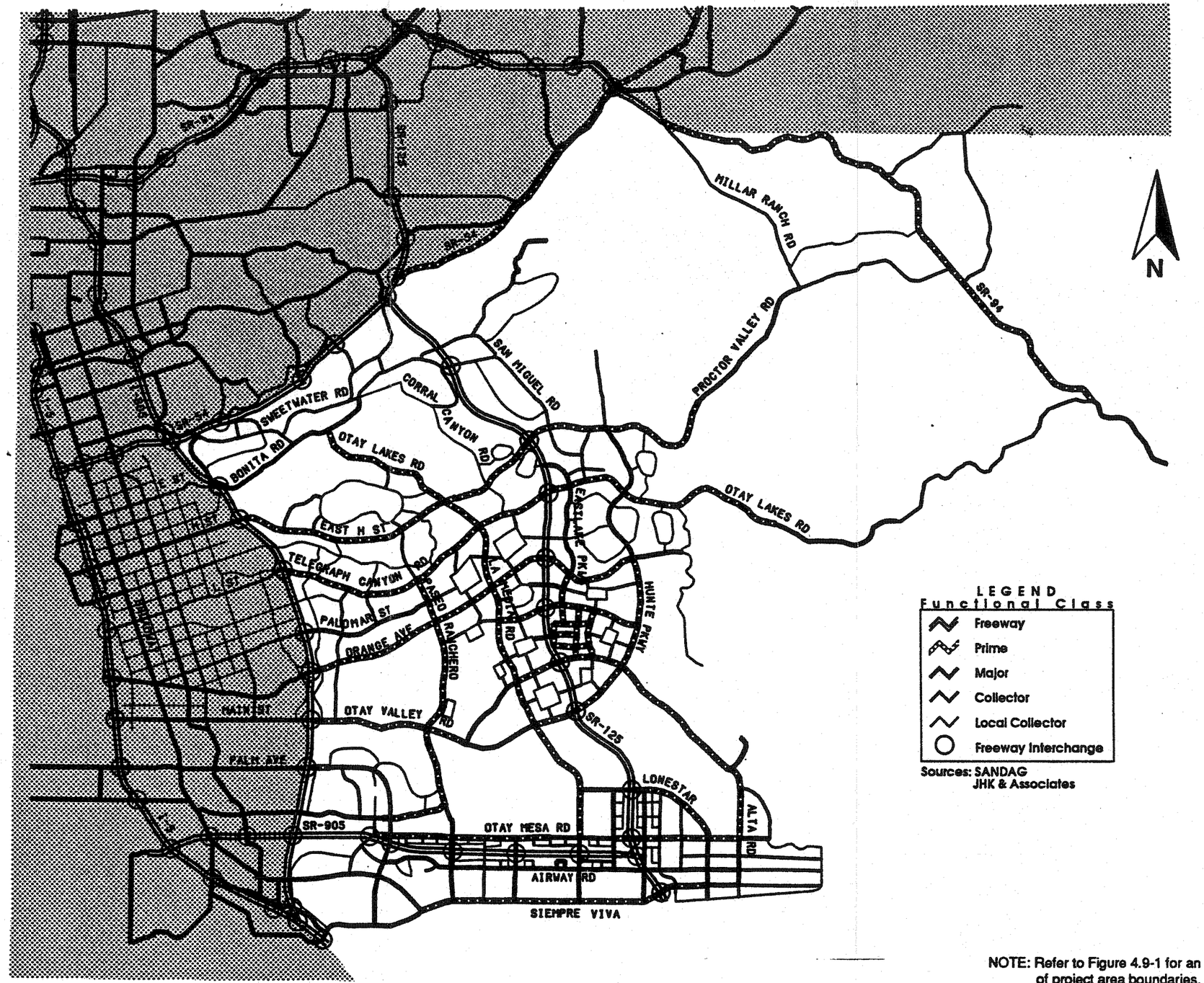
Figure 4.9.11-3 shows the location of critical intersections that would experience high total daily entering volumes in excess of 65,000 vehicles per day (vpd); these intersections would typically require special treatment to provide acceptable peak hour operations. Table 4.9.11-3 summarizes these critical intersection locations and daily entering volumes. Table 4.9.11-3 also defines the level of potential impact based on the type of design solution needed to facilitate the forecasted demand volumes entering the intersection.

Table 4.9.11-3 shows that a total of 10 intersections are predicted to experience high entering volumes in excess of 65,000 vpd under the Phase II-Progress Plan Alternative. Six of the 10 intersections are located within the project site. Three intersections may require special at-grade design to accommodate expected demand, five intersections may require special at-grade or grade separated design, and two intersections may require grade separation, based on the level of expected demand. Detailed study of peak hour turn movement volume is required at the subarea planning stage of development to determine the specific mitigation measures needed at these impacted intersections.

Comparative Analysis of Impacts

It is important to note that the impacts to the Otay Ranch study area circulation network under any development alternative must be mitigated to achieve acceptable levels of service and conform to the adopted performance standards. For review purposes, the Phase II-Progress Plan Alternative impacts are compared to those impacts that would occur under the Composite General Plans Alternative. As discussed in Section 4.5.11, the Composite General Plans Alternative is a combination of the adopted general plans for each of the jurisdictions in the study area. As the adopted Chula Vista General Plan contains the most detailed land use and circulation network information for the area of eastern Chula Vista on and adjacent to the project site, this general plan was used as the primary plan for analysis purposes. This direction was provided by the Interjurisdictional Task Force during the early stages of the review process. This comparative analysis will enable the reviewer to understand the project and the cumulative impacts that would result from a particular alternative. At this program level of review, project-specific impacts cannot be determined with complete accuracy; however, specific measures are recommended in the mitigation section which precisely define the process to be followed during subsequent environmental review resulting in an accurate definition of the project-specific impacts associated with each phase of development.

Project-level impacts are impossible to fully identify and address at this stage of development because of uncertainty relating to the ultimate street system to be approved for the area. For example, will SR-125 be a freeway or a toll facility? Will there be two, three, or four river crossings? These major circulation issues significantly impact trips



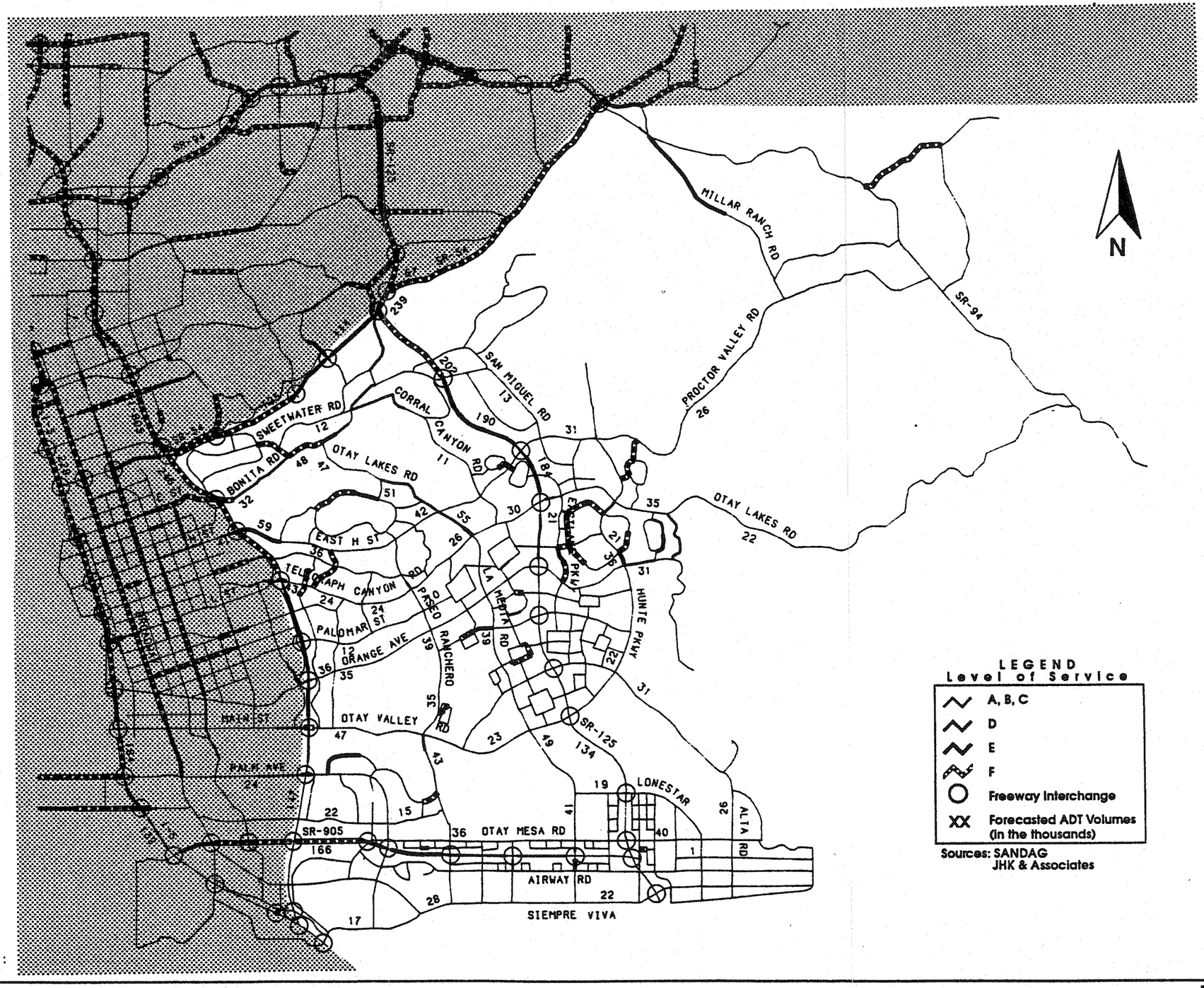
NOTE: Refer to Figure 4.9-1 for an illustration of project area boundaries.

OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.9.11-1

PHASE II PROGRESS PLAN CIRCULATION NETWORK



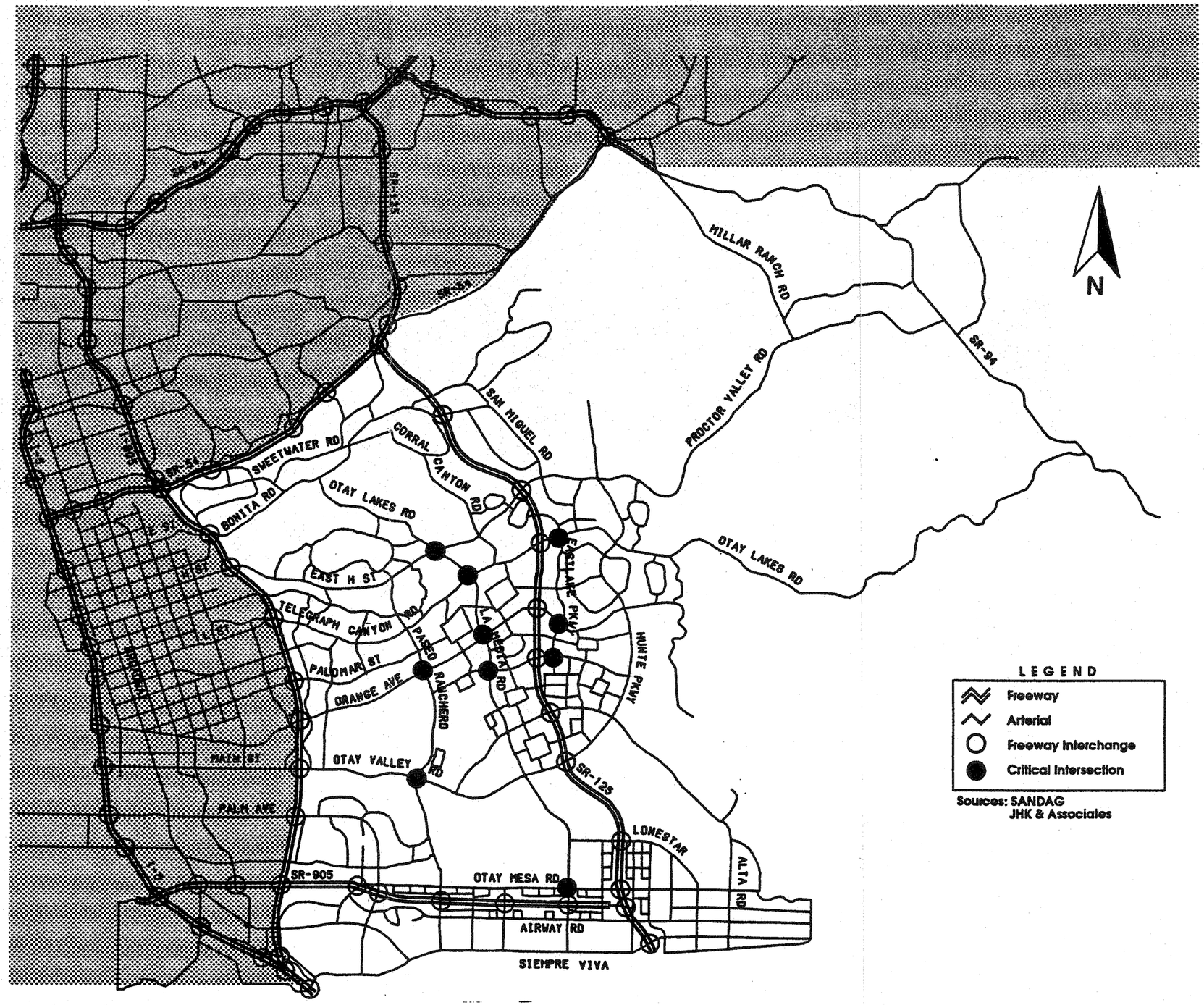
OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.9.11-2

PHASE II PROGRESS PLAN CIRCULATION NETWORK LEVEL OF SERVICE (Prior to Mitigation)

jhk & associates



OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.9.11-3

PHASE II PROGRESS PLAN CRITICAL INTERSECTION LOCATIONS (Prior to Mitigation)

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Table 4.9.11-2

IMPACTED ROADWAY MILES BY LEVEL OF SERVICE
PHASE II-PROGRESS PLAN ALTERNATIVE
(Prior to Mitigation)

Facility Class (# of lanes)	LOS D	LOS E	LOS F	Total Miles
Onsite Impacts				
Local Collector (2)	0.41	0.15	1.13	1.69
Collector (4)	0.00	0.34	0.00	0.34
Major (4)	0.00	0.00	0.61	0.61
TOTAL	0.41	0.49	1.74	2.64
Offsite Impacts				
Local Collector (2)	2.02	2.29	7.8	12.11
Collector (4)	1.88	2.38	0.57	4.83
Major (4)	1.21	1.00	2.78	4.99
Prime (6)	2.81	1.31	0.00	4.12
Freeway	0.00	0.00	7.81	7.81
TOTAL	7.92	6.98	18.96	33.86
Combined Onsite/ Offsite Impacts				
Local Collector (2)	2.43	2.44	8.93	13.80
Collector (4)	1.88	2.72	0.57	5.17
Major (4)	1.21	1.00	3.39	5.60
Prime (6)	2.81	1.31	0.00	4.12
Freeway	0.00	0.00	7.81	7.81
TOTAL	8.33	7.47	20.70	36.50

Combined Onsite/ Offsite Network	Total Roadway Miles	Total Impacted Roadway Miles	Percent Impacted Roadway Miles
Local Collector (2)	68.81	13.80	20%
Collector (4)	64.39	5.17	8%
Major (4)	59.49	5.60	9%
Prime (6)	80.14	4.12	5%
Freeway	31.38	7.81	25%
TOTAL	304.21	36.50	12%

Table 4.9.11-3

OTAY RANCH STUDY AREA
SUMMARY OF HIGH VOLUME INTERSECTION LOCATIONS
PHASE II-PROGRESS PLAN ALTERNATIVE
(Prior to Mitigation)

Intersection	Total Entering Volume	Special At-grade Design Required		Special Grade Separated Design Required
Onsite Impacts				
EastLake Parkway/EUC North	76,000	Yes	or	Yes
EastLake Parkway/Orange Avenue	79,000	Yes	or	Yes
La Media Road/Orange Avenue	89,500	N/A		Yes
La Media Road/EUC North	68,500	Yes		No
Paseo Ranchero/Orange Avenue	78,000	Yes	or	Yes
Paseo Ranchero/Otay Valley Road	81,500	Yes	or	Yes
Offsite Impacts				
EastLake Parkway/Otay Lakes Road	67,000	Yes		No
La Media Road/Otay Lakes Road	81,000	Yes	or	Yes
La Media Road/Otay Mesa Road	65,100	Yes		No
Otay Lakes Road/East H Street	88,000	N/A		Yes

through the project area; consequently, project-level impacts cannot be adequately identified at this time. During the subsequent planning efforts and preparation of SPA plans, these issues can be quantified and mitigated.

Table 4.9.11-4 provides a summary comparison of the circulation network impacts that would occur under the Phase II-Project Plan Alternative and the Composite General Plans Alternative. Approximately 3 miles of onsite roadway network and 34 miles of offsite roadway network would be impacted under the Phase II-Progress Plan Alternative. In addition, under the Composite General Plans Alternative, 3 miles of onsite roadway network and 24 miles of offsite roadway network would be impacted. Thus no fewer onsite roadway miles and 10 additional offsite roadway miles would be impacted under the Phase II-Progress Plan Alternative. Table 4.9.11-4 also compares the number of impacted major signalized intersections. Four more onsite intersections and two less offsite intersections would be impacted under the Phase II-Progress Plan Alternative.

4.9.11.2 Proposed Mitigation

This section provides a detailed discussion of the proposed mitigation measures required for the Phase II-Progress Plan. These mitigation measures include specific geometric improvements for study area arterial roadways and major intersections. The applicable mitigation measures have been divided into two separate categories: those which are required as mitigation measures for the project, and those in which the project proponent shall participate, as a major developer in the Southbay region. Appendix B of this document contains a detailed discussion of the various forms of circulation system mitigation measures required for the Otay Ranch study area under all of the development alternatives proposed for the site. A separate section of Appendix B contains a detailed discussion of general policy-related mitigation measures applicable to the Otay Ranch study area and the Southbay region.

General Mitigation Measures

This section identifies the applicable measures from Appendix B which shall be applied to the Phase II-Progress Plan Alternative as required mitigation. The following list summarizes the specific and general mitigation measures from Appendix B which are specifically applied to this alternative.

Required Mitigation Measures

	Participatory	Required
General Mitigation Measures		
• Prepare Transportation Demand Management (TDM) Mitigation Strategies	X	
• Update General Plans	X	X
• Prepare Transportation Phasing Plans	X	X
• Provide Parallel Arterial System	X	
• Improve Mode Split	X	
• Increase Local/Regional Trip Capture	X	
Regional Freeway Mitigation Measures		
• Increase Freeway Capacities	X	

Table 4.9.11-4

COMPARATIVE ANALYSIS OF IMPACTS
PHASE II-PROGRESS PLAN ALTERNATIVE vs. COMPOSITE GENERAL PLANS ALTERNATIVE
(Prior to Mitigation)

Impacted Roadway Miles by Facility Class and Level of Service

	Phase II-Progress Plan Alternative				Composite General Plans Alternative			
Facility Class	LOS D	LOS E	LOS F	TOTAL	LOS D	LOS E	LOS F	TOTAL
Onsite Impacts								
Local Collector (2LN)	0.41	0.15	1.13	1.69	0.00	0.00	0.00	0.00
Collector (4LN)	0.00	0.34	0.00	0.34	0.00	0.58	0.00	0.58
Major (4LN)	0.00	0.00	0.61	0.61	0.55	0.00	1.25	1.80
Prime (6LN)	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.36
TOTAL	0.41	0.49	1.74	2.64	0.55	0.94	1.25	2.74
Offsite Impacts								
Local Collector (2LN)	2.02	2.29	7.80	12.11	0.00	1.63	3.79	5.42
Collector (4LN)	1.88	2.38	0.57	4.83	0.00	0.77	0.05	0.82
Major (4LN)	1.21	1.00	2.78	4.99	0.76	0.62	4.27	5.65
Prime (6LN)	2.81	1.31	0.00	4.12	3.69	1.92	0.00	5.61
Freeway	0.00	0.00	7.81	7.81	0.00	0.00	6.00	6.00
TOTAL	7.92	6.98	18.96	33.86	4.45	4.94	14.11	23.50
TOTAL IMPACTS	8.33	7.47	20.70	36.50	5.00	5.88	15.36	26.24

Table 4.9.11-4 (Continued)

COMPARATIVE ANALYSIS OF IMPACTS
PHASE II-PROGRESS PLAN ALTERNATIVE vs. COMPOSITE GENERAL PLANS ALTERNATIVE
(Prior to Mitigation)

Impacted Major Signalized Intersections by Stage of Required Mitigation

	Phase II-Progress Plan Alternative	Composite General Plans Alternative
Onsite Intersections		
Stage 1	1	0
Stage 2	4	0
Stage 3	1	2
TOTAL	6	2
Offsite Intersections		
Stage 1	2	4
Stage 2	1	0
Stage 3	1	2
TOTAL	4	6
TOTAL IMPACTED INTERSECTIONS	10	8

Arterial Segment Mitigation

• Increase Segment Capacities	X	

Arterial Intersection Mitigation

• Increase Intersection Capacities	X	

Other Mitigation Strategies	Participatory	Required
• Implement Transportation System Management Strategies	X	
• Implement Traffic Control Strategies	X	X

Potential Transportation Demand Management Benefits

This section summarizes the potential benefits to circulation system operations with the successful implementation of Transportation Demand Management (TDM) strategies proposed by SANDAG and the Air Pollution Control District. Both of these plans would increase average vehicle occupancy (passengers per vehicle) during commute trips from the current level of less than 1.1 to at least 1.5 in the future.

SANDAG estimates that through TDM, commuting trips region-wide could be reduced by 17 percent. As a regional program, implementation of an aggressive TDM program clearly has a significant positive impact on peak hour operating LOS on the regional circulation system, when roads are usually operating at or near capacity.

Based on the modeled results using the Phase I-Progress Plan Alternative, with TDM benefits included in the model, it can be expected that the TDM policies would decrease total vehicle miles traveled (VMT) by approximately 8 percent. This reduction in traffic activity could potentially reduce both arterial and intersection impacts by one third. A peak hour analysis will be conducted on the conceptually approved plan under TDM and non-TDM conditions prior to each SPA Plan approval. This analysis will more precisely define the extent and location of impacts and identify specific mitigation measures that will be required under the selected development scenario for the Otay Ranch.

Transit System Mitigation

The proposed rail lines for the Southbay area are not included in MTDB's Long Range Rail Plan and, therefore, these lines and the supporting bus services are not funded at the present time. Otay Ranch shall contribute to the capital and operating costs associated with the new transit system. This shall be done through provisions in facility financing plans at the SPA level. Further, benefit assessment districts shall be established to fund new transit routes under MTDB Board Policy No. 40, Non Transit Funding of New Transit Services.

Summary

It is critical to note that the plans for Otay Ranch provide a comprehensive, efficient, and safe system for a variety of transportation modes. Automobile-oriented improvements do not entirely define the scope of these improvements. Rather, they are just one element of an integrated mobility system which includes bus, fixed guideway transit, carts, bicycles, pedestrian ways, and trails all linked to minimize or avoid automobile travel.

The next section details the project-specific mitigation measures to individual impacted segments and intersections identified in the impact analysis conducted for this alternative. These specific mitigation measures are defined in Appendix B and detailed below.

Project-specific Mitigation Measures

Introduction

This traffic analysis is oriented toward future traffic conditions at the full buildout of the project. However, buildout will occur over a number of years, and it will be necessary to provide an adequate transportation system for interim periods of development. The following paragraphs describe the recommendations to deal with the phasing of development and transportation improvements.

Primary regional transportation facilities which impact the project area are SR-125 and regional transit service (light rail or express bus). With these regional transportation facilities in place, it will be feasible to implement any major portion of development. If some of the development is proposed to occur before regional transportation facilities are implemented, project phasing will require that a local transportation traffic phasing analysis be conducted to identify alternative transportation mitigation measures which may be necessary.

Additional traffic analyses will be conducted to determine appropriate phasing of transportation improvements as interim phases of project development occur. As documented by the Transportation Phasing Plan (TPP) developed by Chula Vista for the Eastern Territories area, trip patterns and traffic impacts may change significantly in the course of project development. Thus, it will be important to adequately assess the impacts of the Otay Ranch Project at various phases of development. This will require the development of a comprehensive transportation phasing program which will be coordinated with each phase of land use development. This Otay Ranch Transportation Phasing Program will be coordinated with the TPP conducted by the City of Chula Vista. The development and implementation of each SPA or village will receive a site-specific traffic impact evaluation to identify the potential impacts to the current transportation network and recommend appropriate mitigation to maintain high quality service to the local system.

When reviewing the required mitigation measures presented in this section, it should be recognized that these measures will be implemented based on the phased implementation of the project and anticipated growth over time. If the actual daily volumes do not reach the forecasted levels reported in the impact analysis sections, it may be possible to defer or delete the physical implementation of the mitigation measure. Factors which may influence a reduction in forecasted buildout volumes include the following:

- Village Design
- Light Rail/Transit Service
- Successful TDM Program (Local and Region-wide)

Table 4.9.11-5 summarizes the required mitigation measures for network arterial segments to accommodate expected demand. Table 4.9.11-6 summarizes the required arterial intersection mitigation under this alternative. Figure 4.9.11-4 shows the location of all arterial impacts under this alternative. Impacted arterial segments are coded with letters that correspond to those in Table 4.9.11-5. Impacted intersections are coded with numbers that correspond with those found in Table 4.9.11-6.

Table 4.9.11-5

PHASE II-PROGRESS PLAN ALTERNATIVE
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED ARTERIAL SEGMENTS

SEGMENT MITIGATION			DESCRIPTION OF SEGMENT MITIGATION					
No.	Segment	From - To	Increase Segment Capacity *	Require Enhanced Intersection Capacity**	Increase Regional/ Local Trip Capture	Improve Mode Split	Level of Significance***	Comments
Onsite Network								
A.	EastLake Parkway	Orange Avenue - EUC North	X	X (Stage 2,2)			1	(1) Major (4LN) - Prime (6LN)
B.	EUC North	Village 2 Local - La Media Road	X	X (Stage 2)			1	(1) Collector (4LN) - Major (4LN)
C.	Village 2 Local	EUC North - EUC North	X				1	(1) Local Collector (2LN) - Collector (4LN)
D.	Village 3 Local	Village 3 Local - Paseo Ranchero	X				1	(1) Local Collector (2LN) - Collector (4LN)
E.	Village 3 Local	N/O Village 3 Local	X				1	(1) Local Collector (2LN) - Collector (3LN)
F.	Village 5 Local	Village 5 Collector - Palomar Street	X				1	(1) Local Collector (2LN) - Collector (3LN)
G.	Village 6 Local	Village 6 Collector - EUC Major	X				1	(1) Local Collector (2LN) - Collector (3LN)
H.	Village 6 Local	EUC Major - Village 6 Collector	X				1	(1) Local Collector (2LN) - Collector (4LN)
I.	Village 7 Local	Village 7 Collector - Village 7 Major	X				1	(1) Local Collector (2LN) - Collector (4LN)
J.	Village 7 Local	Village 7 Major - Village 7 Collector	X				1	(1) Local Collector (2LN) - Collector (3LN)
Offsite Network								
K.	Bonita Road	I-805 - Plaza Bonita Road	X		X	X	3	(1) Major (4LN) - Prime (6LN)
L.	Bonita Road	Plaza Bonita Road - Willow Street	X		X	X	3	(1) Major (4LN) - Major (6LN)
M.	Bonita Road	Willow Street - Otay Lakes Road	X		X	X	2	(1) Major (4LN) - Prime (6LN)
N.	Bonita Road	Otay Lakes Road - Central Avenue	X		X	X	2	(1) Major (4LN) - Major (6LN)
O.	Bonita Road	Central Avenue - San Miguel Road			X	X	2	(1) Collector (4LN) - Major (4LN)
P.	Camino Macquiladora	Otay Mesa Road - Heritage Road	X				1	(1) Local Collector (2LN) - Collector (4LN)
Q.	Carnoustie Road	Harvest Road - Dornoch Court	X				1	(1) Local Collector (2LN) - Collector (3LN)
R.	Central Avenue	Bonita Road - Carrol Canyon Road	X				1	(1) Local Collector (2LN) - Collector (4LN)
S.	Crest Drive	East J Street - Telegraph Canyon Road	X		X	X	1	(1) +
T.	Del Sol Road	W/O Paseo Ranchero	X				1	(1) Local Collector (2LN) - Collector (3LN)
U.	East H Street	I-805 - Terra Nova Road	X				1	(1) Prime (6LN) - Prime (8LN)
V.	EastLake Parkway	Palomar Street - Orange Avenue	X	X (Stage 1)			1	(1) Major (4LN) - Prime (6LN)
W.	EastLake Greens	Hunte Parkway - Hunte Parkway	X				1	(1) Local Collector (2LN) - Collector (4LN)
X.	EastLake Local	EastLake Parkway - EastLake Greens	X				1	(1) Local Collector (2LN) - Collector (4LN)
Y.	EastLake Trails	Hunte Parkway - Hunte Parkway	X				1	(1) Local Collector (2LN) - Collector (3LN)

Table 4.9.11-5 (Continued)

PHASE II-PROGRESS PLAN ALTERNATIVE
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED ARTERIAL SEGMENTS

SEGMENT MITIGATION			DESCRIPTION OF SEGMENT MITIGATION					
No.	Segment	From - To	Increase Segment Capacity *	Require Enhanced Intersection Capacity**	Increase Regional/ Local Trip Capture	Improve Mode Split	Level of Significance***	Comments
Offsite Network (Continued)								
Z.	Hunte Parkway	Otay Lakes Road - EastLake Greens	X	X (Stage 1)			1	(1) Major (4LN) - Major (6LN)
AA.	Hunte Parkway	EastLake Trails - Orange Avenue	X				1	(1) Major (4LN) - Major (6LN)
AB.	La Media Road	Otay Mesa Road - SR 905	X	X (Stage 1)			1	(1) Major (4LN) - Major (6LN)
AC.	La Media Road	SR 905 - Airway Road	X				1	(1) Major (4LN) - Prime (6LN)
AD.	Brittania Boulevard	SR 905 - Airway Road	X				1	(1) Major (4LN) - Major (6LN)
AE.	Millar Ranch Road	SR 94 - Proctor Valley Road	X				1	(1) Collector (4LN) - Major (4LN)
AF.	Oleander Avenue	Telegraph Canyon Road - Naples Ave.	X				1	(1) Local Collector (2LN) - Collector (4LN)
AG.	Orange Avenue	Hunte Parkway - EastLake Vista	X	X (Stage 1)			1	(1) Major (4LN) - Major (6LN)
AH.	Otay Lakes Road	Bonita Road - East H Street		X (Stage 1,3)	X	X	2	Maximum Segment Classification
AI.	Otay Lakes Road	East H Street - Telegraph Canyon Road		X (Stage 3,2)	X	X	2	Maximum Segment Classification
AJ.	Otay Lakes Road	SR - 125 - Eastlake Parkway		X (Stage 2)	X	X	2	(1) Prime (6LN) - Prime (8LN)
AK.	Paseo Del Rey	East H Street - Telegraph Canyon Road	X				1	(1) Local Collector (2LN) - Collector (4LN)
AL.	Paseo Ranchero	East J Street - Telegraph Canyon Road	X				1	(1) Collector (4LN) - Major (4LN)
AM.	Paseo Ranchero	Otay Valley Road - Del Sol Road		X (Stage 2)			1	Maximum Segment Classification
AP.	Sweetwater Road	Bonita Mesa Road - Willow Street	X				1	(1) Collector (4LN) - Major (4LN)
AQ.	Sweetwater Road	Bonita Road - SR 54	X				1	(1) Collector (4LN) - Major (4LN)
AR.	Willow Street	Sweetwater Road - Bonita Road	X				1	(1) Collector (4LN) - Major (6LN)
AS.	Wueste Road	Otay Lakes Road - Orange Avenue	X				1	(1) Local Collector (2LN) - Collector (3LN)

Notes:

* See Comment (1) - The description under this column details the required change in roadway capacity and facility classification which is necessary to achieve acceptable performance on the referenced arterial segment.

+ The City of Chula Vista considers that the identification of this roadway asegment as impacted represents an anomaly of the model; therefore a Significant and Mitigable impact is defined for this segment.

**Stages of Intersection Mitigation

Stage 1 - Special At-Grade Intersection Design Required

Stage 2 - Special At-Grade or Grade Separated Intersection Design Required

Stage 3 - Grade Separated Intersection Design Required

***Level of Significance

1 - Significant and Mitigable

2 - Significant and Not Mitigable at the GDP Level Due to Lack of Design Information

3 - Significant and Not Mitigable

See Appendix B for more information

Table 4.9.11-6

PHASE II - PROGRESS PLAN ALTERNATIVE
SUMMARY OF REQUIRED MITIGATION MEASURES
IMPACTED SIGNALIZED INTERSECTIONS

INTERSECTION MITIGATION		DESCRIPTION OF INTERSECTION MITIGATION				
No.	Intersection Location	Special At-Grade Design Required	Special At-Grade or Grade Separated Design Required	Special Grade Separated Design Required	Increase Regional/ Local Trip Capture	Level of Significance*
Onsite Intersections						
1.	EastLake Parkway/EUC North		X		X	1
2.	EastLake Parkway/Orange Avenue		X		X	1
3.	La Media Road/EUC North	X				1
4.	La Media Road/Orange Avenue	X				1
5.	Paseo Ranchero/Orange Avenue		X		X	1
6.	Paseo Ranchero/Otay Valley Road		X		X	1
7.	Eastlake Parkway/Otay Lakes Road	X				1
8.	La Media Road/Otay Lakes Road			X	X	2
9.	La Media Road/Otay Mesa Road	X				1
10.	Otay Lakes Road/East H Street			X	X	2

Notes: *Level of Significance
1. Significant and Mitigable
2. Significant and Not Mitigable at the GDP Level Due to Lack of Design Information
3. Significant and Not Mitigable

See Appendix B for more information

The information shown on the mitigation figure and tables for this alternative indicates that the following facilities would require special attention during final review:

Critical East/West Roadway Facilities

- Bonita Road - I-805 to Central Avenue

Critical North/South Roadway Facilities

- Otay Lakes Road - Bonita Road to Telegraph Canyon Road

These critical arterial facilities would be heavily impacted by the anticipated traffic operations at the major signalized intersections located along their lengths. As shown in Figure 4.9.11-4, both segment and intersection mitigation measures are required to achieve acceptable levels of service where possible.

Mitigation Implementation Review

In order to clearly identify potential difficulties in implementing the required mitigation measures for critical offsite segments and intersections, additional research has been conducted to identify existing constraints. These existing circulation system constraints may consist of the following factors:

- Existing residential or commercial development
- Previous General Plan roadway classification
- Limited ability to acquire additional right-of-way
- Non-conformance with existing community character

Utilizing data compiled by the County of San Diego and the City of Chula Vista Public Works Departments relating to the existence of constraints on the existing or planned offsite circulation facilities, Table 4.9.11-7 summarizes the anticipated difficulties which may occur if required mitigation measures are implemented for the Phase II-Progress Plan Alternative. This preliminary review of potential constraints is intended to provide insight towards the feasibility of implementing a particular mitigation measure. The information provided at this general plan level project review is intended to provide citizens, staff, and decision-makers with adequate data on which to base project findings.

4.9.11.3 Analysis of Significance

It is important to understand that the potential significant impacts after mitigation will only arise if the buildout volumes forecasted by the Combined Southbay Transportation Model actually occur. As subsequent analyses are conducted during the development of Otay Ranch, these forecasted significant impacts may be reduced if the projected volume levels are not realized. Factors which may influence a reduction in forecasted buildout volumes include the following:

- Village Design
- Light Rail/Transit Service
- Successful TDM Program (Local and Region-wide)

This section provides a discussion of the analysis of significance of unmitigable impacts under the Phase II-Progress Plan Alternative. The methodology used to define the significance of these impacts is defined in Appendix B. Based on the level of significance column shown in the mitigation tables and the review of mitigation implementation tables,

Table 4.9.11-7

MITIGATION IMPLEMENTATION REVIEW
PHASE II - PROGRESS PLAN ALTERNATIVE

Segment	From - To	Jurisdiction	Adopted Circulation Plan Class (1)	Recommended Circulation Plan Class Mitigation	Difficulty of Implementation (2)	Level of Significance (3)	Comments (4)
Off-Site Network							
Bonita Road	I-805 - Plaza Bonita Road	County of San Diego/ City of Chula Vista/ Caltrans	Major (4LN)	Prime (6LN)	3	3	GPA, C, B
Bonita Road	Plaza Bonita Road - Willow Street	County of San Diego/ City of Chula Vista	Major (4LN)	Major (6LN)	3	3	GPA, C, B
Bonita Road	Willow Street - Otay Lakes Road	City of Chula Vista	Major (4LN)	Prime (6LN)	2	2	GPA
Bonita Road	Otay Lakes Road - Central Avenue	County of San Diego/ City of Chula Vista	Major (4LN)	Major (6LN)	2	2	GPA, B
Bonita Road	Central Avenue - Sweetwater Road	County of San Diego	Class I Collector	Major (4LN)	2	2	GPA, B
Otay Lakes Road	Bonita Road - East H Street	City of Chula Vista	Prime (6LN)	Prime (6LN)	2	2	
Otay Lakes Road	East H Street - Telegraph Canyon Rd.	City of Chula Vista	Prime (6LN)	Prime (6LN)	2	2	
Otay Lakes Road	SR 125 - EastLake Parkway	City of Chula Vista	Prime (6LN)	Prime (8LN)	2	2	GPA
Sweetwater Road	SR 54 - Plaza Bonita Road	National City	Major (4LN)	Major (6LN)	2	2	GPA, C,A
Sweetwater Road	Bonita Mesa Road - Willow Street	County of San Diego	Class I Collector	Major (6LN)	2	2	GPA, C, B

Notes:

1. Adopted Circulation Plan Classification
   N/C Not Classified as a Circulation Element Facility
   N/A - Not Included in Circulation Element Plans
2. Difficulty of Implementation
   1 - Achievable
   2 - Moderate Level of Difficulty
   3 - High Level of Difficulty
3. Level of Significance
   1 - Significant and Mitigable
   2 - Significant and Not Mitigable at the GDP Level Due to Lack of Design Information
   3 - Significant and Not Mitigable
4. Comment
   GPA - General Plan Amendment Required
   B - Right of Way Acquisition Required
   C - Facility Constructed to Adopted Classification

those impacts which have a Level 2 (Significant and Not Mitigable at the GDP Level due to Lack of Design Information) or a Level 3 (Significant and Not Mitigable) are summarized.

Table 4.9.11-8 shows the remaining impacts to the Otay Ranch study area circulation network after implementation of the required mitigation measures for this alternative. This table shows that of the 82 roadway miles that comprise the onsite circulation network for this alternative and the 2.64 roadway miles (approximately 3 percent) that would be impacted by this alternative before mitigation, no impacts to onsite roadway miles would remain significant after mitigation.

Of the 222 roadway miles that make up the offsite circulation network, 33.86 roadway miles (approximately 15 percent) would be impacted by the project. After mitigation, impacts to 14.89 roadway miles (approximately 7 percent) would be significant.

Of the 10 intersections that would be impacted by the project, 2 would be significant after mitigation.

Figure 4.9.11-5 shows the location of the remaining circulation network impacts after mitigation.

Table 4.9.11-8

SIGNIFICANT UNMITIGABLE IMPACTS AFTER MITIGATION OTAY RANCH STUDY AREA CIRCULATION NETWORK PHASE II-PROGRESS PLAN ALTERNATIVE

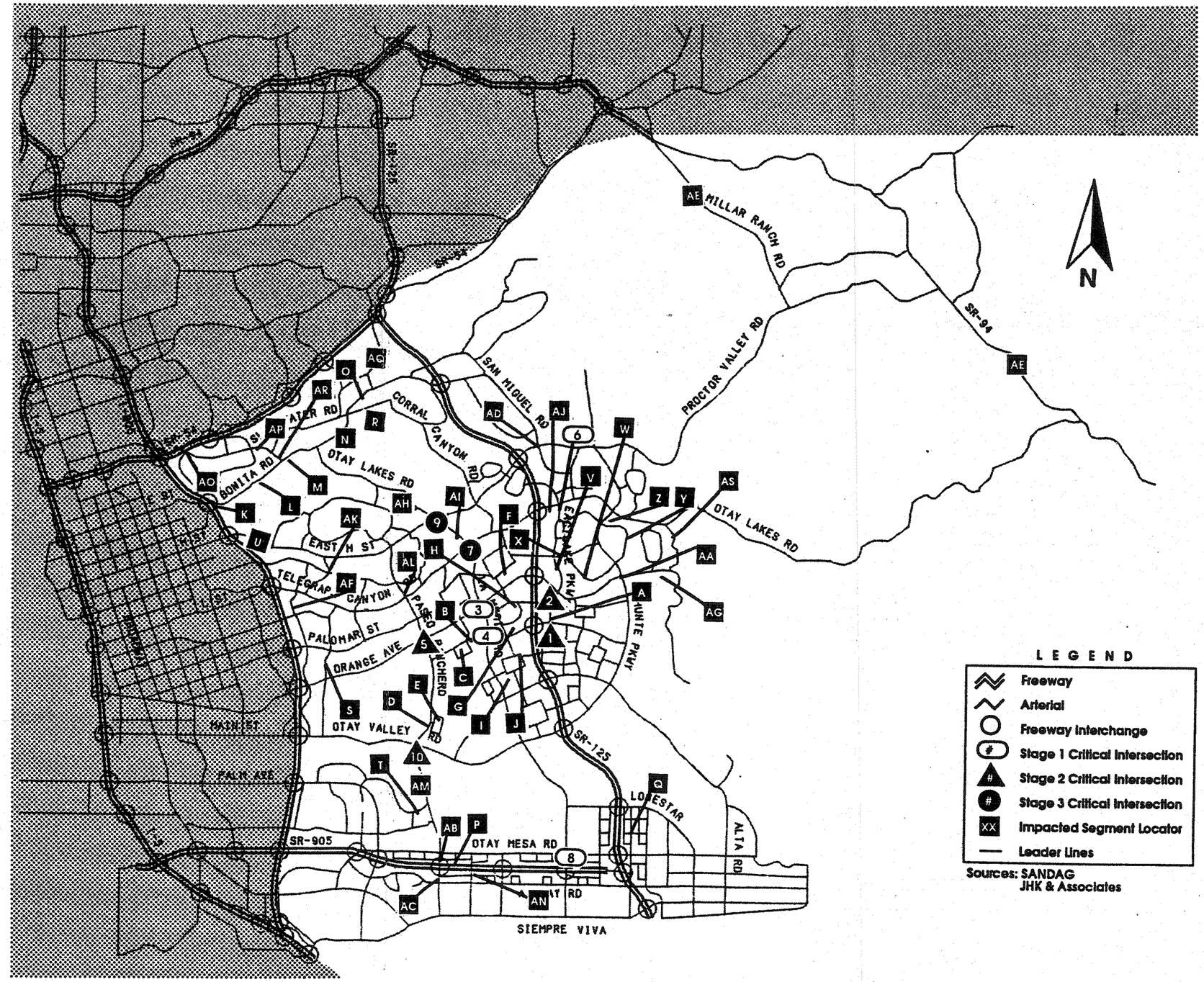
Offsite Impacted Roadway Miles

Arterial Segment	From	To	Distance
Bonita Road	I-805	San Miguel Road	3.34 miles
Otay Lakes Road	Bonita Road	Telegraph Canyon Road	3.01 miles
Otay Lakes Road	SR-125	EastLake Parkway	0.30 miles
Sweetwater Road	SR 54	Plaza Bonita Road	0.09 miles
Sweetwater Road	Bonita Mesa Road	Willow Street	0.34 miles
Total Significant Impacts	- Offsite Arterial Roadway Miles		7.08 miles
	- Offsite Freeway Miles		7.81 miles
Total Significant Impacts - Otay Ranch Study Area Circulation Network			14.89 miles

Offsite Impacted Intersections

Intersection	Stage of Mitigation Required
Otay Lakes Road/East H Street	3
Otay Lakes Road/La Media Road	3

See Appendix B for more information.

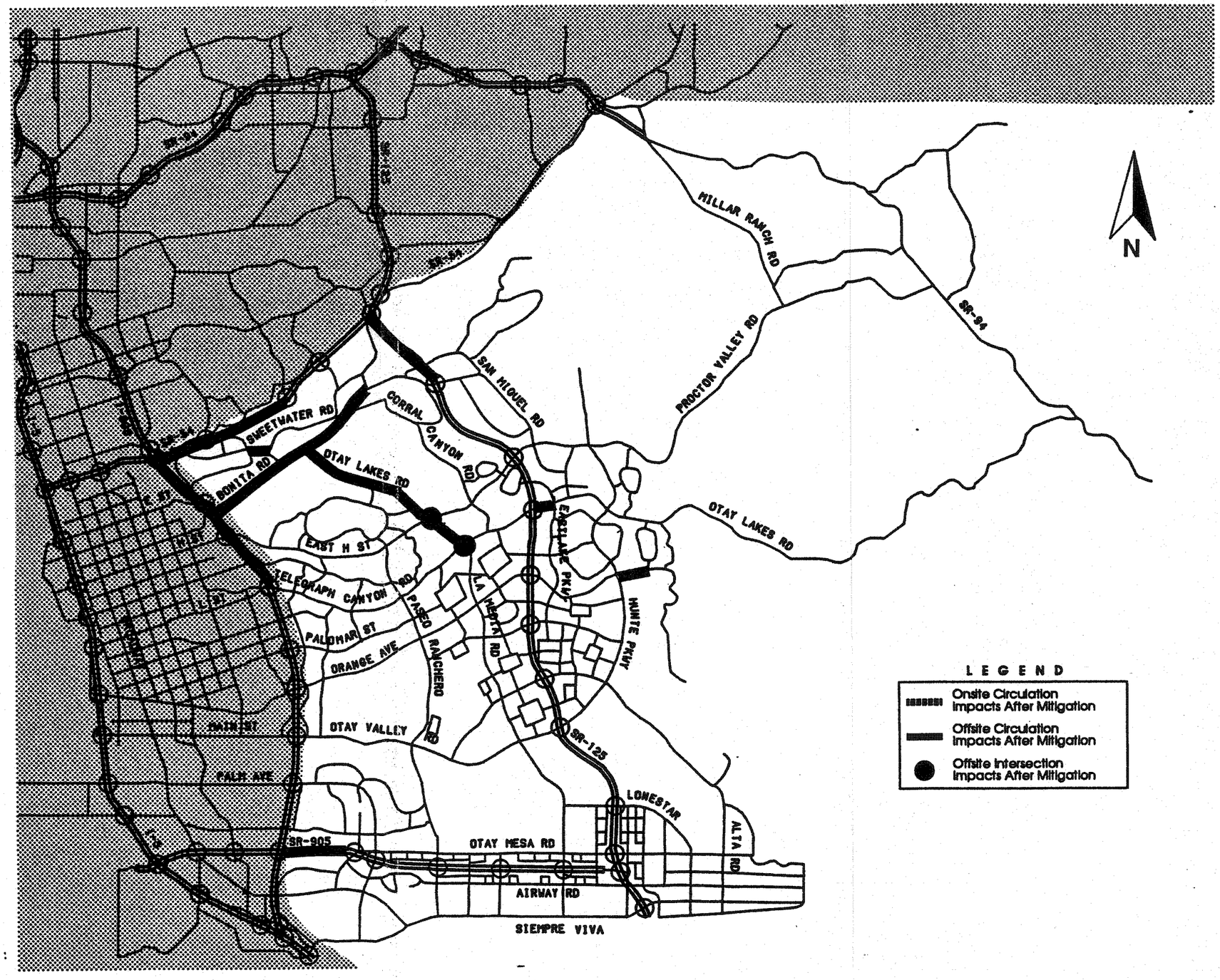


OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.9.11 - 4

PHASE II PROGRESS PLAN REQUIRED MITIGATION MEASURES



OTAY RANCH

Transportation, Circulation and Access Technical Analysis

Figure 4.9.11-5

PHASE II PROGRESS PLAN LOCATION OF SIGNIFICANT IMPACTS AFTER MITIGATION

jhk & associates

4.9.12 Air Quality

4.9.12.1 Impact Analysis

The air quality impacts associated with the Phase II-Progress Plan Alternative would be very similar to those of the Phase I-Progress Plan Alternative, as the number of dwelling units and the population for the two alternatives are very similar. The project design includes bicycle and pedestrian paths as well as an LRT line. The mixture of commercial and recreational facilities in residential areas should encourage vehicle trip reductions, an important part of transportation control measures in the RAQS. However, San Diego County does not presently meet ambient air quality standards, and the Phase II-Progress Plan Alternative would result in a greater increase in population than the Existing General Plans on which the SANDAG Series 7 growth projections are based (see Section 3.11.1.1 for a discussion of Series 8 projections). Consequently, the air quality impacts are expected to be significant.

4.9.12.2 Proposed Mitigation

The mitigation measures listed in Table 4.2.12-6 for the Phase I-Progress Plan would apply to the Phase II-Progress Plan and would minimize air pollution impacts.

4.9.12.3 Analysis of Significance

Assuming that growth in the remainder of the county equals or exceeds the Series 7 projections, mitigation measures applied to this alternative would not reduce impacts to below a level of significance.

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4.9.13 Noise

4.9.13.1 Impact Analysis

Roadways

The primary noise source throughout the project area at full buildout of the Phase II-Progress Plan Alternative would be vehicular traffic. Onsite noise impacts would occur as development is completed on Otay Ranch, whereas offsite impacts would be realized as regional traffic volumes increase due to area growth and roadway segments are widened to accommodate the increased traffic. Additional noise impacts are anticipated when existing roadways are re-aligned in accordance with planned or proposed circulation element improvements. The degree of the impact would depend on the location of the noise-sensitive receptors in relation to the roadways as well as on project design. In general, noise-sensitive receptors located along major arterials and collector streets may be impacted by sound levels exceeding 60 CNEL and result in a significant impact. Vehicular traffic noise impacts from this alternative are similar to the New Town Plan and the Phase I-Progress Plan.

Noise generated by project-related traffic is expected to increase the noise level at the existing sensitive receptors located along the offsite access roadways. Based on the transportation analysis in Section 4.9.11, the project-generated traffic would impact a approximately 15 percent (or 34 miles) of the offsite roadway miles. In comparison to buildout under the Composite General Plan, the Phase-II Progress Plan traffic contributes 10 additional miles of impacted roadways (refer to Tables 4.2.11-4 for details on impacted roadway miles). Although there is not a direct correspondence between impacted mileage and noise impacts, comparison with the Composite General Plans Alternative should provide a general degree of vehicular noise impacts. The amount of noise increase is dependent on such factors as roadway design, ADT, distance from the roadway, the orientation of the usable outdoor living areas to the roadway, and intervening topography. In general, a doubling of the traffic volume would be expected to increase the sound level by 3 dBA. This is considered significant if usable outdoor living areas such as balconies, patios, children's playing areas, and swimming pools are affected. Major roadways which may impact existing residences include East H Street, Otay Valley Road, East Orange Avenue, Palomar Street, and Telegraph Canyon Road. There may be other smaller roadways which may cause a noise impact.

At this level of analysis, noise from onsite and offsite roadways is considered to be a significant and potentially unmitigable impact within 1250 feet of the facility. A site-specific acoustical study will be required during the SPA Plan review and prior to adoption of any circulation element General Plan Amendments. The study shall provide a description of the proposed project, the existing noise environment, the future noise environment, noise impacts, and the required mitigation measures. If development within the effected area is phased in subsequent to the landfill closure, the impacts would be avoided.

Riparian vegetation is a potential habitat for the federally endangered least Bell's vireo. Elevated noise levels can potentially mask the song of the least Bell's vireo which is used to attract mates and defend territories. The San Diego Association of Governments (SANDAG) in a 1989 study (SANDAG 1989) theoretically estimated that noise levels above 60 dBA Leq in vireo breeding areas may impact the reproductive success of this species during their breeding season which occurs from March 15 to September 15. At this level of analysis, noise from roadways and construction is considered to be a significant and unmitigated impact (see Section 3.3, Biological Resources).

Gun Ranges

Two gun ranges are currently located on the project site. A small private shooting range is located north of the Otay River. Target Tossers Gun Club, a public shooting range, is located at the western property boundary south of the Otay River. It is assumed that both gun ranges would be relocated prior to development and would not result in an adverse impact.

Rock Quarries

The Phase II-Progress Plan Alternative proposes residential land uses to the west, east, and north of the Nelson and Sloan Mining Operation and to the south of the Daley Quarry. Compliance with applicable property line noise ordinances is the responsibility of the quarry operator. The county noise ordinance permits extractive industries to generate 1-hour average sound levels as high as 75 dBA at the property line, regardless of the adjacent land use. As discussed for the New Town Plan, calculations show that a 9300-foot buffer from the quarry property line would be required to achieve the residential noise standard of 45 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume that the receiver is in direct line-of-sight with the noise source. No consideration was given to the noise attenuating effects of intervening topography. The intervening knolls and ridgelines will tend to block sound transmission which may result in a reduced buffer area. The 45 dBA residential standard assumes that quarry operations begin prior to 7:00 a.m. Even if the Nelson and Sloan Mining Operation and the Daley Quarry can comply with the applicable noise ordinances, noise at residential receptors within 9300 feet of the quarry may still be sufficiently audible to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Nelson and Sloan Mining Operation and Daley Quarry is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during SPA review. The study shall provide a description of the proposed project, the existing noise environment, the future noise environment, noise impacts, and the required mitigation measures. The study will consider the effects of intervening topography which may tend to attenuate sound.

Recycling Center

A small wood recycling center is in operation at the western end of the Otay River parcel on Otay Valley Road. The recycling center would be relocated prior to project development and would not result in significant impacts.

Landfills

Based on a measured sound level of 72 dBA at 100 feet from the active work surface (ERCE 1991), similar operations would result in a sound level of 75 dBA at 70 feet. Based on a 70-foot reference distance, calculations show that a 1250-foot buffer from the landfill property line would be required to achieve the daytime residential noise standard of 50 dBA. The calculations are based on a point source propagation loss of 6 dBA per doubling of distance and assume that the receiver is in direct line-of-sight with the noise source. No considerations was given to the noise attenuating effects of intervening topography. The 50 dBA residential standard assumes that landfill operations are limited to the hours of 7:00 a.m. to 7:00 p.m. Compliance with the County of San Diego Noise Ordinance is the responsibility of the landfill operator. Even if the landfill can comply with the applicable noise ordinances, noise at residential receptors within 1250 feet of the landfill

may still be sufficiently audible to result in a significant impact to future residents of the development.

At this level of analysis, noise from the Otay Landfill is considered to be a significant and potentially unmitigable impact. A site-specific acoustical study will be required during SPA Plan review. The study shall provide a description of the proposed project, the existing noise environment, the future acoustical environment, noise impacts, and the required mitigation measures. The study will consider the effects of intervening topography which may tend to attenuate sound.

Industrial Activities

There are numerous industrial land uses adjacent to the Otay River parcel along Otay Valley Road. Auto wrecking yards are located in this area along with other types of industrial activities. Noise associated with each industry is specific to the type of activity. The permitted sound level at an industrial property line would be the arithmetic mean of the permitted sound level of the business and the adjacent properties' zones. The result would permit higher sound levels at adjacent residences than would be permitted in a strictly residential neighborhood. Assuming that each business can comply with applicable noise ordinances, noise may still be sufficiently audible at the residential receptors to result in a significant impact. A site-specific analysis will be required during SPA Plan review (see Section 4.9.13.2).

Airfields

Brown Field

Brown Field is located immediately south of the Otay River parcel. The existing noise contours depicted in the Brown Field Municipal Airport Master Plan, adopted in 1978, and the more current noise contours in the updated Draft Brown Field Master Plan (unadopted), show that the project site lies outside of the 60 CNEL noise contour. Noise from Brown Field aircraft operations is not expected to cause a significant impact.

San Diego Air Sports Center

The Phase II-Progress Plan Alternative proposes to develop residential land uses immediately to the north, south, and east of the San Diego Air Sports Center. FAA guidelines prohibit skydiving and ultralight flying over congested areas. Therefore, the plan may result in a potentially incompatible land use. Since noise contours are not currently available, this analysis assumes that residential land use within one mile of the Sports Center may be significantly impacted by aircraft noise. A site-specific analysis will be required during SPA Plan review (see Section 4.9.13.2). At this level of analysis, noise from the Air Sports Center is considered to be a significant and potentially unmitigable impact.

Regional Airport

The City of San Diego is currently studying the concept of constructing a regional/binational airport on Otay Mesa south of the project site. The proposal is in the very preliminary planning stages, and potential noise impacts from the proposed airport are currently unknown.

4.9.13.2 Proposed Mitigation

Site-specific Noise Studies

Potentially significant noise impacts have been identified from onsite roadways, the Nelson and Sloan Mining Operation, the Daley Quarry, the Otay Landfill, the San Diego Air Sports Center, and various industrial activities in close proximity to the project site. Site-specific acoustical analyses will be required during SPA Plan review. The study will provide a description of the proposed project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation measures. A "D" designator for noise shall be created to identify areas where a site-specific study is required. The impact area shall include the following:

- All areas within 9300 feet of the Nelson and Sloan Mining Operation and the Daley Quarry;
- All areas within the 60 CNEL noise contour of onsite and offsite roadways, which shall include all roadways on the Otay River parcel and all roadways assigned a future ADT of 3,000 trips or greater on the Valley and San Ysidro parcels;
- All areas within 1250 feet of the landfill;
- All areas within one mile of the San Diego Air Sports Center; and
- All areas adjacent to least Bell's vireo habitat.

Residential development within the impact area may be allowed if the site-specific noise study shows that mitigation to below a level of significance is feasible.

Potentially significant noise impacts have been identified from offsite roadways. Site-specific acoustical analyses will be required for all areas adjacent to roadways proposed for widening, realignment, and/or an upgrade in roadway classification through a General Plan Amendment.

Noise Mitigation Measures

<u>Vehicular Traffic</u>

Noise mitigation is required for all residential land uses located in areas where the CNEL from vehicular traffic exceeds 60 dBA. The estimated 60 CNEL contour is located approximately 120 feet from the roadway centerline for collector streets, 400 to 2400 feet from the roadway centerline for major and prime arterials, and over 4000 feet from the centerline of the freeways. The modeled contours are considered a worst-case condition because the roadways were modeled at grade with the surrounding area, and the effects of intervening topography were not considered.

<u>Onsite</u>. In general, roadway noise impacts can be mitigated by setbacks, by the construction of barriers, or a combination of both. However, depending on the roadway design and surrounding topography, barriers such as noise walls and earthen berms in excess of 10 feet high may be necessary and are often not considered to be feasible or aesthetically desirable. The setback distance necessary to lower the wall height can be considerable, possibly several hundred to more than a thousand feet. Therefore, noise impacts from vehicular traffic are considered to be potentially unmitigable at residences

proposed closest to the roadways. The required setbacks may result in lower residential densities.

Offsite. Mitigation of noise impacts resulting from project-related vehicular traffic on offsite roadways may require construction of barriers on public or private property to mitigate exterior noise impacts, and possibly retrofitting residences with noise insulation for interior noise impacts. In areas where the residences have been built along the roadway, mitigation to below a level of significance may not be possible.

Noise from vehicular traffic and construction is considered to be a significant impact to the least Bells' vireo. In areas where major roadways are located or construction will be undertaken in close proximity to least Bell's vireo habitat, mitigation to below a level of significance may not be possible.

Rock Quarries

Noise associated with the Nelson and Sloan Mining Operation and the Daley Quarry is considered to be a significant impact. Based on the County of San Diego Noise Ordinance, sound levels from the quarries are permitted to be as high as 75 dBA Leq at the source property line. Compliance with the noise ordinance is the responsibility of the quarry operator. Sound levels were calculated to be 45 dBA Leq at approximately 9300 feet from the source property line. Mitigation of noise impacts may not be feasible at residences within 9300 feet and in direct line-of-sight of the quarry. However, mitigation may be possible as a result of intervening topography such as fills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate the impacts to below a level of significance. Residential development within 9300 feet of the quarries should be staged such that construction not take place unless the quarries have been mined-out and mining operations have ceased or noise impacts can be mitigated as demonstrated in the site-specific noise study.

Otay Landfill

Noise associated with the Otay Landfill is considered to be a significant impact. Sound levels were calculated to meet the 50 dBA Leq daytime noise standard at approximately 1250 feet from the landfill property line. Mitigation of noise impacts may not be feasible at residences within 1250 feet and in direct line-of-sight of the landfill. However, mitigation may be possible as a result of intervening topography such as hills and ridges.

As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate the impacts to below a level of significance. Residential development within 1250 feet of the landfill should be staged such that construction not take place unless the landfill has undergone closure or noise impacts can be mitigated as demonstrated in the site-specific noise study.

San Diego Air Sports Center

Noise associated with the San Diego Air Sports Center is considered to be a significant impact. As stated above, a site-specific noise study will be required to determine the specific noise impacts and measures necessary to mitigate impacts to below a level of significance. Residential development within one mile of the Air Sports Center should be staged such that construction not take place unless the Air Sports Center has closed or noise impacts can be mitigated as demonstrated in the site-specific noise study.

4.9.13.3 Analysis of Significance

Significant noise impacts have been identified from roadways, the Nelson and Sloan Mining Operation, the Daley Quarry, the Otay Landfill, the San Diego Air Sports Center, and the various industrial activities in close proximity to the project site. Reduction of noise impacts from these noise sources to below a level of significance may not be feasible. At this level of analysis, noise from these sources are considered to be a significant and unmitigated impact.

4.9.14 Public Services and Utilities

4.9.14.1 Impact Analysis

The public services and utilities analysis for the Phase II-Progress Plan Alternative is based on a population figure of 2.96 persons per dwelling unit (du). This figure is based on the assumption that 55 percent of the dwelling units would be detached single-family units, housing 3.2 persons per unit, and 45 percent of the dwelling units would be attached multifamily units, housing 2.55 persons per unit. Therefore, the Phase II-Progress Plan Alternative would result in the development of 30,059 homes and a population of 86,962~~892~~ (Baldwin Vista 1992). The following analysis of public services and utilities is based on the same generation/demand rates utilized in Section 3.13 for the New Town Plan.

Water Availability and Demand

Demand Generated

Based on the water demand rates currently being utilized by the OWD for their Draft Master Plan, the water use for the Phase II-Progress Plan Alternative is estimated at 17.9 mgd for average day use. This represents a 20 percent reduction from the 22.6 mgd demand estimated for the New Town Plan. This reduction in demand is due to a change in the overall residential character. ~~Based on the water demand rate utilized in Section 3.13.1 for the New Town Plan, total water demand for this alternative is estimated at 22.6 million gallons per day (mgd) for average day use.~~ Water conservation measures would reduce the potable demand 121 gpd per dwelling unit, for a savings of ~~3.6~~2.6 mgd or 16 percent. Approximately 90 percent of this demand is attributable to land uses within the boundaries of the OWD. Water service and attendant facilities are proposed for all pressure zones. Storage capacity and filtration plant capacity would be purchased from the City of San Diego. Facility phasing would require construction on the Otay River parcel first, followed by incremental system expansion.

Reclaimed Water. The estimated reclaimed water demand for this alternative is 2.90 mgd. The demand was estimated for the Otay River parcel only, because the two eastern parcels drain into the Lower Otay Reservoir which is a potable water supply. This alternative would require a system of distribution reservoirs and transmission mains similar to the proposed project; however, this alternative would require less capacity in the wastewater reclamation facility. Based on discussions with local agencies, the use of reclaimed water for irrigation on the two eastern parcels may be permitted; if this occurs, the average reclaimed water demand would be approximately 5.7 mgd (Wilson Engineering 1992a).

Potentially significant impacts would occur under the Phase II-Progress Plan Alternative similar to the proposed project. These impacts include the unanswered question of which water jurisdiction will ultimately serve the project, the provision of facilities sufficient to serve the project, and the issues of water reclamation and future water availability. Due to the lack of detailed development and facility plans at this time, the Phase II-Progress Plan Alternative would require further environmental review at the SPA Plan level similar to the proposed project.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- Annexation of land to the appropriate water jurisdiction and the County Water Authority and Metropolitan Water District.
- The preparation of a Water Master Plan by the project applicant in accordance with the engineering and facility siting standards of the appropriate water jurisdiction.
- Written verification from the water district that water will be adequately provided.

Wastewater and Sewer Service

Demand Generated

Based on the sewage generation rate utilized in Section 3.13.2 for the New Town Plan, the total sewage generation for this alternative is estimated at 10.69 mgd for average flows. This alternative would provide gravity flow through Poggi and Telegraph Canyon drainage basins. The estimated flow from Poggi and Telegraph Canyon drainage basins is 2.35 mgd. Under this alternative, approximately 8.4 million gpd of wastewater flow would be conveyed to the Otay River Valley wastewater treatment plant. Less capacity in the wastewater reclamation facility would be required for this alternative than would be required to serve the New Town Plan. The interceptor sewers and treatment for this alternative plant would also require reduced capacity. Phasing of sewerage facilities would require construction to begin on the Otay River parcel. Initial phases of development would begin in the Telegraph and Poggi Canyon basins to utilize existing City of Chula Vista interceptors.

Potentially significant wastewater and sewer service impacts would occur under the Phase II-Progress Plan Alternative similar to the proposed project. These impacts include the unanswered questions of which sewer jurisdiction would serve the project, where the project's wastewater would be treated, and how facilities would be funded. Further environmental review at the SPA Plan level would be required under this alternative, as in the case of proposed project, to ensure that adequate facilities are provided.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- Annexation of land to the appropriate sewer jurisdiction or service provided by the City of Chula Vista.
- The preparation of a Sewer Master Plan by the project applicant in accordance with the engineering and facility siting standards of the appropriate jurisdiction. Details on the required contents of the master plan are contained in Section 3.13.2.3.

- Written verification from the appropriate sewer district that service will be adequately provided.

Integrated Waste Management

Demand Generated

The approximate total waste generation for the Phase II-Progress Plan Alternative is estimated at 113,694 tons per year (tpy). Through the use of integrated waste management techniques, it is anticipated that the amount of waste which would ultimately require landfill disposal would be approximately 155 tpd, or 56,575 tpy. This additional solid waste, generated by the 30,059 units and the additional population of 86,962 would result in potentially significant impacts to solid waste management in South County. This alternative would require an integrated waste management system similar to that of the proposed project, although the Materials Recovery Facility (MRF) and composting facility may be scaled back to serve the projected demand. Further environmental analysis of this issue would be required at the SPA Plan level.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required under the Phase II-Progress Plan Alternative include the preparation of an Integrated Waste Management Program by the project applicant prior to SPA Plan approval, and the project's participation in this program during all phases of SPA development, and compliance with County and City programs and regulations concerning long-term solid waste capacity. Required contents of the program are detailed in Section 3.13.3.3.

Police Protection

Demand Generated

To determine the demand for law enforcement facilities under the Phase II-Progress Plan Alternative, a proportional calculation based on population was used. This calculation results in a demand for 120 law enforcement personnel and 24,532 square feet of office space. The specific facility locations and siting criteria would be determined at the SPA Plan level. Due to the fact that detailed development and facility plans are not available at this time, the project-specific impacts of the Phase II-Progress Plan Alternative cannot be determined. Further environmental review would be required at the SPA Plan level, similar to the proposed project, to ensure adequate facilities and staff are available to serve the project. At this stage of review, it has been determined that the unresolved issues with respect to the provision and funding of services and facilities constitute potentially significant impacts.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to the approval of any SPA Plan under the alternative include:

- The preparation of a comprehensive Law Enforcement Master Plan by the project applicant in accordance with the staffing and police emergency response standards of the appropriate service provider.

Fire Protection and Emergency Medical Service

Demand Generated

Fire and emergency service demand is determined by response time which is affected by roadway conditions, facility site location, and intensity of development. The Phase II-Progress Plan would require provision of four fire facilities, the same number of facilities required to serve the New Town Plan. Two stations would be provided on the Otay River parcel, and two stations would be located within the eastern parcels, one located in western San Ysidro and another in central Proctor Valley. Emergency service would be provided through two facilities. The emergency service facilities are proposed to be co-located with the fire facilities, one on the Otay River parcel and one on either the Proctor Valley or San Ysidro parcel.

The Phase II-Progress Plan Alternative would result in potentially significant impacts to the provision of fire protection and emergency medical service. This determination has been made due to the current lack of detailed development and facility plans which would be made available during the SPA Plan review process. Further environmental review of fire protection service would be required at the SPA Plan level to ensure adequate facilities and staff are provided to serve the project.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to any SPA Plan approval under this alternative include the preparation of a comprehensive Fire Master Plan by the project applicant in accordance with the appropriate service provider. The master plan shall demonstrate that response times established by the City of Chula Vista and County of San Diego will be achieved and that provisions for emergency medical service capable of complying with emergency response times are included in the plan.

Schools

Demand Generated

The estimated 86,962 total population under the Phase II-Progress Plan Alternative would generate a demand for facilities necessary to serve 17,978 students. Approximately 19 schools on approximately 307 acres would be required under this alternative.

The lack of detailed development and facility plans at this stage of analysis makes it difficult to determine project-specific impacts on schools. Further environmental review is required

prior to SPA Plan approval to ensure adequate provision of school facilities. Until that time, this alternative is considered to have potentially significant impacts on schools.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include the preparation of a Schools Master Plan by the project applicant in close coordination with the affected school districts. The master plan shall demonstrate compliance with school district standards for school facilities, as detailed in Section 3.13.7.3. The project applicant shall also provide documentation to the appropriate jurisdiction confirming school district satisfaction of facility funding.

Library Service

Demand Generated

The estimated 86,962 total population under the Phase II-Progress Plan would generate a demand for 41,893 square feet of library space, and an additional 251,940 books. The population distribution indicates the following geographic demand:

• Otay River Parcel	32,839 square feet
• Proctor Valley Parcel	6,704 square feet
• San Ysidro Parcel	2,350 square feet
Total	41,893 square feet

The lack of detailed development and facility plans at this stage of analysis makes it difficult to determine the full extent of the project's impact on libraries. Further environmental review would be required prior to SPA Plan approval to ensure adequate provision of library facilities. Until that time, this alternative is considered to have potentially significant impacts on libraries with respect to the siting and funding of proposed facilities.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval under this alternative include:

- The preparation of a Library Master Plan by the project applicant in accordance with the criteria of the applicable jurisdiction described in Section 3.13.8.1.

Parks, Recreation, and Open Space

Demand Generated

Based on the required 3 acres per 1,000 population, the demand for neighborhood and community parks for the Phase II-Progress Plan Alternative is 261 acres. Based on the goal of ~~required~~ 15 acres per 1,000 population, the regional park demand is 1,304 acres.

The Otay Valley Regional Park would be part of a 12,509-acre open space system under this alternative, encompassing the Otay River Valley, Jamul Mountains, and San Ysidro Mountains. A system of paths and trails would connect the urban villages and their parks, forming a passive and active recreation network throughout the project. Approximately 251 acres of neighborhood and community parks are proposed, resulting in a shortfall of 10 acres. Parkland and open space would be provided in compliance with the Otay Ranch Resource Management Plan (RMP).

The lack of detailed development and facility plans at this stage of analysis makes the full extent of this alternative's impact on parks, recreation, and open space difficult to determine. Further environmental review would be required prior to SPA Plan approval to ensure the provision of adequate parks, recreation, and open space. Until that time, this alternative is considered to have potentially significant impacts on parks, recreation, and open space with respect to siting, funding, and phasing.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures required prior to SPA Plan approval include the preparation of a Parks, Recreation, and Open Space Master Plan by the project applicant in accordance with applicable standards on parkland acreage and recreation facilities. Dedication of land in accordance with applicable requirements or payment of fees in lieu of dedication would mitigate any impacts to below a level of significance.

Electricity and Gas

Demand Generated

Additional substations and associated distribution lines would be required to serve development under the Phase II-Progress Plan Alternative; placement of these facilities and associated impacts would be determined at the SPA Plan level.

SDG&E does not anticipate any significant impacts associated with the provision of electric and gas facilities for Otay Ranch, provided the following mitigation measures are implemented.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

- The project applicant shall work with SDG&E during all stages of electrical and gas facilities planning to minimize disturbance to sensitive resources (EIR proposed).
- Land uses adjacent to the SDG&E transmission lines shall be subject to review and comment by SDG&E (EIR proposed).

Health and Medical Facilities

Demand Generated

Based on the same methodology utilized in Section 3.13.11, it was estimated that the following health and medical facilities would be required under the Phase II-Progress Plan Alternative:

- 1 public health satellite office
- 2.4 99-bed nursing homes
- 2 commercial home health care offices
- 5 public and private community meeting spaces
- 2 ambulatory pavilions
- 148 commercial physician, dentist, chiropractic, mental health, therapeutic, laboratory, and medical services and supply offices

Otay Ranch would be served by Kaiser Permanente (planned for EastLake), Chula Vista Community Hospital, and Scripps Memorial Hospital of Chula Vista. No new hospitals, in-patient mental health facilities, or community clinics would be required to serve the residents of Otay Ranch under this alternative.

Although there are currently no statutory requirements for the provision of health and medical services, it is expected that development of the proposed project would have significant impacts on the provision of these services as the population continues to increase and the demand for health and medical services in the region continues to grow. Further environmental review of this issue is required at the SPA Plan level to ensure that adequate facilities are available to serve Otay Ranch.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures under this alternative include the involvement of appropriate governmental agencies and service providers during all stages of planning. Specific needs and siting of appropriate facilities shall be identified by the project applicant in cooperation with health care providers prior to SPA Plan approval.

Senior and Social Service Facilities

Demand Generated

Demand for senior and social service facilities is dependent upon the number, location, and demographics of the proposed project's population. Although there are currently no statutory requirements for the provision of senior and social services, it is expected that the Phase II-Progress Plan Alternative would have significant impacts on the provision of these services as the proportion of the population over the age of sixty continues to increase and the demand for social services in the region continues to grow. Further environmental review of this issue is required at the SPA Plan level to ensure that adequate facilities are available to serve Otay Ranch.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures under this alternative include the involvement of appropriate governmental agencies and service providers during all stages of planning. Specific needs and siting of appropriate facilities shall be identified by the project applicant in cooperation with service providers prior to SPA Plan approval.

Cemeteries

Demand Generated

The Phase II-Progress Plan Alternative would not generate enough demand to warrant the development of additional cemetery facilities, and existing facilities would be adequate; therefore, no impacts would occur and no mitigation would be necessary.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Child Care

Demand Generated

The estimated population of 86,962 residents would generate a demand for 3,470 formal child care slots. It is estimated that 52 percent of the needed child care would be provided by large group facilities with an average capacity of 90 children. Therefore, the Phase II-Progress Plan would generate a demand for approximately twenty 90-slot child care facilities.

Although there are currently no mandated requirements for the provision of child care facilities, the development of the proposed project is expected to have significant impacts on the provision of these services as the population increases in the project area. Further environmental review of this issue is required at the SPA Plan level to ensure that adequate child care facilities are available to serve Otay Ranch.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures include the provision of child care facilities as deemed necessary during the policy development process.

Animal Control

Demand Generated

The additional population in the South County area generated by development under the Phase II-Progress Plan Alternative would increase the demand for animal control facilities, resulting in a potentially significant impact.

Policy Consequences

No policy inconsistencies would occur under this alternative.

Proposed Mitigation

Mitigation measures require that the project applicant participate in programs to equitably share the funding of animal control facilities and designate animal control facilities sufficient to provide adequate square footage of shelter space per dwelling unit.

4.9.14.2 Analysis of Significance

At this level of analysis, impacts to public services and utilities as a result of the Phase II-Progress Plan are considered significant. Implementation of the mitigation measures outlined above at the SPA-level would mitigate project-specific public service and utility impacts to below a level of significance.

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4.9.15 Risk of Upset

4.9.15.1 Impact Analysis

The potential risks of upset associated with the Phase II-Progress Plan Alternative would be similar to the risks associated with the New Town Plan and the Phase I-Progress Plan Alternative. Soils contaminated with petroleum hydrocarbons and pesticides have been identified in the area of the ranch operations center on the Otay River Parcel (Woodward-Clyde 1989). The Phase II-Progress Plan Alternative proposes single-family and multifamily residential development in the area of the ranch operations center; therefore, the potential exists for exposure to contaminated material in excess of State of California standards.

The area in the southern part of the Otay River parcel, previously used as the Brown Field Bombing Range, would be allocated to open space under the Phase II-Progress Plan Alternative. There is potential danger of an accident occurring due to disturbance of any unexploded ordnance in this area.

The areas adjacent to the Otay Landfill would be developed for low to medium density residential use, industrial use, and a community park. The potential exists for exposure to contaminated material in these areas as a result of previous use of the landfill for hazardous waste disposal. Potential air quality and noise impacts associated with the existing landfill operation are addressed in Sections 4.9.12 and 4.9.13, respectively.

4.9.15.2 Proposed Mitigation

The mitigation measures proposed for the New Town Plan (Section 3.14.3) would also be applicable to the Phase II-Progress Plan Alternative. These measures include:

1. Soil and ground-water testing shall occur in the ranch operations center area potentially affected by the previous disposal of hazardous waste or historic pesticide use. The purpose of the testing shall be to identify areas of contamination in excess of federal and state standards. Should areas of excess contamination be identified, remediation shall occur prior to residential development. (EIR proposed.)

2. The applicant shall notify prospective buyers and the California Department of Health Services (DHS) as required, regarding their intention to develop the area adjacent to the Otay Landfill. (EIR proposed.)

3. A survey shall be conducted of the Brown Field Bombing Range by the Army to identify the presence of any unexploded ammunition. Should unexploded ordnance be located on the property, appropriate measures shall be taken for removal of the material. (EIR proposed.)

4. The transport of hazardous waste on existing and future roadways shall be conducted in accordance with the California Code of Regulations (CCR) and the Code of Federal Resolution (CFR). These regulations identify Department of Transportation (DOT) approved methods for packaging and containerizing hazardous waste and site appropriate options and procedures relative to the handling and transportation of these wastes. (EIR proposed.)

4.9.15.3 Analysis of Significance

Implementation of the measures identified above would mitigate health risks to below a level of significance.

4.10 ENVIRONMENTAL COMPARISON OF ONSITE ALTERNATIVES

Table 4.10-1 presents a comparison of the significant environmental impacts associated with the proposed New Town Plan and the project alternatives. The information in this table is based on the analysis of each of the Otay Ranch development plans in Sections 3 and 4 of this EIR. The information is quantitative for the three plans analyzed in detail (e.g., the New Town Plan, Phase I-Progress Plan Alternative, and Environmental Alternative); the information is qualitative for the remainder of the alternatives, based on the methodology discussed in Section 4. As shown in Table 4.10-1, the impacts of the alternatives are divided into the following categories:

NS - Not Significant
S - Significant and Not Mitigated at This Level of Analysis
S/M - Significant and Mitigable
S/UM - Significant and Unmitigable

Table 4.10-1.1 provides an evaluation of the different Otay Ranch development alternatives in relation to the Resource Management Plan.

Tables 4.10-2 through 4.10-4 have been provided in order to better compare the air quality impacts from the proposed project and alternatives. Impacts from the Fourth Alternative are expected to be lower than those predicted for the New Town Plan or Phase I-Progress Plan Alternative. Impacts from the Project Team Alternative are expected to be lower than those predicted for the New Town Plan, the Phase I-Progress Plan Alternative, or the Fourth Alternative. The Environmental Alternative is expected to have the lowest impacts of all of the alternatives analyzed.

Table 4.10-1 (Revised)

COMPARISON OF SIGNIFICANT IMPACTS
PROPOSED PROJECT AND PROJECT ALTERNATIVES

Potential Impact	New Town Plan	Phase I – Progress Plan	Phase II – Progress Plan	Fourth Alternative	Project Team Alternative	Composite General Plans	Low Density Alternative	Environmental Alternative	No Project Alternative
Land Use, Planning and Zoning:									
Change in Open Space Character of the Site	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM, primarily in Otay River parcel	NS
Incompatible with Otay Annex Landfill	S/M	S/M	S/M	S/M	NS	NS	S	NS	NS
Incompatible with Nelson & Sloan Quarry	S/M	S/M	S/M	S/M	S/M	NS	S/M	NS	NS
Incompatible with EastLake	S/M	NS~~S~~/M	NS~~S~~/M	S/M	S/M	NS	S/M	NS~~S~~/M	NS
Incompatible with San Diego Air Sports Center	S/M	S	S	S	S	NS	S	S	NS
Incompatible with Daley Quarry	S/M	S/M	S/M	S/M	S/M	NS	S/M	NS	NS
Incompatibility with internal project land uses on Otay River parcel	S/M	S/M	S/M	S	S	NS	S	S/M	NS
Inconsistent with County Goals re: Rural Lands	S/UM	S/UM	S/UM	S/UM	S/UM	NS	NS	NS	NS
Impact to Resources within County RCAs	S/M	S/M	S/M	S/M	S/M	NS	S/M	NS	NS
Inconsistent with City of San Diego Industrial Goals	NS	NS	NS	NS	NS	NS	NS	S	NS
Inconsistent with Chula Vista Goals re: Low-medium Density	S	S	S	S	S	NS	NS	NS	NS
Inconsistent with Chula Vista Goals re: University Site	NS	S/M	S/M	S	S	NS	NS	S/UM	S/M
Landform Alteration/ Aesthetics:									
Change in Visual Character of Project Area	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM, Otay River parcel only	NS
Alteration of Significant or Sensitive Landforms	S/UM	S/UM	S/M	S/M	S/M	S/M	S/M	NS	NS
Impacts in Highly Visible Areas	S/UM	S/M	S/M	S/M	S/M	S/M	S/M	S/M	NS
North of Lower Otay Lake	S/UM	S/M	S/M	S/M	S/M	NS	S/M	S/M	NS

Table 4.10-1 (Continued)

COMPARISON OF SIGNIFICANT IMPACTS
PROPOSED PROJECT AND PROJECT ALTERNATIVES

Potential Impact	New Town Plan	Phase I – Progress Plan	Phase II – Progress Plan	Fourth Alternative	Project Team Alternative	Composite General Plans	Low Density Alternative	Environmental Alternative	No Project Alternative
Southwestern Part of San Ysidro Parcel	S/UM	S/M	S/M	S/M	S/M	S/M	S/M	NS	NS
North/Northeastern Jamul Foothills	S/UM	S/M	S/M	S/M	S/M	NS	S/M	NS	NS
Biological Resources:									
Total Acres of Habitat Impacted	S/UM 15,428 (66%)	S/UM 12,054 (52%)	S/UM 10,496 (46%)	S/UM 9,383 (41%)	S/UM 9,646 (42%)	S/UM N/A	S/UM 9,631 (42%)	S/M 6,109 (27%)	NS 0
Acres of Coastal Sage Scrub and Maritime Succulent Scrub Communities Impacted	S/UM 6,412 (56%)	S/UM 4,385 (38%)	S/UM 2,309 (21%)	S/UM < 32%	S/UM < 32%	S/UM N/A	S/UM < 32%	S/M 1,729 (15%)	NS 0
Acres of Needlegrass Grassland Impacted	S/UM 252 (95%)	S/UM 223 (85%)	S/UM 172 (65%)	S/UM < 65%	S/UM < 65%	N/A	S/UM < 65%	S/M 100 (38%)	NS 0
Acres of Wetlands Impacted	S/UM 638 (82%)	S/UM[4] 73 (9%)	S/UM[4] 51 (7%)	S/UM[4] 5-10%	S/UM[4] 5-10%	N/A	S/UM[4] 5-10%	S/M 28 (4%)	NS 0
Acres of Vernal Pool Habitat Impacted	S/UM 128 (72%)	S/UM 14 (8%)	S/UM 14 (< 8%)	S/M < 8%	S/UM[1] < 8%	S/UM[1]	S/M < 8%	<1%	NS 0
Acres of Southern Interior Cypress Forest and Coast Live Oak Woodland Habitat Impacted	S/UM 25 (7%)	S/M 7 (2%)	S/M 16 (5%)	S/M N/A (<3%)	S/M N/A (<3%)	S/M N/A N/A	S/M N/A (<3%)	NS 0	NS 0
No. of High Priority Plant Species Significantly Impacted	7	6	3	5	5	N/A	5	2	NS 0
No. of Second Priority Plant Species Significantly Impacted	10	10	7	6	6	N/A	6	1	NS 0
No. of Third Priority Plant Species Significantly Impacted	6	6	5	4	4	N/A	4	NS	NS 0
No. of Fourth Priorky Plant Species Significantly Impacted	3	1	0	1	1	N/A	1	NS	NS 0
Percent Least Bell's Vireo Points of Occurrence Directly Impacted By Habitat Loss	S/UM 100%	S/M 13%	S/M 13%	S/M 25%	S/M 25%	S/M 50%	S/M 12.5%	NS 0	NS 0
Indirect Noise Impacts on Least Bell's Vireo Habitat	S	S	S	S	S	S	S	S	NS

Table 4.10-1 (Continued)

COMPARISON OF SIGNIFICANT IMPACTS
PROPOSED PROJECT AND PROJECT ALTERNATIVES

Potential Impact	New Town Plan	Phase I – Progress Plan	Phase II – Progress Plan	Fourth Alternative	Project Team Alternative	Composite General Plans	Low Density Alternative	Environmental Alternative	No Project Alternative
Percent Coastal Cactus Wren Locations Impacted:	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/M	NS
Development Impacts:	67%	28%	25%	25%	25%	42%	18%	3%	
Road Impacts:	5%	17%	17%	13%	13%	23%	12%	15%	
Total Impacts:	72%	45%	42%	38%	38%	65%	30%	18%	
Percent California Gnatcatcher Locations Impacted:	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/M	NS
Development Impacts:	64%	38%	33%	32%	32%	42%[2]	28%	8%	
Road Impacts:	2%	11%	11%	10%	10%	14%[2]	10%	7%	
Total Impacts:	66%	49%	43%	42%	42%	56%[2]	38%	15%	
Impacts to Riverside Fairy Shrimp	S	S	S	S	S	S	S	NS	NS
Impacts to Quino Checkerspot	S	S	S	S	S	S	S	NS	NS
Impacts to Regional Raptor Populations	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/M	NS
No. of Regional Wildlife Corridors Blocked	S/UM 8	S/UM 3	S/M 4	S/M 3	S/M 2	3[3]	S/M 2	S/M 0	NS 0
No. of Other Regional Wildlife Corridors Potentially Impacted, Constrained, or Indirectly Impacted	S/UM 5	S/UM 9	S/M 6	S/M 8	S/M 8	2[3]	S/M 8	S/M 8	NS 0
Wildlife impacts to other sensitive species	S/UM	S/UM	S/UM	S	S	S	S	S/M	NS
<u>Cultural Resources:</u>									
No. of Prehistoric Sites Impacted	S 186	S 150	S 133	S 134	S 135	S 51	S 131	S 82	NS 0
No. of Historic Sites Impacted	S 43	S 24	S 18	S 25	S 25	S 9	S 27	S 14	NS 0
No. of Prehistoric/Historic Sites Impacted	S 28	S 28	S 22	S 24	S 26	S 6	S 27	S 6	NS 0
Total Number of Sites Previously Tested and Determined to be Significant (including McGowan Site [CA-SDI-11,369/11,376] and CA-SDI-5,352, CA-SDI-7,212, CA-SDI-7,217, CA-SDI-8,649, and CA-SDI-10,027) in Area Proposed for Development.	4/S	2/S	3/S	2/S	3/S	2/S	2/S	1/S	0/NS

Table 4.10-1 (Continued)

COMPARISON OF SIGNIFICANT IMPACTS
PROPOSED PROJECT AND PROJECT ALTERNATIVES

Potential Impact	New Town Plan	Phase I – Progress Plan	Phase II – Progress Plan	Fourth Alternative	Project Team Alternative	Composite General Plans	Low Density Alternative	Environmental Alternative	No Project Alternative
McClowan Site Located in Area Proposed for Development	S	NS	S	NS	NS	NS	NS	NS	NS
Otay Ranch Building Complex Located in Area Proposed for Development	S	S	S	S	S	S	S	S	NS
Bird Ranch	NS	S	S	NS	NS	NS	NS	NS	NS
Rancho Del Otay	S	NS	S	S	S	NS	S	S	NS
<u>Geology and Soils:</u>									
Development Proposed on Unstable Slopes	S/M	S/M	S/M	S/M	S/M	S/M	S/M	S/M	NS
Development Proposed on Meta-volcanic Bedrock	S/M	S/M	S/M	S/M	S/M	S/M	S/M	S/M	NS
Potential for Ground Shaking	S/M	S/M	S/M	S/M	S/M	S/M	S/M	S/M	NS
Development Proposed on Areas Subject to Liquefaction	S/M	S/M	S/M	S/M	S/M	S/M	S/M	S/M	NS
Development Proposed on Areas Subject to Landsliding	S/M	S/M	S/M	S/M	S/M	S/M	S/M	S/M	NS
Development Proposed on Areas with Soil Constraints (expansive and erosive)	S/M	S/M	S/M	S/M	S/M	S/M	S/M	S/M	NS
Impacts to Areas with High and Moderate Paleontological Resources	S/M (7,390 acres)	S/M (6,503 acres)	S/M Less in San Ysidro and Proctor Valley parcels, similar in Otay River parcel	S/M Less in San Ysidro and Proctor Valley parcels, similar in Otay River parcel	S/M Less in San Ysidro and Proctor Valley parcels, similar in Otay River parcel	S/M Only in Otay River parcel	S/M Mainly in Otay River parcel	S/M Yes, but less in all parcels (3,797 acres)	NS
<u>Agricultural Resources:</u>									
Conversion of Prime Agricultural Soils to Development or Open Space	S/UM	S/UM	S/UM	S/UM Otay River and Proctor Valley parcels	S/UM	S/UM Mainly in Otay River parcel	S/UM Less in Otay River parcel; same in others	S/UM	NS
Loss of County Agricultural Land and Land Suitable for Production of Coastal-Dependent Crops	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	NS
Inconsistent with County Zoning/Land Use Designations Which Designate Otay Ranch for Agricultural Uses	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	NS

Table 4.10-1 (Continued)

COMPARISON OF SIGNIFICANT IMPACTS
PROPOSED PROJECT AND PROJECT ALTERNATIVES

Potential Impact	New Town Plan	Phase I – Progress Plan	Phase II – Progress Plan	Fourth Alternative	Project Team Alternative	Composite General Plans	Low Density Alternative	Environmental Alternative	No Project Alternative
Inconsistent with Chula Vista Open Space and Conservation Element Which Calls for Preservation of Agricultural Land	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	NS
Land use Interface Associated With Agricultural Activities and Urban Uses	S/M In Proctor Valley and San Ysidro parcels	S/M In Proctor Valley and San Ysidro parcels	S/M In Proctor Valley and San Ysidro parcels	S/M In Proctor Valley and San Ysidro parcels	S/M In Proctor Valley and San Ysidro parcels	NS	S/M In Proctor Valley and San Ysidro parcels	S/M In Proctor Valley and San Ysidro parcels	NS
Indirect, Growth-Inducing Effects Resulting in Agricultural Conversion	S/UM	S/UM	S/UM	S/UM	S/UM	NS	S/UM	S/UM	NS
<u>Mineral Resources</u>:									
Preclusion of Mineral Extraction Activities on Rock Mountain	S	S	S	S	S	NS	NS	S	NS
Proposed Land Uses could Conflict with Future Mineral Resource Extraction	S	S	S	S	S	NS	S	S	NS
<u>Water Resources and Water Quality</u>:									
Increase in Total Surface Water Discharge from Increase of Impermeable Surface Area	S/M (57% increase in impermeable area)	S/M (42% increase in impermeable area)	S/M	S/M	S/M	S/M	S/M	S/M (25% increase in impermeable area)	NS
Potential Safety Impacts from Increase in Surface Water Runoff Velocities	S/M	S/M	S/M	S/M	S/M	S/M	S/M	S/M	NS
Increased Erosion and Siltation	S/M	S/M	S/M	S/M	S/M	S/M	S/M	S/M	NS
Encroachment into 100-year Floodplains	S/M	S/M	S/M	S/M	S/M	S/M	S/M	S/M	NS
Inundation of Downstream Drainage Facilities	S/M	S/M	S/M	S/M	S/M	S/M	S/M	S/M	NS
Degradation of Water Quality	S/M	S/M	S/M	S/M	S/M	S/M	S/M	S/M	NS

Table 4.10-1 (Continued)

COMPARISON OF SIGNIFICANT IMPACTS
PROPOSED PROJECT AND PROJECT ALTERNATIVES

Potential Impact	New Town Plan	Phase I – Progress Plan		Phase II – Progress Plan	Fourth Alternative	Project Team Alternative	Composite General Plans	Low Density Alternative	Environmental Alternative	No Project Alternative
		Standard Assumptions	Village Design							
Transportation:										
Roadway Segment Impacts:										
Total Impacted Roadway Miles (LOS D or E)	54.18 24.86 (S/M) 24.23 (S) 5.09 (S/UM)	52.00 25.18 (S/M) 23.01 (S) 3.81 (S/UM)	51.58 24.76 (S/M) 23.01 (S) 3.81 (S/UM)	36.50 21.60 (S/M) 13.52 (S) 1.37 (S/UM)	44	36	26.24 14.40 (S/M) 11.73 (S) 0.11 (S/UM)	30	24.22 13.33 (S/M) 10.78 (S) 0.11 (S/UM)	28.21 18.45 (S/M) 9.63 (S) 0.13 (S/UM)
Total Onsite Roadway Miles	9.33 8.59 (S/M) 0.74 (S) 0 (S/UM)	7.22 6.99 (S/M) 0.23 (S) 0 (S/UM)	7.22 6.99 (S/M) 0.23 (S) 0 (S/UM)	2.64 2.64 (S/M) 0 (S) 0 (S/UM)	N/A	N/A	2.74 2.74 (S/M) 0 (S) 0 (S/UM)	N/A	3.16 3.16 (S/M) 0 (S) 0 (S/UM)	N/A
Total Offsite Roadway Miles	44.85 16.27 (S/M) 23.49 (S) 5.09 (S/UM)	44.78 18.19 (S/M) 22.78 (S) 3.81 (S/UM)	44.36 17.77 (S/M) 22.78 (S) 3.81 (S/UM)	33.86 18.97 (S/M) 13.52 (S) 1.37 (S/UM)	N/A	N/A	23.50 11.66 (S/M) 11.73 (S) 0.11 (S/UM)	N/A	21.06 10.17 (S/M) 10.78 (S) 0.11 (S/UM)	28.21 18.45 (S/M) 2.63 (S) 0.13 (S/UM)
Freeway Miles (All offsite)	S 17.00	S 13.00	S 13.00	S 7.81	9	8	S 6.00	S 8.00	S 8.00	S 7.00
Total Arterial Roadway Miles	37.18 24.86 (S/M) 7.23 (S) 5.09 (S/UM)	39.00 25.18 (S/M) 10.01 (S) 3.81 (S/UM)	38.58 24.76 (S/M) 10.01 (S) 3.81 (S/UM)	28.69 21.61 (S/M) 5.71 (S) 1.37 (S/UM)	34	27	20.24 14.40 (S/M) 5.73 (S) 0.11 (S/UM)	26	16.22 13.33 (S/M) 2.78 (S) 0.11 (S/UM)	21.21 18.45 (S/M) 2.63 (S) 0.13 (S/UM)
Onsite Arterial Roadway Miles	9.33 8.59 (S/M) 0.74 (S) 0 (S/UM)	7.22 6.99 (S/M) 0.23 (S) 0 (S/UM)	7.22 6.99 (S/M) 0.23 (S) 0 (S/UM)	2.64 2.64 (S/M) 0 (S) 0 (S/UM)	N/A	N/A	2.74 2.74 (S/M) 0 (S) 0 (S/UM)	N/A	3.16 3.16 (S/M) 0 (S) 0 (S/UM)	N/A
Offsite Arterial Roadway Miles	27.85 16.27 (S/M) 6.49 (S) 5.09 (S/UM)	31.78 18.19 (S/M) 9.78 (S) 3.81 (S/UM)	31.36 17.77 (S/M) 9.78 (S) 3.81 (S/UM)	26.05 18.97 (S/M) 5.71 (S) 1.37 (S/UM)	N/A	N/A	17.50 11.66 (S/M) 5.73 (S) 0.11 (S/UM)	N/A	13.06 10.17 (S/M) 2.78 (S) 0.11 (S/UM)	21.21 18.45 (S/M) 2.63 (S) 0.13 (S/UM)
Intersection Impacts:										
Total Intersections	18 16 (S/M) 2 (S) 0 (S/UM)	15 11 (S/M) 4 (S) 0 (S/UM)	13 9 (S/M) 4 (S) 0 (S/UM)	10 8 (S/M) 2 (S) 0 (S/UM)	8	10	8 8 (S/M) 0 (S) 0 (S/UM)	9	3 3 (S/M) 0 (S) 0 (S/UM)	4 4 (S/M) 0 (S) 0 (S/UM)
Onsite Intersections	5 5 (S/M) 0 (S) 0 (S/UM)	10 10 (S/M) 0 (S) 0 (S/UM)	9 9 (S/M) 0 (S) 0 (S/UM)	6 6 (S/M) 0 (S) 0 (S/UM)	N/A	N/A	2 2 (S/M) 0 (S) 0 (S/UM)	N/A	1 1 (S/M) 0 (S) 0 (S/UM)	N/A

Table 4.10-1 (Continued)

COMPARISON OF SIGNIFICANT IMPACTS
PROPOSED PROJECT AND PROJECT ALTERNATIVES

Potential Impact	New Town Plan	Phase I – Progress Plan	Phase II – Progress Plan	Fourth Alternative	Project Team Alternative	Composite General Plans	Low Density Alternative	Environmental Alternative	No Project Alternative
Offsite Intersections	13 11 (S/M) 2 (S) 0 (S/UM)	5 1 (S/M) 4 (S) 0 (S/UM) 4 0 (S/M) 4 (S) 0 (S/UM)	4 2 (S/M) 2 (S) 0 (S/UM)	N/A	N/A	6 6 (S/M) 0 (S) 0 (S/UM)	N/A	2 2 (S/M) 0 (S) 0 (S/UM)	4 4 (S/M) 0 (S) 0 (S/UM)
Air Quality:									
Release of Construction-Related Pollutants	S/M	S/M	S/M	S/M	S/M	S/M	S/M	S/M	NS
Increase of Pollutant Emissions in the Regional Airshed	S/UM 28,907 tons/year (Year 2020)	S/UM 20,552 tons/year (Year 2020)	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM 5,422 tons/year (year 2020)	NS
Inconsistent with SIP	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	S/UM	NS	NS
Noise:									
Onsite Roadway Noise Greater than 60 CNEL within Future Residential Areas	S	S	S	S	S	S	S	S	NS
Increase in Roadway Noise Affecting Existing Offsite Noise Sensitive Receptors	S	S	S	S	S	S	S	S	NS
Potential Noise Impacts to Future Residents from Rock Quarries, Landfill, SD Air Sports Center, and Industrial Activities	S	S	S	S	S	S	S	S except SD Air Sports Center	NS
Indirect Noise Impacts on Least Bell's Vireo Habitat	S	S	S	S	S	S	S	S	NS
Public Services and Utilities:	Demand on existing facilities is significant due to capacity limitations.	Demand on existing facilities is significant due to capacity limitations.	Demand on existing facilities is significant due to capacity limitations.	Demand on existing facilities is significant due to capacity limitations.	Demand on existing facilities is significant due to capacity limitations.	Demand on existing facilities is significant due to capacity limitations, however, consistent with future growth projections.	Demand on existing facilities is significant due to capacity limitations.	Demand on existing facilities is significant due to capacity limitations.	No demand on facilities would occur.
Water	S/M 40.2 mgd of water and associated facilities would be required.	S/M 22.6 mgd of water and associated facilities would be required.	S/M 22.6 mgd of water and associated facilities would be required.	S/M 21.4 mgd of water and associated facilities would be required.	S/M 21.0 mgd of water and associated facilities would be required.	S/M 13.2 mgd of water and associated facilities would be required.	S/M 10.4 mgd of water and associated facilities would be required.	S/M 8.6 mgd of water and associated facilities would be required.	
Wastewater and Sewer	S/M Facilities to accommodate a sewage flow of 16.8 mgd would be required.	S/M Facilities to accommodate a sewage flow of 10.69 mgd would be required.	S/M Facilities to accommodate a sewage flow of 10.69 mgd would be required.	S/M Facilities to accommodate a sewage flow of 10.02 mgd would be required.	S/M Facilities to accommodate a sewage flow of 10.20 mgd would be required.	S/M Facilities to accommodate a sewage flow of 6.6 mgd would be required.	S/M Facilities to accommodate a sewage flow of 5.5 mgd would be required.	S/M Facilities to accommodate a sewage flow of 4.4 mgd would be required.	

Table 4.10-1 (Continued)

COMPARISON OF SIGNIFICANT IMPACTS
PROPOSED PROJECT AND PROJECT ALTERNATIVES

Potential Impact	New Town Plan	Phase I – Progress Plan	Phase II – Progress Plan	Fourth Alternative	Project Team Alternative	Composite General Plans	Low Density Alternative	Environmental Alternative	No Project Alternative
Integrated Waste Management	S/M Facilities to accommodate a solid waste generation of 194,753 tons per year would be required.	S/M Facilities to accommodate a solid waste generation of 113,694 tons per year would be required.	S/M Facilities to accommodate a solid waste generation of 113,694 tons per year would be required.	S/M Facilities to accommodate a solid waste generation of 104,530 tons per year would be required.	S/M Facilities to accommodate a solid waste generation of 87,965 tons per year would be required.	S/M Facilities to accommodate a solid waste generation of 56,940 tons per year would be required.	S/M Facilities to accommodate a solid waste generation of 42,340 tons per year would be required.	S/M Facilities to accommodate a solid waste generation of 37,595 tons per year would be required.	
Police Protection	S/M Additional law enforcement staff of 207 and 42,262 square feet of building space would be required.	S/M Law enforcement staff of 120 and 24,389 square feet of building space would be required.	S/M Law enforcement staff of 120 and 24,532 square feet of building space would be required.	S/M Law enforcement staff of 111 and 22,683 square feet of building space would be required.	S/M Law enforcement staff of 93 and 18,914 square feet of building space would be required.	S/M Law enforcement staff of 86 and 17,628 square feet of building space would be required.	S/M Law enforcement staff of 45 and 9,181 square feet of building space would be required.	S/M Law enforcement staff of 40 and 8,142 square feet of building space would be required.	
Fire	S/M 3 new fire stations would be required.	S/M 4 new fire stations would be required.	S/M 4 new fire stations would be required.	S/M 4 new fire stations would be required.	S/M 3 new fire stations would be required.	S/M 3 new fire stations would be required.	S/M 3 new fire stations would be required.	S/M 2 new fire stations would be required.	
Emergency Medical	S/M 3 new emergency services facilities would be required.	S/M 2 new emergency services facilities would be required.	S/M 2 new emergency services facilities would be required.	S/M 2 new emergency services facilities would be required.	S/M 1 new emergency services facility would be required.	S/M 1 new emergency services facility would be required.	S/M 1 new emergency services facility would be required.	S/M 1 new emergency services facility would be required.	
Schools	S/M 32 schools would be required.	S/M 19 schools would be required.	S/M 19 schools would be required.	S/M 18 schools would be required.	S/M 15 schools would be required.	S/M 13 schools would be required.	S/M 7 schools would be required.	S/M 6 schools would be required.	
Libraries	S/M 74,905 square feet of library space would be required.	S/M 60,519 square feet of library space would be required.	S/M 60,873 square feet of library space would be required.	S/M 56,286 square feet of library space would be required.	S/M 46,923 square feet of library space would be required.	S/M 31,244 square feet of library space would be required.	S/M 15,563 square feet of library space would be required.	S/M 14,059 square feet of library space would be required.	
Parks, Rec., and Open Space	S/M 449 acres of local parkland, 2,247 acres of regional parkland, and recreational facilities would be required.	S/M 259 acres of local parkland, 1,305 acres of regional parkland, and recreational facilities would be required.	S/M 261 acres of local parkland, 1,304 acres of regional parkland, and recreational facilities would be required.	S/M 241 acres of local parkland, 1,206 acres of regional parkland, and recreational facilities would be required.	S/M 201 acres of local parkland, 1,006 acres of regional parkland, and recreational facilities would be required.	S/M 188 acres of local parkland, 937 acres of regional parkland, and recreational facilities would be required.	S/M 98 acres of local parkland, 488 acres of regional parkland, and recreational facilities would be required.	S/M 87 acres of local parkland, 433 acres of regional parkland, and recreational facilities would be required.	
Electricity and Gas	S/M 5 substations and associated distribution lines would be required.	S/M Similar to New Town Plan	S/M Similar to New Town Plan	S/M Similar to New Town Plan	S/M Similar to New Town Plan	S/M Similar to New Town Plan	S/M Similar to New Town Plan	S/M Similar to New Town Plan	
Health and Medical, and Social and Senior Services	S/M Facilities to adequately serve a total project population of 149,810 would be required.	S/M Facilities to adequately serve a total project population of 86,456 would be required.	S/M Facilities to adequately serve a total project population of 86,892 would be required.	S/M Facilities to adequately serve a total project population of 80,408 would be required.	S/M Facilities to adequately serve a total project population of 67,046 would be required.	S/M Facilities to adequately serve a total project population of 62,487 would be required.	S/M Facilities to adequately serve a total project population of 32,544 would be required.	S/M Facilities to adequately serve a total project population of 28,863 would be required.	
Child Care	S/M Facilities to serve a youth population of 5,978 would be required.	S/M Facilities to serve a youth population of 3,451 would be required.	S/M Facilities to serve a youth population of 3,470 would be required.	S/M Facilities to serve a youth population of 3,210 would be required.	S/M Facilities to serve a youth population of 2,676 would be required.	S/M Facilities to serve a youth population of 2,494 would be required.	S/M Facilities to serve a youth population of 1,299 would be required.	S/M Facilities to serve a youth population of 1,152 would be required.	

Table 4.10-1 (Continued)

COMPARISON OF SIGNIFICANT IMPACTS
PROPOSED PROJECT AND PROJECT ALTERNATIVES

Potential Impact	New Town Plan	Phase I – Progress Plan	Phase II – Progress Plan	Fourth Alternative	Project Team Alternative	Composite General Plans	Low Density Alternative	Environmental Alternative	No Project Alternative
Animal Control	NS	NS	NS	NS	NS	NS	NS	NS	NS
Risk of Upset:									
Increase in Risk of a Spill of Hazardous Materials or Waste During Transport, Use, Storage, or Disposal.	S/M	S/M	S/M	S/M	S/M	S/M	S/M	S/M	NS

Notes:
NS Not significant.
S Significant and not mitigated at this level of analysis. Future environmental analysis will be required at the SPA Plan level to determine the significance and to identify mitigation requirements.
S/M Significant and mitigable
S/UM Significant and unmitigable
N/A The impacts were not quantified for these alternatives; the impacts would fall within the range of impacts of the Phase I-Progress Plan Alternative and the Environmental Alternative.
1 Otay Mesa vernal pool groups J23, J24, and J25 are designated as Parks and Recreation; all others on Otay Mesa are designated as Residential.
2 Includes only impacts to populations in the Otay River parcel; does not include impacts to populations in the San Ysidro and Proctor Valley parcels.
3 Applies only to Otay River parcel.
4 Alkali meadow impacts are unmitigable at this level of analysis. All other wetland impacts are mitigable.

* This analysis remains the same under the Phase I-Progress Plan under both the standard and village design trip generation assumptions. Although the anticipated impacts on the circulation system that would occur as result of the village design trip reductions are minimized, the significant impacts remain constant.

Table 4.10-1.1 (New)

EVALUATION OF THE DIFFERENT OTAY RANCH DEVELOPMENT ALTERNATIVES IN RELATION TO THE RESOURCE MANAGEMENT PLAN

Resource Managment Plan Policies, Standards, and Guidelines	Compliance: Yes, No and NA=Not Analyzed, and Percent or Proportion (in Parentheses) of the Resource Preserved								
	New Town Plan	Composite General Plan	Phase I-Progress Plan	Fourth Alternative	Project Team Alternative	Phase II-Progress Plan	Low Density Alternative	Environmental Alternative	No Project Alternative
Alternative has a Resource Management Plan	Yes	No	Yes	Yes	Yes	Yes	No	No	No
Key Resource Areas									
Policy 2.1 Include Large Blocks of Key Biological Resource Areas Within the Preserve.	No (56%)	NA	No (77%)	NA	NA	NA	NA	Yes (99%)	NA
Sensitive Habitats									
Policy 2.2 Preserves and Restores 85% of Coastal Sage Scrub Habitat (Minimum of 70% Preservation)	No (44%)	NA	No (62%)	No (~68%)	No (~68%)	Yes (76%)	No (~68%)	Yes (85%)	Yes (100%)
Policy 2.3 Preserve and Restore 80% of Native Grassland Habitat (Minimum of 25% Preservation)	No (5%)	NA	No (15%)	Yes (~35%)	Yes (~35%)	Yes (35%)	Yes (~35%)	Yes (62%)	Yes (100%)
Policy 2.4 Preserve 100% of the Following:									
Southern Interior Cypress Forest	No (95%)	NA	No (98%)	No (95%)	No (95%)	No (95%)	No (95%)	Yes (100%)	Yes (100%)
Coast Live Oak Woodland	No (90%)	NA	No (97%)	Yes (100%)	Yes (100%)	No (95%)	Yes (100%)	Yes (100%)	Yes (100%)
Oak Riparian Forest	No (55%)	NA	No (89%)	No (88%)	No (88%)	No (80%)	No (88%)	No (89%)	Yes (100%)
Sycamore Alluvial Woodland	No (0%)	NA	Yes (100%)	no (47%)	no (47%)	Yes (100%)	no (47%)	Yes (100%)	Yes (100%)
Policy 2.9 Preserve a Minimum of 95% of the Vernal Pool Habitat Supporting Vernal Pool Indicator Species	No (28%)	NA	No (92%)	NA	NA	No (92%)	NA	Yes (99%)	Yes (100%)
Policy 2.10 Preserve and Enhance Wetlands: No Net Loss; 95% Wetlands in Preserve	No (18%)	NA	No (91%)	No (90-95%)	No (90-95%)	No (93%)	No (90-95%)	Yes (96%)	Yes (100%)
Sensitive Plants									
Policy 2.6 and 2.9 Proportion of First Priority (State and Federally-Listed Rare, Threatened, and Endangered) Plant Species Preserved at Levels Required by the RMP.	2/9	NA	4/9	5/9	5/9	8/9	5/9	8/9	9/9

Table 4.10-1.1 (Continued)

EVALUATION OF THE DIFFERENT OTAY RANCH DEVELOPMENT ALTERNATIVES IN RELATION TO THE RESOURCE MANAGEMENT PLAN

Resource Managment Plan Policies, Standards, and Guidelines	Compliance: Yes, No, and NA=Not Analyzed, and Percent or Proportion (in Parentheses) of the Resource Preserved								
	New Town Plan	Composite General Plan	Phase I-Progress Plan	Fourth Alternative	Project Team Alternative	Phase II-Progress Plan	Low Density Alternative	Environmental Alternative	No Project Alternative
Policies 2.7 and 2.9 Proportion of Second Priority (California Native Plant Society List 1B or 2) Plant Species Preserved at Levels Required by the RMP:	6/19	NA	6/19	NA	NA	NA	NA	19/19	19/19
Policies 2.7 and 2.9 Proportion of Third Priority (California Native Plant Society List 3 or 4) Plant Species Preserved at Levels Required by the RMP:	5/13	NA	10/13	NA	NA	NA	NA	12/13	13/13
Sensitive Animals **									
Policy 2.5 Include Within the Preserve Sufficient Habitat to Maintain 80% of Documented California Gnatcatcher Gnatcatcher Pairs/Individuals. Percentage of Gnatcatcher Points of Occurrence Preserved (Not Impacted by Development or Road Construction).	No (34%)	No (44%)*	No (51%)	No (58%)	No (58%)	No (54%)	No (62%)	Yes (85%)	Yes (100%)
Include Within the Preserve Sufficient Habitat to Maintain 100% Documented Cactus Wren Pairs/ Individuals. Percentage of Cactus Wren Points of Occurrence Preserved (Not Impacted by Development or Road Construction).	No (28%)	No (35%)*	No (55%)	No (62%)	No (62%)	No (58%)	No (70)	No (82%)	Yes (100%)
Policy 2.6 Preserve at Least 90% of the Following Species Recognized as Threatened or Endangered by the CDFG or USFWS:									
Least Bell's Vireo	No (0%)	No (50%)	No (87%)	No (75%)	No (75%)	No (87%)	No (87%)	Yes (100%)	Yes (100%)
Southwestern Willow Flycatcher **	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4.10-1.1 (Continued)

EVALUATION OF THE DIFFERENT OTAY RANCH DEVELOPMENT ALTERNATIVES IN RELATION TO THE RESOURCE MANAGEMENT PLAN

Resource Managment Plan Policies, Standards, and Guidelines	Compliance: Yes, No, and NA=Not Analyzed, and Percent or Proportion (in Parentheses) of the Resource Preserved								
	New Town Plan	Composite General Plan	Phase I-Progress Plan	Fourth Alternative	Project Team Alternative	Phase II-Progress Plan	Low Density Alternative	Environmental Alternative	No Project Alternative
Policy 2.8									
Preserve Onsite Populations of Plants and Animals Recognized as Federal C2 Candidates. Include a Minimum of 75% of the Populations for These Species Within a Management Preserve:	NA	NA	NA	NA	NA	NA	NA	NA	NA
Policy 2.11									
Preserve Habitat for Raptor Nesting, Roosting, and Foraging.	No	No	No	No	No	No	No	Yes	Yes
Wildlife Corridors									
Policy 4.1									
Provide Adequate Habitat Linkages and Wildlife Corridors to Accommodate Gene Flow and Wildlife Movement.	No	No	No	No	No	No	No	Yes	Yes
Incorporate All Regional Corridors into Preserve	No	No	No	No	No	No	No	Yes	Yes
Number of Regional Corridors Blocked.	8	.	3	3	2	4	2	0	0
Number of Regional Corridors Constrained	5		9	8	8	6	8	8	0
Proportion of Regional Corridors Not Impacted	0/13	NA	1/13	2/13	3/13	3/13	3/13	5/13	13/13
Incorporate a Majority of Local Corridors into Preserve.	No	NA	No	No	No	Yes	No	Yes	Yes
Number of Major Local Corridors Blocked.	3	NA	2	3	3	1	3	0	0
Number of Major Local Corridors Constrained	1	NA	1	0	0	1	0	1	0
Proportion of Major Local Corridors Not Impacted	0/4	NA	1/4	1/4	1/4	2/4	1/4	3/4	4/4

* Impacts were only evaluated for the Otay River Parcel.

** Impacts to this species would be assumed to be similar to those for the least Bell's vireo.

This Table Gives Information on Compliance of Each Alternative with the RMP (Yes, No, NA=Not Analyzed) Followed by the Percent or Proportion (in Parentheses) of the Sensitive Resource Which is Preserved. Evaluations for Each Alternative Were Made Prior to the Implementation of Mitigation Measures.

Table 4.10-2

COMPARISON OF PREDICTED AIR QUALITY IMPACTS (TONS/YEAR) FOR YEAR 2000

	New Town Plan	Phase I-Progress Plan	Environmental Alternative
		VEHICULAR EMISSIONS	
ROC	283.6	245.2	172.8
CO	3,429.9	2,918.8	2,112.5
NO_x	381.5	326.7	229.4
PM_{10}	158.2	97.2	76.9
SO_x	27.7	23.7	16.9
		STATIONARY SOURCE EMISSIONS	
ROC	1.8	1.7	1.3
CO	6.9	6.7	5.0
NO_x	34.9	33.8	24.9
PM_{10}	1.0	1.0	0.7
SO_x	0.2	0.2	0.1
		POWER PLANT EMISSIONS	
ROC	0.3	0.2	0.2
CO	8.6	7.1	6.7
NO_x	37.6	31.2	29.4
PM_{10}	1.1	0.9	0.8
SO_x	0.1	0.1	0.1

Table 4.10-3

COMPARISON OF PREDICTED AIR QUALITY IMPACTS (TONS/YEAR) FOR YEAR 2010

	New Town Plan	Phase I-Progress Plan	Environmental Alternative
		VEHICULAR EMISSIONS	
ROC	752.4	609.9	217.9
CO	9,367.3	7,570.7	2,738.8
NO_x	1,092.3	887.7	313.6
PM_{10}	752.6	452.8	161.4
SO_x	77.6	63.0	22.6
		STATIONARY SOURCE EMISSIONS	
ROC	5.6	4.3	1.8
CO	20.8	15.9	7.0
NO_x	104.1	79.4	34.8
PM_{10}	2.9	2.2	1.0
SO_x	0.5	0.4	0.2
		POWER PLANT EMISSIONS	
ROC	1.0	0.7	0.3
CO	28.3	20.2	8.5
NO_x	123.6	88.3	37.1
PM_{10}	3.5	2.5	1.1
SO_x	0.4	0.3	0.1

Table 4.10-4

COMPARISON OF PREDICTED AIR QUALITY IMPACTS (TONS/YEAR) FOR YEAR 2020

	New Town Plan	Phase I-Progress Plan	Environmental Alternative
		VEHICULAR EMISSIONS	
ROC	1,814.1	1,308.1	338.9
CO	22,313.0	15,884.3	4,190.3
NO_x	2,670.9	1,952.9	498.0
PM_{10}	1,389.0	987.1	255.3
SO_x	189.4	137.4	35.7
		STATIONARY SOURCE EMISSIONS	
ROC	10.9	5.8	2.0
CO	41.0	21.1	7.7
NO_x	204.9	104.8	38.7
PM_{10}	6.1	3.1	1.2
SO_x	1.2	0.7	0.2
		POWER PLANT EMISSIONS	
ROC	1.6	0.9	0.3
CO	48.1	26.2	9.6
NO_x	210.4	114.6	42.1
PM_{10}	6.0	3.3	1.2
SO_x	0.7	0.4	0.1

SECTION 5
OFFSITE ALTERNATIVES

5.1 INTRODUCTION

This section analyzes the potential environmental impacts associated with offsite alternatives to the Otay Ranch project. Otay Ranch is at the conceptual planning level at this stage of the project; specific plans for particular parcels will be developed for review and approval during the phased overall development of the property. The assessment of offsite alternatives thus reflects a general approach focused on environmental issue areas (see Section 5.1.2.5).

5.1.1 CEQA Requirements

CEQA requires that reasonable alternatives to a proposed project be identified and analyzed to assess their potential to eliminate or minimize significant impacts of the proposed project (Public Resources Code, Sections 21001(g), 21002, and 21061) and to permit a reasoned choice by decision-makers. Alternatives should be feasible with respect to attaining the basic objectives of the project. Feasible is defined as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors" (Public Resources Code, Section 21061.1). Onsite and offsite alternatives must be considered. The December 31, 1990 Goleta decision (91 Daily Journal D.A.R. 129) provides additional perspective on feasibility for offsite alternatives. The decision concluded that feasibility should take into account: (1) consistency with existing land use plans; (2) property ownership; and (3) location of property outside of the lead agency's decision-making authority. In order to take a conservative approach, the selection of offsite alternatives for Otay Ranch did not rule out sites based on: (1) Baldwin's financial ability to purchase the site or (2) its location outside the jurisdictional boundary of the lead agency. The following sections provide a discussion of offsite alternatives to the proposed Otay Ranch project within the context of these considerations.

5.1.2 Offsite Alternatives

5.1.2.1 Study Area

A study was conducted to identify locations for potential offsite alternatives. The initial step in the process was to establish boundaries for a study area in which to locate possible sites. Based on direction from City of Chula Vista staff and the applicant's representatives, it was agreed that the most critical objective of the proposed Otay Ranch plan is that it addresses the housing market for, and is tied to, the San Diego metropolitan area. Consequently, study area boundaries were developed that would encompass areas which are closely linked to the San Diego metropolitan area economy.

The U.S.-Mexico border was chosen as the southern boundary, because any comparable development in Mexico would be beyond the jurisdiction of CEQA. The Pacific Ocean provided a physical boundary to the west. The eastern boundary was selected as the San Diego County-Imperial County line (about 70 miles to the east) because it is sufficiently remote that few workers or businesses associated with the San Diego metropolitan area would locate beyond it. There is some crossover of workers from San Diego County to employment opportunities in Riverside and Orange counties; a similar situation exists between workers in southern Riverside County and opportunities in the San Diego

metropolitan area. Consequently, a northerly boundary was set along an east-west line immediately south of Rancho California.

5.1.2.2 Screening Criteria

After establishment of the study area boundaries for the offsite alternatives analysis, sites were identified with a sufficiently large area (greater than 20,000 acres) to accommodate a development at the scale of the Otay Ranch project (about 23,000 acres). Screening criteria were established to achieve this objective. These screening criteria allowed the identification of areas generally similar to Otay Ranch for the comparison of environmental impacts. These criteria included:

- Large areas of existing urban/suburban/rural residential use – while small areas of residential development could be purchased or incorporated into project planning, the presence of large areas of existing development would result in a project considerably different from that proposed at Otay Ranch. The Otay Ranch project is not an urban redevelopment.

- An area within which approximately 50 percent of the land has slopes of 25 percent or less.

- Designated national, state, county, or local parks or recreation areas – it is unlikely that sale or exchange of designated recreation areas would be approved by public agencies.

- Indian reservations – sale or lease of Indian lands for urban development purposes other than for the members themselves is very difficult and unlikely.

- Cleveland National Forest lands – according to Forest Service staff, no lands in the San Diego area have been identified as suitable for exchange.

- Lands held by the Department of Defense (DOD) – DOD has exchanged "excess" lands in the past. However, remaining DOD lands large enough to accommodate this project (Camp Pendleton, Miramar NAS) are needed for specific and ongoing military missions and are not available for disposal. Recent attempts have been made by public agencies to acquire such lands for public purposes (landfills, regional airport) with no success.

5.1.2.3 Site Selection Criteria

Within areas not excluded by the criteria listed above, specific sites were sought. Major considerations at this stage included:

- Site adjacent to county-adopted urban limit lines.
- Site adjacent to or overlapping existing water district boundaries.
- Availability of 10,000 acres of land with less than 25 percent slope.

The reasons for focusing on these considerations are discussed below.

Over the course of many years, the County of San Diego has established formal policies to guide urban development. These are stated in the goals and policies of the Regional Land Use Element of the San Diego County General Plan, and as specific policies regarding annexations, incorporations, and large-scale project review. General Plan Goal 1.1 states

that "urban development [should] be directed to areas within or adjacent to existing urban areas, and that the rural settings and lifestyle of the remaining areas [should] be retained."

Board of Supervisors Policy I-59 states that permits "necessary to accommodate a large scale project shall not be approved unless there is assurance that the project...is consistent with the county's growth management policies." Policy I-55 states that "the county will guide urban growth through the use of the urban limit line in the general plan, and will discourage urbanization outside of the urban limit line."

Another major development constraint is availability of water. In the absence of any large unappropriated rivers or untapped aquifers, water districts which have existing water importation arrangements are the primary source of water to urban developments.

Based on county urbanization policies, and on locations of existing water districts, developable areas within or adjacent to county urban limit lines and water district boundaries were sought. The objective was to identify tracts of developable land (having less than 25 percent slope) of 10,000 acres or more. A site with much less than 10,000 acres generally suitable for development would not be comparable to the Otay Ranch project as proposed, and would thus not be a reasonable alternative.

5.1.2.4 Site Boundary Delineation

Following identification of areas generally suitable for potential sites, more specific site boundaries were delineated based on the location and amount of developable land (less than 25 percent slope); locations of existing development, roads, and jurisdictional boundaries were also considered. Additional slope analysis was conducted based on more detailed topographic maps (USGS 7.5-minute series, 1 inch = 2,000 feet) in order to specify alternative sites comparable to Otay Ranch in acres of developable land.

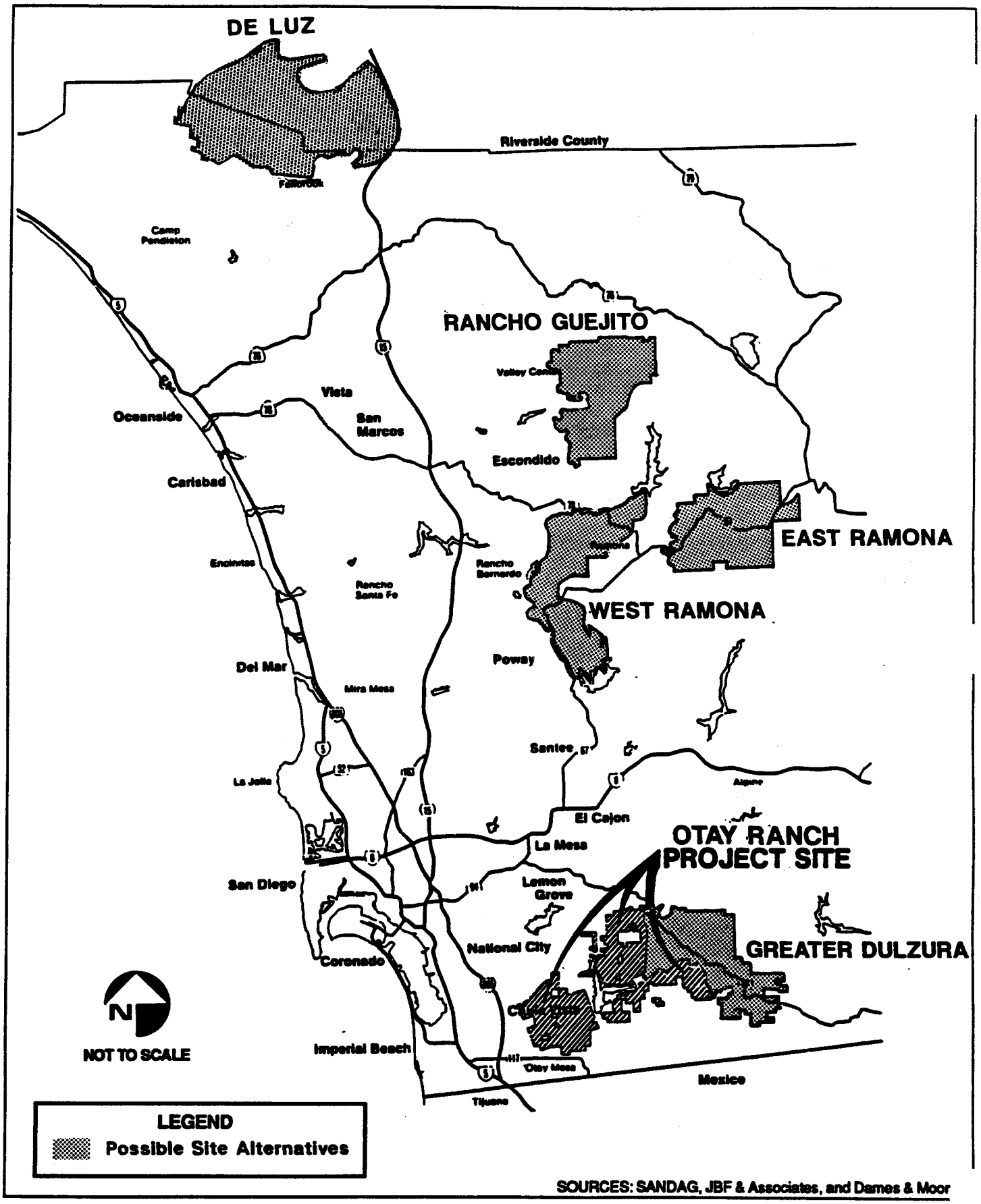
Five alternative sites were initially identified as a result of the screening process described above. Other areas did not meet the specified site identification criteria. Site locations are depicted in Figure 5.1-1 and have been assigned the following names, based on places within or near the sites:

- Greater Dulzura
- West Ramona
- East Ramona
- Rancho Guejito
- De Luz

During finalization of the site delineation process, it was found that not enough developable land (10,000 acres with less than 25 percent slope) was available at the De Luz site. Only 3,340 acres were found to have less than 25 percent slope, with such areas widely separated within the potential site. This site, if developed, would differ greatly from development concepts proposed for the Otay Ranch site, and thus would not be a comparable alternative. The De Luz site was therefore dropped from further consideration.

5.1.2.5 Impact Analysis

It is assumed that a comparable type of project would be developed at the Otay Ranch site and at the alternative sites. The project would include approximately 30,000 dwelling units, a variety of housing types ranging from multifamily to estate housing, regional parks, commercial and office development, and limited industrial use. (A project of



SOURCES: SANDAG, JBF & Associates, and Dames & Moor

OGDEN

Regional Map of Offsite Alternatives

FIGURE 5.1-1

approximately 30,000 dwelling units would represent the mid-range of the onsite project alternatives analyzed in this EIR.)

At a conceptual planning level, environmental sensitivities at a site are indications of the potential for a project to have significant impacts. For the Otay Ranch project, environmental sensitivities (issue areas) were identified in preliminary studies for the project and are discussed in detail in Section 3 of this EIR. Because CEQA requires alternatives to be assessed for their potential to eliminate or minimize significant impacts of a proposed project, the key issue areas were also assessed for the offsite alternatives. The issue areas include:

- land use – compatible with existing and adjacent land uses and close to existing urban limits
- growth inducement – consistent or minimal conflict with current basic development policies in county or city general plans
- light and glare – distance from local observatories to avoid impact to their operations
- noise – effects of airports, roads, and other known noise sources on neighboring properties
- risk of upset – distance from land uses that could pose a hazard to the project (e.g., military installations, nuclear power plants, and hazardous waste disposal areas)
- water availability – within or mostly within an existing water district to facilitate the procurement of water
- water quality – location relative to existing drinking water reservoirs to avoid potential for pollution of water supplies
- biology – biological sensitivity
- transportation – ability of local and regional transportation system infrastructure (existing and/or planned) to accommodate considerable traffic increases
- air quality – proximity to urbanized areas with employment opportunities in order to minimize level of air pollution increases due to travel distance for commuters
- energy – proximity to urbanized areas with employment opportunities in order to minimize energy consumption increases due to vehicle miles traveled by commuters
- cultural resources – cultural resource sensitivity

The offsite alternatives analysis was based on the following considerations relative to specific issue areas:

- Biological resources were assessed by reviewing aerial photographs (1" = 2000' and 4000'), Soil Conservation Service soil survey maps, USGS 7.5-minute topographic maps, a previous analysis of potentially developable

acreage (Dames and Moore 1991), relevant community plans, and pertinent background data.

The assessment is qualitative and focuses on a comparison of the alternative sites from a regional biological perspective. The overview considered general numbers and the status of sensitive plant and animal species, the potential to impact and to mitigate key sensitive species, the existence of sensitive habitats, and the potential to affect wildlife movement or fragment major wildlife areas.

- The land use analysis addressed issues of growth inducement, light and glare, noise, and risk of upset. The analysis and comparison of land use compatibility and noise effects was based on identification of major existing onsite and adjacent land uses.

- The water quality analysis was based on proximity to the nearest downstream reservoir. However, it is assumed that an urban runoff protection system would be required to mitigate potential impacts.

- The public service analysis focused on the availability of a domestic water supply for the increased population as this is considered a key public service issue.

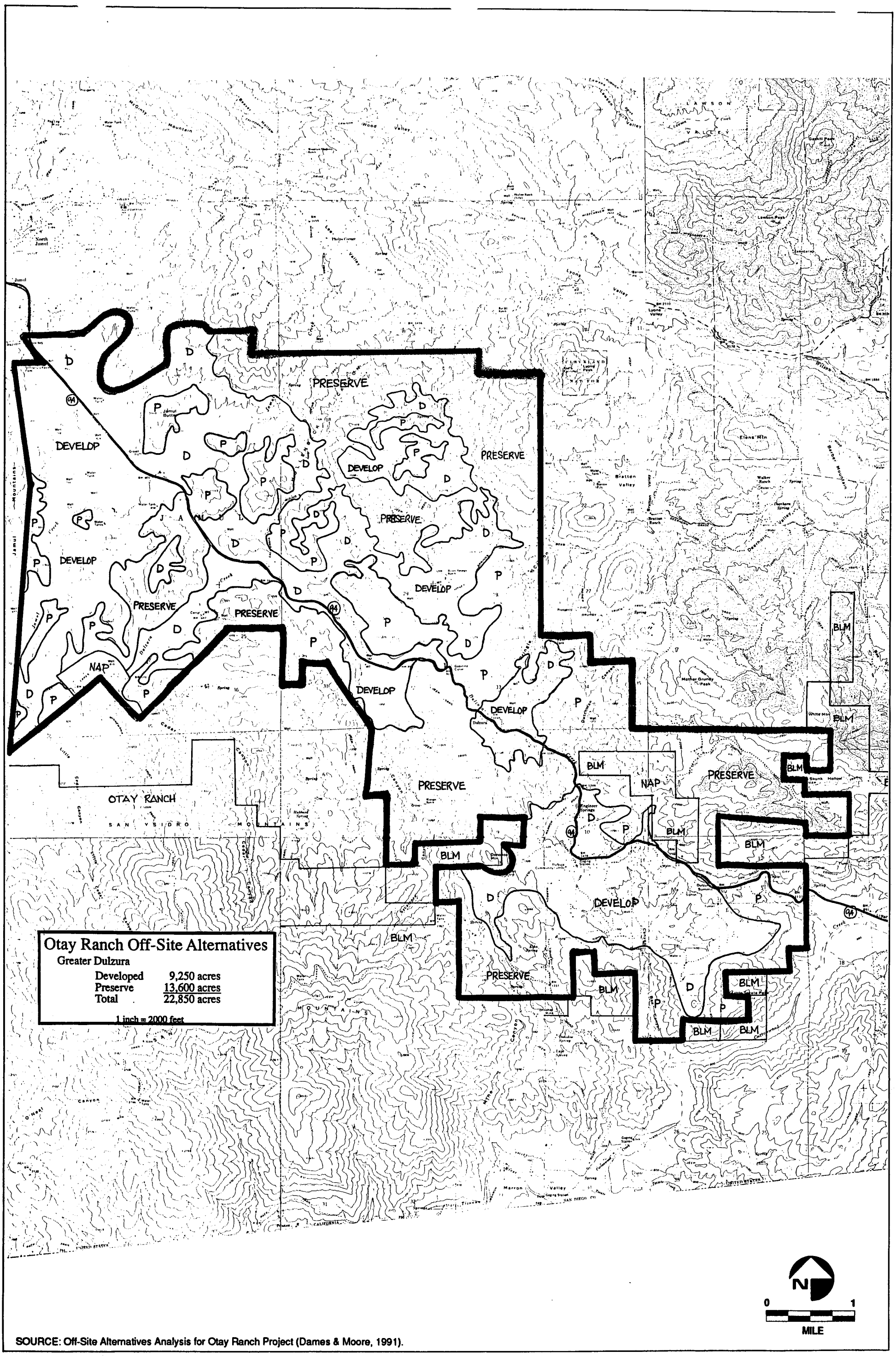
5.2 Greater Dulzura Alternative Site

The alternative site identified as Greater Dulzura is bisected by SR-94, and located immediately east of Otay Ranch (Figure 5.2-1). The community of Jamul, which has a "Country Town" designation in the general plan, is adjacent to the site to the northwest, while the communities of Dulzura and Engineer Springs are within the site boundaries to the southeast. The site is under the jurisdiction of the County of San Diego, and is completely contained within the Jamul-Dulzura SPA. The site consists of approximately 22,850 acres, owned by several hundred individuals and businesses. The topography is characterized by numerous small valleys and mountains, with elevations ranging from approximately 600 feet above mean sea level (MSL) at the western boundary to 2,650 and 2,840 feet above MSL in the mountains. Approximately 9,250 acres have slopes under 25 percent, and most of that area is assumed to be developable. Most of the balance of the site (13,600 acres) has slopes over 25 percent, and it is assumed that such lands would generally be withheld from development.

5.2.1 Land Use and Related Topics

Most of the alternative site is vacant and undeveloped, cultivated with various crops, or devoted to grazing; there are some substantial onsite residential areas at Dulzura, Engineer Springs, and near Jamul. Jamul is located just northwest of the site, while a BLM-recommended wilderness area is adjacent to the southwest. Lower Otay Lake is less than 2 miles to the west, while Barrett Lake is approximately 3 miles northeast of the site. The development of a project at the scale of Otay Ranch would not be consistent with these existing uses.

Greater Dulzura is completely within the Jamul-Dulzura Subregional Plan of San Diego County, and is currently designated as either "environmentally constrained" (40 percent) or for low-density rural development. According to the Jamul-Dulzura Subregional Plan (1979, 1983), "...all land outside the [Jamul] Country Town boundary and Urban Limit Line will be considered rural" and "No [Urban Residential] lot should be less than one net acre." Plan Goal #1 is to "Encourage development of the land in such a manner as to retain



SOURCE: Off-Site Alternatives Analysis for Otay Ranch Project (Dames & Moore, 1991).

OGDEN

Greater Dulzura Alternative Site

FIGURE 5.2-1

the existing rural atmosphere of the community" while Goal #2 targets a total 1995 population of 8,500 to 10,500 persons (if essential services have been made available). Development of an Otay Ranch-sized project at this alternative site would conflict with basic plan policies to a much greater extent than development proposed at the Otay Ranch site.

The Greater Dulzura site is slightly closer to Mt. Laguna observatory (23.5 miles versus 27 miles) than the Otay Ranch site, but their distances to Mt. Palomar are virtually the same. Therefore, there is no substantial difference between the locations with regard to light and glare sensitivities.

The site is farther away from nearby airports than is Otay Ranch, with distances from 7 to 18 miles. The site would thus be superior to the Otay Ranch site from the standpoint of noise. Greater Dulzura is also farther from hazardous activities at the San Onofre nuclear generating station, military installations, and hazardous waste disposal operations; this constitutes an advantage relative to risk of upset.

5.2.2 Water Availability

Approximately 7,000 acres of this alternative site is within a water district (Otay), and the rest would have to be annexed for the district to supply water. Projected water usage for 30,000 dwellings would be approximately 45,000 acre-feet per year, which represents a 220 percent increase over 1989-90 distribution by the district. Serving this demand would require a massive upgrade of both local facilities and water supply agreements. The Otay Water District has neither local water supplies nor storage reservoirs, but is currently involved in planning to supplement imported water supplies and to reach storage agreements with other entities. Both the Otay Ranch site and Greater Dulzura site could be served by the same water district; both sites would require that additional land area be annexed to a water purveyor for the project to be served. Water availability itself is a major problem for both sites due to the lack of adequate storage facilities.

5.2.3 Water Quality

Approximately 90 percent of the Greater Dulzura site is upstream of and drains into Dulzura Creek, which is used as a conduit for City of San Diego drinking water from other reservoirs to Lower Otay Lake. This is thus greater potential for possible runoff contamination than at the proposed Otay Ranch site, where most development is to be located downstream of Lower Otay Lake.

5.2.4 Biology

The majority of the Greater Dulzura site is covered by coastal sage scrub. The great majority of this habitat would potentially be preserved. Chaparral is the predominant habitat in the eastern and southeastern portions of the site. Much of this habitat could be developed but this would occur over an area which is already a mosaic of rural homesites (e.g., Engineer Springs). Grasslands and areas disturbed by ranching are common in the lowlands in the western portion of the site; much of these habitats could be developed. The site supports only a minor stand of southern interior cypress forest in an area which would probably not be developed. Oak riparian forests are more common on the Greater Dulzura site than on Otay Ranch and would be more problematic to potential development since many of these linear drainage habitats cross developable acreage.

The Greater Dulzura site would be expected to support a comparable number of sensitive plant and animal species as Otay Ranch. However, whereas a fair amount of coastal sage

scrub habitat may be present, this more inland low scrub either does not support or supports only in limited numbers the plant and animal species which contribute most to the habitat's sensitivity, e.g., the California gnatcatcher and cactus wren. The state-listed plant *Hemizonia conjugens* is not expected to occur on the Greater Dulzura site. Generally speaking, the species found onsite are less sensitive, and many of them occur on rugged, undevelopable terrain. The Greater Dulzura site does not support key sensitive habitats such as vernal pools or maritime succulent scrub. Clay soil types (Altamont and Diablo Clays) which could potentially support a number of sensitive plants are lacking or are found in areas which would, for the most part, probably not be developed. A small extent of gabbro soils (Los Posas Series, LrE, LrG) is present just East of Donohue Mountain. This soil type could potentially support a number of sensitive plant species (e.g., *Acanthomintha ilicifolia*). An estimated half (200 acres) of the areal extent of this soil type onsite could potentially be affected by development. Wetland issues and the least Bell's vireo would be an issue along Dulzura Creek. Wildlife corridor and raptor foraging issues would need to be resolved as in the case of Otay Ranch.

Whereas the scale of development proposed for Otay Ranch would substantially and significantly reduce wildlife habitat at the Greater Dulzura site, it would not be as significant as Otay Ranch due to the lack of key sensitive habitat and species. Furthermore, mitigation could be more complete in Greater Dulzura due to the type and extent of generally lower sensitivity species and habitats affected.

5.2.5 Transportation

The four existing major local roads within and near this alternative site are all two-lane facilities that cannot be expected to accommodate the level of local traffic associated with a project of this scale. Extensive road upgrades would be required, as for the Otay Ranch site.

SR-94 serves as the major facility connecting the alternative site with the regional transportation system. It is a two-lane road currently carrying from 3,400 to 6,600 vehicles per day within the alternative site. This represents LOS "A" (free-flowing traffic). Although it could accommodate additional traffic in its current configuration, it would not be adequate to serve as the primary highway of a community of 25,000 to 30,000 homes. West of Jamul, the LOS declines to "E" and "F" due to traffic reaching 34,200 vehicles per day (1989). Expansion to four lanes is planned west of Jamul, with further enlargement to six or eight lanes as it approaches SR-125 which is in the planning stage. However, these plans did not incorporate considerations of a major development southeast of Jamul.

Existing north-south freeways (I-5 and I-805) were LOS "D" or better in 1988, south of National City and SR-54. However, they are expected to become increasingly more congested (LOS "E" and "F") by 2010 if current trends continue. SR-125, to be located 4 to 5 miles inland from I-805, is projected to provide less congested north-south travel (LOS "D" for much of the route, with LOS "F" only between SR-94 and I-8). However, as the Greater Dulzura site is currently planned for development at a much lower intensity than Otay Ranch, has less access to SR-125 than Otay Ranch, and depends almost entirely on SR-94 as its main thoroughfare, it is considered to have a disadvantage relative to transportation; therefore, expansion of SR-94 south of Jamul would be necessary.

5.2.6 Air Quality

Most existing air quality conditions (pollutant dispersion, climatology, ambient air quality standards, and nonattainment status) are anticipated to be similar for all sites under

consideration. Therefore, the significant variable remaining involves vehicular emissions associated with travel distances. It is assumed that internal local traffic would be similar for all the sites, but that differences could occur among sites relative to commuting distances. It is reasonable to assume that most jobs would be located within the contiguous urbanized area of metropolitan San Diego. Consequently, road distances from the assumed development center of each site to the edge of highly urbanized areas were estimated to determine which sites would require longer vehicular travel distances, resulting in greater vehicular emissions.

The distance from the estimated center of development for the Greater Dulzura site to the urbanized area near SR-54 is approximately 8 miles, compared to 2 miles for Otay Ranch. Development of this alternative site would result in the generation of more air pollution due to the longer travel distance (approximately four times longer).

5.2.7 Energy

The alternative sites are located in similar (although not identical) climatic zones; therefore, space heating/cooling energy demand would be similar. The major energy difference between the sites is expected to be due to commuter trips to employment centers outside site boundaries. The anticipated population center of the Otay Ranch site is located within 2 miles of the metropolitan urban edge, and is not much farther to a future major employment center (Otay Mesa). The Greater Dulzura site is approximately 6 miles farther from the urban area than is Otay Ranch. This represents greater energy consumption for the Greater Dulzura site.

5.2.8 Cultural Resources

Cultural resource sensitivity was evaluated by considering site topography (slope); presence of creeks or springs; generalized vegetation types; known historic or prehistoric resources; extent of previous survey coverage; and anticipated resources. This was established through use of topographic maps and results of preliminary site records searches; no field work was conducted.

The Greater Dulzura site contains varied topography and several springs and creeks. Vegetation is primarily chaparral, with riparian vegetation along Dulzura Creek. The site contains several known prehistoric sites, and parts of the site have been the subject of prior studies. Areas near drainages which have been studied indicate a high concentration of prehistoric resources. Several historic sites are known as well. In summary, the area contains resources likely to be determined significant. However, large sites, such as those along Otay River on Otay Ranch, are not anticipated. The Greater Dulzura site is considered sensitive from a cultural resources viewpoint and is, in overall sensitivity, similar to the Otay Ranch site.

5.2.9 Paleontology

The Greater Dulzura alternative site is predominantly underlain by granitic rocks of the Southern California Batholith and Santiago Peak Volcanics. Both of these rock types are igneous in origin and have no paleontological resource potential. Development of the proposed project at this alternative site would not impact paleontological resources.

5.2.10 Noise

The Greater Dulzura alternative site is immediately east of Otay Ranch. Most of the site is undeveloped without significant onsite noise sources. However, there are onsite residential

areas at Dulzura, Engineer Spring, and near Jamul. State Route 94 bisects the site. Noise-sensitive receptors located adjacent to the roadway may be significantly impacted. Noise impacts associated with project-generated traffic may also occur along the project's internal roadways. Noise barriers of various heights and/or setbacks would be required to mitigate potential impacts.

5.3 WEST RAMONA ALTERNATIVE SITE

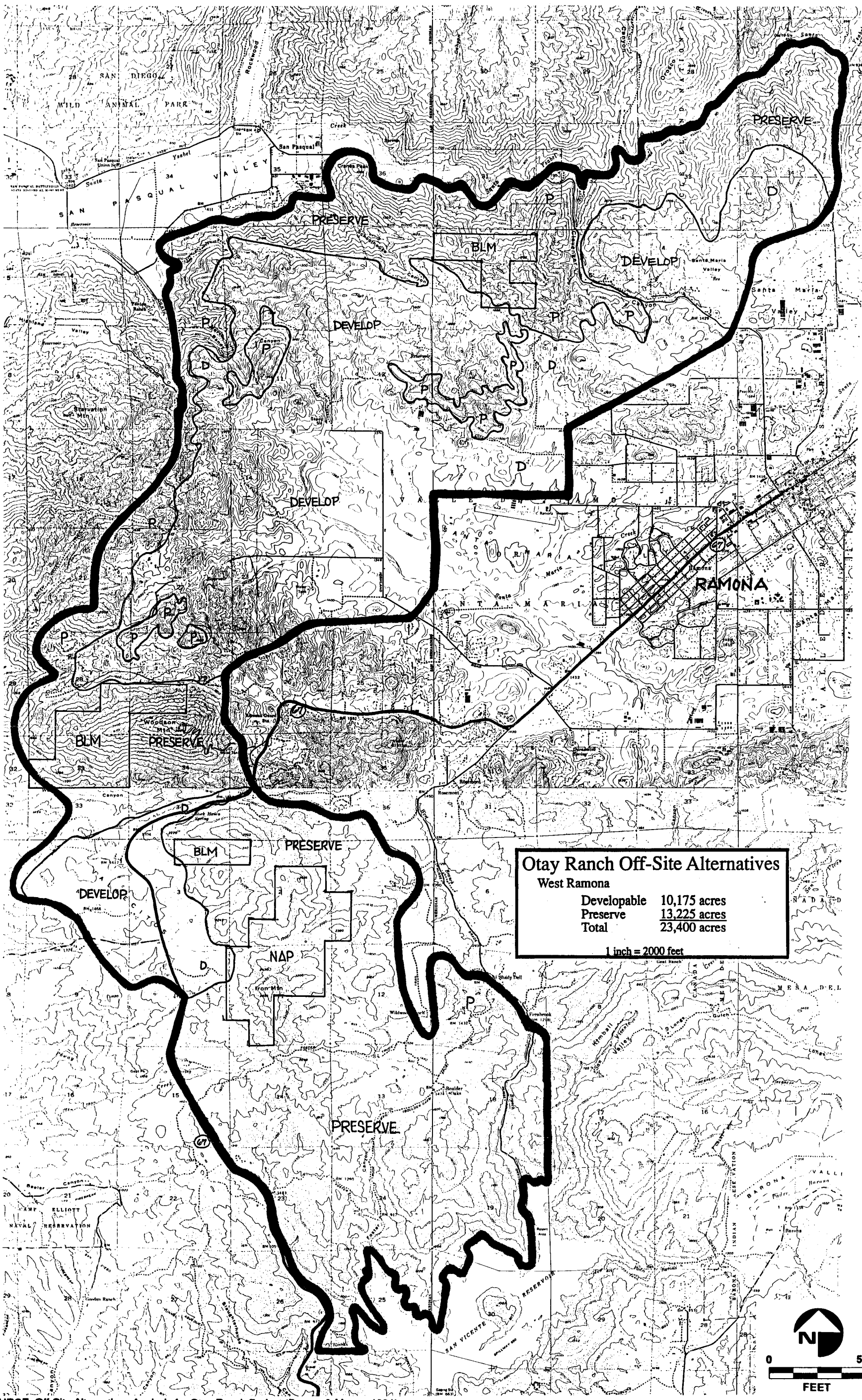
The West Ramona site is an elongated area more than 11 miles long, located near the town of Ramona (Figure 5.3-1). In size it totals 23,400 acres, of which 10,175 acres have less than 25 percent slope and are considered potentially developable. Topography is varied, ranging from elevations of 500 and 700 feet above MSL in San Pasqual Valley at the northeast corner and adjacent to the San Vicente Reservoir at the far southern boundary, to 2,349 feet at the top of Mt. Woodson. Most of the developable acreage is located on a plain northwest of Ramona, with a smaller area of approximately 2,000 acres directly east of Poway along SR-67. Approximately 2,500 acres of the site are within Poway and San Diego city limits. The other 20,900 acres are under the jurisdiction of San Diego County, primarily in the Ramona planning area, approximately 5,000 acres being proposed for non-development within the northern Lakeside and southwestern North Mountain SPAs. The site is crossed by SR-67 and SR-78 and has more than 200 landowners. It is adjacent to an existing urban limit line at Ramona.

5.3.1 Land Use and Related Topics

The West Ramona site is primarily vacant and undeveloped at this time, but contains some pasture and other agricultural uses at the northern end. The northeast boundaries overlap those of the Cleveland National Forest, while the southern part of the site contains City of Poway parkland at Iron Mountain, recently acquired from the BLM. The site contains more existing residences than does the Otay Ranch site and much less agricultural land.

Potentially sensitive land uses in areas adjacent to the site include residences just to the west, in Poway; the Ramona Airstrip (immediately to the east); the Cleveland National Forest (northeast); the San Diego Wild Animal Park (northwest, on the other side of San Pasqual Valley); and a future county park (Sycamore Recreation Area) to the southeast. The San Vicente Reservoir is adjacent to the site at the extreme south, but no development is proposed within 3 miles of the lake. The development of an Otay Ranch-scale project at the West Ramona site would be less compatible with adjacent uses than at would Otay Ranch. An increased population of approximately 100,000 would have a greater impact on the town of Ramona than on Chula Vista due to the smaller size of the existing town of Ramona.

Most future development (85 percent) within the alternative site boundaries is currently planned to occur at low to very low density ("estate development" and "rural development" plan categories). The Ramona Community Plan (1978, 1987), which describes development policies to which most of the site would be subject, is quite explicit regarding potential urban-density development. It states: "It is the intent of this plan to prevent urban-type developments outside the Town Center. The plan generally implements a gradual decrease in development density from the Town Center, where lot sizes of one acre or less are allowed, to a band of 8-acre minimum lot sizes in the western and eastern areas of the Planning Area." "[T]he intent is to maintain the rural atmosphere of the planning area while accommodating Ramona's share of regional growth." Given this philosophy, development of a project on the scale of Otay Ranch would require massive changes in community plan concepts, even more extensive than those being considered for Otay Ranch.



SOURCE: Off-Site Alternatives Analysis for Otay Ranch Project (Dames & Moore, 1991).

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West Ramona Alternative Site

FIGURE 5.3-1

The alternative site is a little farther from the observatory at Mt. Laguna (28.5 miles) than the Otay Ranch site (27 miles), but is much closer to Mt. Palomar (19 miles versus 45). The West Ramona site is thus less desirable than the Otay Ranch site as regards light and glare considerations.

The West Ramona site is farther (10 to 18 miles) from major commercial and military airports than is the Otay Ranch site (1 to 6 miles), and is therefore preferable from an airport noise perspective. Noise impacts associated with possible future growth of the Ramona Airstrip must, however, be taken into account when considering the West Ramona site.

The closest military installations to possible developable areas of the West Ramona site are the Miramar NAS Reserve (2 to 4 miles from the site) and Miramar NAS (10+ miles from the site). The Sycamore Landfill is more than 7 miles away, while the San Onofre nuclear generating station is more than 40 miles from the site. None of these operations represents any anticipated problem. The Otay Ranch site is much closer to similar uses, with Otay Landfill and Appropriate Technologies II hazardous waste reprocessing operation located immediately to the west of the site. Therefore, the West Ramona site has an environmental advantage regarding potential risk of upset.

5.3.2 Water Availability

Approximately 35 percent of the site lies within three separate districts: Ramona Municipal Water District (20 percent); the City of Poway (10 percent); and the City of San Diego (5 percent). It is uncertain what kind of arrangements could be made for water in this kind of situation, but it is clear that extensive water system upgrades would be required. Provision of water at the West Ramona site would thus be more difficult than at the Otay Ranch site due to the multiple jurisdictions and the need for more extensive facilities.

5.3.3 Water Quality

Based on a review of the Water Quality Control Plan for the San Diego Basin (RWQCB 1975), the southern portion of the West Ramona site encompasses part of the San Vicente watershed, which drains into San Vicente Reservoir. This portion of the site is not proposed for development; therefore, minimal impact to the reservoir's water quality is anticipated. The north-central portion of the West Ramona site encompasses part of the Lake Hodges watershed. Santa Maria Creek, which passes through this watershed, eventually empties into Lake Hodges, approximately 6 miles downstream. This portion of the site is proposed for development and could, therefore, have an impact on reservoir water quality.

More development associated with the West Ramona site is proposed for the Lake Hodges watershed than the portion of Otay Ranch in the Otay Lakes watershed. However, in terms of impact on reservoir water quality, the proximity of the proposed development to the nearest downstream reservoir is of primary importance. The proposed Otay Ranch development (watershed) is much closer to the Otay Reservoir than the West Ramona site is to its principal reservoir, Lake Hodges. Therefore, a greater impact on water quality at the Otay Reservoir is anticipated.

5.3.4 Biology

The West Ramona alternative would develop predominantly in the northern half of the site throughout the rural Santa Maria Valley. The majority of this developable acreage is

currently ranched and is open rangeland. The western edge of this developable area is a mosaic of large lot estates amidst dense chaparral. The steep slopes bordering Santa Ysabel Creek, the western edge of the site, Mount Woodson, and the majority of the southern half of the site are covered by dense mixed chaparral. The only openings in this chaparral cover occur on the southern half of the site area in the Vallecitos area around the junction of Poway Road and Highway 67 and in the Boulder Oaks area in the southeast portion of the site. These areas include coastal sage scrub vegetation and grasslands. Oak woodlands and oak riparian habitats are scattered throughout the area including Mussey Grade, Foster Canyon, Boulder Oaks, Santa Maria Creek, Clevenger Canyon, and just north of Mount Woodson. Most of these areas would probably not be developed, with the exception of Santa Maria Creek and the woodlands north of Mount Woodson.

The West Ramona site would be expected to support substantially fewer sensitive plants and a similar number of sensitive animal species as the Otay Ranch site. The site would not be expected to support the state or federally-listed plant species found on Otay Ranch or any additional listed plant species. The cactus wren would not be expected in this alternative area due to lack of habitat, and the California gnatcatcher is present, but in very low numbers compared with Otay Ranch due to the small extent of habitat. An estimated 8 to 10 pairs are present in the Vallecitos area near the juncture of Highway 67 and Poway Road. Vernal pools occur on this site, but are very limited in number and presence of sensitive species in comparison to Otay Ranch. The majority of the vernal pools in the Ramona area are south of the airport outside of the site boundary. Raptor foraging would be affected as on Otay Ranch, but wildlife corridors would not be expected to be a significant issue given the topography of the area, existing land uses, and probable development scenarios. Sensitive soil types are very limited compared to Otay Ranch, with only scattered gabbro soils south of Schoolhouse Canyon within the northern limits of probable development.

Development of the West Ramona alternative would not be as biologically significant as the Otay Ranch alternative. Substantially fewer major biological issues would be raised due to development of this site. Much of the known or expected sensitive resources would either not be affected by probable development, or substantially fewer numbers would be affected, thus making mitigation or avoidance more likely.

5.3.5 Transportation

The two existing major local roads in the area are two-lane facilities, and the network would require massive upgrading if a development of the scale of Otay Ranch were to be placed in the West Ramona area. Access to the regional transportation system would be via SR-78 to Escondido and points north, by SR-67 to El Cajon, or by SR-67 and SR-56 (in the planning stages) to I-15 and I-5. Availability of several alternative routes is favorable. However, the LOS rating for SR-67 as it approaches I-8 was "E" in 1988, as was I-15 south of Rancho Bernardo. Planned upgrading of SR-67 and the future SR-125 will relieve congestion on SR-67, but 2010 trends indicate worsening congestion along I-15 south of Escondido. I-5 south of Solana Beach was at LOS "F" in 1988. SR-56 and SR-125 from Poway may provide some relief, but 2010 projections indicate that growth of the urban area will result in portions of both routes being rated LOS "E" and "F" by that time, not even counting this project. Based on the scale of the proposed development (much more intense than planned for this location), the West Ramona site has clear transportation disadvantages relative to the Otay Ranch site.

5.3.6 Air Quality

The distance from the estimated center of development for the West Ramona site to the urban boundary of Poway is approximately 8 miles, substantially more than the 2 miles associated with the Otay Ranch site. Another urban boundary at Lakeside is approximately 11 miles from the site. Therefore, air pollutant emissions from vehicular traffic associated with the alternative site would be substantially greater than for the Otay Ranch site, as traffic would have to travel a longer distance (approximately four times longer) to reach an urban area.

5.3.7 Energy

The West Ramona site is approximately 6 miles farther from the urban area than is the Otay Ranch site. Substantially more energy would be used for trips to and from work for this site than for the Otay Ranch site, at least during the initial years of development. Due to its location farther inland and greater temperature extremes, additional fuel would be required for the heating and cooling of homes in comparison to the Otay Ranch site.

5.3.8 Cultural Resources

The West Ramona site contains varied topography, including a broad valley and Mt. Woodson. Several creeks cross the area, and vegetative communities are varied. Numerous prehistoric sites have been found in the main valley; because of their density, they could be difficult to avoid. Potential historic sites may also be present. The West Ramona site is considered similar in cultural resource sensitivity to the Otay Ranch site.

5.3.9 Paleontology

The West Ramona alternative site is underlain by a variety of rock types, including hybrid gneiss, granitic rocks, and conglomerates and sandstones of the Poway Formation. Hybrid gneiss is a metamorphosed (altered by heat and pressure) igneous rock; therefore, it has no paleontological resource sensitivity. Granitic rocks are also igneous in origin and have no paleontological resource sensitivity. The Poway Formation is considered to have a low paleontologic sensitivity, especially in the conglomeritic portions. Development of the proposed project at this alternative site would not impact paleontological resources.

5.3.10 Noise

The West Ramona alternative site is primarily undeveloped but does contain scattered residences. State routes 67 and 78 traverse the site. Noise-sensitive receptors located adjacent to the roadway may be significantly impacted. Noise impacts associated with project-generated traffic may also occur along the project's internal roadways. Noise barriers of various heights and/or setbacks would be required to mitigate potential impacts. The site is located immediately west of the Ramona Airstrip. The eastern and southern portions of the site may be impacted by the airstrip's 60 CNEL noise contour (Draft Community Plan Area and airport Noise contours).

5.4 East Ramona Alternative Site

The East Ramona alternative site consists of approximately 23,950 acres located immediately east of the urban limits of the town of Ramona, and west of the small community of Santa Ysabel (Figure 5.4-1). Other boundary landmarks include Sutherland Reservoir to the north, and Cleveland National Forest to the east and southeast. Topographic elevation ranges from 1,700 feet above MSL in one valley near the southwest

corner, to 3,279 feet above MSL at Witch Creek Mountain near the eastern boundary. Approximately 11,000 acres have been identified as developable (less than 25 percent slope). Within the 12,950-acre balance, most areas consist of steep slopes, but there is also a substantial area of over 2,000 acres which has slopes of less than 25 percent. SR-76 passes through the site, which is almost completely within the county's Ramona planning area. A small area, less than 1,200 acres, lies within the North Mountain Subregion. The site has more than 600 owners.

5.4.1 Land Use and Related Topics

Most of the East Ramona site is vacant and undeveloped at this time. However, there is scattered grazing and more intensive agriculture in the area, and numerous homes on estate-sized lots are located south of SR-78. Nearby sensitive uses include San Diego Country Estates, located immediately adjacent to the site to the south; the town of Ramona, adjacent to the site to the west; the small settlement of Santa Ysabel 2 miles to the east; and the Cleveland National Forest to the southeast. Sutherland Reservoir is located just north of the site. The East Ramona site, like the West Ramona site, is within the Ramona planning area, and is subject to the same policies against extensive urban development (see the discussion under the West Ramona site land use, Section 5.3.1 above). In addition, more than 95 percent of the site is designated in the county general plan as "environmentally constrained," indicating the presence of sensitive biological resources or other environmental conditions requiring thorough review and appropriate mitigation. Consequently, general plan changes necessary to accommodate a project of the size proposed, as well as inconsistency with existing land uses, are seen as being more substantial than at the Otay Ranch site.

The site is slightly closer to the Mt. Laguna observatory (20 miles) than the Otay Ranch site (23.5 miles), but is much closer to Mt. Palomar (18 versus 45 miles). This is an environmental disadvantage relative to the Otay Ranch site.

The East Ramona site is located over 4 miles from Ramona Airstrip, and over 20 miles from Miramar NAS. No airport-related noise problem is anticipated, in contrast to the Otay Ranch site.

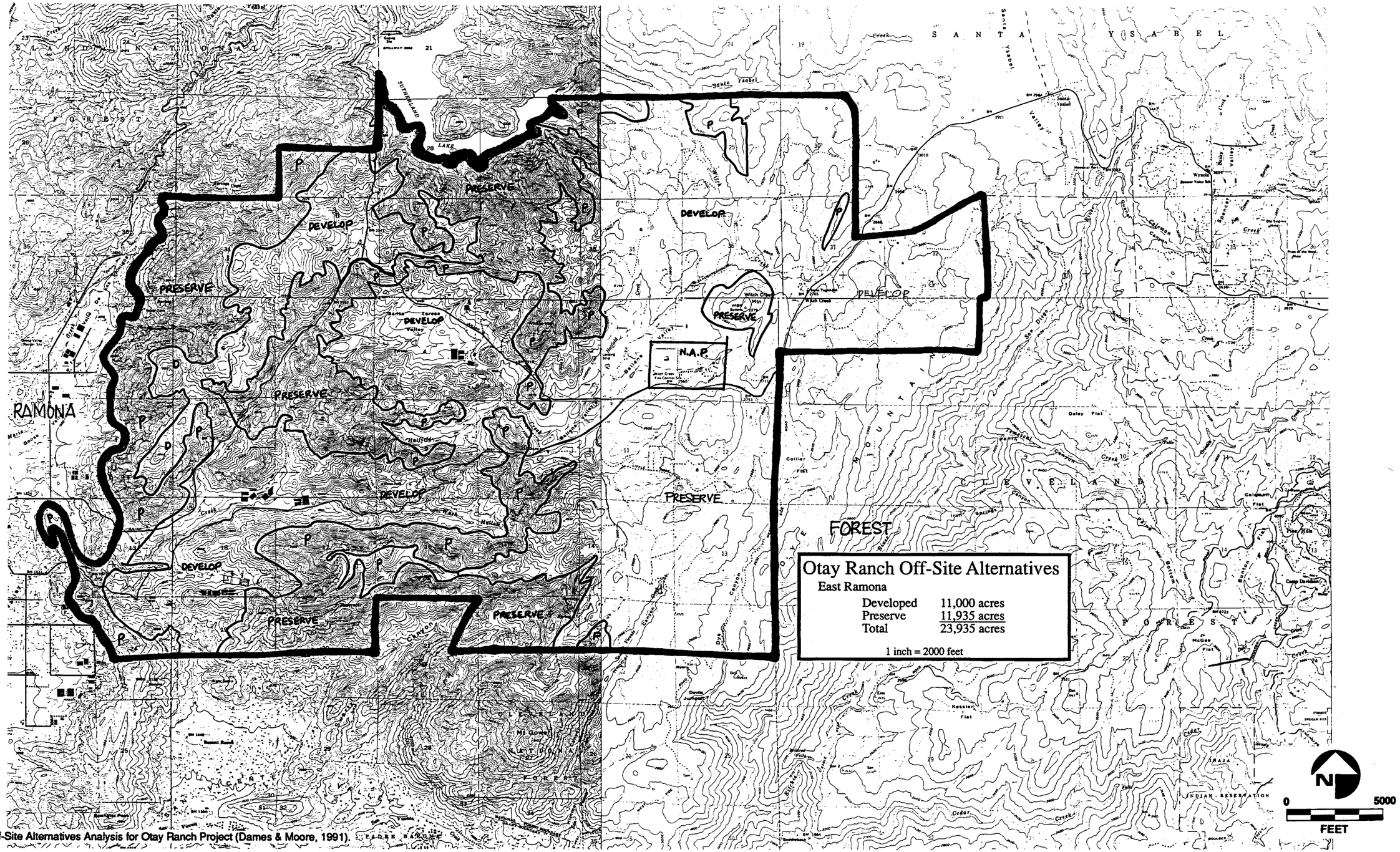
The site is also located 12 miles from any major military installation and 37 miles from the San Onofre nuclear generating station. It is preferable to the Otay Ranch site as concerns potential risk of upset (also see the discussion under the West Ramona site, Section 5.3.1 above).

5.4.2 Water Availability

The East Ramona site is located east of Ramona Municipal Water District (MWD), approximately 5 percent of the site lying within the district boundary. Ramona MWD does have some local water supplies (1989-90 production: 13,000 acre-feet), but would not be able to support water demands of 30,000 households (45,000 acre-feet) without substantial upgrades to their water system and supplies. The East Ramona site is at a disadvantage compared to the Otay Ranch site due to the greater capacity increase that would be needed and the requirement of district annexation for most of the development.

5.4.3 Water Quality

Runoff from approximately 40 percent of the site would flow into the Sutherland Reservoir, located directly north of the site. This would pose a major water quality concern. Much of the remainder flows into Santa Maria Creek, which passes through



SOURCE: Off-Site Alternatives Analysis for Otay Ranch Project (Dames & Moore, 1991).

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East Ramona Alternative Site

FIGURE 5.4-1

Ramona and eventually empties into Lake Hodges; this would also represent a concern. Other site portions not proposed for development empty into San Vicente Reservoir, posing no particular water quality problem. Like the Otay Ranch site, the East Ramona site creates the potential for possible runoff contamination of local reservoirs.

5.4.4 Biology

The predominant habitat types within the East Ramona site are mixed chaparral, Diegan coastal sage scrub (inland form), coast live oak woodland, riparian woodland, and disturbed habitats including ranching and other agricultural uses. The majority of the developable acreage has either been altered for ranching or is covered by Diegan coastal sage scrub. The coast live oak woodland and riparian woodland along the major drainages would probably not be developed, but an estimated 78 percent of the named creeks and major tributaries onsite are within potential developable areas and thus could be affected. Development would thus break up these natural wildlife movement corridors and separate them from larger natural open space areas. Some fairly extensive Engelmann oak woodlands are scattered throughout the Santa Teresa Valley, on the northern and southern limits of the Ballena Valley and west of the access road to Sutherland Reservoir. Only those stands south of the Ballena Valley are outside of potential development areas.

The East Ramona site is the farthest inland of the offsite alternatives and supports virtually none of the declining sensitive coastal plain plant and animal species found on Otay Ranch. Key Otay Ranch species such as the California gnatcatcher and cactus wren are not present on this site and are not replaced by other sensitive animal species. This site may have only one-fourth as many sensitive plant species as Otay Ranch, and those that are expected are of low sensitivity. Some potentially sensitive Las Posas soils are scattered in the northern portion of the site, but they are primarily situated on steep undevelopable land. The issue of raptor foraging would be similar to Otay Ranch, but the wildlife corridor issue would not appear to be significant in a regional context due to surrounding topographic features and the orientation of the site. The maintenance and connectivity of local corridors would be an issue, but the major regional corridors or open space systems would appear to be set by the Cleveland National Forest and Santa Ysabel Creek on the north and by the Forest and the San Diego River on the southeast and east. This alternative has substantially less biological sensitivity than the Otay Ranch site.

5.4.5 Transportation

Local roads within the site would have to be upgraded extensively to accommodate traffic associated with a project of this scale. Access to the regional transportation system would be by SR-78 to Ramona and Escondido, where access to I-15 north would be available for workers going to southern Riverside County and to the employment corridor along SR-78 west. SR-78 was rated LOS "A" or "B" for traffic congestion in 1988, but the addition of substantial trips per day could reduce service levels to "D". It is anticipated that development of this project would severely overload SR-78 and SR-67 through Ramona, requiring a major upgrade to those highways all the way to the intersection with SR-56 (in the planning stages) east of Poway. Once traffic has reached that point, considerations are identical to the discussion presented for the West Ramona site (Section 5.3.5 above). Transportation limitations for the east Ramona site are considered more substantial than those for the Otay Ranch site, due to the routing of all project traffic through Ramona, and the fact that development at the site is not currently planned at a scale comparable to the Otay Ranch project.

5.4.6 Air Quality

The distance from the estimated center of development for the East Ramona site to the urban boundary near Poway is approximately 16 miles, substantially more than the 2 miles associated with the Otay Ranch site. The urban Lakeside edge is 3 miles farther from the East Ramona site. Therefore, air pollutant emissions from vehicular traffic would be substantially greater than from the Otay Ranch site, as traffic would have to travel a longer distance (approximately eight times longer) to reach an urban area.

5.4.7 Energy

The East Ramona site is approximately 16 miles farther from an urban area than is the Otay Ranch site. Considerably more energy would be used for trips to and from work for this site than for the Otay Ranch site. Like the West Ramona site, the greater temperature extremes of the East Ramona site would require greater consumption of fuel for the heating and cooling of homes, in comparison to Otay Ranch.

5.4.8 Cultural Resources

The East Ramona site generally consists of rolling hills, and contains several creeks and springs. Vegetation is varied, and the site contains both known historic and prehistoric resources. Prior surveys in the area have been spotty. Based on favorable natural conditions, potentially significant sites can be expected in this area. Historic sites are anticipated as well. Cultural resource sensitivity of the East Ramona site is considered high and similar to that of the Otay Ranch site.

5.4.9 Paleontology

The East Ramona alternative site is predominantly underlain by alluvium and granitic rocks of the Southern California Batholith. Alluvial deposits have not been known to produce significant fossil remains, and they are considered to have an unknown to low paleontological resource sensitivity. Granitic rocks are igneous in origin and therefore have no paleontological resource sensitivity. Development of the proposed project at this alternative site would not impact paleontological resources.

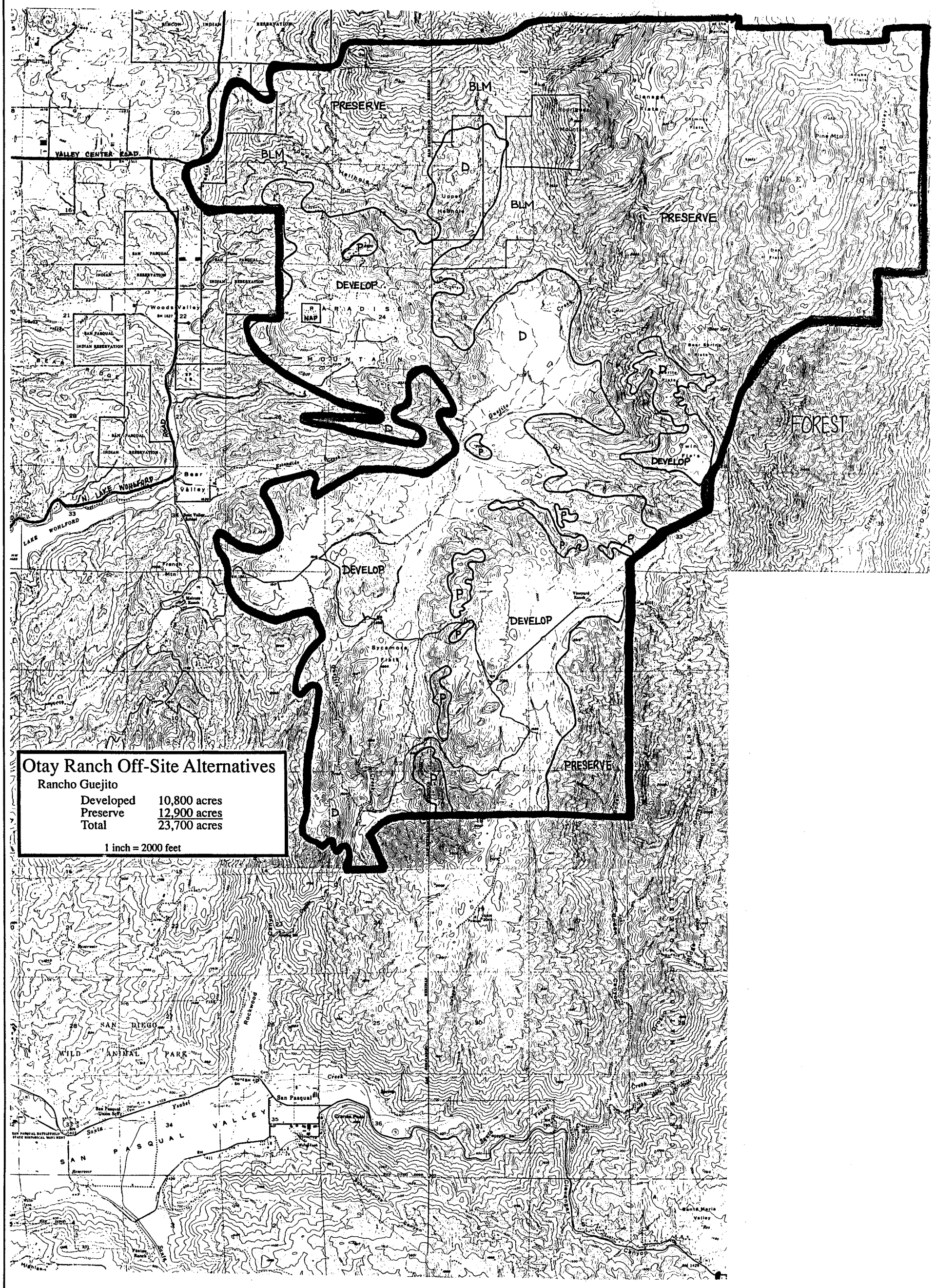
5.4.10 Noise

The East Ramona alternative site is located immediately east of the urban limits of the town of Ramona, and west of the community of San Ysabel. Most of the site is undeveloped without significant onsite noise sources. State Route 76 passes through the site. Noise-sensitive receptors located adjacent to the roadway may be significantly impacted. Noise impacts associated with project-generated traffic may also occur along the project's internal roadways. Noise barriers of various heights and/or setbacks would be required to mitigate potential impacts.

The site is located approximately 4 miles from the Ramona Airstrip; no significant airport-related noise is expected.

5.5 Rancho Guejito Alternative Site

The Rancho Guejito alternative site consists of approximately 23,700 acres, located over 3 miles east of urban limits for the town of Valley Center, over 4 miles east of the City of Escondido, and 3 miles north of the northernmost reaches of the City of San Diego (Figure 5.5-1). Approximately 10,800 acres are considered potentially developable (with



SOURCE: Off-Site Alternatives Analysis for Otay Ranch Project (Dames & Moore, 1991).

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Rancho Guejito Alternative Site

FIGURE 5.5-1

slopes less than 25 percent). Topography is quite varied, ranging in elevation from 1,500 feet above MSL to 4,221 feet above MSL at the peak of Pine Mountain. Potentially developable areas are located in several valleys and on several mesas in the southwestern two-thirds of the site. The site is within the jurisdiction of San Diego County, but overlaps the boundaries of several county planning areas. Most of the site is within the southern part of the Pala-Pauma Subregion, although more than 4,000 acres are within the Valley Center plan area (eastern end) and over 2,000 acres lie at the far eastern end of the North County Metropolitan Subregion. Rancho Guejito itself, along with some adjacent land, is held by one owner. However, more than 300 landowners hold title to the entire site under consideration, primarily in the area immediately east of Valley Center and west of the ranch. County Route S-6 (Valley Center Road) is adjacent to the site at its extreme northwest corner.

5.5.1 Land Use and Related Topics

The alternative site at Rancho Guejito is predominantly used for grazing, except for scattered estate and other residential uses on the western portion of the site nearest Valley Center. Outside the site boundaries, there is additional residential use to the west, between the site and Valley Center. Lake Wohlford is located a mile or more to the southwest, while the Cleveland National Forest is adjacent to the east. Development at this site would be less compatible with adjacent land uses than would be the case at the Otay Ranch site.

Land use plans for the area (Pala-Pauma, North County Metropolitan, Valley Center, and North Mountain) indicate that approximately 90 percent of the site is considered "environmentally constrained." It contains diverse scenic resources of rugged, rocky mountains, pine and oak woodlands, and grassland/oak areas. The area is listed as a Resource Conservation Area in the Pala-Pauma plan (1979, 1986), which indicates that efforts have been undertaken to have it acquired and designated as a state park. Relative to future growth and development, the plan goes on to state that "...Pauma Country Town...can accommodate all future population increases [projected] for the subregion through 2005, therefore expansion of the Country Town boundary shall be contingent upon A) availability of...services, B) demonstrated need, and C) environmental factors..." Given the rural orientation of the area and stated concerns regarding environmental resources, revision of the general plan to accommodate a development the size of the proposed Otay Ranch project would be expected to be extremely difficult.

The site lies slightly farther from the Mt. Laguna observatory (34 miles) than does Otay Ranch (27 miles), but is much closer to Mt. Palomar (9 miles as compared to 45 miles). This represents an environmental disadvantage for this alternative site with respect to light and glare.

The Rancho Guejito site is more than 18 miles from Palomar Airport and 20 miles from Miramar NAS. No problem is anticipated regarding airport noise, whereas problems could arise at Otay Ranch due to proximity to a potential regional airport site.

The site is located more than 20 miles from major military installations such as Miramar NAS and Camp Pendleton, and 37 miles from San Onofre. The Otay Ranch site is closer to several military installations, as well as to the adjacent Otay Landfill and a hazardous waste recycling center at the landfill operated by Appropriate Technologies II. The alternative site is thus environmentally preferable to the Otay Ranch site regarding risk of upset.

5.5.2 Water Availability

Approximately 15 percent of the Rancho Guejito alternative site is within the boundaries of Valley Center MWD. District water distribution in 1989–90 was 47,000 acre-feet of imported water, a 95 percent increase would be required to serve an additional 30,000 households (45,000 acre-feet). Water facilities and supplies would have to be greatly increased in order to serve such a project, and the site would have to be annexed into the district. The site is substantially less preferable in this regard than the Otay Ranch site.

5.5.3 Water Quality

Approximately 5 percent of the site drains into Lake Wohlford, located approximately 1 mile west of this alternative site. Water quality could be a concern, especially since the lake's watershed is relatively small. Most of the remainder of the site drains via Guejito Creek down to San Pasqual Valley and on to Lake Hodges; this could also be a concern. Therefore, although a greater portion of the Rancho Guejito site drains into potable water supply reservoirs than the Otay Ranch site, this alternative site is considered similar to the Otay Ranch site for water quality issues.

5.5.4 Biology

The Rancho Guejito site is characterized by dense mixed chaparral on the steeper slopes, dense well-developed coast live oak woodland in the canyons and along major tributaries to Guejito Creek, and grassland and Engelmann oak woodland on the flatter, more developable areas. Guejito Creek bisects the site from north to south. The site supports rural development only in the Paradise Mountain area; otherwise, the area is open and natural, and affected only by the Guejito Ranch and historical grazing activities.

This most northern of the offsite alternatives is, like the other three alternative sites, much further inland than Otay Ranch. As such, this alternative supports few of the more sensitive species which are generally confined to the coastal plain and to coastal sage scrub vegetation. This alternative site would be expected to have substantially fewer sensitive plants than Otay Ranch and those present are generally of lower sensitivity. The same can be said of sensitive animal species. Much of the potentially developable land within this alternative is covered by a savannah woodland of Engelmann oak. It is estimated that about 25 percent of the developable portion of the site is covered by Engelmann oak woodland. Excluding Cienega and Chimney Flats in the northeastern corner of the site, virtually all of this habitat type is within probable development areas. This sensitive woodland habitat would have a significant effect on development. Raptor nesting and foraging as well as wildlife corridors would be expected to be significant issues, as at Otay Ranch. This alternative area is the most undeveloped of all the alternatives, but does contain many soil types which have a high potential to support sensitive plant species (Las Posas and Boomer Series). These soils are, however, distributed primarily throughout the northern portion of the alternative site on Rodriguez and Pine Mountains, i.e., in areas not planned for development.

Whereas this site has extensive Engelmann oak woodland which would pose a significant constraint to development, the overall sensitivity of the developable portions of the site is considered lower than that of Otay Ranch.

5.5.5 Transportation

Few local roads exist in this site area, and new systems to handle local traffic would be required. Access to the regional transportation system would be via Valley Center Road (County Highway S-6), either north from the site to SR-76, or west and south to I-15 or SR-78 in Escondido. Commuter traffic associated with 25,000 to 30,000 homes would present a serious problem, since S-6 can handle fewer than 40,000 trips per day more (resulting in LOS D) without a major upgrade.

Commuters in Escondido entering I-15 south or SR-78 west from the Rancho Guejito site would be faced with additional problems. Both routes are expected to operate at LOS "E" in the year 2000, decreasing to LOS "F" in 2010. Due to the need for major upgrades to the transportation network, the Rancho Guejito site is considered to be much less advantageous than the Otay Ranch site relative to transportation.

5.5.6 Air Quality

The distance from the estimated center of development for Rancho Guejito to the urban boundary of Escondido is approximately 16 miles, substantially more than the 2-mile distance associated with the Otay Ranch site. Therefore, air pollutant emissions from vehicular traffic would be substantially greater than from the Otay Ranch site, as traffic would have to travel a longer distance (approximately eight times longer) to reach an urban area.

5.5.7 Energy

The Rancho Guejito site is approximately 16 miles farther from an urban area than is the Otay Ranch site. Considerably more energy would be used for trips to and from work for this site than for the Otay Ranch site. The temperature extremes at the Rancho Guejito site are somewhat greater than at the Otay Ranch site, resulting in an increase in fuel consumption for the heating and cooling of homes.

5.5.8 Cultural Resources

Topography at the site is varied, containing several mountains and large valleys, and several creeks and springs. Oak and pine woodlands are found on the site, and natural conditions are favorable for the presence of sensitive prehistoric resources; sites smaller than those found on the Otay Ranch site are nevertheless expected. Several known prehistoric resource sites have been located, including habitation areas, small villages, camps, and milling areas. Little previous survey work has been completed. Overall cultural resource sensitivity is considered high and similar to that of the Otay Ranch site.

5.5.9 Paleontology

The Rancho Guejito alternative is predominantly underlain by alluvium and granitic rocks of the Southern California Batholith. Alluvial deposits have not been known to produce significant fossil remains, and they are considered to have an unknown to low paleontological resource sensitivity. Granitic rocks are igneous in origin and therefore have no paleontological resource sensitivity. Development of the proposed project at this alternative site would not impact paleontological resources.

5.5.10 Noise

The Rancho Guejito alternative site is located approximately 3 miles east of the urban limits for the town of Valley Center, 4 miles east of the City of Escondido, and 3 miles north of the City of San Diego. The site is primarily used for grazing, except for scattered residences on the western portion of the site. No roadways generating significant noise levels traverse the site.

Noise impacts associated with project-generated traffic may also occur along the project's internal roadways. Noise barriers of various heights and/or setbacks would be required to mitigate potential impacts.

5.6 CONCLUSIONS

The preceding sections provided a qualitative assessment and comparison of potential environmental impacts associated with the Otay Ranch project and offsite alternatives based on certain issue areas. Table 5-1 lists the issue areas relative to the proposed project and the offsite alternatives. For each issue area assessed in the EIR, the table then presents a qualitative assessment from an environmental sensitivity viewpoint of whether: (1) the proposed site is or is not clearly preferred to the alternative site; or (2) there is no substantial difference or there is not sufficient data to provide a basis for determining whether an alternative is environmentally preferable to the proposed site. At this stage of the assessment, property ownership considerations were also factored into the overall conclusions on site preferability. The following paragraphs present the conclusions for each offsite alternative.

The Otay Ranch site is environmentally preferred to the Greater Dulzura alternative site. The alternative site has advantages with respect to greater distances from sources of hazardous risk to populations and airport noise. However, the proposed site has less potential for substantial growth inducement, poses less risk of contamination to drinking water reservoirs, would result in less air pollution and energy consumption due to shorter travel distances, and would result in less added stress to local and regional transportation systems. There are no substantial differences between the two sites with respect to other environmental sensitivities. The overall impacts to the biological resources of the Greater Dulzura site would be significant but would be substantially less than Otay Ranch due to the combination of lower sensitivity species affected, lower numbers of highly sensitive species, and the generally lower habitat values of the inland versus more coastal habitats of Otay Ranch. Furthermore, the Greater Dulzura site is owned by several hundred individuals or businesses in contrast to single ownership of the Otay Ranch site. This ownership situation represents a significant disadvantage for the alternative site with respect to land acquisition and the timing of development. For these reasons, the Greater Dulzura site is not considered a feasible alternative location for the project.

The Otay Ranch site is environmentally preferred to the West Ramona alternative site. The only clear advantage of this alternative site is greater distance from sources of hazardous risk to populations. The proposed site has less potential for substantial growth inducement, would have less effect on local observatories, would require substantially less area to be annexed to a water district, poses a similar risk of contamination to drinking water reservoirs, and would result in less air pollution and energy consumption due to shorter travel distances. The overall impacts to the biological resources of the Rancho Guejito site would be significant but would be less than the impacts to the biological resources of Otay Ranch. The difference is attributed to the combination of the lower sensitivity of the species impacted, lower numbers of highly sensitive species, and the generally lower habitat values of the more inland species of Rancho Guejito compared to

Table 5-1

OFFSITE ALTERNATIVES COMPARISON SUMMARY

Issue Area	Alternative Site 1		Alternative Site 2		Alternative Site 3		Alternative Site 4	
	Otay Ranch	Greater Dulzura	Otay Ranch	West Ramona	Otay Ranch	East Ramona	Otay Ranch	Rancho Guejito
Land Use	ND	ND	ND	ND	ND	ND	ND	ND
Growth Inducement	P		P		P		P	
Light and Glare	ND	ND	P		P		P	
Noise		P	ND	ND		P		P
Risk of Upset		P		P		P		P
Water Availability	ND	ND	P		P		P	
Water Quality	P		P		P		P	
Biology		P		P		P		P*
Transportation	P		P		P		P	
Air Quality	P		P		P		P	
Energy	P		P		P		P	
Cultural Resources	ND	ND	ND	ND	ND	ND	ND	ND
Paleontology		P		P		P		P

Notes: P = Otay Ranch site or alternative site is preferred.
ND = No determination; there are insufficient data for comparison of the alternative site to the proposed Otay Ranch site.
* The Rancho Guejito alternative site would have major significant biological effects; these effects would be greater than the other three offsite alternatives, but still less than Otay Ranch.

the more coastal habitats of Otay Ranch. There are no substantial differences between the two sites with respect to other environmental sensitivities. Furthermore, the West Ramona site has over 200 landowners in contrast to single ownership of the Otay Ranch site. This ownership situation represents a significant disadvantage for the alternative site with respect to land acquisition and timing for development. For these reasons, the West Ramona site is not considered a feasible alternative location for the project.

The Otay Ranch site is environmentally preferred to the East Ramona alternative site. The alternative site has advantages with respect to greater distances from sources of hazardous risk to populations and airport noise, as well as lower biological sensitivities. However, the proposed site has less potential for substantial growth inducement, would have less effect on local observatories, would require substantially less area to be annexed to a water district, poses less risk of contamination to drinking water reservoirs, would result in less air pollution and energy consumption due to shorter travel distances, and would result in less added stress to local and regional transportation systems. There are no substantial differences between the two sites with respect to other environmental sensitivities. Furthermore, the East Ramona site has more than 600 landowners in contrast to single ownership of the Otay Ranch site. This ownership situation represents a significant disadvantage for the alternative site with respect to land acquisition and the timing of development. For these reasons, the East Ramona site is not considered a feasible alternative location for the project.

The Otay Ranch site is environmentally preferred to the Rancho Guejito alternative site. The alternative site has advantages with respect to greater distances from sources of hazardous risk and airport noise, as well as generally lower overall biological sensitivities. However, the proposed site has less potential for substantial growth inducement, would have less effect on local observatories, would require substantially less area to be annexed to a water district, poses less risk of contamination to drinking water reservoirs, would result in less air pollution and energy consumption due to shorter travel distances, and would result in less added stress to local and regional transportation systems. There are no substantial differences between the two sites with respect to other environmental sensitivities. Furthermore, the Rancho Guejito site has more than 300 landowners in contrast to single ownership of the Otay Ranch site. This ownership situation represents a significant disadvantage for the alternative site with respect to land acquisition and the timing of development. For these reasons, the Rancho Guejito site is not considered a feasible alternative location for the project.

In conclusion, based on the analysis described above, the Otay Ranch site is environmentally preferred to all of the alternative sites. Furthermore, all of the latter have significant multiple ownership problems that affect land acquisition and the timing of development. For these reasons, none of the four sites is considered a feasible alternative location and no additional environmental review is required under CEQA.

SECTION 6
CUMULATIVE IMPACTS

6.1 INTRODUCTION

Cumulative impacts are those which "are considered when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (Section 21082.2b, CEQA). Several development proposals have been submitted for consideration or have been recently approved by the cities of Chula Vista and San Diego and the County of San Diego in proximity to Otay Ranch. These "current or probable future" development proposals would affect many of the same natural resources and public infrastructure as Otay Ranch. Several potentially significant cumulative impacts are associated with development of Otay Ranch in conjunction with these surrounding development projects.

This section, therefore, provides a separate discussion of the potential environmental effects of the related projects identified in Table 6.1-1, followed by a discussion of the cumulative effects of Otay Ranch together with the effects associated with the related projects. To determine the expected environmental effects of the related projects, environmental documentation for approved projects and unpublished environmental studies were consulted. Table 6.1-1 notes which projects had documents available for reference during the preparation of this section. All of the reference documents are available for review at the appropriate jurisdictions. In instances where development proposals are currently undergoing environmental review, it was assumed that the potential effects would be similar to those of projects in the immediate vicinity. For the purposes of estimating developed acreage for these ongoing projects, it was assumed that 80 percent of gross site acreage would be disturbed for development, and that the remaining 20 percent would be retained as open space. These percentages represent a conservative approximation of future developed area and a "worst-case" buildout scenario for these projects. Based on topography and preliminary development plans for East Otay Mesa Specific Planning Area, it was assumed that 70 percent of the total acreage would be developed.

6.2 LIST OF PAST, PRESENT, AND REASONABLY ANTICIPATED FUTURE RELATED PROJECTS

The cumulative impact area for Otay Ranch is defined differently by each issue area addressed in the program EIR. In other words, the cumulative effects on water quality or biological resources are restricted to southwestern San Diego County, whereas the cumulative effects on traffic and air quality are more regional in context. For purposes of describing the cumulative impact area evaluated for most issues, Figure 6.2-1 illustrates the locations of the proposed or approved projects in the vicinity of Otay Ranch. For the purpose of this analysis those projects are termed "related projects", as defined by CEQA. Table 6.1-1 summarizes the dominant land uses, site acreages, and projected units anticipated for those related projects. As noted within the table, the cumulative impact area could add a total of 41,609 residential dwelling units, 1,269 industrial/office lots, and 976 hotel rooms on 30,434 acres (of which 19,935 acres would be developed) in the southern San Diego County region.

6.3 LAND USE, PLANNING, AND ZONING

The following analysis is based on a calculation of planned open space for the Otay Ranch alternatives under consideration as well as for the other projects on the cumulative list. For

Table 6.1-1

PROPOSED OR APPROVED PROJECTS IN CUMULATIVE IMPACT AREA FOR OTAY RANCH

Map Number	Project Name	Dominant Land Use	Gross Site Acreage	Dwelling Units	Jurisdiction[1]
1	Dennery Ranch – Precise Plan	Residential	245	1,119	SD
2	Otay Vista – Precise Plan	Residential	132	1,133	SD
3	California Terraces – Specific Plan	Residential	665	5,375	SD
4	Hidden Trails – Precise Plan/PRD	Residential	226	1,380	SD
5	Robinhood Ridge – Precise Plan/PRD*	Residential	310	1,151	SD
6	Santee Investments – Precise Plan*	Residential	129	591	SD
7	South Palm – Precise Plan	Residential	225	956	SD
8	Otay Corporate Center North	Industrial	179	79 lots	SD
9	Various industrial TM's	Industrial Office	3,042	1,130 lots	SD
10	Otay Rio Business Park*	Industrial	210	60 lots	CV
11	Sunbow II – SPA/Rancho Del Sur*	Residential	710	1,946	CV
12	Rancho Del Rey II & III – SPA*	Residential	1,663	4,148	CV
13	Bonita Meadows*	Residential	264	300	CV
14	Rancho San Miguel – Specific Plan*	Residential	2,638	1,654	CV
15	Salt Creek Ranch*	Residential	1,200	2,817	CV
16	Salt Creek I*	Residential	124	550	CV
17	EastLake TMs*	Residential	2,258	9,563	CV
18	Hidden Valley Estates – Specific Plan*	Residential	1,460	438	SDC
19	Las Montañas – Specific Plan*	Residential Resort Hotel	922	170 600 rooms	SDC
20	Rancho San Diego – Specific Plan*	Residential	2,960	6,160	SDC
21	The Pointe – Specific Plan, Tentative Map and Private Estates*	Residential Resort Hotel	830	855 376 rooms	SDC
	Loma del Sol – Specific Plan*	Resider	552	183	SDC

Table 6.1-1 (Continued)

PROPOSED OR APPROVED PROJECTS IN CUMULATIVE IMPACT AREA FOR OTAY RANCH

Map Number	Project Name	Dominant Land Use	Gross Site Acreage	Dwelling Units	Jurisdiction[1]
23	Singing Hills*	Residential	730	401	SDC
24	Daley Ranch	Rock Quarry	248	n/a	SDC
25	Honey Springs – Specific Plan*	Residential	2,022	389	SDC
26	Clark Ranch – Specific Plan	Residential	1,290	215	SDC
27	East Otay Mesa – Specific Plan	Residential/ Industrial	5,200	115	SDC
28	Brown Field Master Plan Update/Expansion	Airport	n/a	n/a	SD
29	State Route 125	Highway	n/a	n/a	CA
30	Southwest San Diego County Landfill Sites	Landfill	n/a	n/a	SDC
31	County Water Reclamation Plant*	Industrial	n/a	n/a	SDC
TOTALS:		Residential	26,755	41,609 du's	
		Industrial/Office	3,679	1,269 lots	
		Resort Hotel	(incl. in Resid.)	976 rooms	
		Total Acreage	30,434		

[1]Jurisdiction:
SD = City of San Diego
CV = City of Chula Vista
SDC = San Diego County
CA = State of California

* Environmental impact reports on these projects were referenced for the cumulative impact assessment.

Sources: County of San Diego, City of San Diego, and City of Chula Vista Planning Departments (1991).

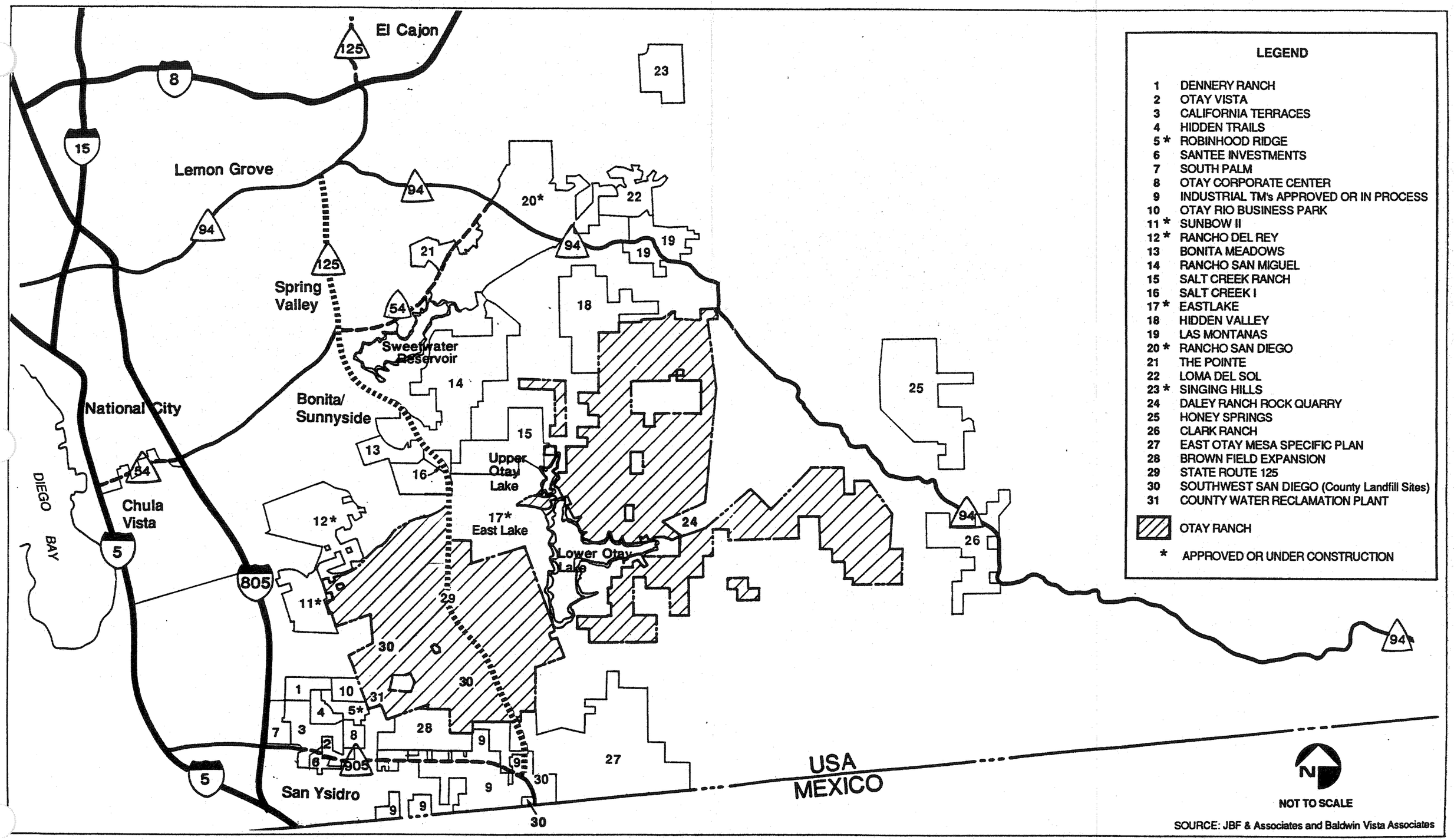
those projects where the amount of open space is unknown, an assumption of 20 percent of gross acreage was made to determine open space provided. Because the Otay Ranch alternatives vary primarily in terms of land use density and the amount of designated open space, the three alternatives addressed here were determined to provide an adequate range of analysis to cover the remaining alternatives not specifically discussed. Project-specific EIRs for projects on the cumulative list were reviewed, where available, to determine the land use impacts of individual projects that may also have cumulative significance.

6.3.1 Cumulative Impacts of Related Projects

Other projects proposed for areas in proximity to the Otay Ranch site would have the same land use concerns as the Otay Ranch project in terms of onsite land use displacements, compatibility with other adjacent land uses, compatibility of land uses internal to the projects, and project consistency with applicable land use policies, designations, and zoning. All of these issues should have been addressed within the environmental review of each specific project and thus will not be repeated here. From a cumulative standpoint, the other projects proposed in the vicinity of Otay Ranch would continue a pattern of land conversion from undeveloped or underdeveloped land to one of urban development. Overall, projects proposed in the vicinity of the Otay Ranch site as shown in Figure 6.2-1 and listed in Table 6.1-1, involve approximately 30,434 acres of land. Proposed or approved projects would leave approximately 10,499 acres (34 percent) in open space, based on an assumption that 80 percent of gross project acreage would be developed where more specific land use data were not available. The cumulative projects would result in the development of 41,609 additional dwelling units, 1,269 lots reserved for industrial or office development, and 976 rooms associated with resort development. Most, if not all, of this development would occur in open space areas or lands under cultivation. Cumulative loss of open space and agricultural land (i.e., 19,935 acres) would thus be a significant unavoidable impact of the other projects proposed for the areas around the Otay Ranch project site.

Figure 6.3-1 shows the general type of development proposed in the areas around Otay Ranch. Residential densities range from as low as 0.2 du/ac on projects near Jamul (for example, Honey Springs Specific Plan) and Dulzura in southeast San Diego County to as high as 30 du/ac in the Otay Mesa area of the City of San Diego (i.e., Santee Investments Precise Plan). The majority of the non-residential development in the region (e.g., office and industrial development) would be located in the Otay Mesa area, with the exception of the limited business park development and commercial service facilities of master-planned communities in eastern Chula Vista, the Daley quarry, as well as proposed public facilities such as SR-125, a county water reclamation plant, and a new or expanded county landfill.

If the Otay Ranch development is not approved, then the primary land use incompatibilities that might occur as a result of other proposed projects would be between proposed residential and industrial or office land uses located to the southwest of the Otay Ranch site (or the proposed industrial tentative maps (TMs) between the Otay Corporate Center (No. 8 on Figure 6.3-1) and the adjacent residential projects (No. 2, 3, 4 and 5 on Figure 6.3-1). All other land uses would be generally compatible, although impacts specific to each actual site plan may occur as would be discussed in the individual environmental documentation for each project.

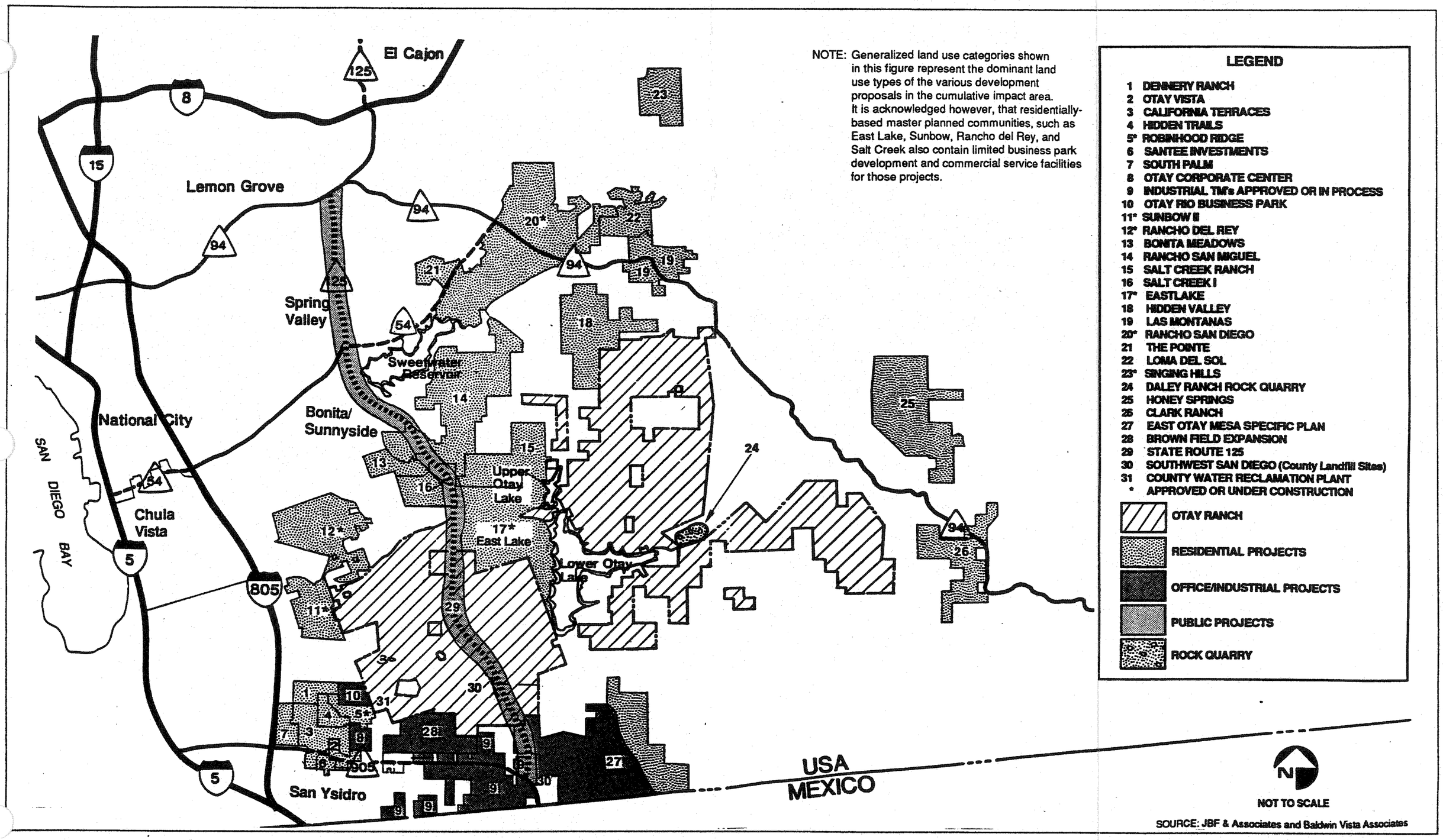


SOURCE: JBF & Associates and Baldwin Vista Associates

OGDEN

Cumulative Impact Area - Proposed or Approved Projects in Project Vicinity

FIGURE 6.2-1



OGDEN

Cumulative Impact Area - Type of Projects Proposed or Approved in Project Vicinity

FIGURE 6.3-1

6.3.2 Cumulative Impacts with Otay Ranch

6.3.2.1 Cumulative Impacts with New Town Plan

Other proposed projects, in conjunction with the Otay Ranch project, would cause additional conversion of undeveloped land to urban uses. The total gross acres involved in other projects, not including Otay Ranch, would be approximately 30,434 acres with approximately 19,935 acres of developed acreage. Including Otay Ranch, the total would be approximately 53,522 acres of gross acreage and 35,488 acres of developed land. The Otay Ranch project would, thus, almost double the area converted to development. Again, the cumulative loss of open space and agricultural land would be a significant unavoidable impact of the Otay Ranch project in conjunction with the other projects proposed for the area.

Additional land use incompatibilities would occur as a result of cumulative buildout. Some of these have already been addressed in this EIR (e.g., potential conflicts with EastLake, Sunbow II, and the Daley quarry). Additional compatibility impacts, however, could result between proposed Otay Ranch land uses and the two alternate San Diego County landfill sites, proposed on the Otay River parcel, and industrial tentative maps proposed along the Otay Ranch site's western border. Refer to Section 8 for a discussion of potential land use incompatibilities related to the landfill sites. Land use interface impacts may also occur between the residential area proposed along the common border of the Hidden Valley Estates project (No. 18, Figure 6.3-1) and Otay Ranch, since residential development at ~~on~~ Hidden Valley Estates would occur at an average density of 0.47 du/ac while the New Town Plan would allow densities of up to 3 du/ac. No other significant land use incompatibilities would be expected as a result of the Otay Ranch project and other projects proposed for the area at this time.

6.3.2.2 Cumulative Impacts with Phase I-Progress Plan Alternative

If the Phase I-Progress Plan Alternative were implemented, the total amount of developed acreage including all projects on the cumulative list as well as Otay Ranch would be approximately 32,039 acres, a 60 percent increase over the amount of new developed acreage without the Otay Ranch project. The cumulative loss of over 32,000 acres of open space and agricultural land would be significant.

Land use incompatibilities between projects on the cumulative list and the Phase I-Progress Plan Alternative (other than those already discussed in Section 4.2) could result between Otay Ranch and the alternate county landfill sites. Land use interface impacts with industrial tentative maps along Otay Ranch's western border would be less than significant since the Phase I-Progress Plan Alternative proposes open space and a business park there. Land use impacts with the Hidden Valley Estates project in Jamul would also be less than significant since the Phase I-Progress Plan Alternative proposes open space along its common border with this very low-density residential project.

6.3.2.3 Cumulative Impacts with Environmental Alternative

The Environmental Alternative would create 6,109 acres of developed land, an approximate 30 percent increase over the amount of developed land proposed by the other projects on the cumulative list. The combined cumulative amount of developed acreage (26,044 acres) would pose a significant loss of open space and agricultural land.

The only potentially significant land use incompatibility between the Environmental Alternative and other projects on the cumulative list would be with the alternate county

landfill sites. Since these sites have yet to be selected, land use interface impacts are unknown and thus potentially significant. The specific effects will be studied in detail during the landfill environmental analysis, which is ongoing.

6.3.3 Mitigation Measures

The SPA plans developed for the areas of the Otay River parcel adjacent to any of the alternate San Diego County landfill sites, industrial tentative maps proposed along the Otay Ranch site's western border, and the Hidden Valley Estates project shall contain landscaping and buffering guidelines (including mitigation measures adopted from Sections 6.13 and 6.14 of this report) designed to prevent land use interface impacts such as health hazards, noise, lighting, and loss of privacy between Otay Ranch and these adjacent land uses. The SPA plans shall be reviewed by the city or county planning department that has jurisdiction over these areas to ensure that proposed guidelines are adequate to prevent significant interface impacts from occurring.

6.3.4 Analysis of Significance

Cumulative development in the Otay Ranch impact area will result in a significant loss of open space, with or without any of the Otay Ranch alternatives. Potentially significant land use incompatibilities may also occur.

6.4 LANDFORM ALTERATION/AESTHETICS

The following analysis is based on a calculation of planned open space for the Otay Ranch alternatives under consideration as well as for the other projects on the cumulative list. For those projects where the amount of open space is unknown, an assumption of 20 percent of gross acreage was made to determine undeveloped open space. Because the Otay Ranch alternatives vary primarily in terms of land use density and the amount of designated open space, the three alternatives addressed here were determined to provide an adequate range of analysis to cover the remaining alternatives not specifically discussed. Project-specific EIRs for projects on the cumulative list were reviewed, where available, to determine the impacts of individual projects that may also have cumulative significance.

6.4.1 Cumulative Impacts of Related Projects

The region around the Otay Ranch site, including eastern Chula Vista, Otay Mesa, Sweetwater, Bonita, and Jamul is in the process of becoming increasingly urban. Formerly open space, both natural and agricultural, the region is now developed or in the process of being developed with several large-scale, mixed use projects (refer to Figure 6.2-1 and Table 6.1-1). Although many of these cumulative projects retain significant amounts of open space, approximately 19,935 acres of open space land would be converted. Almost every EIR prepared for projects on the cumulative list cites the loss of open space and natural landscape and its conversion to urban development as a significant cumulative visual impact.

Other cumulative impacts include significant landform alteration and grading of steep slopes (i.e., greater than 25 percent). Several of the projects on the cumulative list (for example, The Pointe, Hidden Valley Estates, EastLake and Robinhood Ridge) involve several million cubic yards of cut and/or fill and involve significant manufactured slopes (i.e., greater than 30 feet in height). Grading associated with development in most of eastern Chula Vista, including Salt Creek I, Sunbow, and EastLake, has resulted in alteration of the existing landscape as gently sloping hillsides are padded for development (although Salt Creek Ranch would alter less of the natural terrain since less mass grading is being used

and natural contours are being preserved). Landform alteration associated with the residential development in the southwestern Otay River Valley in the City of San Diego would likely require a substantial amount of grading to remove expansive soils and to make the northern steep slopes developable. Only minor alteration would be necessary for the industrial projects proposed for Otay Mesa because of the naturally level characteristics of the terrain.

Development proposals in the vicinity of Jamul, northeast of the Proctor Valley parcel, would have the potential to result in a significant amount of encroachment into the steep slopes of the Jamul and San Miguel foothills to accommodate residential building pads. In the vicinity of Highway 94, land on both sides of the roadway would be altered by the Las Montanas, Rancho San Diego, and Clark Ranch projects. Although the SR-125 alignment has not been finalized, landform and visual impacts would likely be considered significant because of the magnitude of the project and the amount of grading and permanent right-of-way necessary to construct and operate the roadway.

Cumulative visual impacts would exist not only due to landform alternation, but due to the development itself, at least until landscaping matures and new construction is completed. In the southwestern portion of the cumulative impact area, new development in the Otay River Valley and on Otay Mesa would be visible from Otay Valley Road as well as from roads on the mesa itself. Once SR-125 is constructed, new development on Otay Mesa would also be visible from this highway. The extension of SR-125 itself across the Otay River Valley would likely necessitate the installation of a visually prominent bridge.

From Telegraph Canyon Road, views of future development would be limited to Rancho Del Rey and EastLake due to topographic obstructions and intervening development. The southern portion of Salt Creek Ranch may also be visible from the eastern end of the roadway near Lower Otay Lake. Development of Sunbow II would be blocked from view by Sunbow I and the associated steep slopes. Other developments in eastern Chula Vista and the Bonita/Sunnyside area (for example, Bonita Meadows, Rancho San Miguel and Salt Creek I) would be visible from Proctor Valley Road, San Miguel Road, East H Street, and the future extension of SR-125.

Views of open space from residential areas near Jamul would be dramatically altered by Hidden Valley Estates, although the density of development would be similar to the existing character of the area. Other projects along Highway 94 (for example, the Las Montanas and the Pointe resorts and Rancho San Diego) would affect views of open space areas from this highway.

A third visual impact of proposed cumulative development would be an increase in night-sky illumination. This cumulative effect is potentially significant due to the location of two major observatories in northeastern San Diego County (Mt. Palomar and Mt. Laguna) and due to the magnitude of new urban development occurring in a previously rural area. Because development within the cumulative impact area would be situated beyond the 15-mile distance that is critical to the observatories, and would be required to comply with provisions of the county's Dark Sky Ordinance, the night sky illumination effect would be cumulatively adverse but not significant.

In summary, the cumulative impact area of Otay Ranch is an area that is in the process of changing from "rural" or "urban fringe" to an urbanized area. Proposed projects are contributing to a significant loss of open space and change in the visual appearance of the area. Project grading and development will result in significant changes to the natural landform, including encroachment on steep slopes, and will change the appearance of the

landscape as viewed from numerous public roads. Proposed development will also contribute to cumulative night lighting impacts.

6.4.2 Cumulative Impacts with Otay Ranch

6.4.2.1 Cumulative Impacts with New Town Plan

The amount of landform alteration and development proposed by the implementation of the New Town Plan, in conjunction with other surrounding developments, would also result in significant unavoidable cumulative impacts on the existing character of southwestern San Diego County; approximately 35,488 acres of open space would be converted to development. In addition to the areas discussed above, the New Town Plan would alter slopes along the Otay River Valley, in the vicinity of Otay Lakes, and the northern foothills of the Jamul and San Miguel Mountains. More prominent hillsides and mountains would be retained in open space, thus preserving their existing undeveloped appearance. However, the cumulative alteration in visual character of the project area due to the construction of residential, recreational, commercial, and industrial uses would appear more extreme upon construction of Otay Ranch in addition to other surrounding developments, since an additional 15,553 acres of the remaining rural area would be urbanized.

Because of its size, development of Otay Ranch would serve to tie the surrounding projects together into a complex of residential and commercial land. The only remaining areas featuring visually accessible undeveloped or rural land between Interstate 805 and Highway 94 would occur on BLM lands surrounded by proposed open space in the Proctor Valley parcel and in the San Ysidro Mountains southeast of Lower Otay Lake. However, much of the BLM land is not visible from surrounding areas. This impact to visual resources would be most significant in the vicinity of Jamul, which without the Otay Ranch project would remain more isolated from the higher density urbanization occurring in the eastern Chula Vista area. The impacts to visual quality and landforms as a result of this cumulative development would be significant, despite mitigation measures such as the avoidance of steep slopes, the use of contour grading, and the implementation of landscape plans and other measures typically proposed to minimize visual impacts.

A third visual impact of proposed cumulative development would be an increase in night-sky illumination. This cumulative effect is potentially significant due to the location of two major observatories in northeastern San Diego County (Mt. Palomar and Mt. Laguna) and due to the magnitude of new urban development occurring in a previously rural area. Because development within the cumulative impact area would be situated beyond the 15-mile distance that is critical to the observatories, and would be required to comply with provisions of the county's Dark Sky Ordinance, the night sky illumination effect would be cumulatively adverse but not significant.

In summary, the cumulative impact area of Otay Ranch is an area that is in the process of changing from "rural" or "urban fringe" to an urbanized area. Proposed projects are contributing to a significant loss of open space and change in the visual appearance of the area. Project grading and development will result in significant changes to the natural landform, including encroachment on steep slopes, and will change the appearance of the landscape as viewed from numerous public roads. Proposed development will also contribute to cumulative night lighting impacts.

6.4.2.2 Cumulative Impacts with Phase I-Progress Plan Alternative

Cumulative impacts of the Phase I-Progress Plan Alternative, in conjunction with other proposed and approved projects, would result in a significant loss of open space (approximately 32,039 acres) and a significant change in character from rural to urban development on the actual project sites and in the surrounding area. The cumulative visual impact of the Phase I-Progress Plan on the community of Jamul is not considered significant due to the open space separating this alternative from the community. Other impacts such as overall landform alteration, manufactured slopes, and grading of steep slopes would also be significant because the topography is highly varied and many areas contain slopes of 25 percent or greater, extensive grading is often required to create developable areas. The cumulative effects of night lighting would also be significant.

6.4.2.3 Cumulative Impacts with Environmental Alternative

An overall change from rural to urban development would occur in Otay Mesa and the areas west of the Otay Lakes as a result of cumulative projects and the Environmental Alternative. This is a significant cumulative visual impact. East of the lakes, the Environmental Alternative proposes primarily open space and very low residential development (0.05 - 0.25 du/ac). However, the two areas of higher density development and resort would contribute cumulatively to a change in character of areas east of the lakes as well. The low density residential development in the northern part of the Proctor Valley parcel would be visible to residents of Jamul. The cumulative loss of open space (26,044 acres) would also be significant. Similarly, any grading of steep slopes or the creation of manufactured slopes 30 feet or greater in height would contribute to the cumulatively significant amounts of grading and landform alteration occurring in the region. The Environmental Alternative would also contribute to the cumulatively adverse night illumination impacts on Mt. Laguna and Mt. Palomar observatories.

6.4.3 Mitigation Measures

Implementation of the measures contained in Section 3.2.3 (for example, the use of contour grading, the implementation of design guidelines, and the incorporation of planned open space) would reduce Otay Ranch's contribution to cumulative impacts. Cumulative impacts of the other projects are partly mitigated through similar measures as well as through enforcement of the County's I-73, Hillside Development Policy, Dark Sky Ordinance 59-101 through 115, Policy 15.K.7 of the Jamul/Dulzura Subregional Plan, the City of Chula Vista's Hillside Development Policy and other regulations and policies of the City's Land Use Element, and the City of San Diego's Hillside Review Overlay Zone. However, in spite of these regulations and site-specific design and grading measures, cumulative impacts to landform alteration and aesthetics are considered significant and only partially mitigable. Effects on night sky illumination would be mitigated to below significance.

6.4.4 Analysis of Significance

Cumulative development in the cumulative impact area, with or without any of the Otay Ranch alternatives, will result in the following significant visual impacts: loss of open space; a change in community character from "rural" or "urban fringe" to "urbanization;" landform alteration, including encroachment into steep slopes; visual impacts from public roads; and night sky illumination.

6.5 BIOLOGICAL RESOURCES

The cumulative impact analysis for Otay Ranch was assessed based on the impacts of the related cumulative projects separate from and then combined with each development plan for Otay Ranch. Each of the related projects (see Figure 6.2-1) was reviewed for gross acreage, developed acreage, acres of sensitive habitats present and impacted, sensitive plant and animal species present and number impacted, and habitat continuity and maintenance of wildlife corridor issues. The assessment focused on impacts to the coastal sage scrub habitat and California gnatcatcher and cactus wren due to their sensitivity. If data were not available on the extent of acreage developed, it was assumed that 80 percent of the acreage would be developed. Based on topography and preliminary development plans for the East Otay Mesa Specific Planning Area, it was assumed that 70 percent of the total acreage would be developed. Impacts for seven projects totaling 32 percent of the cumulative project acreage were estimated in this manner; this figure reduces to less than 15 percent without East Otay Mesa. If data were not available for the extent of Diegan coastal sage scrub present, then an estimate was made based on review of old aerials, soil maps, topography, and adjacent habitat types. When data were not available for impacts to California gnatcatchers, an estimated number of pairs affected was determined based on one pair per 35 acres of coastal sage scrub impacted.

6.5.1 Cumulative Impacts of Related Projects

Of the proposed or approved projects in the cumulative impact area, 15 of these occur south or southwest of Otay Ranch, principally on Otay Mesa. The eastern portion of the East Otay Mesa Specific Planning Area shares many of the same species and sensitivities as Otay Ranch, and could potentially affect regional resource values associated with Otay Mountain and wildlife corridor connections with the Otay River Valley. Most of the other projects would have less impact regionally with the exception of those which interface with the Otay River Valley or contain vernal pools such as the Brown Field Airport Expansion, Robinhood Ridge, and the various TMs proposed in that area. Most of the projects on Otay Mesa will affect disturbed habitats, non-native grassland or agricultural areas.

The centrally located EastLake project covers only agricultural lands and would not adversely affect biological resources in the region; there would, however, be an incremental reduction of raptor foraging habitat.

Six projects northwest of the Otay River parcel share many of the same species and sensitivities as Otay Ranch (see Section 3.3) and would contribute most significantly to the cumulative reduction of the sensitive resources in the project area. The most contributory of these are Sunbow, Rancho del Rey, and Rancho San Miguel. Because of its location between San Miguel Mountain and Mother Miguel Mountain and Sweetwater Reservoir, the Rancho San Miguel project has the most potential for affecting regional resource values. Its onsite resources, adjacency to large regional open space, and its potential to affect regional wildlife movement are key factors in the environmental analysis of that project.

Another six projects are located east of the Sweetwater Reservoir and north of Otay Ranch and San Miguel Mountain. Due to the anticipated loss of coastal sage scrub acreage, the regional cumulative effect of developing these projects would be significant to the California gnatcatcher, but virtually none of the highly sensitive plant species of Otay Ranch would be significantly affected. More widely-distributed sensitive animal species such as the orange-throated whiptail and coast horned lizard would be incrementally affected as a result of surrounding development, but to a lesser degree than the gnatcatcher.

The final three projects are located east of Otay Ranch. These projects have the potential to affect wildlife movement between Jamul Mountain, Otay Mountain, and the rugged inland areas, but would not be expected to contribute significantly to the loss of the key biological resources of Otay Ranch since many of the more sensitive species present on the Ranch do not occur that far inland or are present in very low numbers.

The related projects would cumulatively affect biological resources in southwestern San Diego County. These cumulative effects represent significant reductions of natural open space and of Diegan coastal sage scrub and maritime succulent scrub habitats. Four of the related projects affect vernal pool resources; these resources are generally isolated and small and are comparatively minor in comparison to extensive vernal pool resources on Otay Ranch. Significant reduction of habitat for the California gnatcatcher and cactus wren would also occur. Otay tarplant, a state-listed plant species, would be significantly affected since its range is confined to southwestern San Diego County. The overall reduction of natural open space would incrementally affect a multitude of plant and animal species of lesser sensitivity with a broader distribution countywide. Large important riparian woodlands would not be significantly affected by the projects, though indirect effects of adjacent development along the Sweetwater River would potentially reduce the viability of the habitat.

A number of the projects affect local wildlife movement corridors and in some cases tend to further isolate biological resources. Major regional wildlife corridors, however, have been considered in the planning of Rancho San Diego, Rancho San Miguel, and Hidden Valley Estates. Cumulatively, these projects would indirectly through increased human presence reduce the viability of resources which depend on the Sweetwater River Valley, Otay River Valley and Mount San Miguel.

6.5.2 Cumulative Impacts with Otay Ranch

The following is an analysis of the cumulative biological impacts of three alternative development plans for Otay Ranch in relation to the cumulative impacts of the surrounding developments in southwestern San Diego County. For this analysis, impacts to Diegan coastal sage scrub (including maritime succulent scrub), California gnatcatchers, and cactus wrens were estimated (Table 6.5-1).

6.5.2.1 Cumulative Impacts with New Town Plan

The New Town Plan would develop the land at a slightly higher percentage (67 compared to 65 percent) than the total for the related projects and would retain significantly less coastal sage scrub (36 compared to 51 percent). The estimated reduction of coastal sage scrub acreage would be 61 percent higher for the New Town Plan over the related projects. Even with the higher loss of coastal sage scrub, the number of California gnatcatchers is expected to be 40 percent of the total related project impacts, due to the fact that some large expanses of scrub habitat in eastern Otay Ranch are sparsely populated by the species. In contrast, the New Town Plan would appear to affect significantly more (3 times as many) cactus wrens than the related projects. The New Town Plan would significantly affect vernal pool habitats and other wetland habitats to a much higher degree than the related projects.

Based on the size, location, degree of proposed development, and extensive distribution of heavy (i.e., clayey) soils, the implementation of the New Town Plan on Otay Ranch would be expected to affect the following sensitive plant species significantly more than the cumulative effect of the related projects: *Dudleya variegata, Hemizonia conjugens, Acanthomintha ilicifolia, Muilla clevelandii, Salvia munzii, Stipa diegoensis,* and *Solanum*

Table 6.5-1

COMPARISON OF CUMULATIVE IMPACTS TO KEY BIOLOGICAL RESOURCES

	New Town Plan	New Town Plan and Related Projects	Phase I - Progress Plan	Phase I Alternative and Related Projects	Environ. Alt.	Environ-mental Alternative and Related Projects	Total Related Projects
Total Acreage	23,088	53,522	23,088	53,522	23,088	53,522	30,434
Developed Acreage	15,553	35,488	12,053	31,988	6,109	26,478	19,935
Acreage of Coastal Sage Scrub Lost[1]	6,826 (64%)	10,425	3,386 (32%)	6,985	1,729 (16%)	5,328	4,131 (49%)
Number of California Gnatcatcher Pairs Impacted	95	310-330	70	285-330	22	237-257	215 - 235[2]
Number of Cactus Wren Individuals Impacted	43	58-63	27	42-47	11	26-31	15-20[3]

[1]Includes maritime succulent scrub acreage.
[2]These impact estimates are based on known impacts to California gnatcatcher pairs and on impacts to potential habitat from other projects.
[3]There is limited data available on coastal cactus wren impacts. These are minimum estimates of impacts from other projects.

tenuilobatum. The New Town Plan would also more adversely affect alkali wetland species (*Iva hayesiana* and *Juncus acutus* var. *sphaerocarpus*), vernal pool species (*Eryngium*, *Myosurus*, *Orcuttia*, *Navarretia*, *Pogogyne*, and *Brodiaea*), and species associated with higher elevations (*Calochortus dunnii*, *Arctostaphylos otayensis*, *Calamagrostis densa*, and *Clarkia delicata*). Only two species would be significantly less impacted by the New Town Plan than the related projects. These species, *Ferocactus viridescens* and *Opuntia parryi* var. *serpentina*, are distributed more commonly at lower elevations on south-facing slopes closer to the coast.

Taken together, the total impacts of the New Town Plan and the related projects would significantly decrease key regional resources. The cumulative impacts to California gnatcatchers and cactus wrens would significantly reduce the populations of these species in southwestern San Diego County.

6.5.2.2 Cumulative Impacts with Phase I-Progress Plan Alternative

Implementation of the Phase I-Progress Plan Alternative would develop the land at a reduced percentage compared to the related projects (52 compared to 65 percent). The Phase I-Progress Plan Alternative would affect significantly less (18 percent) coastal sage scrub habitat than the related projects and would retain significantly more of this habitat (68 compared to 51 percent). The Phase I-Progress Plan Alternative would affect one-third the number of California gnatcatchers, and two times more cactus wrens in comparison to the related projects.

Implementation of the Phase I-Progress Plan Alternative would significantly affect some sensitive plant species more than the cumulative effect of the related projects. This is due to particularly large onsite populations and extensive distribution of clay soils in the case of *Acanthomintha ilicifolia*, *Hemizonia conjugens* and *Muilla clevelandii*, and higher elevations in the case of *Arctostaphylos otayensis* and *Clarkia delicata*. The presence of unique alkali meadows and an extensive number of drainages may cause the wetland species *Iva hayesiana* and *Juncus acutus* var. *sphaerocarpus* to also be significantly more affected. *Solanum tenuilobatum* would be affected more based on its distribution on Otay Ranch and absence from the other related projects.

Two sensitive plant species with a generally more coastal distribution which favor less heavy soils and lower elevations would be less significantly affected than in the related projects. These species are *Ferocactus viridescens* and *Opuntia parryi* var. *serpentina*.

There would be significant cumulative impacts to California gnatcatcher and coastal cactus wren from development of the Phase I-Progress Plan and related projects. Fifty to 60 percent of the estimated 400 to 450 pairs of gnatcatcher and 25 to 30 percent of the estimated pairs of coastal cactus wren occurring in southwestern San Diego County would be impacted.

Taken together, the cumulative effects of the Phase I-Progress Plan Alternative and the related projects would significantly decrease key biological resources in southwestern San Diego County.

6.5.2.3 Cumulative Effects with Environmental Alternative

The Environmental Alternative would develop the land at less than one-half the rate of the related projects (26 compared to 65 percent). Similarly, it would retain a significantly higher percentage (84 compared to 51 percent) of coastal sage scrub habitat and affect significantly less acreage (58 percent less) than the related projects. The Environmental

Alternative would affect one-tenth the number of pairs of California gnatcatchers and over eight-tenths the number of cactus wrens when compared to the related projects.

The Environmental Alternative would not, with the exception of *Acanthomintha ilicifolia*, significantly affect sensitive plant species to a greater extent than the related projects; in fact, all would be significantly less affected than by the other projects. Taken together, the cumulative effects of the related projects and the Environmental Alternative would constitute a significant regional impact, specifically to coastal sage scrub, California gnatcatchers, and cactus wrens.

6.5.3 Mitigation Measures

Mitigation measures for individual projects vary depending on identified significant impacts and on subsequent findings and conditions of project approval. Mitigation for reduction of Diegan coastal sage scrub and maritime succulent scrub has generally been through onsite preservation. Mitigation for sensitive plants and animals has been through onsite preservation of portions of populations or replanting programs for some sensitive plants. There has been a tendency in all jurisdictions to partially mitigate for key regional resources with the anticipation that these issues can ultimately be more easily resolved in the more rural or eastern territories than along the urban fringe; therefore, the incremental reduction of habitats and sensitive species in southwestern San Diego County has reached a cumulatively significant stage for some key resources. With the recent development of the projects included in this cumulative analysis, the urban fringe has moved substantially into remaining key resource areas in southwestern San Diego County. The addition of Otay Ranch with any of the alternatives, except possibly the Environmental Alternative, would affect a large majority of the remaining area for select resources in southwestern San Diego County.

The cumulative reduction of the sensitive scrub habitat mosaic which supports California gnatcatcher, cactus wren, Otay tarplant, and vernal pool habitat with the implementation of the New Town Plan is unmitigable due to the magnitude of the effect (see Section 3.3.3). In the case of the New Town Plan, offsite mitigation is not probable due to the lack of comparable habitat values and limitations on the distribution of affected habitats and species. With the Phase I-Progress Plan Alternative, and Environmental Alternative, the cumulative effects can potentially be mitigated through a combination of measures which ultimately concentrate on protecting the key resource areas and tying these areas together onsite and with adjacent offsite areas to create a viable regional open space preserve (see Sections 4.2.4.2, 4.3.4.2, and 4.7.4.2).

Restoration of sensitive habitats on Otay Ranch will provide mitigation for both the loss of habitat and sensitive species due to development of the property. Restoration of disturbed habitats will increase the resource value of the habitat, as well as potentially provide links to key resource areas on both local and regional levels. Habitat restoration in areas that connect two or more otherwise isolated key resource areas will allow emigration between subpopulations resulting in more viable populations.

Restoration of habitat in highly biodiverse areas can play an important role in effectively increasing the population size of sensitive species. Disturbed portions of the Otay River Valley will potentially be restored back to an intact riparian habitat, which will allow for an increase in the number of least Bell's vireo breeding pairs that will utilize the expanded habitat. Restoration of Diegan coastal sage scrub habitats will potentially contribute to the maintenance of the California gnatcatcher population on Otay Ranch, and disturbed coastal sage scrub habitat adjacent to areas currently utilized by cactus wren could be restored with maritime succulent scrub in order for the cactus wren population to expand.

6.5.4 Analysis of Significance

Cumulative regional development impacts without Otay Ranch will significantly affect key biological resources including Diegan coastal sage scrub and maritime succulent scrub habitat, California gnatcatcher and coastal cactus wren, and coastal grassland habitat of Otay tarplant. The addition of Otay Ranch to the matrix of habitat and species impacts would substantially increase the magnitude of these effects and contribute significantly to the cumulative reduction of other sensitive species, especially those which are confined to southwestern San Diego County. The additive effect of the New Town Plan versus the other alternatives would be substantially greater and unmitigable. Significant impacts to key resources can be mitigated with the Environmental Alternative. The Phase I-Progress Plan Alternative lies about midway between the New Town and the Environmental Alternative and partially mitigates effects to key resources through design features.

6.6 CULTURAL RESOURCES

A cumulative impact assessment must consider the nature and extent of the cultural resource data base, the importance of the cultural resources in a regional context, and the different levels at which cumulative impacts can be addressed. Cultural resources are any isolated artifact, location of associated artifacts or features, structure, building, or object that is greater than 45 years of age (Office of Historic Preservation 1989). Cultural resources can include prehistoric tools such as arrowheads and milling equipment, and historic features including buildings, bridges, and roads. These cultural resources reflect and represent a segment of past lifeways and may possess value to living peoples and cultures. They are evaluated for individual importance under criteria established by CEQA, San Diego County Ordinance RPO 17253, San Diego County Environmental Review Procedures, Appendix B, Archaeological/Historical Report Procedures and the guidelines of the City of Chula Vista. To evaluate the cumulative impacts of a project it is necessary to examine the impacts in relation to the total database and to look at the cumulative effect of project implementation on this database.

The cultural resource database includes prehistoric and historic sites officially recorded at the Museum of Man and the South Coastal Information Center at San Diego State University as well as information derived from historic sources and literature, including EIRs. Cumulatively, this database comprises 469 cultural resource sites, 292 within Otay Ranch and 177 within the 22 of the 25 project EIRs incorporated in this analysis (three of the projects had no cultural resources present).

The cultural resource database refers to the entire body of cultural remains (isolates, sites, structures, buildings, and objects) defined above, that have aesthetic, historical, religious, or scientific values. The database consists of the physical resources themselves, as well as the values placed upon the resources. These values are related to public sentiment and perception and tend to change over time. Examples are changing knowledge and awareness, such as the realization that a species is endangered or, more pertinent for cultural resources, as changing Native American concerns change the focus of scientific inquiry.

When addressing cumulative impacts it is important to remember that although the database will increase with time (as years pass more things become 45 years or greater in age), natural weathering and erosion processes as well as human disturbance unrelated to development are constantly occurring. Consequently, the value of cultural resources will change and increase through time in one regard, while in another sense the value of earlier aspects of the database are being reduced through unavoidable processes. This long-term perspective should include the preservation of a sample of the entire spectrum of cultural

resources and examples that include the entire range of values that make these resources important. These values include aesthetic, historic, religious, and scientific categories; therefore, impacts do not just occur to the physical objects themselves but to the values the public places upon them.

In terms of cumulative cultural resource evaluation, the greatest diversity of age, setting, function, and research criteria should be preserved. When addressing cumulative impacts it is critical to determine at what geographic scale they are being evaluated. For example, a resource such as an obsidian (lithic) quarry may be unique in a general sense to a county but not unique on a state level. Values also occur at different levels. A resource may be locally significant but unimportant on a state, national, and global level. Another resource may contribute information or have qualities valued at the global level. For cumulative resource evaluation it is important to consider all levels while stressing jurisdictional local and state values and the importance criteria associated with these values.

The analysis of cumulative impacts considered the cultural resources within Otay Ranch in relation to the cultural resources that have been identified in other environmental documents within the sphere of influence under investigation. Table 6.6-1 provides a list of the environmental documents included in the study and the number of cultural resources identified within each project.

Overall, cumulative effects associated with the development of Otay Ranch and other proposed or approved projects in the cumulative impact area are difficult to evaluate. The difficulty stems from the uneven data base that exists for both the ranch itself and the surrounding area. The unevenness of data is a result of: 1) varying nomenclatures and definitions of resource types as applied to prehistoric sites by different researchers, 2) changes that have occurred in archaeological survey and evaluation techniques over the more than 40 years of research in the area, particularly in the realm of historic resources that went largely neglected or unrecorded until the 1980s, 3) the inconsistency inherent in comparing the results of the 6,000-acre survey of the 23,000 acres in Otay Ranch and adjacent surveys of smaller projects, 4) the environmental variables between the study areas as a whole and, more specifically, when compared to the Otay Ranch, and 5) the uncertainty about specific impacts and mitigating measures as applied to resources in the cumulative impact area, particularly when the projects (and their resources) exist in different jurisdictions.

General site type was the only consistent information that could be obtained for the cultural resources within the study area, and this information provides a broad assessment of function. Site types were derived from the Otay Ranch study (Carrico, Cooley, and Pigniolo 1991). Cultural resources identified during previous investigations were placed into these categories to allow a comparison between the number of sites within each category on Otay Ranch and the number of sites within each category within the other projects. The other environmental impact study areas do not represent the entire local database but provide an indication of the cumulative effect of development on cultural resources.

Where possible, it was determined which cultural resources were proposed for preservation and which would be mitigated or destroyed (i.e., lost from the cumulative database) and which would have some level of loss mitigated or lessened. The results of data tabulation are included below along with their implications as to the cumulative impacts of Otay Ranch development on the archaeological database.

Table 6.6-1
NUMBER OF SITES IN CUMULATIVE PROJECT AREA

Project Area and Title	Number of Sites
City of Chula Vista	
Rancho San Miguel GDP EIR	54
Rancho Del Rey SPA III EIR	2
Rancho Del Rey SPA II	1
Eastlake III / Olympic Training Center EIR	1
Eastlake Greens SPA EIR	1
Olympic Training Center Boathouse DEIR	2
El Rancho Del Rey SPA EIR	6
Salt Creek I GDP EIR	1
Salt Creek Ranch SPA EIR	27
Rancho Del Sur EIR	3
Sunbow II GDP EIR	0
Bonita Meadows DEIR	4
Otay Rio Business Park EIR	3
City of San Diego	
Robinhood Ridge EIR	12
Santee Investments EIR	6
Otay Valley Water Reclamation Project EIR	10
County of San Diego	
Rancho San Diego Tentative Map EIR	0
The Pointe GPA EIR	1
The Pointe San Diego DEIR	10
Pointe Private Drive Estates SPA DEIR	0
Honey Springs Specific Plan EIR	13
Hidden Valley Estates Specific Plan SEI	12
Las Montanas Resort Hotel / Conference Center SPA EIR	2
Loma Del Sol Golf Course and Residential Project DEIR	4
Singing Hills EIR	9
Total:	184 (177)*

* Seven sites are common to more than one project

6.6.1 Cumulative Impacts of Related Projects

The 177 cultural resource sites within the 22 of the 25 projects reviewed for this document comprise a database that is largely prehistoric (127 of 177 or 72 percent) and consists predominantly of lithic scatters and temporary camps (87 of 177 or 49 percent). Table 6.6-2 provides a summary of site types within the cumulative impact area around Otay Ranch. In addition to lithic scatters and temporary camps, there are 13 prehistoric village or large encampment sites, 12 milling station sites, 13 prehistoric quarries, 1 prehistoric rock feature site, 1 multi-type prehistoric site, 21 historic sites and 15 multi-component sites (with both historic and prehistoric components). Fourteen recorded sites could not be relocated. Out of this total of 177 cultural resource sites, 152 (86 percent) will be directly impacted by the various development projects, including 9 of 13 (69 percent) of the prehistoric village or large encampment sites and 18 of 21 (86 percent) of the historic sites.

In reviewing the data, a generalized pattern of site locations and types emerges. Quarry sites and lithic scatters, the most frequently encountered site types, occur in locations on, or near, lithic outcrops of easily obtainable stone material. These types of sites vary from small concentrations to sites that extend over several acres. As a somewhat redundant resource within the region (but not for all of San Diego County) these site types are less likely to suffer cumulative effects. Projects where these sites are common include the Rancho San Miguel Specific Plan, Salt Creek, East Otay Mesa and EastLake. While each of these types of sites may contain varying degrees of important information, there is a large universe of sites (in excess of 100) that can be tested, sampled, and preserved for future study. Because the projects named above are large projects with latitude in planning, to include open space and parks, it is assumed that a representative sample of quarry and lithic sites will be preserved. It should be noted that a cumulative data base derived from tens of sites across this large area would contribute to a far better understanding of quarrying and stone tool manufacturing.

Conversely, large complex Late Period village sites, such as the one represented by CA-SDi-11,376 above the Otay River on the Otay Ranch, are limited in distribution and frequency. It is unlikely that there were more than 85 villages in all of present-day San Diego County at the time of Spanish contact in 1769. While never verified by survey and ground-truthing, less than 50 of these still exist and most of them are unavailable for study. Any development that contains such a village represents a unique opportunity to study, preserve, and enhance the resource. Cumulatively, the various projects in the study area surrounding Otay Ranch contain no known recorded major village sites. Therefore, there are no cumulative effects to known major Late Period prehistoric villages in these project areas adjacent to Otay Ranch.

For historic resources, the cumulative effect of the various projects will be to significantly alter the landscape in such a way as to potentially obliterate the physical historic record for a large region. Early homestead sites, stone corrals, trash deposits, small earthen dams, and other relics of the past not associated with large structural complexes are likely to be removed or destroyed. Such effects are most likely on the Rancho San Miguel, East Otay, and Rancho San Diego properties where such resources have been previously identified and where substantial landform alterations are planned. Without a comprehensive approach to the preservation, interpretation, and enhancement of historic resources, a valuable record of pioneer settlement could be lost and a cumulatively significant impact to historic resources would occur.

Table 6.6-2

SITE TYPES BY PROJECT AREAS

SITE TYPES	Number of Sites in Otay Ranch	Percent of Total	Number of Sites In Other Projects*	Percent of Total	Total Number of Sites
Prehistoric Site Types					
Prehistoric Lithic Scatter	144	75.00%	48	25.00%	192
Prehistoric Temporary Camp	27	40.91%	39	59.09%	66
Prehistoric Habitation Site	8	38.10%	13	61.90%	21
Prehistoric Milling Station	15	55.56%	12	44.44%	27
Prehistoric Quarry	14	51.85%	13	48.15%	27
Prehistoric Rock Feature	0	0.00%	1	100.00%	1
Historic Site Types					
Historic Rock Feature	17	89.47%	2	10.53%	19
Historic Refuse	8	61.54%	5	38.46%	13
Standing Historic Complex	3	37.50%	5	62.50%	8
Historic/Archaeological Complex	2	40.00%	3	60.00%	5
Historic Structure	13	68.42%	6	31.58%	19
Historic Features/Refuse	4	100.00%	0	0.00%	4
Multiple Site Types					
Habitation Site / Historic Refuse	0	0.00%	2	100.00%	2
Habitation Site / Historic Structure	1	50.00%	1	50.00%	2
Habitation Site / Historic/Archaeological Complex	0	0.00%	1	100.00%	1
Historic Feature / Quarry	0	0.00%	1	100.00%	1
Historic Features / Lithic Scatter / Quarry	0	0.00%	1	100.00%	1
Historic Refuse / Historic Rock Feature	1	100.00%	0	0.00%	1
Historic Refuse / Historic Structure	1	100.00%	0	0.00%	1
Historic Refuse / Lithic Scatter	2	33.33%	4	66.67%	6
Historic Refuse / Milling Station	1	100.00%	0	0.00%	1
Historic Refuse / Temporary Camp	0	0.00%	2	100.00%	2

Table 6.6-2 (Continued)

SITE TYPES BY PROJECT AREAS

SITE TYPES	Number of Sites in Otay Ranch	Percent of Total	Number of Sites In Other Projects*	Percent of Total	Total Number of Sites
Historic Rock Feature / Lithic Scatter	11	1.00	0	0.00	11
Historic Rock Feature / Lithic Scatter / Milling Station	2	1.00	0	0.00	2
Historic Rock Feature / Lithic Scatter / Temporary Camp	1	1.00	0	0.00	1
Historic Structure / Lithic Scatter	9	1.00	0	0.00	9
Historic Structure / Lithic Scatter / Milling Station	1	1.00	0	0.00	1
Historic Structure / Lithic Scatter / Milling Station / Temporary Camp	1	1.00	0	0.00	1
Historic Structure / Temporary Camp	0	0.00	2	1.00	2
Historic/Archaeological Complex / Lithic Scatter	1	0.50	1	0.50	2
Lithic Scatter / Milling Station	1	1.00	0	0.00	1
Lithic Scatter / Milling Station / Quarry	3	1.00	0	0.00	3
Lithic Scatter / Quarry	1	1.00	0	0.00	1
Milling Station / Quarry	0	0.00	1	1.00	1
Not Relocated or Unknown	0	0.00	14	1.00	14
Totals:	292		177		469
Percent of Totals:		0.62		0.38	

* Sites falling within areas where projects overlap are only counted once, but sites that fall into adjacent projects are counted twice.

6.6.2 Cumulative Impacts with Otay Ranch

The following initial discussion relates to Otay Ranch and the adjacent development projects in general. This discussion is followed by specific analyses of the cumulative effects of the New Town Plan, Phase I-Progress Plan, and Environmental Alternative, when assessed in combination with these other study areas.

A synthesis of the data available from the 469 cultural resource sites in the cumulative effects study area indicates that the most common prehistoric site is a lithic scatter and the second most common is a temporary camp. This overall pattern is consistent with generalized site types throughout inland San Diego County. Conversely, the relatively high incidence of prehistoric quarries in the study area is particular to the region because of the availability of lithic source material. The pattern for site locations in the study area is also consistent with the data for inland San Diego County. Large campsites and the single known village are situated in sheltered valleys and near major water sources. Small camps and subsidiary sites are located in proximity to major camps and villages and served to support the populations of those more extensive settlements. Milling stations and quarry sites are scattered across the landscape coincident with bedrock outcrops and lithic material.

Regarding the cultural and temporal associations of the prehistoric sites, only minimal data are available. Materials associated with Late Period Yuman-speaking people (Kumeyaay-Tipai) are found at several sites throughout the study area especially at habitation sites in the Proctor Valley area, the Singing Hills region, and Rancho San Diego, and at the large village site on the Otay River. While speculative, the Late Period people no doubt made use of the quarry sites as evidenced by the presence of the lithic material in the artifact assemblages at several sites. The Millingstone Horizon (Inland La Jolla Complex/Encinitas Tradition) is noted for several of the sites particularly some of the milling stations and for sites on the upper terraces adjacent to major drainages including sites in the Salt Creek area, Rancho San Diego, and Rancho Del Rey. They too made use of the lithic quarry materials and remnants of this horizon may be buried beneath Late Period sites or in alluvial/colluvial settings. The San Dieguito Complex, known as San Diego's earliest documented prehistoric assemblage, is poorly documented for the region although the southern edge of Otay Mesa and specifically East Otay Mesa may contain such sites.

For the historic period, most of the resources are associated with Anglo-American ranching and farming, although there are several sites and resources from the Mexican era and a small number of Spanish period resources.

Overall, 292 (62 percent) of the cultural resources within the study area are contained within Otay Ranch while 177 (38 percent) of the cultural resources were identified within the other project areas. This indicates that Otay Ranch alone would have a greater impact on cultural resources than all of the other proposed developments within the study area. Otay Ranch covers 23,088 acres, while the combined study area of the adjacent projects, for which site data are currently available, covers 15,389 acres. Together these two areas form a cumulative study area of 38,477 acres. Additional acreage is contained within the cumulative impact area, however no cultural resource inventories were available for those areas. Again, this suggests that the effects of this single project will be comparable to the total of these other projects, and their cumulative effect on the database will be great. Of the environmental impact documents reviewed other than Otay Ranch, it was determined that only approximately 14 percent of the cultural resources were to be preserved, while 86 percent are approved for direct impact by project development and will be removed from the database.

The comparison in Table 6.6-2, by site type, suggests that the site types that will be disproportionately affected by the development of Otay Ranch will be lithic scatters and historic sites such as rock features, historic refuse, and historic structure locations. Other site type categories are in general equally represented on Otay Ranch as they are in all the other study areas. This indicates that the effect of Otay Ranch development on these site types will be roughly equal to the effect of all the other related projects combined. The cumulative effects of both Otay Ranch and the other developments represent a significant numeric loss of cultural resources and a significant loss of site types within the total cultural resource database.

6.6.2.1 Cumulative Impacts with New Town Plan

Table 6.6-3 provides the results of the analysis of sites present on Otay Ranch and within the other project areas, by land use plan and by functional site type categories. It indicates, by these functional types, the numbers of sites that are likely to be subject to direct impacts by the land use proposed for the three Otay Ranch alternatives, as well as for the other plans and projects. The total extent of cultural resources on Otay Ranch is still unknown since only approximately 6,000 acres of the approximately 23,000 acre property has been intensively surveyed.

Examination of Table 6.6-3 indicates that, based on the land use proposed for the New Town Plan, of the 292 sites currently known to be on the Otay Ranch property, 257 are located all or partially within areas to be developed (i.e., within a land use category other than open space, parks, or agriculture). As a result, when compared to the other two development plan alternatives, and to the site total of the other projects, the New Town Plan has the highest incidence of sites subject to direct impacts.

Development of the New Town Plan with the combined total of sites in the other evaluated development projects, would result in the loss of 88 percent of the lithic scatter sites, 92 percent of the temporary camps, 71 percent of the habitation sites, 85 percent of the milling station sites, 81 percent of the prehistoric quarry sites, and 83 percent of the multiple prehistoric type sites currently known to exist in the cumulative impact area. Included among these sites is site CA-SDi-11,376, also known as the McGowan Site, one of only, approximately, 50 large late prehistoric village sites known to exist in the San Diego County area. The New Town Plan is the only project alternative that proposes this site for development. The New Town Plan in combination with the other development projects would also result in the loss of 88 percent of the historic sites and 98 percent of the multi-component sites (historic and prehistoric components).

In addition, of specific historic concern, is the potential impact to one of the few standing, potentially important, historic resources on the property. This site, CA-SDi-11,384H, also known as the Otay Ranch Buildings Complex, is the original headquarters for the Otay Ranch, dating back to before the turn of the century. The site falls within direct impact areas on the other alternatives as well. In summary, development of Otay Ranch with the New Town Plan would result in the loss of approximately 87 percent of the known cultural resource sites in the combined cumulative study area.

6.6.2.2 Cumulative Impacts with Phase I-Progress Plan Alternative

For the Phase I-Progress Plan, examination of Table 6.6-3 indicates that, based on the land use proposed for this alternative, of the 292 sites currently known to be on the Otay Ranch property, 202 are located all or partially within areas to be developed (i.e., within a land use other than open space, parks or agriculture). When compared to the other two

Table 6.6-3

SITES IMPACTED BY OTAY RANCH ALTERNATIVES VERSUS SITES IMPACTED BY OTHER PROJECTS

	OTAY RANCH PROJECT						OTHER PROJECTS		
SITE TYPES	NEW TOWN PLAN	Percent of Total	PHASE-I PLAN	Percent of Total	ENVIRONMENTAL PLAN	Percent of Total	OTHER PLANS*	Percent of Total	Total Number of Sites
Prehistoric Site Types									
Prehistoric Lithic Scatter	125	0.65	106	0.55	54	0.28	43	0.22	192
Prehistoric Temporary Camp	26	0.39	18	0.27	15	0.23	35	0.53	66
Prehistoric Habitation Site	6	0.29	4	0.19	1	0.05	9	0.43	21
Prehistoric Milling Station	13	0.48	11	0.41	5	0.19	10	0.37	27
Prehistoric Quarry	12	0.44	7	0.26	5	0.19	10	0.37	27
Prehistoric Rock Feature	0	0.00	0	0.00	0	0.00	1	1.00	1
Historic Site Types									
Historic Rock Feature	16	0.84	11	0.58	5	0.26	2	0.11	19
Historic Refuse	8	0.62	4	0.31	5	0.38	3	0.23	13
Standing Historic Complex	2	0.25	1	0.13	2	0.25	5	0.63	8
Historic/Archaeological Complex	2	0.40	1	0.20	1	0.20	3	0.60	5
Historic Structure	11	0.58	5	0.26	0	0.00	5	0.26	19
Historic Features/Refuse	2	0.50	1	0.25	0	0.00	0	0.00	4
Multiple Site Types									
Habitation Site / Historic Refuse	0	0.00	0	0.00	0	0.00	2	1.00	2
Habitation Site / Historic Structure	0	0.00	1	0.50	0	0.00	1	0.50	2
Habitation Site / Historic/Archaeological Complex	0	0.00	0	0.00	0	0.00	1	1.00	1
Historic Feature / Quarry	0	0.00	0	0.00	0	0.00	1	1.00	1
Historic Features / Lithic Scatter / Quarry	0	0.00	0	0.00	0	0.00	1	1.00	1
Historic Refuse / Historic Rock Feature	1	1.00	1	1.00	1	1.00	0	0.00	1
Historic Refuse / Historic Structure	1	1.00	0	0.00	0	0.00	0	0.00	1
Historic Refuse / Lithic Scatter	2	0.33	2	0.33	0	0.00	4	0.67	6
Historic Refuse / Milling Station	1	1.00	0	0.00	1	1.00	0	0.00	1
Historic Refuse / Temporary Camp	0	0.00	0	0.00	0	0.00	1	0.50	2

Table 6.6-3 (Continued)

SITES IMPACTED BY OTAY RANCH ALTERNATIVES VERSUS SITES IMPACTED BY OTHER PROJECTS

	OTAY RANCH PROJECT						OTHER PROJECTS		
SITE TYPES	NEW TOWN PLAN	Percent of Total	PHASE-I PLAN	Percent of Total	ENVIRONMENTAL PLAN	Percent of Total	OTHER PLANS*	Percent of Total	Total Number of Sites
Historic Rock Feature / Lithic Scatter	11	1.00	11	1.00	4	0.36	0	0.00	11
Historic Rock Feature / Lithic Scatter / Milling Station	1	0.50	2	1.00	0	0.00	0	0.00	2
Historic Rock Feature / Lithic Scatter / Temporary Camp	1	1.00	1	1.00	0	0.00	0	0.00	1
Historic Structure / Lithic Scatter	9	1.00	8	0.89	0	0.00	0	0.00	9
Historic Structure / Lithic Scatter / Milling Station	1	1.00	1	1.00	1	1.00	0	0.00	1
Historic Structure / Lithic Scatter / Milling Station / Temporary Camp	1	1.00	1	1.00	0	0.00	0	0.00	1
Historic Structure / Temporary Camp	0	0.00	0	0.00	0	0.00	2	1.00	2
Historic/Archaeological Complex / Lithic Scatter	1	0.50	1	0.50	0	0.00	1	0.50	2
Lithic Scatter / Milling Station	1	1.00	1	1.00	1	1.00	0	0.00	1
Lithic Scatter / Milling Station / Quarry	2	0.67	2	0.67	0	0.00	0	0.00	3
Lithic Scatter / Quarry	1	1.00	1	1.00	1	1.00	0	0.00	1
Milling Station / Quarry	0	0.00	0	0.00	0	0.00	1	1.00	1
Not Relocated or Unknown	0	0.00	0	0.00	0	0.00	11	0.79	14
Totals:	257		202		102		152		469
Percent of Totals:		0.55		0.43		0.22		0.32	

* Sites falling within areas where projects overlap are only counted once, but sites that fall into adjacent projects are counted twice.

development plan alternatives, and to the other projects, the Phase I-Progress Plan has the next highest incidence to the New Town Plan of sites subject to direct impacts. The Phase I-Progress Plan and the other development projects, together, would result in the loss of 78 percent of the lithic scatter sites, 67 percent of the temporary camps, 62 percent of the habitation sites, 78 percent of the milling station sites, 63 percent of the prehistoric quarry sites, and 83 percent of the multiple type sites. The Phase I-Progress Plan in combination with the other development projects would also result in the loss of 61 percent of the historic sites and 96 percent of the multi-component sites (historic and prehistoric components). As with the New Town Plan, this alternative would result in direct, and cumulatively significant, impact to the Otay Ranch Buildings Complex site, CA-SDi-11,384H. In summary, development of Otay Ranch with the Phase I-Progress Plan would result in the loss of approximately 75 percent of the known cultural resource sites in the combined cumulative study area.

6.6.2.3 Cumulative Impacts with Environmental Alternative

An examination of Table 6.6-3, for the Environmental Alternative, indicates that of the 292 sites currently known to be on the Otay Ranch property, 102 are located all or partially within proposed development. When combined with the adjacent projects, and compared to the other two development plan alternatives, the Environmental Alternative has the lowest incidence of sites subject to direct impacts. The Environmental Alternative in combination with the other development projects would result in the loss of 51 percent of the lithic scatter sites, 76 percent of the temporary camps, 48 percent of the habitation sites, 56 percent of the milling station sites, 56 percent of the prehistoric quarry sites, and 50 percent of the multiple type sites. It would also result in the loss of 46 percent of the historic sites and 45 percent of the multi-component sites (historic and prehistoric components). Even with these low incidences, this alternative would directly impact the Otay Ranch Buildings Complex, site CA-SDi-11,384H. The effect would contribute to the cumulatively significant loss of resources in the area. In summary, development of Otay Ranch with the Environmental Plan would result in the loss of approximately 54 percent of the known cultural resource sites in the combined cumulative study area.

6.6.3 Mitigation Measures

To mitigate the significant cumulative impacts of such a large-scale project on the regional cultural resource database, several mitigation measures are recommended. A regional preservation plan with specific cultural resource preservation goals shall be established to determine what kind of database the managing agencies desire to retain after the region as a whole has been developed. Addressing preservation on the scale of individual developments has led to a loss of approximately 86 percent of the cultural resources. The Otay Ranch project would accelerate this process, and without framing these impacts within a cumulative plan, project-specific development will continue in a fragmented manner. Once a plan and goals have been established, a specific resource preservation plan that focuses on database diversity in terms of values can be established and implemented specifically for the Otay Ranch project. This plan shall conform to regional preservation goals, establish realistic preservation measures that address secondary impacts and long term preservation and access to the database.

As indicated by this study, the majority of the existing physical archaeological database from developed areas will only remain as the result of testing, indexing, and data recovery samples (i.e., as archaeological collections and associated documentation). As a significant portion of the regional database will be affected by Otay Ranch development, a means to preserve this portion of the archaeological database should be established. At present, regional repositories are beyond capacity due to the density of development and the means

to preserve this database (particularly that of the scale of Otay Ranch) are not present. This cultural material must be preserved in perpetuity to mitigate significant cumulative impacts and should be included as part of the on-going process to establish a county-wide cultural resource repository. To address the significant but mitigable cumulative impacts of Otay Ranch development, cultural material from the project and the region shall be preserved in this regional repository, and funding for its long-term preservation must be secured to ensure this preservation.

6.6.4 Analysis of Significance

The cumulative loss of the cultural resource database increases with the amount of development in the area. As the undeveloped portion of a region (and proportionately the cultural resource database) is reduced, the value of the remaining database increases. As indicated by the cumulative impact analysis, the Otay Ranch would have a significant numeric effect on the regional cultural resource database and its associated value. Approximately 61 percent of the cultural resources within the study area would be affected by the Otay Ranch development alone. The cumulative impact with other project developments has been to reduce the cultural resource database by 86 percent. By greater than doubling the number of cultural resources affected by development, the Otay Ranch project would contribute to a significant decline in the database, while simultaneously affording substantial opportunities to evaluate, study, and better understand that diminishing database. This represents a significant cumulative impact to a rapidly declining database.

6.7 GEOLOGY AND SOILS

The EIRs of related projects surrounding the Otay Ranch project were reviewed to identify and evaluate geologic and soil related impacts including rippability, slope instability, liquefaction potential, landslides, and expansive soils.

6.7.1 Cumulative Impacts of Related Projects

Any geotechnical impacts associated with development on surrounding properties would be site-specific. Geologic and soils impacts would be evaluated on the respective properties on a project-by-project basis. Typical potential impacts in the project area include rippability, slope instability, liquefaction, landslides, and expansive soils. It is anticipated that potentially significant impacts would be mitigated by implementing standard excavation and construction methods.

6.7.2 Cumulative Impacts with Otay Ranch

Potentially significant cumulative impacts would result from construction of the New Town Plan, Phase I-Progress Plan Alternative, and Environmental Alternative in conjunction with the surrounding projects. The proposed developments would result in an increase in population and property that would be exposed to the effects of seismic ground shaking from local active faults, such as the Rose Canyon and Coronado Bank faults. All significant adverse geologic and soil related impacts such as landslides and expansive soils would be evaluated and prevented through appropriate site-specific excavation, construction, and design methods.

6.7.3 Mitigation Measures

Cumulative impacts related to seismic ground shaking will be avoided by designing and constructing proposed projects in accordance with the Uniform Building Code (UBC), state-of-the-art seismic design parameters of the Structural Engineering Association of California (SEAOC), and applicable local building codes as required by local agencies. No additional measures are necessary for seismic effects.

All significant cumulative geologic and soil impacts can be mitigated through appropriate site-specific investigations and implementation of standard construction and design methods as described in Section 3.5.3 of this EIR.

6.7.4 Analysis of Significance

Implementation of the proposed mitigation measures presented in Section 3.5.3 of this EIR would mitigate cumulative impacts of seismic shaking, geologic hazards and soil conditions to below a level of significance for all three project alternatives.

6.8 PALEONTOLOGY

The EIRs of relevant projects surrounding the Otay Ranch project were reviewed to identify and evaluate potential cumulative impacts to highly sensitive paleontological resources. In addition, appropriate maps and reports pertinent to the project area were reviewed.

6.8.1 Cumulative Impacts of Related Projects

Development of the proposed projects surrounding the Otay Ranch site would result in site-specific impacts to paleontological resources. The significance of these impacts would vary depending on the resource sensitivity of the rock formations to be affected by development. In general, paleontological sensitivity is moderate to very high northwest of Otay Lakes where Salt Creek I, Salt Creek Ranch, Rancho San Miguel, and portions of EastLake are proposed. Areas west of the Otay Ranch site which are planned for residential development (i.e., Sunbow II, Rancho Del Rey, Hidden Trails, Robinhood Ridge, and California Terraces) are also generally high in resource sensitivity. Directly north of Otay Ranch, near Bonita, the resources have low sensitivity. Development on the Otay Mesa area, south of Otay Ranch, would only disturb formations of very low sensitivity. Development proposed east of the San Ysidro parcel and northeast of the Proctor Valley parcel would not disturb any paleontological resources. Therefore, potentially significant impacts would occur if proposed surrounding developments are constructed in rock formations of moderate or high paleontological resource sensitivity.

6.8.2 Cumulative Impacts with Otay Ranch

Development of the New Town Plan, Phase I-Progress Plan Alternative, or Environmental Alternative, in conjunction with the surrounding projects would result in an increased probability of disturbance to paleontological resources, thus causing potentially significant cumulative impacts. The positive cumulative effect of development would be the potential discovery of significant fossils which would otherwise go undiscovered and which could contribute important scientific information to southwestern San Diego County natural history.

6.8.3 Mitigation Measures

Cumulative impacts to paleontological resources can be mitigated by implementation of the measures identified in Section 3.6.3 and any site-specific measures identified for surrounding developments.

6.8.4 Analysis of Significance

Implementation of the proposed mitigation measures presented in Section 3.6.3 of this EIR for all developments in the cumulative impact area would mitigate cumulative impacts to below a level of significance.

6.9 AGRICULTURAL RESOURCES

The California Department of Conservation "Important Farmland Map," prepared in July of 1988, and the San Diego County "Agricultural Preserves" map were used to determine the location of agricultural land in the Otay Ranch vicinity. The California Department of Conservation (CDC) has seven mapping categories which include Prime and Statewide Important Farmland, Unique Farmland, Farmland of Local Importance, Grazing Land, Urban and Built-up Land, and Other Land. The CDC's criteria is similar to the SCS's criteria in that both reflect the physical and chemical characteristics of soils. However, the CDC differs on one criteria: Prime and Statewide Farmlands must be irrigated. This means that land meeting the characteristics of Prime and Statewide category which is not irrigated is designated Farmland of Local Importance by CDC.

San Diego County defines its Farmland of Local Importance as land of significant economic importance to the county which has a history of good production for locally adapted crops. Since the CDC maps are updated every 2 years, land in the surrounding project area previously designated as Prime, Statewide or Local Important Farmland may already be developed for urban uses. Therefore, the discussion below includes land which had potentially suitable soils for agricultural use or was used for cultivation of row crops (including cattle grazing activities) but may now be undergoing development.

Surrounding agricultural land uses were also verified through the use of July 1990 aerial photographs, and a review of land use information from available EIR documents for the surrounding projects. A 2,000-scale agricultural map for the project vicinity was prepared using the Important Farmland Map, and the Agricultural Preserve Map. The cumulative project map was then overlaid on the agricultural map to approximate the acreage of surrounding land with Prime, Statewide, and Local Important Farmland soils, as well as land currently used for grazing activities.

6.9.1 Cumulative Impacts of Related Projects

The projects proposed in the vicinity of the Otay Ranch site would result in the conversion of lands designated by the CDC to have soils of Prime, Statewide, and Local Farmland Importance, and the conversion or impairment of land currently used for grazing activities. Table 6.9-1 shows an approximate amount of Prime, Statewide and Important Farmland soils located in each of the surrounding projects. It is estimated that approximately 8,124 acres of land in the project vicinity are used for grazing activities and approximately 7,015 acres of land are overlain with soils designated by the CDC to be suitable for the potential production of coastal-dependent crops. There are approximately 92 acres of Prime Farmland, 422 acres of Statewide and 6,501 acres of Local Important Farmland soils in the surrounding project sites (excluding Otay Ranch).

Table 6.9-1
SUMMARY OF AGRICULTURAL RESOURCES IN CUMULATIVE IMPACT AREA

Project Site	Prime Farmland (acres)	Statewide Important Farmland (acres)	Local Important Farmland (acres)	Grazing (acres)	Total (acres)
Dennery Ranch			75	72	147
Otay Vista		82	50		132
California Terraces				516	516
Hidden Trails				190	190
Robbinhood Ridge			74	206	280
Santee Investments			90	39	129
South Palm				202	202
Otay Corporate Center			121	53	174
Industrial TM's	84	252	503	15	854
Otay Rio Business Park				210	210
Sunbow II			58	529	587
Rancho Del Rey				823	823
Bonita Meadows			93	139	232
Rancho San Miguel			435	2,020	2,455
Salt Creek Ranch			740	460	1,200
Salt Creek I			66	5	71
EastLake			2,473	266	2,739
Hidden Valley				799	799
Las Montañas				324	324
Rancho San Diego	—	—	—	—	—
Subtotal	84	334	4,778	6,868	12,064
The Pointe	—	—	—	—	
Loma del Sol	—	—	—	—	
Singing Hills	—	—	—	—	
Daley Ranch Rock Quarry	—	—	—	248	248
Honey Springs	—	—	—	—	
Clark Ranch	—	—	—	—	
East Otay Mesa Specific Plan	8	88	1,331	687	2,114
Brown Field Expansion	—	—	392	321	713
Total	92	422	6,501	8,124	15,139

Note: (—) indicates no project information available.

Source: Important Farmland Map, July 1989. California Department of Conservation.

In the early 1970s, the Otay Mesa area was one of the three major areas of vegetable production in San Diego County. Major crops grown throughout this area included strawberries, tomatoes, and cucumbers. Due to rising production costs, increasing land taxes and cost of water for irrigation, these agricultural activities have diminished throughout the years. In 1981, most of the land in the Otay Subregional Area was in agricultural production, with approximately 4,000 acres each year planted in row crops (EastLake FEIR 1982).

As shown in Figure 6.2-1, several projects are planned or have been approved for development in the Otay Subregional Area. The total land area involved in the development of surrounding projects (excluding Otay Ranch) would be approximately 30,434 acres which would result in a cumulative loss of approximately 7,015 gross acres of land designated as Prime, Statewide and Local Important Farmland and 8,124 gross acres of grazing land in the project vicinity. As previously mentioned, land designated to have Prime, Statewide, and Local Farmland Importance does not mean it is land currently in agricultural production.

The continued conversion of agricultural lands to urban development in the Otay Subregional Area has diminished the ability to produce and market off-season fresh tomatoes, vegetables, and field grown floral crops, most of which would have state and national importance given an adequate water supply. The project vicinity is within a coastal area climate zone which is one of the few areas in California and the United States where off-season products are grown. Therefore, the cumulative loss of agricultural land is a significant impact of the surrounding projects.

The centrally located EastLake project, East Otay Mesa Specific Plan, and the proposed industrial projects south of the Otay River parcel in the Otay Mesa area would contribute most to the cumulative reduction of agricultural land. Approximately 839 acres of land overlain with Prime, Statewide and Important Farmland soils in the Otay Mesa area, 1,427 acres in the East Otay Mesa Specific Plan, and approximately 2,473 acres in the EastLake project site would be converted to urban uses (refer to Table 6.9-1).

Cumulative development of the project area would result in growth-inducing effects on adjacent agricultural lands some of which are under agricultural preserve contracts. As development in the surrounding area increases, the existing agricultural lands would be subjected to urbanizing pressures such as rising land values, and extension of roads and public services which facilitate development of adjacent undeveloped land to urban uses. Growth-inducing effects further diminish the availability of agricultural land and are considered significant, cumulative impacts of the other projects proposed around the Otay Ranch site.

6.9.2 Cumulative Impacts with Otay Ranch

6.9.2.1 Cumulative Impacts with the New Town Plan

Development of the Otay Ranch site (9,714 acres of suitable agricultural land) under the New Town Plan, in conjunction with proposed and approved projects of the surrounding area (15,139 acres of land designated to have suitable agricultural soils and land used for grazing activities), would lead to the loss or impairment of approximately 24,853 acres of suitable agricultural land. Because of the climate of the coastal San Diego region, the project area represents a unique growing opportunity for the production of coastal-dependent crops. Therefore, development of the New Town Plan and other surrounding projects would represent a loss of land suitable for agricultural uses within the San Diego

County region. Previous conversion of agricultural land to urban uses has resulted in a finite quantity of land remaining in this favorable climatic zone. These irreplaceable tracts of land continue to be proposed for urban development, further limiting the available acreage. While not all of the remaining suitable agricultural land in the county is currently being cultivated, the commitment to urban uses is irreversible, and incremental reductions in the resource combine to create cumulatively significant impacts. The project, under the New Town Plan, would develop or impair substantial acreage of agriculturally suitable land which is considered a significant, cumulative impact. This cumulative impact can be partially mitigated only through retention of agricultural resources onsite.

6.9.2.2 Cumulative Impacts with Phase I-Progress Plan Alternative

Based on the SCS's criteria, the Phase I-Progress Plan Alternative would develop approximately 7,700 acres of Otay Ranch land overlain with Prime, Statewide and Local Important Farmland soils. When combined with the cumulative loss of 7,015 acres of Prime, Statewide and Local Important Farmland and 8,124 acres of grazing land from the surrounding projects, the total loss of 22,839 acres of agricultural land in the Otay Subregion would be significant.

Although development of the site under the Phase I-Progress Plan Alternative would preserve more land with suitable agricultural soils, no agricultural activity would occur in these open space areas. Development of the Phase I-Progress Plan Alternative would also contribute to cumulative growth-inducing impacts on adjacent agricultural land. The ultimate conversion and permanent loss of agricultural land would occur under the Phase I-Progress Plan Alternative resulting in a significant cumulative impact.

6.9.2.3 Cumulative Impacts with Environmental Alternative

Under the Environmental Alternative, approximately 4,200 gross acres of Prime, Statewide, and Local Important Farmland would be lost. The cumulative loss of potential agricultural land resulting from the development of Otay Ranch under the Environmental Alternative and the surrounding projects (15,139 gross acres) would be approximately 19,339 gross acres. Less agricultural land (5,500 acres) in the Otay Ranch site would be developed under this alternative, thereby reducing the Otay Ranch project's cumulative effect on the loss of agricultural land. Additionally, long-term agricultural uses such as cattle grazing may be precluded along the open space areas in the Proctor Valley and San Ysidro parcels since mitigation to restore agricultural land for biological habitat is being recommended in Section 4.7.4-1 (Biological Resources for the Environmental Alternative. Existing agricultural uses in the Otay River Valley will also be removed. ~~are planned to occur along the natural open space areas in the Proctor Valley and San Ysidro parcels retained by the alternative. However, existing agricultural uses in the Otay River Valley would still be removed.~~ Impairment of agricultural activity, as well as the incremental loss of land suitable for agriculture, combine with the other surrounding projects to create cumulative significant impacts.

6.9.3 Mitigation Measures

Partial mitigation of the cumulative impacts of the New Town Plan, Phase I-Progress Plan Alternative, and the Environmental Alternative to agricultural land can be achieved by retaining the Otay Ranch land in agricultural use. Partial mitigation is available by allowing interim agricultural uses to occur on areas of the property not phased for development. Once development occurs, the agricultural resources would be permanently lost. The mitigation measures discussed in Sections 3.7, 4.2.8, and 4.7.8 for the three alternatives would reduce, although not mitigate, cumulative effects of the Otay Ranch project. The

Environmental Alternative would have less agricultural impacts since it has the potential to maintain large open space areas in long-term agricultural uses (i.e., grazing activities).

6.9.4 Analysis of Significance

Cumulative development in the Otay Ranch project vicinity would result in the permanent loss or impairment of agricultural land suitable for the potential production of coastal dependent crops. The mitigation measures prescribed for the three Otay Ranch alternatives would reduce, but not eliminate, the project's cumulative effects on the loss of agricultural land. The permanent loss and impairment of agricultural land would result in a significant and unavoidable impact from development of the surrounding projects, with or without the Otay Ranch project.

6.10 MINERAL RESOURCES

The EIRs of relevant projects surrounding the Otay Ranch project were reviewed to identify and evaluate potential cumulative impacts to mineral resources. In addition, the map produced in conjunction with the Surface Mining and Reclamation Act (SMARA), which identifies potentially significant mineral resource zones, was reviewed. A cumulative impact analysis was performed based on an overlay of the SMARA map over the cumulative project area to approximate the acreages of significant mineral resource zones.

6.10.1 Cumulative Impacts of Related Projects

The mineral resource evaluation indicated that the proposed projects surrounding Otay Ranch are not underlain by significant aggregate mineral resources, as presently defined by available data. However, the related developments would preclude the extraction of mineral resources such as bentonite clay in areas east and south of Lower Otay Lake and crushed rock in areas north and east of Lower Otay Lake. These areas are beyond the limits of the Otay Ranch project and are not currently defined as significant mineral resource areas. Therefore, until resource significance is established for these properties, it is possible that the proposed projects and potential land use conflicts would result in potentially significant cumulative loss of mineral resources.

6.10.2 Cumulative Impacts with Otay Ranch

An adequate supply of quality aggregate materials is a factor in the vitality of the region's economy; therefore, any loss of identified significant resources through land use conflict, destruction of resources, or preclusion of extraction is considered a potentially significant cumulative impact.

It has been determined that development associated with the New Town Plan, in conjunction with the surrounding projects, would not lead to potentially significant cumulative loss of aggregate mineral resources as discussed in Section 3.8. In addition to the impacts described above for the surrounding properties, the New Town Plan, Phase I-Progress Plan Alternative, and Environmental Alternative would involve the development of approximately 29 acres of land underlain by significant mineral resources in the Rock Mountain area. The proposed development would preclude the extraction of these mineral resources, which would result in potential significant cumulative impacts . The regional importance of onsite bentonite is not considered to be significant based on available information (see Section 3.8, New Town Plan), therefore, its loss is not a significant cumulative impact.

6.10.3 Mitigation Measures

Unmitigable cumulative impacts would occur where incompatible land uses are developed on or surrounding significant resources precluding their extraction. Project phasing shall allow for mineral extraction before conflicting development occurs. Compatible land uses (i.e., agriculture) shall be developed in areas where mineral extraction would likely occur.

6.10.4 Analysis of Significance

The phasing of development of the San Ysidro and Proctor Valley parcels to allow for the extraction of mineral resources before construction would effectively mitigate impacts to mineral resources. However, should this not be feasible, the cumulative impact to mineral resources would be significant and unmitigable. Actions that preclude the extraction of significant mineral resources would result in unmitigable adverse cumulative impacts.

6.11 WATER RESOURCES AND WATER QUALITY

The EIRs for proposed projects surrounding the Otay Ranch project were reviewed to identify and evaluate potential cumulative imports to water resources and water quality. In addition, appropriate maps delineating the San Diego drainage basins and watersheds were reviewed relative to the proposed surroundings and Otay Ranch developments to evaluate potential cumulative impacts to water quality and water resources. This analysis is also based on a drainage study conducted by Church Engineering for Otay Ranch (1991).

6.11.1 Cumulative Impacts of Related Projects

Construction of the approved and proposed projects surrounding Otay Ranch would contribute to an overall increase in impervious surfaces which would result in a decrease in percolation rates and an increase in overland flow or runoff. Changes in surface drainage patterns would also occur as the natural terrain is altered during construction and development. Degradation of surface and ground-water quality is additionally anticipated due to the increase in contaminated urban runoff. Although project construction would include the installation of storm drain systems and mechanisms for limiting sedimentation and runoff, it is anticipated that the potential cumulative impacts to water quality and water resources in the Otay River, Poggi Canyon, and Telegraph Canyon drainage basins, as well as local reservoirs, would be significant.

6.11.2 Cumulative Impacts with Otay Ranch

Significant potential cumulative impacts to water resources and water quality would result from construction of the Otay Ranch development in conjunction with the other projects. In terms of water resources each of the residential and commercial developments would involve the creation of impervious surfaces which would reduce the available surface area for infiltration; resulting in a subsequent reduction in potential ground-water basin recharge and an increase in runoff. In terms of water quality, the increase in runoff due to construction would result in an impact to surface water quality (contaminated urban runoff); particularly in the Otay River, Poggi Canyon, and Telegraph Canyon drainage basins, as well as local reservoirs. Ground-water quality is currently variable in the Otay Ranch area; thus, project impacts would be considered cumulatively adverse, yet not significant.

6.11.2.1 Cumulative Impacts with New Town Plan

The development of the New Town Plan in conjunction with the surrounding projects would result in potential significant cumulative impacts to water resources and water

quality. In addition to the potential cumulative impacts from surrounding projects, the New Town Plan would contribute to a degradation of water quality and a reduction in ground-water basin recharge.

The New Town Plan consists of 15,553 developed acres. The area of concern for cumulative impacts includes the Otay River, Poggi Canyon, and Telegraph Canyon basins which are composed of 82,182 acres. The New Town Plan would increase the impervious surface area of the cumulative area of concern by 15 percent. In order to conduct a conservative analysis, it was assumed that 15 percent less recharge would occur. In addition, urban pollutants in the surface water would increase by approximately 15 percent.

The surface water discharge would increase in the cumulative impact area. Church Engineering (1991) developed a basin hydrology study which modeled 100-year peak discharge flows in the three basins of the cumulative impact area. The study modeled existing conditions and New Town Plan conditions (Table 6.11-1).

Because much of the area is composed of clayey, steep slopes, the difference in runoff between existing land uses and proposed development is expected to be relatively low. However, this is based on an assumption that the channels would remain natural. The addition of pipe and lined channels would increase the peak runoff which could cause significant impacts. Note that the peak discharge at the lower end of Otay River is less under New Town Plan development. This decrease in peak discharge is caused by development changing the velocity of the runoff. The developed areas would peak at different times, thus causing the additive peak discharge on Otay River to be less. The total volume of surface water discharge increases with development; however peak discharge is dependent upon a complex relationship between soil type, slope, development footprint, and hydrograph routing. In summary, development would likely cause a smaller peak discharge, although flows would occur over a longer period of time.

6.11.2.2 Cumulative Impacts with Phase I-Progress Plan Alternative

The development of the Phase I-Progress Plan Alternative in conjunction with the surrounding projects would result in potential significant cumulative impacts to water resources and water quality. In addition to the potential cumulative impacts from surrounding projects, the Phase I-Progress Plan Alternative would contribute to a degradation of water quality and a reduction in ground-water basin recharge.

The Phase I-Progress Plan Alternative consists of 12,053 developed areas. The area of concern for the cumulative water impacts includes the Otay River, Poggi Canyon, and Telegraph Canyon basins and is composed of 82,182 acres. The Phase I-Progress Plan would increase the impervious surface area of the cumulative impact area by 12 percent; for the purpose of a very conservative analysis, it was assumed that approximately 12 percent less recharge would occur. In addition, urban pollutants in the surface water would increase in relationship to the 12 percent increase of impervious surface.

The total volume of discharge with the Phase I-Progress Plan Alternative would be more than for the existing undeveloped conditions but less than the New Town Plan. However, the peak discharge is difficult to predict without modeling. Based on the Church (1991) study and depending on the interaction of soil type, slope, development footprint and hydrograph routing, the peak discharge for the Phase I-Progress Plan Alternative may be more or less than under existing conditions.

Table 6.11-1

PEAK DISCHARGE IN CUMULATIVE IMPACT AREA

Basin	Peak Discharge (cubic feet/second)	
	Existing Conditions	New Town Plan
Otay River	38,553	34,863
Poggi Canyon	882	1,796
Telegraph Canyon	2,186	2,347

Source: Church Engineering, Inc., 1991; VTN Southwest, Inc. 1990.

6.11.2.3 Cumulative Impacts with Environmental Alternative

The development of the Environmental Alternative in conjunction with the surrounding projects would result in potential significant cumulative impacts to water resources and water quality. In addition to the potential cumulative impacts from surrounding projects, the Environmental Alternative would contribute to a degradation of water quality and a reduction in ground-water basin recharge.

The Environmental Alternative consists of 6,109 acres of developed area. This alternative would increase the impervious surface by 7 percent, and it was conservatively assumed that approximately 7 percent less recharge would occur in the cumulative impact area due to this alternative. In addition, urban pollutants in the surface water would increase in relationship to the 7 percent increase of impervious surface.

The Church Engineering (1991) study did not model the Environmental Alternative. The total volume of surface water discharge with the Environmental Alternative would be more than the existing conditions but less than the Phase I-Progress Plan Alternative. However, the peak discharge is difficult to predict without modeling. Based on the Church (1991) study and depending on the interaction of soil type, slope, development footprint, and hydrograph routing, the peak discharge for the Environmental Alternative may be slightly less or the same as under the existing conditions.

6.11.3 Mitigation Measures

Additional surface water modeling is necessary upon preparation of a final design plan at the SPA level. This modeling shall indicate:

- location and number of detention basins to control the peak discharge at an acceptable level;
- peak discharge values at specific locations important to the the structural design of bridges etc.; and
- total volume of surface water discharge during a design storm.

6.11.4 Analysis of Significance

It is anticipated that measures identified from additional surface water modeling to be incorporated into the project final design plans, would reduce potential cumulative impacts to a level below significance.

6.12 TRANSPORTATION, CIRCULATION, AND ACCESS

6.12.1 Cumulative Impacts of Related Projects

Development of all approved or proposed projects in the cumulative impact area would contribute to an overall increase in traffic volumes on the existing and future roadway network in the City of Chula Vista, City of San Diego, and San Diego County areas. It is anticipated that offsite projects would generate 2,740,848 trips upon buildout of the Chula Vista General Plan, City of San Diego Otay Mesa Community Plan, and County of San Diego General Plan (Table 4.8.11-1). This estimate includes all projects proposed or approved for the cumulative impact area and the remaining buildout of offsite areas. Both short-term impacts on existing facilities and long-term impacts on expanded facilities are anticipated under buildout conditions. Impacts on circulation and access would be considered significant due to the degraded traffic conditions associated with regional development.

6.12.2 Cumulative Impacts with Otay Ranch

The New Town Plan would contribute 901,025 ADT, the Phase I-Progress Plan Alternative would generate 736,883 ADT, and the Environmental Alternative would produce 316,725 new trips. The Otay Ranch traffic volumes, considered in conjunction with traffic from surrounding projects, would result in cumulatively significant transportation impacts on short-term and long-term traffic operations under all three alternatives. The combined traffic volumes (onsite and offsite trips) would range from 3,641,873 ADT (New Town Plan) to a low of 3,057,573 trips (Environmental Alternative) under these alternatives. Because the impacts of Otay Ranch evaluated in the EIR are based on regional buildout traffic forecasts, the impacts discussed in Sections 3.10-2, 4.2-11 and 4.7-11 represent the cumulative traffic impacts of all three alternatives. No other significant cumulative traffic or circulation impacts would occur as a result of buildout.

6.12.3 Mitigation Measures

Each of the projects in the region will be required to construct appropriate improvements and contribute their proportionate share toward the construction of regional facilities. It should be noted that this is currently not the policy of the City of San Diego with regard to projects in Otay Mesa, the result being that cumulative impacts of development on traffic are not being fully mitigated.

6.12.4 Analysis of Significance

The implementation of project-specific and regional measures would partially mitigate traffic impacts; however, cumulative traffic impacts would remain significant.

6.13 AIR QUALITY

6.13.1 Cumulative Impacts of Related Projects

Construction, vehicular, and stationary source emissions from the projects contained within the cumulative impact area for Otay Ranch would incrementally contribute to the San Diego air basin's inability to attain federal and state air quality standards for O_3. Each project would also contribute additional SO_x, PM_{10}, and CO to the airshed. The magnitude of emissions associated with projects north and northeast of Otay Ranch was not anticipated in the State Implementation Plan (SIP) revisions since the proposed development is higher in intensity than that planned under County Regional Land Use Plan and Subregional Plans. Emissions from the Otay Mesa region are less of an impact on regional air quality since the industrial and residential components of that community are generally consistent with the Otay Mesa Community Plan. Despite the implementation of trip reduction and conservation measures, significant impacts on local and regional air quality conditions are likely to occur, as all incremental additions of pollutants affect the region's ability to achieve compliance with state and federal standards.

6.13.2 Cumulative Impacts with Otay Ranch

Regional air pollutant emissions were estimated in the RAQS (SDAPCD 1991) for the years 1994, 1997, 2000, and 2010. In order to estimate emissions for the year 2020 for this analysis, the same rate of change between years 2000 and 2010 was assumed to occur between years 2010 and 2020. Assuming that the various control strategies identified in the RAQS (including revisions to the new source review program) are successfully implemented, the pollutant emission rate in the county is expected to be 52,578.3 tons/year

for ROG, 44,906.0 tons/year for NO_x; and 194,486.6 tons/year for CO. These figures also assume that population growth in the county does not exceed the assumptions contained in the SANDAG Series 7 growth forecast. However, it should be pointed out that Series 7 projected a population of 2,585,134 for the county in 1995, while the latest estimate of the population at the end of 1991 is already 2,548,733.

The Series 7 growth projection was based on the 1986 general plans for the county. The discrepancy between the Series 7 forecast and current growth levels in the county shows that growth in the county is inconsistent with the RAQS. Unless a major decrease in the growth rate is experienced before 2020, it is reasonable to assume that the population density in 2020 will also exceed the assumptions in the RAQS. Therefore, significant cumulative impacts are expected to result from construction of the Otay Ranch development, in conjunction with the other projects mentioned above, as all of these projects (along with others in the county) would generate stationary and vehicular emissions that would aggravate the San Diego Air Basin's current inability to attain state and federal air quality standards.

In order to determine what portion of regional emissions would be attributed to the Otay Ranch project, the URBEMIS3 model was run for the year 2020 (Appendix C), assuming buildout of the project under the New Town Plan, the Phase I-Progress Plan Alternative, and the Environmental Alternative. The percentage increase in emissions due to stationary sources and power plants was calculated, and this amount was added to the predicted annual emissions for mobile sources modeled by URBEMIS. The same calculations were also performed for the Existing General Plans Alternative, as this alternative most closely approximates the emissions assumption for the area that would be contained in the RAQS. (Because the Chula Vista general plan used in the RAQS assumed a lower density than the existing general plan, calculations for the Existing General Plans Alternative will be slightly higher than those assumptions in the RAQS.) Table 6.13-1 displays the percentage of regional emissions in the year 2020 represented by each of the four alternatives. Because the analyses contained in the RAQS were conducted with different techniques than the URBEMIS model used in this analysis, the percentages contained in the table should be viewed in a comparative, rather than absolute, sense.

Table 6.13-1

PERCENTAGE OF REGIONAL AIR QUALITY EMISSIONS (Year 2020)

	ROG	CO	NO_x
Composite General Plans Alternative	1.11	3.73	2.15
New Town Plan	3.51	11.64	6.94
Phase I-Progress Plan Alternative	2.56	8.40	5.13
Environmental Alternative	0.65	2.18	1.29

Although the proposed project represents a relatively small change in the regional air pollutant background, the cumulative effect of development projects in the region is one which contributes significantly to the degradation of the county's air quality.

6.13.3 Mitigation Measures

The cumulatively significant degradation of regional air quality is only partially mitigable by implementing public transit and trip reduction programs onsite and by requiring housing and building designs that minimize air pollutant emissions. Such project-specific and regional measures are discussed in Section 3.11.3 and are applicable to all three project alternatives.

6.13.4 Analysis of Significance

Cumulative significant impacts due to increases in mobile and stationary emissions are only partially mitigable; therefore, impacts would be reduced but remain cumulatively significant despite emissions reductions.

6.14 NOISE

The project-specific noise impact analysis for Otay Ranch accounts for cumulative buildout traffic volumes. Therefore, the following discussion is a summary of the analyses contained in Sections 3.12, 4.2.13 and 4.7.13 conducted for the New Town Plan, Phase I-Progress Plan Alternative, and Environmental Alternatives.

6.14.1 Cumulative Impacts of Related Projects

The primary noise sources associated with related projects are vehicular traffic and industrial noise generated in the project area. Increases in traffic volumes along roadway corridors may expose future nearby residents to significant noise levels. Specific noise impacts from industrial operations of related projects would be expected to comply with applicable noise ordinances and policies. However, a site-specific noise study will be required during SPA review to assess the noise level and required mitigation.

6.14.2 Cumulative Impacts with Otay Ranch

Existing and future roadways bordering and traversing Otay Ranch would generate increased noise levels of varying degree. Those noise levels may cause future residents and sensitive land uses to be exposed to noise levels exceeding local noise standards. Vehicular noise impacts are directly related to traffic volumes. Consequently, future vehicular noise impacts due to Otay Ranch and the surrounding projects identified in this EIR are based on the regional buildout traffic forecast and, therefore, represent cumulative traffic-related noise impacts. No other significant cumulative noise impacts are expected.

6.14.3 Mitigation Measures

Despite implementation of recommended noise attenuation techniques, such as construction of walls and/or earthen berms between sensitive uses and significant noise sources, and completion of future acoustical studies for residences exposed to exterior noise levels greater than 60 CNEL identified in Section 3.12.3, cumulative noise impacts potentially unmitigable for all these alternatives.

6.14.4 Analysis of Significance

Future cumulative noise levels may exceed applicable noise standards and result in a significant impact. A site-specific noise analysis will be required during the SPA review to determine the required mitigation. Noise impacts are potentially unmitigable.

6.15 PUBLIC SERVICES

The following cumulative impact analysis is based on the same demand/generation criteria utilized in Section 3.13. As discussed for the New Town Plan, the Facility Implementation Plans which were prepared for this project were utilized for the analysis that follows. The dwelling unit and population assumptions for the cumulative impact analysis are outlined below:

	Dwelling Units	+	Cumulative Area Dwelling Units	=	Total Cumulative Units
New Town Plan	50,733	+	40,846	=	91,619
Phase I-Progress Plan	29,773	+	40,846	=	70,619
Environmental Alternative	9,251	+	40,846	=	50,097

	Population	+	Cumulative Area Population	=	Total Cumulative Population
New Town Plan	149,810	+	120,904	=	270,714
Phase I-Progress Plan	86,456	+	120,904	=	207,360
Environmental Alternative	28,863	+	120,904	=	149,767

6.15.1 Water Availability and Demand

6.15.1.1 Cumulative Impacts of Related Projects

Based on the same demand rates used in Section 3.13.1, proposed and approved projects within the cumulative impact area would result in the demand for an estimated additional 37 million gallons per day (mgd) of water. This increased demand would further impact future regional water availability and supplies.

6.15.1.2 Cumulative Impacts with New Town Plan

The additional 37 mgd of water required to serve the proposed and approved projects within the cumulative impact area plus the estimated 40.2 mgd (or an additional 52 percent increase in demand) required to serve Otay Ranch would result in the demand for an additional 77.2 mgd of water. Irrespective of ongoing development, water supply in southern California, as a whole, fluctuates with precipitation and climatic conditions (e.g., drought). Although local water purveyors have indicated they will provide water to the area as necessary, the significant cumulative impacts to supply associated with ongoing development on a regional scale are unavoidable. Implementation of water conservation measures described in Section 3.13.1 and the use of reclaimed water would assist in reducing the cumulative demand on the Otay Ranch property, although not to below a level of significance.

6.15.1.3 Cumulative Impacts with Phase I-Progress Plan Alternative

Implementation of the Phase I-Progress Plan would result in the demand for 22.6 mgd of water. This demand, plus the estimated 37 mgd of water required to serve the proposed and approved projects within the cumulative impact area, would result in a cumulative demand of 59.6 mgd of water, and a potentially significant cumulative impact on water availability.

6.15.1.4 Cumulative Impacts with Environmental Alternative

The 8.6 mgd of water required for the Environmental Alternative plus the 37 mgd of water generated by projects within the cumulative impact area would result in a total cumulative demand of 45.6 mgd of water. This total increase in water demand would represent a potentially significant cumulative impact.

6.15.1.5 Mitigation Measures

Mitigation measures for all three alternatives shall include the preparation of water facilities studies and financing plans to identify specific impacts on the water supply system to determine the significance of those impacts on water facilities, and to identify measures that would reduce or eliminate the effects. These studies and plans will include an analysis of the cumulative water demand as a result of existing, proposed, and approved projects within each serve zone. Each developer shall be required to construct project-specific improvements and to construct, or contribute toward the cost of constructing, any regional facilities required by the study with respect to the cumulative water demand as a result of new development.

Implementation of the above-described measures shall ensure that potentially significant cumulative impacts to water availability and demand are mitigated to below a level of significance through the implementation of site-specific improvements as identified by future studies.

6.15.2 Wastewater and Sewer Service

6.15.2.1 Cumulative Impacts of Related Projects

It is estimated that the proposed and approved projects within the cumulative impact area would generate an additional 18.8 mgd of sewage flow. Applicants for those projects would be responsible for installing appropriately-sized wastewater and sewer improvements, as required by the local sewer agencies, on their respective sites . Therefore, development of those projects would lessen the availability of wastewater and sewer transmission capacities in the project area and increase demands on regional treatment facilities. Although regional transmission and treatment facilities are not currently at capacity some facilities will exceed capacity as a result of these developments. ~~and long-term facility expansions are planned.~~ At this time, the impact of approved and proposed projects is considered ~~potentially~~ cumulatively significant.

6.15.2.2 Cumulative Impacts with New Town Plan

The additional 18.8 mgd of sewage flow generated by projects within the cumulative impact area plus the estimated flow of 16.8 mgd generated by Otay Ranch would result in a cumulative flow of 35.6 mgd. This combined effect of Otay Ranch and surrounding developments would require ~~serve to lessen the surplus wastewater transmission capacity, although long-term~~ additional wastewater transmission and treatment ~~capacity are expected~~

~~to become available after improvements are made in the San Diego County system as a whole. Without these system improvements,~~ facilities to handle cumulative flows. The cumulative impact of New Town Plan would be considered significant.

6.15.2.3 Cumulative Impacts with Phase I-Progress Plan Alternative

Implementation of the Phase I-Progress Plan would result in a sewage flow generation of 10.69 mgd. This project-generated flow plus the estimated 18.8 mgd of sewage flow generated by projects within the cumulative impact area would result in a total cumulative flow of 29.49 mgd. Impacts of this alternative would be cumulatively significant similar those of the New Town Plan if sewage system for the region is not upgraded.

6.15.2.4 Cumulative Impacts with Environmental Alternative

The 4.4 mgd of sewage generated by the Environmental Alternative plus the 18.8 mgd generated by projects within the cumulative impact area would result in a total cumulative flow of 23.2 mgd. Although the total flow would be reduced under this scenario, impacts with respect to the transmission and treatment would still occur, resulting in potentially significant cumulative impacts to the region's sewage system.

6.15.2.5 Mitigation Measures

Mitigation measures for all three alternatives shall include preparation of sewer basin studies and financing plans in order to identify specific impacts, to determine the significance of the effect, and to identify measures that would reduce or eliminate the effect upon the sewerage system. These studies and plans will include an analysis of the cumulative sewage flow to be generated by existing, proposed, and approved projects within each basin. Each developer shall be required to construct project-specific improvements and to construct, or contribute toward the cost of constructing, any regional facilities required by the study for wastewater conveyance, treatment, and disposal in proportion to the flows contributed by each development with respect to the cumulative flows from the new developments. Construction of additional wastewater facilities would mitigate the cumulative effects of Otay Ranch to below a level of significance.

Implementation of the above-described measures shall ensure that adequate measures are identified during site-specific analyses that will mitigate potentially significant cumulative impacts with respect to wastewater and sewer service to below a level of significance.

6.15.3 Integrated Waste Management

6.15.3.1 Cumulative Impacts of Related Projects

It is estimated that the proposed and approved projects within the cumulative impact area would generate approximately 157,175 tons per year (tpy) of solid waste. This additional tonnage would contribute to the existing waste stream in the southern San Diego County region and decrease the projected lifespan of landfills servicing the area. The county's recent efforts toward landfill expansion or siting of additional facilities would mitigate cumulative impacts in the long term, however until that time impacts to solid waste facilities would be considered adverse, and cumulatively significant.

6.15.3.2 Cumulative Impacts with New Town Plan

The 157,175 tpy of solid waste generated by projects within the cumulative impact area plus the 191,307 tpy generated by Otay Ranch would result in a cumulative solid waste

generation of 348,482 tpy. Solid waste from Otay Ranch, in conjunction with solid waste generated by surrounding projects, would result in a cumulative impact on regional waste stream and landfill facilities. As noted above, the county's recent efforts to increase landfill capacities through expansion or new sites will serve to accommodate regional growth and increased disposal needs, however the cumulative short-term potential impacts on solid waste facilities would be considered adverse, and cumulatively significant.

6.15.3.3 Cumulative Impacts with Phase I-Progress Plan Alternative

Implementation of the Phase I-Progress Plan Alternative would result in a solid waste generation of 113,150 tpy. This project generated solid waste plus the 157,175 tpy of solid waste generated by projects within the cumulative impact area would result in a total cumulative solid waste generation of 270,325 tpy. As with the New Town Plan, the potential effect of this additional solid waste would be considered cumulatively significant in the short-term until increased landfill capacity is secured.

6.15.3.4 Cumulative Impacts with Environmental Alternative

The Environmental Alternative would generate 37,595 tpy of solid waste. This solid waste generation plus the 157,175 tpy generated by the projects within the cumulative impact area would result in a total cumulative solid waste generation at 194,770 tpy. Although to a lesser extent than the two other alternatives, potentially significant cumulative impacts would still occur in the short-term until additional solid waste capacity is secured.

6.15.3.5 Mitigation Measures

Mitigation measures for all three alternatives shall include the preparation of solid waste facilities studies and financing plans to identify specific impacts, to determine the significance of the effect, and to identify measures that would reduce or eliminate the effect on the integrated waste management system, such as recycling facilities and landfill capacity. These studies will include an analysis of the cumulative solid waste generation as a result of existing, proposed and approved projects. Each developer shall be required to construct project-specific improvements and contribute towards the cost of constructing, any regional facilities required by the study with respect to the cumulative solid waste generation as a result of new development.

Implementation of the above described measures shall ensure that adequate measures are identified during site-specific analyses that will mitigate potentially significant cumulative impacts with respect to solid waste management and disposal to below a level of significance.

6.15.4 Police Protection, Fire Protection, and Emergency Medical Services

6.15.4.1 Cumulative Impacts of Related Projects

It is estimated that the proposed and approved projects within the cumulative impact area would result in a population increase of 120,904 people. This population increase would result in a cumulative impact on police protection, fire protection, and emergency medical services. Each of the individual projects would mitigate for their respective impacts on these facilities, as defined through the environmental documentation process and facility expansions would keep up with service needs. However until further environmental review identifies that these impacts would be mitigated on a project-specific basis, cumulative impacts would be considered significant.

6.15.4.2 Cumulative Impacts with New Town Plan

A population of 120,904 generated by proposed and approved project plus population of 149,810 generated by Otay Ranch would result in a total population of 270,714. This overall population growth would significantly increase demands on police protection, fire protection, and emergency medical services in the project area. A substantial amount of staffing and new facilities would be required to adequately accommodate the population increase expected in the area. Impacts are considered cumulatively significant.

6.15.4.3 Cumulative Impacts with Phase I-Progress Plan

The Phase I-Progress Plan would result in a total cumulative population of 207,360. This overall population growth would significantly increase demands on police protection, fire protection, and emergency medical services in the project area. As discussed under the New Town Plan, a substantial amount of staffing and additional facilities would be required to accommodate the population increase expected in the area. Although impacts related to these services would be mitigated on a project-by-project basis, cumulative impacts with respect to police protection, fire protection, and emergency services would be considered significant.

6.15.4.4 Cumulative Impacts with Environmental Alternative

Implementation of the Environmental Alternative would result in a total cumulative population of 149,767. Although the population would be greatly reduced under this scenario, the cumulative demand on police protection, fire protection, and emergency service due to the addition of 149,767 new residents is considered to be significant.

6.15.4.5 Mitigation Measures

Mitigation measures for all three alternatives shall include the preparation of police protection, fire protection, and emergency service facilities studies and financing plans to identify specific impacts, to determine the significance of the effect, and to identify measures that would reduce or eliminate the effect on police protection, fire protection, and emergency services. These studies will include an analysis of the cumulative demand for these services as a result of existing, proposed and approved projects. Each developer shall be required to construct project specific improvements and to construct, or contribute towards the cost of constructing, any regional facilities required by the study with respect to the cumulative demand for police protection, fire protection, and emergency service as a result of new development.

Implementation of the above-described measures shall ensure that adequate measures are identified during site-specific analyses that will mitigate potentially significant cumulative impacts on police and fire protection, and emergency medical services to below a level of significance.

6.15.5 Schools

6.15.5.1 Cumulative Impacts of Related Projects

Based on the proposed and approved project dwelling units of 40,846 and an average student generation rate of 0.454, approximately 18,544 additional students would be generated by projects within the cumulative impact area. New schools will have to be constructed to accommodate the increase in students due to local projects. In some cases, such as Rancho San Miguel, Sunbow, EastLake, and Hidden Trails, among others, land is

being dedicated for new schools. However, financing for new schools must be secured through development fees, state funds, and Mello-Roos assessment districts far enough in advance so that schools are ready for operation when the various projects are completed and occupied; otherwise, significant short-term impacts would occur on the existing school system.

6.15.5.2 Cumulative Impacts with New Town Plan

The additional students generated by proposed and approved projects plus the additional students generated by Otay Ranch would result in the addition of 49,729 students to area school districts. This is considered a significant cumulative impact on local school facilities. Through the environmental documentation process, fees will be identified in proportion to each project's contribution to the impact; however, the magnitude of impact is much greater with Otay Ranch's needs taken into consideration. In addition to providing land necessary for the construction of new schools, the financing to enable school construction must be provided in a timely manner to ensure that cumulatively significant impacts are avoided in both the short and long term. Provision of land and financing mechanisms (as provided in the Implementation Plan) would mitigate Otay Ranch's cumulative impact on schools to below a level of significance.

6.15.5.3 Cumulative Impacts with Phase I-Progress Plan Alternative

The 18,576 students generated under the Phase I-Progress Plan, plus the 18,544 students generated by projects within the cumulative impact area, would result in a total of 37,120 new students. This represents a potentially significant cumulative impact on area schools.

6.15.5.4 Cumulative Impacts with Environmental Alternative

The Environmental Alternative student generation of 5,751, plus the 18,544 students generated as a result of the proposed and approved projects, would add a total of 24,295 students to area school districts. Although the number of students generated under this scenario would be greatly reduced, the potential impact an additional 24,295 students would have on area school districts is still considered to be cumulatively significant.

6.15.5.5 Mitigation Measures

Mitigation measures for all three alternatives shall include the preparation of school facilities studies and financing plans to identify specific impacts, to determine the significance of the effect, and to identify measures that would reduce or eliminate the effect on schools. These studies will include an analysis of the cumulative demand for school facilities as a result of existing, proposed and approved projects. Each developer shall be required to construct project specific improvements and to construct, or contribute towards the cost of constructing, any regional facilities required by the study with respect to the cumulative demand for school facilities as a result of new development.

Implementation of the above-described measures shall ensure that adequate measures are identified during site-specific analyses that will mitigate potentially significant cumulative impacts with respect to schools to below a level of significance.

6.15.6 Library Service

6.15.6.1 Cumulative Impacts of Related Projects

Proposed and approved projects within the cumulative impact area would result in a population increase of 120,904. Based on the library service requirements outlined in Section 3.13.8, an additional 60,452 square feet of library space and 362,712 books would be required to serve these projects. The increased demand for library services in the cumulative impact area may result in potentially significant short-term cumulative impacts on existing facilities. Although additional library space and services are anticipated in the future and each project would contribute its proportionate share of the costs associated with their construction and operation, potentially significant adverse long-term cumulative impacts on library facilities would occur if facilities are not available concurrent with need.

6.15.6.2 Cumulative Impacts with New Town Plan

Proposed and approved project generated population of 120,904 plus Otay Ranch generated population of 149,810 would result in 270,714 new residents in the project area. This population growth would result in the need for an additional 134,031 square feet of library space and 804,189 books and would have a cumulative impact on area libraries. The magnitude of the effect on library services as a result of cumulative buildout of the south county area would increase commensurate with the population increase from Otay Ranch. As with the surrounding projects, potentially significant short-term impacts on local library facilities would occur until sufficient space and books are available to accommodate the increased demand. Implementation of the measures outlined below would mitigate Otay Ranch's contribution to the overall impact, while other projects would be responsible for providing resources based on their individual effects. However, the cumulative increase in demand on library services would be potentially significant if facilities are not available concurrent with need.

6.15.6.3 Cumulative Impacts with Phase I-Progress Plan Alternative

The total cumulative population under this alternative would demand an additional 120,971 square feet of library space and 622,080 books. As discussed for the New Town Plan, potentially significant cumulative impacts would occur until sufficient space and books are available to adequately serve the additional population.

6.15.6.4 Cumulative Impacts with Environmental Alternative

Implementation of the Environmental Alternative would result in a total cumulative population of 149,767. To adequately serve this total population, an additional 74,511 square feet of library space and 449,301 books would be required. Although impacts would be reduced under this scenario, cumulative impacts with respect to the provision of adequate facilities are still considered to be significant.

6.15.6.5 Mitigation Measures

Mitigation measures for all three alternatives shall include the preparation of library facilities studies and financing plans to identify specific impacts, to determine the significance of the effect, and to identify measures that would reduce or eliminate the effect on libraries. These studies will include an analysis of the cumulative demand for library facilities as a result of existing, proposed, and approved projects. Each developer shall be required to construct project specific improvements and to construct, or contribute towards the cost of

constructing, any regional facilities required by the study with respect to the cumulative demand for library facilities as a result of new development.

Implementation of the above-described measures shall ensure that adequate measures are identified during site-specific analyses that will mitigate potentially significant cumulative impacts with respect to library service to below a level of significance.

6.15.7 Parks, Recreation, and Open Space

6.15.7.1 Cumulative Impacts of Related Projects

Proposed and approved projects within the cumulative impact area would result in a population of 120,904. Based on requirements for park land outlined in Section 3.13.9, proposed and approved projects within the cumulative impact area would demand 363 acres of neighborhood and community parks, and 1,815 acres of regional parks. Many of the projects in the cumulative impact area propose parks and open space in their land use plans. Although some projects may exceed their necessary allocation, while others fall short of the dedication requirements, potentially significant cumulative impacts on local and regional parkland and open space would be mitigated through either parkland dedications or payment of in lieu of fees on a project-by-project basis.

6.15.7.2 Cumulative Impacts with New Town Plan

Proposed and approved project generated population of 120,904 plus Otay Ranch generated population of 149,810 would result in 270,714 new residents in the project area. This population growth would demand 804 acres of neighborhood and community parks, and 4,020 acres of regional parks. The overall cumulative effect of the population increase of the Otay Ranch project in conjunction with surrounding developments has the potential to significantly impact park, recreation and open space opportunities in the area, particularly since Otay Ranch represents a large percentage of the open space in the southwestern portion of the county. Development on the Otay Ranch property would also preclude the use of Otay Lakes as a waterfowl hunting area. In past years, the urbanization of the region's coastal lagoons and inland areas in the vicinity of reservoirs has led to the loss of many historic waterfowl hunting opportunities. The loss of the Otay Lakes as a water fowl hunting area would contribute to the cumulative, irreversible loss of hunting areas in the region and is a significant cumulative impact of the project (Brown 1992).

6.15.7.3 Cumulative Impacts with Phase I-Progress Plan Alternative

Implementation of the Phase I-Progress Plan Alternative would result in a total cumulative demand for 622 acres of neighborhood and community parks, 3,110 acres of regional parks, and recreational facilities to adequately serve a population of 207,360. This cumulative demand represents a potentially significant impact to the provision of parks, recreation, and open space, particularly since Otay Ranch represents a large percentage of the open space in the southwestern portion of the county. Significant cumulative impacts would also occur to waterfowl hunting in the area (Brown 1992).

6.15.7.4 Cumulative Impacts with Environmental Alternative

The Environmental Alternative, along with the demand generated by projects within the cumulative impact area, would result in a total cumulative demand for 449 acres of neighborhood and community parks, 2,247 acres of regional parks, and recreational facilities to adequately serve a population of 149,767. Although development under the Environmental Alternative would greatly decrease the total cumulative demand for parks in

the south county, potentially significant cumulative impacts would still occur with respect to the provision of adequate park land in the region, particularly since Otay Ranch represents a large percentage of the open space in the southwestern portion of the county. Significant cumulative impacts would also occur to waterfowl hunting in the area (Brown 1992).

6.15.7.5 Mitigation Measures

Mitigation measures for all three alternatives shall include the preparation of park, recreation, and open spaces studies and financing plans to identify specific impacts, to determine the significance of the effect, and to identify measures that would reduce or eliminate the effect on these services. The establishment of the management preserve through the RMP, construction of the various community and neighborhood parks, and installation of the regional bike, equestrian, and hiking trail network would serve the needs of Otay Ranch, and also provide for recreation opportunities for the entire region.

Implementation of the above-described measures shall ensure that adequate measures are identified during site-specific analyses that will mitigate potentially significant cumulative impacts with respect to the provision parks, recreation, and open space to below a level of significance.

6.15.8 Electricity and Gas

6.15.8.1 Cumulative Impacts of Related Projects

Proposed and approved projects within the cumulative impact area would result in the addition of 40,846 dwelling units and an associated population increase of 120,904. This increase in population would increase the demand for electricity and gas in the cumulative project area; however, each of the individual projects would be responsible for the installation of appropriately-sized infrastructure required to serve their site and the project applicant would coordinate with SDG&E during all stages of electrical and gas facilities planning. In addition, land uses adjacent to SDG&E transmission lines would be subject to review by SDG&E. Cumulative impacts of related projects are less than significant.

6.15.8.2 Cumulative Impacts with New Town Plan

Proposed and approved projects plus Otay Ranch would result in an additional 91,619 dwelling units and 270,714 new residents in the south county area. SDG&E has determined that it could serve the Otay Ranch and other surrounding developments and the infrastructure will be installed by the individual property owners. Cumulative impacts on electrical and gas services are considered to be less than significant.

6.15.8.3 Cumulative Impacts with Phase I-Progress Plan Alternative

Proposed and approved projects plus Otay Ranch would result in an additional 70,619 dwelling units and 207,360 new residents in the south county area. SDG&E has determined that it could serve the Otay Ranch and other surrounding developments and the infrastructure will be installed by the individual property owners. Cumulative impacts on electrical and gas services are considered to be less than significant due to the large demand that would be generated and the population and amount of development which would require service.

6.15.8.4 Cumulative Impacts with Environmental Alternative

Proposed and approved projects plus Otay Ranch would result in an additional 50,097 dwelling units and 149,767 new residents in the south county area. Although SDG&E has determined that it could serve the Otay Ranch and other surrounding developments and the infrastructure will be installed by the individual property owners. Cumulative impacts on electrical and gas services are considered to be less than significant.

6.15.8.5 Mitigation Measures

No mitigation is required with SDG&E during all stages of electrical and gas facilities planning. In addition, land uses adjacent to SDG&E transmission lines would be subject to review by SDG&E.

6.15.9 Other Public Services

6.15.9.1 Cumulative Impacts of Related Projects

Proposed and approved projects within the cumulative impact area would result in the addition of 40,846 dwelling units and an associated population increase of 120,904. A corresponding increase in the demand for health and medical facilities, senior and social services, cemetery, child care, and animal control facilities would result in potentially significant impacts to these services. Impacts would be evaluated and appropriate mitigation identified on a project-by-project basis for the services.

6.15.9.2 Cumulative Impacts with New Town Plan

Proposed and approved projects plus Otay Ranch would result in an additional 91,619 dwelling units and 270,714 new residents in the south county area. This growth would cumulatively increase the demand for health and medical facilities, senior and social services, cemetery facilities, child care facilities, and animal control facilities in the area. Provision of these facilities in proportion to the project need would mitigate potentially significant cumulative impacts.

6.15.9.3 Cumulative Impacts with Phase I-Progress Plan Alternative

Proposed and approved projects plus Otay Ranch would result in an additional 70,619 dwelling units and 207,360 new residents in the south county area. This growth would cumulatively increase the demand for health and medical facilities, senior and social services, cemetery facilities, child care facilities, and animal control facilities in the area. Provision of these facilities in proportion to the project need would mitigate potentially significant cumulative impacts.

6.15.9.4 Cumulative Impacts with Environmental Alternative

Proposed and approved projects plus Otay Ranch would result in an additional 50,097 dwelling units and 149,767 new residents in the south county area. This growth would cumulatively increase the demand for health and medical facilities, senior and social services, cemetery facilities, child care facilities, and animal control facilities in the area. Provision of these facilities in proportion to the project need would mitigate potentially significant cumulative impacts.

6.15.9.5 Mitigation Measures

The applicant shall work in close coordination with the relevant service providers and the appropriate jurisdictions to ensure the provision of adequate facilities.

Implementation of the above-described measures shall ensure that potentially significant cumulative impacts with respect to the provision of health and medical and senior and social services, cemetery, child card and animal control facilities are mitigated to below a level of significance.

6.16 RISK OF UPSET

6.16.1 Cumulative Impacts of Related Projects

The majority of the projects in the cumulative impact area are primarily residential in nature. The projects with an industrial component include the Otay Corporate Center North, various industrial projects throughout the area and on East Otay Mesa, Otay Rio Business Park, Daley Ranch rock quarry, Brown Field expansion, a new county landfill, and a county water reclamation plant. These projects would increase the incidence of use, storage, and transport of hazardous materials in the area. In addition, the development of SR-125 would increase the opportunity and likelihood for the transport of hazardous waste through the project area, particularly given the industrial-dominated uses on Otay Mesa.

6.16.2 Cumulative Impacts with Otay Ranch

A relatively small percentage of the proposed land use associated with the Otay Ranch project (4 percent) would be devoted to industrial use. As discussed in Section 3.14, the specific industrial and commercial uses have not been identified; therefore, it is not possible to specify or quantify the types and uses of hazardous materials. However, the potential risk of adverse health effects associated with the use, transport, and storage of hazardous materials and generation of hazardous waste would increase with the development of Otay Ranch together with the other industrial and commercial uses in the area. In addition, the population increase associated with the proposed residential developments of Otay Ranch and the other projects in the area would increase the population potentially at risk.

Therefore, there is an increased risk of upset associated with the development of Otay Ranch. The increased risk would be commensurate with the increase in population associated with the New Town Plan, the Phase I-Progress Plan, or the Environmental Alternative.

6.16.3 Mitigation Measures

The mitigation measures identified in Section 3.14.3 would reduce the risk of upset associated with the development of Otay Ranch. Application of these measures to the other projects in the area would reduce the cumulative risk of adverse public health effects associated with the use, storage, and transport of hazardous materials.

6.16.4 Analysis of Significance

The cumulative impacts associated with the risk of upset would not be significant with implementation of applicable mitigation measures (Section 3.14.3) and adherence to applicable laws and regulations.

SECTION 7
GROWTH INDUCEMENT

Section 15126(g) of the CEQA Guidelines describes growth-inducing impacts as "the ways in which the proposed project could foster economic or population growth, or the construction of new housing, either directly or indirectly in the surrounding environment." If a project has characteristics which "may encourage or facilitate other activities that could significantly affect the environment, either individually or cumulatively," then this aspect of the project must be discussed as well (State of California 1986).

7.1 DIRECT GROWTH INDUCEMENT

7.1.1 Existing Growth

The Otay Ranch project site is located in the following 1990 census tracts (CTs): South Bay (CT 100.07), Sweetwater (CTs 133.05, 134.05, and 134.06), and Jamul (CT 213.01 and 213.02) subregional areas (SRAs) of the County of San Diego as defined by SANDAG (Figure 7.1-1). CT 100.07 of the South Bay SRA comprises 16,547 acres in eastern Otay Mesa. The primary land uses in this area are agriculture, Brown Field, industrial development, a state prison, and a county jail (under construction). Total population in 1990 in CT 100.07 of the South Bay SRA was 5173 (SourcePoint 1991a). There were only 293 housing units in this census tract in 1990 (SourcePoint 1991b). This is an increase of almost 10 percent since 1986 when there were only 267 housing units (SANDAG 1988).

The Sweetwater SRA encompasses 26,962 acres and includes unincorporated communities within the county such as the Bonita/Sweetwater area as well as eastern Chula Vista. The area was once primarily open space with large areas being dry farmed. However, in the past 10 years the area has been developing rapidly through the implementation of master-planned developments that typically are primarily residential with supporting commercial, industrial, and/or recreational land uses. Total population in 1990 in the Sweetwater SRA was 45,558 (SourcePoint 1991a). There were 15,003 housing units in this census tract in 1990 (SourcePoint 1991b). This represents an increase of approximately 46 percent since 1986 when there were 10,267 housing units (SANDAG 1988).

The Jamul SRA covers a large area of land (132,953 acres) located in southern San Diego County east of the Otay Lakes. Much of this area of the county is fairly rugged and is sparsely developed. Rural communities such as Jamul and Dulzura have the highest concentration of residences, but have few commercial or industrial supporting land uses. Total population in 1990 in the Jamul SRA was 9,398 (SourcePoint 1991a). There were 3,110 housing units in this census tract in 1990 (SourcePoint 1991b). This represents an increase of approximately 35 percent since 1986 when there were 2,310 housing units (SANDAG 1988).

As can be seen by the information presented above, the project area varies (from 10 to 46 percent) in the amount of growth that has occurred over the last 15 years. Annual average growth rates (in terms of housing units) range from less than 1 percent (CT 100.07) to over 3 percent (Sweetwater SRA).

7.1.2 Future Growth

SANDAG is charged with periodically preparing regional growth forecasts of population and housing increases throughout the county. The most recent forecast, Series 7, was prepared in 1988 using 1986 data. Series 8 is underway and is scheduled for completion in the summer of 1993. Each forecast is based on existing general plans plus input from each jurisdiction regarding potential projects that would change the general plan. Otay Ranch was unforeseen, and therefore not included in Series 7. However, Otay Ranch will be included in Series 8 projections.

The proposed New Town Plan would involve the construction of 50,733 total dwelling units, 31,694 units in the Otay River parcel, 13,826 in the Proctor Valley parcel, and 5,213 units in the San Ysidro parcel. The total population that could be expected to be accommodated by the project would, therefore, be 149,810 persons (Table 7-1). Therefore, in the most direct sense, the project would foster the construction of new housing and subsequent population growth. The New Town Plan would also involve non-residential growth, especially the proposed university or college, the Eastern Urban Center, and the proposed resort and conference center.

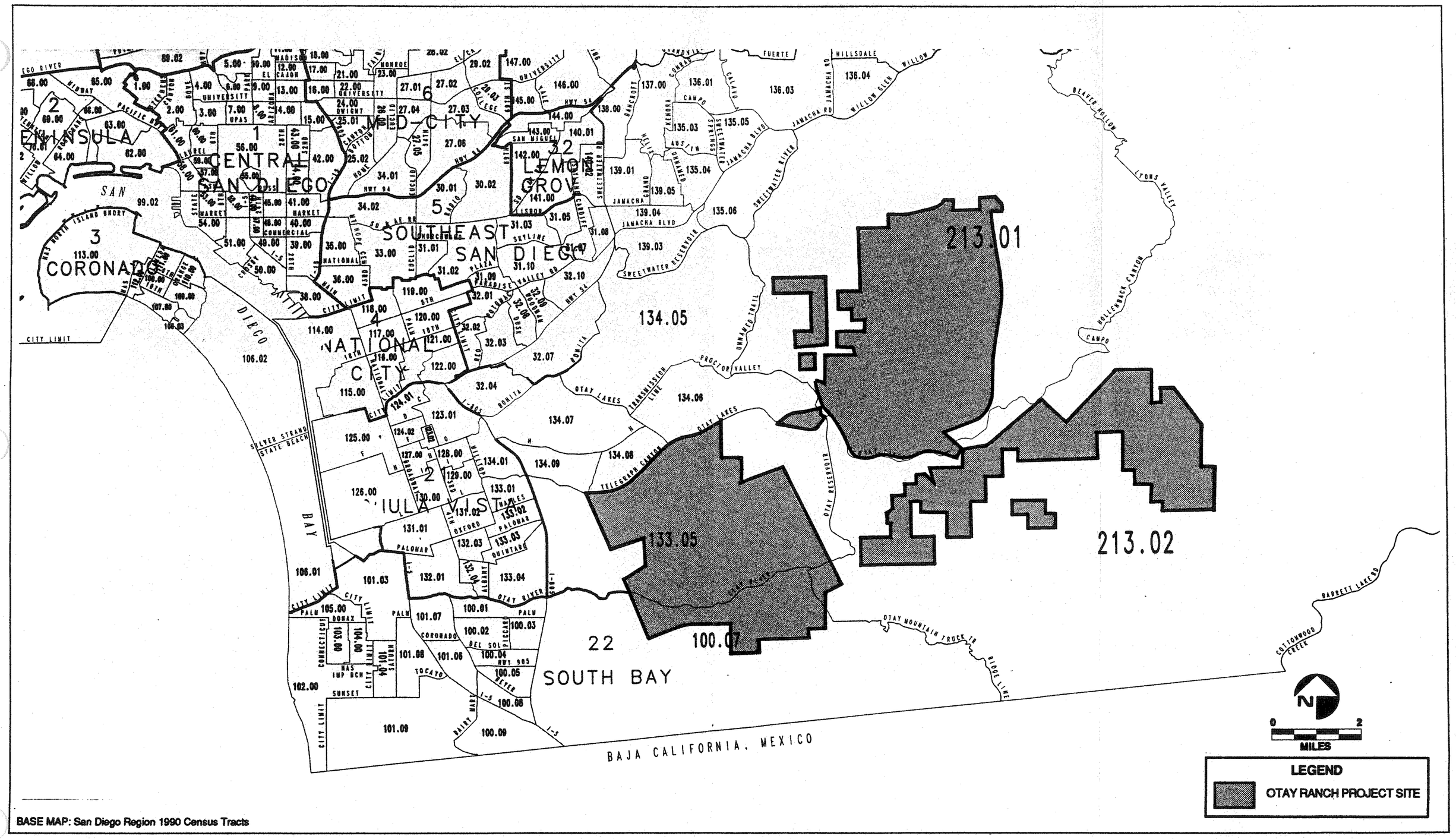
Table 7-2 compares the proposed housing and population increases from the project with the Series 7 Regional Growth Forecasts for the South Bay SRA (CT 100.07), the Sweetwater SRA, and the Jamul SRA. For example, in its Series 7 forecast, SANDAG projected that by the year 2010, population in the Sweetwater SRA and CT 100.07 would have increased by 120,423 over the 1986 population. Using the Otay Ranch population numbers, the project population would represent 75.1 percent of this forecasted population increase. The project would represent 76.4 percent of the projected housing increase in the Sweetwater SRA and CT 100.07 by the year 2010. It would generate over 50,000 more persons and 15,000 more dwelling units than the Series 7 projected population and housing increases for the Jamul SRA by the year 2005.

7.1.3 Growth Inducement of New Town Plan

The project would be growth-inducing since it would increase the population, housing and employment opportunities within the project area in excess of the growth already occurring or projected for the area through the year 2010. The project is also growth-inducing in the respect that it would remove obstacles to growth in offsite areas, thus allowing them to grow. The project would require the extension of water, sewer, natural gas, electricity and telephone lines to parts of the county that have not previously had such infrastructure and would extend the county's Urban Limit Line to the site's northern and eastern boundaries. The availability of easy access to infrastructure (especially sewer) for the town of Jamul would allow growth of the town to urban levels and could destroy the rural character of the town. Most of Jamul is developed with large (1- or 2-acre) lots. Development proposed by the project would develop adjacent lands at densities as high as 3 du/ac. This is a potentially significant growth-inducing impact of the project and would not be consistent with Jamul's Country Town regional land use designation, as discussed in Section 3.1.2.4.

State Route 125 may be extended through the project to continue south into the Otay Mesa area. However, this is a planned regional transportation link that may or may not be developed regardless of whether or not the Otay Ranch project is approved; therefore, it is independent of or not related to the growth-inducing effects of Otay Ranch.

The environmental effects of the development occurring on Otay Ranch are documented in this EIR. For example, the project would destroy existing sensitive habitats and species



BASE MAP: San Diego Region 1990 Census Tracts

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Location of Project Site within the Census Tracts 100.07, 133.05, 134.05, 134.06, 213.01, and 213.02

FIGURE 7.1-1

Table 7-1

ESTIMATED POPULATION AND DWELLING UNITS NEW TOWN PLAN

	Otay River Parcel		Proctor Valley Parcel		San Ysidro Parcel		
	No. of Units	Percent of Units	No. of Units	Percent of Units	No. of Units	Percent of Units	Total Units
Single-Family	14,854	46.2	11,534	87.7	5,060	97.1	31,448
Multifamily	16,840	53.8	2,292	12.3	153	2.9	19,285
Total Units	31,694	100.0	13,826	100.0	5,213	100.0	50,733
Pop.[1]	90,475		42,753		16,582		149,810

[1] Based on an average of 3.20 persons/single-family unit and 2.55 persons/multifamily unit.

Source: Baldwin Vista, New Town Plan, 1989; Baldwin Vista, January 1991.

Table 7-2

COMPARISON OF POPULATION AND HOUSING GENERATED BY THE NEW TOWN PLAN VS. SERIES 7 GROWTH FORECASTS

	Increase per Series 7 Forecast by Year 2010		New Town Plan Buildout (30-50 years)		% of Increase Estimated by Series 7 that Project would Represent	
	Pop.	Housing (du)	Pop.	Housing (du)	Pop.	Housing
Sweetwater SRA & CT 100.07/Otay River Parcel	120,423	41,496	90,475	31,694	75.1	76.4
Jamul SRA/Proctor Valley & San Ysidro Parcel	9,003	3,392	59,335	19,039	659.1	561.3

Source: SANDAG, 1988. Series 7 Regional Growth Forecast, 1986-2010, Census Tract 100.07, SRA 20, Sweetwater, and Census Tract 213.00 (Jamul SRA), July; Baldwin Vista, 1989; New Town Plan, Baldwin Vista, January 1991.

(including gnatcatchers) and would disrupt wildlife corridors. On the other hand, however, the project's Resource Management Plan, once implemented, would provide protection for hundreds of acres of sensitive habitat and species and would restore existing degraded acres of riparian, upland and grassland habitat. The project would create additional traffic, but would also complete several crucial regional or local circulation links.

Additional growth occurring in the Jamul or Dulzura areas as a result of the extension of infrastructure and the Urban Limit Line may also have environmental impacts. Given the availability of public infrastructure, such as sewer, water, and natural gas, it is likely that additional development at higher densities (i.e., urban rather than rural) would be proposed. Thus, in addition to potential land-based impacts, such as disturbance of cultural and biological resources and landform alteration, impacts associated with urban development, such as traffic, noise, and land use incompatibilities, may also occur.

7.2 Indirect Growth Inducement

The South Bay region is currently in a transition from agricultural fields and scrublands to an urban landscape. This trend began in the early 1970s as residential areas of Chula Vista, San Diego, and Rancho San Diego began pushing east from the region of I-805 and SR-54. At the same time, industrial development began to the south on Otay Mesa. By the middle of the next century, urbanization, including Otay Ranch, should be complete. A mixture of industrial and office parks, shopping centers, homes, schools, and open space will replace the agricultural fields and scrub. The forces driving this transition are complex and national (and, in some cases, international) in scope. They are largely economic, although aesthetics contribute a small portion to these complex forces that are resulting in the rate of growth experienced in San Diego County. This overall cumulative change in character will have dramatic impacts upon older established areas such as Chula Vista and Bonita. Residents of these older neighborhoods may find it difficult to assimilate the many changes in their surrounding areas. This EIR has already discussed impacts for each issue (for example, traffic), and has discussed the cumulative impacts. It has not, however, discussed the overall sociological effect associated with the total change in the character of the region (rural farmland to urban) over a relatively short period of time (50 years) since CEQA does not require analysis of social impacts.

It is likely, however, that the same forces that are resulting in the urbanization of the South Bay region will ultimately lead to considerable development pressure in areas located to the east. The development of Otay Ranch and other projects in the vicinity will result in more housing and more jobs; in short, considerably more opportunities of all kinds will be available in areas like Jamul and Dulzura, where they currently exist to a limited extent. Requests for land use changes and establishment of new commercial enterprises will become commonplace in the decades to come as people seek to take advantage of these new opportunities. This growth will continue in the South Bay region with or without Otay Ranch, until the underlying factors that cause this growth change.

Development of Otay Ranch would contribute cumulatively to regional growth by providing economic opportunities in the area and is, thus, growth-inducing in this indirect sense as well. New business opportunities within the proposed Eastern Urban Center may have a synergistic effect on commercial and industrial development in Otay Mesa and in eastern Chula Vista. A market study is being prepared by the applicant's consultants and will help to quantify these new economic opportunities.

An increased tax base may also create opportunities for additional public projects. A Service/Revenue Plan is currently under preparation to quantify these fiscal effects of the project.

7.3 GROWTH MANAGEMENT POLICIES

As a result of the approval of Proposition C in 1988, SANDAG has prepared a Draft Regional Growth Management Strategy (RGMS) which must ultimately be approved by not only the SANDAG Board of Directors, but by each local jurisdiction within the county. Once approved, each jurisdiction will be responsible for ensuring that its General Plan is consistent with the approved growth strategies. The Regional Growth Management Strategy includes eight "quality of life" factors, with accompanying standards and objectives as well as recommended actions in the categories of environment, traffic and transportation, public facilities, financing and siting, and growth rate, phasing, and distribution (SANDAG 1991). Until this regional strategy is in place, projects are evaluated by each local jurisdiction in accordance with their own growth policies as presently developed (S. Baldwin, SANDAG, personal communication 1991). Once in place, however, each city and county will be required to certify that their General Plan and any amendments are consistent with the approved element of the RGMS. The RGMS will use the growth forecasts of SANDAG's Series 8, currently in preparation.

As discussed in Section 3.1.1, Land Use, the project site is under the jurisdiction of the County of San Diego and the City of San Diego, but is also partially within the General Planning Area of the City of Chula Vista. Both the county and the City of Chula Vista have specific growth management policies. For example, the overall goal of the county's Regional Land Use Element includes Goal 1.3 which states that: "Growth be managed in order to provide for affordable housing and balanced communities throughout the unincorporated area" (County of San Diego 1990a).

The City of Chula Vista's General Plan contains a Growth Management Element (Chapter 5) which focuses on six main issues: 1) the provision of adequate and timely public facilities and services, 2) the provision of a healthy economy, 3) the provision of affordable housing according to regional "fair share" housing goals, 4) the provision of a sense of community character and identity, 5) the preservation of open space and natural resources, and 6) the need for a regional response to growth management (City of Chula Vista 1989). Growth management policies include the development of city-wide planning studies to evaluate the city's responses to and action plans concerning the various issues, requiring master planned developments to provide low-to-moderate income housing, follow land planning, architectural, and landscape design standards, implement the Chula Vista Greenbelt, prepare comprehensive resource conservation plans, and expand their use of memoranda of understanding and agreements to coordinate subregional planning in such areas as the comprehensive planning of Otay Ranch (City of Chula Vista 1989b).

In April 1991, the city also adopted a Growth Management Program in accordance with Section 19.09.030 of the city's Growth Management Ordinance (No. 2448). The program is a long-range public facilities planning tool that provides an overview of the city's public facility needs and a phasing plan with which to develop the needed public facilities and infrastructure in keeping with planned development. The program acknowledged the possible future development of 30,609 residential dwelling units, 857 acres of industrial land, and 568 acres of commercial acres in the Otay River parcel of Otay Ranch (Figure 4, City of Chula Vista 1991). Such development was not included, however, in the initial "phase" of development considered in the traffic analysis and other related analyses of the Growth Management Program. The city intends that the "initial" analyses be updated as future projects are considered (Leiter 1992).

The New Town Plan would increase growth more than was forecast in SANDAG's Series 7 growth forecast (Table 7-2) (by as much as 650 percent in the Jamul SRA), and

this additional growth would need to be evaluated in the formulation of the Series 8 forecast. However, the project would be required to be consistent with the city's Growth Management Element and Growth Management Program, as well as applicable county growth management policies, which in turn would need to be consistent with the SANDAG Regional Growth Management Strategy once it is implemented. The city and county will require that the General Development Plan/Subregional Plan for the project include appropriate growth management policies to ensure that the project is consistent with all applicable city and county growth management policies.

7.4 GROWTH INDUCEMENT OF PROJECT ALTERNATIVES

7.4.1 Phase I-Progress Plan

The Phase I-Progress Plan proposes a total of 29,773 units with 21,091 units in the Otay River parcel, 6,358 units in the Proctor Valley parcel, and 2,324 units in the San Ysidro parcel. Therefore, this alternative would represent approximately 51 percent of the residential growth forecast by Series 7 to occur in the Sweetwater SRA and CT 100.07 (Table 7-2). Residential development in the Proctor Valley and San Ysidro parcels would constitute a 256 percent increase in growth over what was forecast in Series 7 for the Jamul SRA. This alternative would thus result in growth not forecast for the region in the Proctor Valley and San Ysidro parcels.

Infrastructure such as water, sewer, natural gas, etc. would need to be extended to serve the new development and the Urban Limit Line would still be extended to include the entire site. This aspect of this alternative would also be growth-inducing. Again, Jamul especially may experience growth at levels several times that which currently exists due to the availability of sewer hookup.

Finally, the alternative would contribute to the overall urbanization of the South Bay region, which is also expected to exert development pressure on areas further east (as described in Section 7.2). This is an indirect growth-inducing aspect of the alternative.

7.4.2 Environmental Alternative

The Environmental Alternative, which proposes 8,474 units in the Otay River parcel, but only 777 units in the Proctor Valley and San Ysidro parcels combined, would represent approximately 20 percent of the growth forecast by SANDAG for the Sweetwater SRA and CT 100.07 (Series 7) and 23 percent of the growth forecast for the Jamul SRA. Thus, this alternative would not result in more growth than has been forecast. However, the extension of the infrastructure and the expansion of the Urban Limit Line would still have direct growth-inducing impacts.

The project would still contribute to the urbanization of the South Bay, although to a much lesser degree than other alternatives being considered. In addition, the large amounts of open space in the southern half of the Otay River parcel and in the western parts of the Proctor Valley and San Ysidro parcels would redirect urbanization through Jamul to the north and east, and to the south and east through Otay Mesa. The location of fewer homes on Otay Ranch would result in more homes situated in the surrounding communities. The diverted urbanization is an indirect growth inducing aspect of the Environmental Alternative.

SECTION 8
SOUTHWEST COUNTY LANDFILL SITES

8.1 INTRODUCTION

The County of San Diego is currently conducting engineering and environmental impact analyses for the development of three new Class III municipal solid waste landfill sites in the southwest part of the county. Two of the landfill sites under study are located on the Otay River parcel of Otay Ranch (Figure 8-1) while an additional site is located to the south of Otay Ranch in east Otay Mesa. Although none of the Otay Ranch alternatives being considered by the Otay Ranch Project Team include a landfill on the site, the impacts of a landfill would become part of the overall development of Otay Ranch if either or both of the Otay Ranch landfill sites under consideration by the county are selected. The following discussion is a general qualitative analysis of the environmental impacts of the two potential landfill projects. A detailed quantitative environmental analysis of both landfill sites will be conducted by the county during the preparation of a project-specific EIR for the landfill.

The first landfill site being considered at Otay Ranch is known as the Wolf Canyon Site, E-1b, in the county's preliminary siting study. It would be located in Wolf Canyon immediately northeast of the existing Otay Landfill, which is located offsite just west of the Otay River parcel (Figure 8-1). The second landfill site being considered at Otay Ranch is known as the North Otay Valley Site, E-8, in the county's preliminary siting study. It would be located in a canyon to the west of Salt Creek (Figure 8-1). In the following sections, where impacts at these two sites would be similar, a general discussion is given that would apply to either or both sites. Where impacts would be different due to physical or planned differences in the environmental setting of the two sites, separate discussions are provided.

8.2 LAND USE, PLANNING, AND ZONING

Landfills are often considered to be incompatible with a variety of other types of land use (including residential, commercial, office/professional, public/quasi-public, and recreational) due to the unique characteristics of landfill construction and operation. Impacts that lead to land use interface problems include noise, odor, dust, visual impacts, and public health concerns. Landfills may also attract birds or other animals that are considered to be nuisances. Therefore, landfills are often sited in areas where they can be buffered (to mitigate noise, odor and dust impacts) and screened visually from other types of land use.

Public health concerns are regulated by state and federal law and are affected by such things as the underlying groundwater and substrata. Once closed, Class III landfills can be reclaimed and used primarily as open space. (Due to landfill settlement over time, any future development that requires structural support would be precluded.)

Wolf Canyon, Site E-1b

The Wolf Canyon landfill site (E-1b) would displace agricultural and open space uses that currently exist on the site. In addition, the final phase of the landfill would be located approximately 500 feet from existing residences, a series of small houses located at the Otay Ranch farm headquarters to the northeast. All other existing residential land uses are

MAP SOURCE: USGS 7.5' Imperial Beach, Otay Mesa, National City, and Jamul Quadrangles

FIGURE

OGDEN

Potential Southwest County Landfill Sites within Otay Ranch

8-1

located more than one mile away; however, both the Otay Ranch and Sunbow projects propose residential land uses one mile or closer from the site. A landfill at Site E-1b could be considered incompatible with all of these residential land uses.

Other land uses in proximity to the Wolf Canyon site are the Nelson and Sloan quarry at Rock Mountain (approximately 0.75 mile south), the VORTAC air navigation beacon site (just over one mile southeast), the existing Otay Landfill (located immediately west), industrial land uses along the western border of the Otay River parcel (approximately 0.75 mile to the west), and Brown Field (although the nearest runway would be located more than 10,000 feet from the site). No land use impacts would be anticipated to these neighboring land uses, due either to their lack of sensitivity to the types of impacts generated by a landfill or, in the case of Brown Field, the distance separating the airport from the landfill would be long enough to meet applicable federal laws.

Development of the Wolf Canyon landfill site and buffer zones necessary to mitigate noise, odors, dust, visual impacts, and public health concerns would preclude some of the residential land uses proposed by the Otay Ranch project. In the case of the New Town Plan, development of the landfill would preclude the construction of low-medium and medium density residential land uses, a planned primary arterial street, and a park and recreation area. The landfill would be surrounded primarily by planned medium density residential development on the southwest, and low-medium density residential development on the north and east. Some of these land uses would be precluded as well due to the need to provide a buffer between the landfill and adjacent residential uses.

In the case of the Phase I-Progress Plan, development of the landfill would preclude the construction of single- and multifamily residential units, and at least one segment of a planned primary arterial street. The landfill site would be surrounded primarily by planned single- and multifamily land uses and a community park that could be precluded by required buffers.

In the case of the Environmental Alternative, the landfill and the associated buffers would preclude the development of some low density residential land uses to the northeast. The remainder of the landfill site would be surrounded by open space.

The landfill would also result in a loss of planned open space regardless of which Otay Ranch alternative were selected. In addition, all of the alternatives plan for mixed use urban development in proximity to the landfill site, including commercial and office development, parks and schools that may or may not be precluded.

The Wolf Canyon site (E-1b) is located within an unincorporated part of the County of San Diego, but is also within the City of Chula Vista's Eastern Territories planning area. The landfill would not be consistent with the existing underlying county zoning and land use designations, the City of Chula Vista General Plan designations and pre-zoning, or land use designations proposed by the Otay Ranch project or its alternatives. The landfill site could also interfere with plans for an Otay Valley Regional Park System.

North Otay Valley, Site E-8

A landfill at North Otay Valley (E-8) would also displace existing agricultural and open space uses currently present on the site. Besides open space and agriculture, the only other land use that is located within a one-mile radius of this site is a City of San Diego drinking water aqueduct. EastLake, the Olympic Training Center, the Otay Ranch farm headquarters and residences, the VORTAC air navigation beacon site, and Lower Otay Lake are all located at least one mile from the site and are separated visually from the site by intervening

topography. Therefore, no significant land use incompatibilities would be expected with these existing or approved land uses.

A landfill would preclude a variety of Otay Ranch land uses proposed for the site and the adjacent area. The New Town Plan proposes primarily low-medium and medium density residential land uses on, and immediately adjacent to, the landfill site. A mixture of other land uses, including the proposed university site and the Eastern Urban Center, would be located within one mile of the landfill site and could be adversely affected. The landfill would also preclude at least one segment of a planned primary arterial.

The Phase I-Progress Plan proposes part of the Eastern Urban Center as well as both single- and multifamily land uses where this site is located. A landfill would preclude these uses as well as some of the surrounding land uses due to the associated buffer. Several primary arterials, including the extension of Alta Road and a segment of Otay Valley Road/Hunte Parkway, would be adversely affected. The landfill would also be located in proximity to the proposed extension of State Route (SR) 125 and the proposed university site.

If the Environmental Alternative of the Otay Ranch project were implemented, a landfill would preclude the development of low, low-medium and medium density residential land uses, public/quasi-public land uses, an elementary school, and at least one segment of a planned primary arterial. Additional land uses that would most likely be affected by a landfill buffer would include further residential and public/quasi-public land uses as well as a neighborhood park, commercial development, and research and development land uses. The Eastern Urban, Center the university site, and SR 125 would also be in close proximity to the landfill and could be adversely affected.

The North Otay Valley site is also located within an unincorporated part of the County of San Diego, but within the City of Chula Vista's Eastern Territories planning area. The landfill would not be consistent with the existing underlying county zoning and land use designations, the City of Chula Vista General Plan designations and pre-zoning, or land use designations proposed by the Otay Ranch project or its alternatives. The landfill site could also interfere with plans for an Otay Valley Regional Park System.

8.3 LANDFORM ALTERATION/AESTHETICS

Wolf Canyon, Site E-1b

Development of a landfill would significantly change the existing visual character of the site from open space and agriculture to manufactured slopes and the landfill itself. A significant amount of landform alteration would probably be necessary even though the landfill's location in a canyon would help to reduce the amount of excavation needed.

Due to this site's location in a canyon, the landfill would probably not be readily visible to most areas off the Otay Ranch property. Views of the site would be blocked by intervening topography and by the Otay Landfill from the north, east, and west. The nearest offsite land uses are to the west and include the Otay Landfill and the industrial area that surrounds the Otay Landfill on its south, west, and north sides. To the south, however, the canyon in which this site is located opens up into the Otay River Valley. Thus the landfill site would be readily visible from the south. Long distance views of the site would be available from Otay Mesa. Most of the development on Otay Mesa is industrial and would, therefore, not be significantly affected. However, residential development proposed in the Otay River Valley to the west of Otay Valley Road/Heritage Road (for example, Robinhood Ridge) may have views of the landfill, and thus experience significant adverse visual impacts.

With the development of Otay Ranch, urban development, including residential development, would be planned in proximity to the site. A detailed analysis of the landfill's visual impacts to surrounding sensitive receptors would be required as part of the project-specific EIR. It is likely that, unless mitigated through the use of buffers, landscaping, and other design features of both the landfill and the adjacent development, significant visual impacts would result. The landfill would also be visible from various roads, some of which are proposed to be designated scenic roads, that would be extended across the property as a result of planned development of Otay Ranch. Significant visual impacts would also occur to users of the planned Otay Valley Regional Park System.

North Otay Valley, Site E-8

Similar to the Wolf Canyon site, development of a landfill at the North Otay Valley site would significantly change the existing visual character of the site from open space and agriculture to manufactured slopes and the landfill itself. A significant amount of landform alteration would probably be necessary at this location as well even though the landfill's location in a canyon may help to reduce the amount of excavation needed.

Views of the North Otay Valley site from off Otay Ranch would be primarily long distance views from East Otay Mesa. From areas along the mesa's periphery with Otay River Valley to the east of Brown Field, panoramic views of the Otay River parcel are available. However, most of this land is planned for industrial development. The landfill would be visible from both the state prison and the county jail as well. Since few sensitive viewers are located on East Otay Mesa, no significant impacts to existing development would be likely. Views of the site from off Otay Ranch to the west, north, and east would be blocked by the intervening topography.

With the development of Otay Ranch, urban development including residential development, the Eastern Urban Center, a university, and the extension of SR-125 would be planned in proximity to the site. Again, a detailed analysis of the landfill's visual impacts to surrounding sensitive receptors would be required as part of the project-specific EIR, but it is likely that, unless mitigated, significant visual impacts would result. Long distance views of a landfill at this site may also be visible from the proposed Otay Ranch resort northeast of Lower Otay Lake in the Proctor Valley parcel of Otay Ranch. A landfill at this site would also be visible from various roads, some of which are proposed to be designated scenic roads, that would be extended across the property as a result of planned development of Otay Ranch. Significant visual impacts would also occur to users of the planned Otay Valley Regional Park System.

8.4 BIOLOGICAL RESOURCES

Wolf Canyon, Site E-1b

This site would be located in a tributary drainage to Wolf Canyon. Although the upper reaches of the drainage are currently in agriculture, the lower reaches of the drainage, where it intersects with the main part of Wolf Canyon, contain sensitive biological resources such as maritime succulent scrub and Diegan coastal sage scrub. Maritime succulent scrub provides habitat for the cactus wren, a California Department of Fish and Game (CDFG) Species of Special Concern; Diegan coastal sage scrub provides habitat for the California gnatcatcher, a C2 candidate for federal listing and a CDFG Species of Special Concern. Both cactus wrens and California gnatcatchers were sighted in Wolf Canyon and its tributary drainages during biological surveys of the area (both historically and recently).

Therefore, development of a landfill on the Wolf Canyon site would most likely have significant biological impacts. In addition to impacts to specific species and habitat, development of the site as a landfill would interfere with plans to provide biological linkages, including a wildlife corridor, between Wolf Canyon and Poggi Canyon to the north to help offsite local and subregional cumulative impacts to biological resources.

North Otay Valley, Site E-8

The North Otay Valley site has been extensively farmed and is currently in agricultural production. Therefore, direct biological impacts from the development of a landfill at this site would be minimal. Indirect impacts to nearby offsite areas of biological significance (i.e., Salt Creek and the Otay River Valley) would need to be analyzed in the project-specific EIR once details of the landfill's operation and construction are known.

8.5 CULTURAL RESOURCES

Only portions of both sites have been intensively surveyed for cultural resources. The Otay River parcel of Otay Ranch, however, is known to contain many prehistoric sites, including lithic scatters, temporary camps, a milling station, 4 habitation sites, and quarries (see Section 3.4). Therefore, there is a strong likelihood that additional cultural resources would be found on both of the landfill sites, when extensively surveyed. These surveys would be conducted as part of a project-specific EIR. In addition to cultural resources found during an extensive site survey, there is also the possibility that additional cultural resources would be found during construction of the landfill.

8.6 GEOLOGY AND SOILS

Potential geologic impacts are varied and highly dependent on the soil and substrata on the actual landfill site. Potential ground-water problems may result if the stratigraphy at the site(s) are permeable. The presence of fracture sets, shear zones, and other local structural features can also allow for migration of contamination from the landfill area. The presence of faults in the area can create impacts such as surface rupture, ground acceleration, liquefaction and slope instability. Liquefaction and slope instability are also dependent on the onsite soil types as are impacts such as erosion, shrink-swell activity, and reactive soils. Therefore, site-specific geotechnical studies would be required to ascertain the potential for geologic and/or soil-related impacts at either of the sites.

The only known fault in the Otay Ranch area is mapped for the western portion of the Otay Ranch property and across Telegraph Canyon Road. However, local active or potentially active faults in the region include the Rose Canyon Fault Zone, the La Nacion Fault Zone, Lyons Valley Fault, Point Loma Fault, and Sweetwater Fault (see Figure 3.5-2). Information regarding the seismic parameters of these faults is shown in Table 3.5-1.

Wolf Canyon, Site E-1b

Soils within the Otay River parcel are mapped on Figure 3.5-3a. Based on this information, soils on the Wolf Canyon site include soils from the Diablo series, the Salinas series, and possibly the Linne series. The Diablo series soils generally have slow sub-soil permeability, slow to medium runoff potential, and slight to moderate erosion susceptibility, but high shrink-swell potential. The Salinas series soils have moderately slow to rapid sub-soil permeability, slow to medium runoff potential, slight to moderate erosion susceptibility, and moderate shrink-swell potential. The Linne series soils have moderately slow to rapid sub-soil permeability, slow to rapid runoff potential, slight to high erosion susceptibility, and moderate to high shrink-swell potential. As can be seen by

this range of soil characteristics, a site-specific soils investigation would be necessary to determine potential impacts and required mitigation.

North Otay Valley, Site E-8

Based on Figure 3.5-3a, soils on this site would be from the Diablo series, the Linne Series, and the Olivehain series. The Olivehain series soils have very slow to moderately rapid sub-soil permeability, slow to rapid runoff potential, slight to high erosion susceptibility, and moderate shrink-swell potential. Again, a site-specific soils investigation would be necessary to determine potential impacts and required mitigation.

8.7 PALEONTOLOGICAL RESOURCES

Both of the landfill sites are part of the Coastal Plain Province, which is underlain by a "layer cake" sequence of sedimentary rock formations deposited under marine and/or non-marine conditions. Based on the analysis contained in Section 3.6 of this EIR, both of the sites are rated as having a high to moderate sensitivity for paleontological resources (Figure 3.6-3). Therefore, construction of a landfill at either or both sites would probably result in significant impacts to paleontological resources. Such impacts are typically mitigated through the use of a paleontological monitor to inspect the original cuts of previously undisturbed sediments and recover any fossils that are discovered.

8.8 AGRICULTURAL RESOURCES

Both landfill sites under consideration at Otay Ranch are located on agricultural lands that are currently dry farmed to grow barley. Onsite agricultural lands would be displaced by the landfill(s). According to the classification of agricultural soils provided by the United States Department of Agriculture, Soil Conservation Service's Important Farmlands Inventory, agricultural lands of value are placed in one of three categories: Prime Farmland, Additional Farmland of Statewide Importance, and Unique Farmland; see Section 3.7 for a description of each of these categories.

Wolf Canyon, Site E-1b

Soils at this site include soils of Statewide Importance (Diablo clays, 2-15 percent slope) and Prime Agricultural lands (Salinas clay loams). If any Diablo clays of 15 to 30 percent slope are present on the site, these soils are considered to be of Local Importance to agriculture in San Diego County (see Table 3.7-1).

North Otay Valley, Site E-8

Only the Diablo clays on this site would be considered valuable as agricultural soil (in this case, of Statewide Importance) although the entire site is currently being farmed.

8.9 MINERAL RESOURCES

Wolf Canyon, Site E-1b

This site is classified as MRZ-3, Areas Containing Mineral Deposits, the Significance of Which Cannot be Evaluated from the Available Data, by the California Division of Mines and Geology (CDMG) (Figure 3.8-2). The primary mineral of potential economic value that is known to occur in the general area, including Wolf Canyon, is bentonite. However, extraction would only be feasible where overburden is minimal or absent. Confirmation of the presence of bentonite and an onsite determination of the economic significance of any

bentonite deposits would need to be made before impacts can be evaluated. This study and determination would be more appropriately carried out as part of a project-specific EIR.

North Otay Valley, Site E-8

Site E-8 is also classified as MRZ-3 by the CDMG (Figure 3.8-2). An onsite study to determine if mineral resources exist, and if present, to ascertain their economic significance, would need to be conducted as part of a project-specific EIR.

8.10 Water Resources and Water Quality

Potential impacts to water resources are one of the major considerations when siting a landfill. The development of a landfill in areas where the groundwater is in close proximity to the bottom of the landfill or where the underlying substrata is highly permeable can lead to contamination of ground-water resources if leachate migration is not properly controlled. Leachate collection systems, an important element of landfill design, are used to prevent this from occurring; however, ongoing ground-water sampling is still necessary to regularly monitor the effectiveness of the system. Groundwater on the Otay River parcel of Otay Ranch has been found at depths as shallow as 10 feet below ground surface in Telegraph Canyon and Salt Creek and at 32 feet below ground surface in Poggi Canyon. Site-specific wells would need to be drilled to determine the actual depth to groundwater on each of the landfill sites.

In addition to possible ground-water contamination, surface water quality degradation can also occur if such water comes in contact with the landfill. Surface water collection systems that intercept all surface water before it reaches the landfill and divert it around the landfill are part of standard landfill design. The surface water drainage plan for a landfill at either site would be very important since both sites are located in drainages. The landfill drainage systems would need to be designed to withstand surface water flows from a 100-year storm and should include siltation basins and energy dissipation systems to prevent downstream erosion. Other potential surface water impacts include erosion, slope failure, and washout which could cause stability problems within the landfill structure(s), and ponding, infiltration, inundation, and overtopping by surface water which could cause increased leachate production and increased landfill erosion.

8.11 Transportation, Circulation, and Access

Three types of traffic-related impacts would be associated with construction of one or more landfills on the Otay Ranch site: 1) inadequate site access assuming the circulation system currently in place; 2) impacts to the planned circulation system of the Otay Ranch project in the future; and 3) the generation of vehicular trips during landfill construction and operation.

Wolf Canyon, Site E-1b

Access to the Wolf Canyon site would be possible by extending the existing access road of the Otay Landfill. Therefore, no impacts related to landfill access would be anticipated. Access to the landfill would be primarily through an industrial area that would not be adversely affected by the large waste haul trucks needed by the landfill.

Development of a landfill at this site would preclude the construction of at least one segment of a primary arterial planned for the Otay Ranch project if either the New Town Plan or the Phase I-Progress Plan were implemented. This impact may or may not be

significant and adverse, depending on the redesign of land uses around the landfill and any associated buffers.

Development of a landfill at this site would generate additional vehicular traffic, primarily truck traffic, that could have adverse impacts on the local circulation system.

North Otay Valley, Site E-8

Access to the North Otay Valley site would need to be constructed as part of the landfill project. Based on the existing circulation system, dirt roads extending east from Otay Valley Road would need to be upgraded to accommodate heavy truck traffic. Once SR-125 is constructed through the area, however, access could probably be obtained from this regional highway.

Development of this landfill site would affect the planned circulation system of Otay Ranch to varying degrees depending on which Otay Ranch alternative were implemented. If the New Town Plan were implemented, at least one key primary arterial planned to facilitate local traffic through the Otay River parcel from Telegraph Canyon Road would be adversely affected. A redesign of this road to provide adequate vehicular movement and access through the Otay Ranch project may or may not be feasible. A second key primary arterial connecting Telegraph Canyon Road to Wueste Road at its southern terminus might also be adversely affected.

If the Phase I-Progress Plan were implemented for Otay Ranch, development of a landfill at the North Otay Valley site would probably interfere with the extension of Otay Valley Road/Hunte Parkway and the extension of Alta Road as well as several other planned primary arterials internal to the project. These impacts to the planned local and subregional circulation system would likely be considered significant.

If the Environmental Alternative were selected for the development of Otay Ranch, then a landfill at this site would probably adversely affect the planned extension of Otay Lakes Road/Hunte Parkway and at least one additional planned primary arterial.

Development of a landfill at this site would also generate additional vehicular traffic, primarily truck traffic, that could have adverse impacts on the local circulation system.

8.12 AIR QUALITY

The major air quality concern during both the construction and operational phases of a landfill is dust generation. These types of impacts would be similar at either landfill site. Fugitive dust would be generated by soil excavation, heavy vehicle movement on unpaved surfaces, and exposure of unstabilized dry soil to the wind. An effective watering program can reduce fugitive dust emissions by approximately 50 percent. During landfill construction and earth moving activities, short-term emissions of several criteria pollutants are also likely to occur. Emissions of NO_x, CO, SO_2, particulate matter (TSP and PM_{10}), and total hydrocarbons would be generated from combustion of fuels by construction equipment.

In addition to the above impacts, potential atmospheric impacts from landfill facilities include odors, litter, and gaseous emissions from organic matter decay processes. Localized odor impacts can be expected to occur on the project property at either site and, occasionally, within a distance of approximately one-half mile. Landfill gas (LFG), mostly methane, would be expected to be produced by the landfill due to the decomposition of organic refuse. Over time, this gas can migrate to the surface of a landfill and be released

to the atmosphere. Landfill gas emissions can be controlled in two ways: operational practices (for example, use of a sufficient cover and the reparation of cracks, fissures, and settling); or the installation of a LFG extraction system. Gas collected through an extraction system can then be sold for energy use or flared to the atmosphere for disposal. The need for an extraction system depends on the size of the landfill. The California Air Resource Board's "Suggested Control Measure for Landfill Gas Emissions" states that landfills with less than 0.5 million tons of refuse in-place or that do not emit LFG-generated methane in concentrations greater than 500 ppm (parts per million) may be exempt from the requirement for an extraction system (CARB, et al. 1990).

A landfill at either site would also generate a certain amount of vehicular emissions associated with operational vehicles. These mobile emission sources would include waste hauling trucks, heavy-duty landfill equipment (such as scrapers, compactors and bulldozers), water trucks, and other light-duty trucks.

8.13 NOISE

The primary noise sources associated with landfills are construction equipment during the construction phases and waste collection trucks and heavy equipment used during operation of the facility. Noises from these sources are typically generated during the daylight hours only. Noise monitoring conducted at a similar type of landfill indicates that noise from the most intense period of typical daily landfill activity can be as high as 72 dBA L_{eq} at 100 feet from the active working face (ERCE 1991b).

Both landfill sites are currently proposed for agricultural areas with few or no sensitive receptors in close proximity. However, with the planned development of Otay Ranch, residential land uses would be located immediately adjacent to the landfill property at either site, under any of the Otay Ranch alternatives addressed in this EIR. Therefore, noise mitigation buffers may be required to mitigate noise impacts of the landfill(s). Vehicular noise impacts associated with the waste haul trucks would vary depending on the waste haul routes used.

8.14 PUBLIC SERVICES AND UTILITIES

The public services and utilities that would be needed for development of one or more landfills on Otay Ranch would be electricity, water, sanitary facilities, fire and emergency medical services, and police protection. Impacts would be similar for either landfill site.

Electricity

No electrical equipment is likely to be needed for the landfill itself. However, electricity would be used in a gatehouse or other office structures at the site to operate lights, air conditioners/fans, office machines, telephones, etc. The Otay River parcel is serviced by the San Diego Gas and Electric (SDG&E) Company, and the Otay Lake Substation is located near the southeast boundary of the Otay River parcel. In addition, two SDG&E transmission easements exist on the Otay River parcel. Therefore, significant impacts to electricity service are not likely to occur with development of a landfill at either of the sites.

Water

Water is needed for landfill operations including dust control and compaction as well as for fire prevention/suppression and for drinking water for landfill employees. Both landfill sites would be located within the service district of the Otay Water District (OWD). The OWD currently has a filtration plant, a reservoir, and distribution pipelines in the vicinity of

both of the landfill sites. However, although the landfill sites are within an existing service district and near water distribution and storage facilities, a thorough analysis of each site's water needs and the ability of the OWD to provide the necessary water would need to be addressed in a project-specific EIR once site and design plans for the landfill(s) have been developed. Since most of a landfill's water needs are not necessarily potable water, drinking water for employees could be provided by bottled water if non-potable water is more readily available.

Sewer

Since sanitary facilities for site workers can be provided by portable toilets and landfills do not typically provide sanitary facilities for the general public, no impacts to sewer service would occur at either of the sites.

Fire and Emergency Medical Services

Fire protection service for either of the site's would most likely be provided by either the City of San Diego or the City of Chula Vista. However, since both of the sites are currently located within the unincorporated part of the County (although they are also included within the City of Chula Vista's Eastern Territories), further analysis would need to be conducted in a project-specific EIR. Emergency medical services for unincorporated parts of the county are typically served by emergency medical technicians (EMTs) based at Scripps Hospital in Chula Vista or by the County of San Diego Rural Fire Protection District. An impact analysis would need to be conducted in a project-specific EIR.

Police Protection

The San Diego County Sheriff's Department (SDSD) provides police protection for all unincorporated areas of the county. Either of the site's would be served by the SDSD's Imperial Beach Station. An impact analysis would need to be conducted in a project-specific EIR.

8.15 Risk of Upset

The landfill(s) under consideration by the county would be Class III sanitary landfill(s), i.e., they would not accept hazardous materials, including infectious wastes. However, solid waste streams that originate from households often contain small quantities of materials that area legally classified as hazardous waste. These materials include items such as pesticides, cleaning products, paint products, hobby products, and other types of toxic, flammable, or reactive substances commonly found in households. In addition, no determination has been made as to whether or not the landfill(s) would accept sewage sludge for drying and disposal. The operation of a landfill at either site would be subject to the applicable federal, state, and local regulations regarding the acceptance and disposal of hazardous wastes to ensure that risks to the general public and surrounding land uses are less than significant.

Other types of potential human health and safety issues associated with landfills include accidental spills of waste-hauling vehicles, the potential for landfill gas fires or explosions, offsite health effects due to disease vectors and pests, and offsite contamination of surface water and/or ground-water (as discussed in Section 8.10). These types of impacts are not normally significant problems as long as the landfill(s) are properly designed, maintained, and managed.

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SECTION 9
OTHER REQUIRED CEQA SECTIONS

9.1 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Section 15126 (e) of the CEQA Guidelines requires an analysis of the effects of the proposed project on the short-term use of the environment at the expense of the maintenance of long-term productivity.

As discussed in Section 6 of the EIR, Cumulative Impacts, development of Otay Ranch would result in potentially unavoidable cumulative impacts to the environment, including impacts to land use, landform alteration and aesthetics, biological resources, agricultural resources, mineral resources, transportation, air quality, and noise. Impacts to these resources would be associated with the conversion of undeveloped land from primarily open space and agricultural use to urban uses. Thus, the long-term productive use of the land as wildlife habitat, for agricultural production and cattle grazing, and for the extraction of mineral resources would be precluded by the development of the project.

Several regionally important biological habitats exist on the Otay Ranch property which support sensitive plant and animal species (see Section 3.3). The important resources include vernal pools, other wetlands, the California gnatcatcher, the cactus wren, and over 50 other sensitive plant and animal species. In addition, the project site is part of an important, continuous natural open space network between Otay Ranch and areas to the southeast and northwest of the property. The ultimate design of the Otay Ranch open space could affect the long-term viability of the open space system and the viability of individual species.

There would be impacts to cultural and paleontological resources of both a direct and indirect nature. While these impacts may be mitigable, the resources may not remain in their current state, thus removing some of the value associated with their *in situ* condition and original context as well as the loss of information associated with potential future improvements in the technology for sampling and evaluation of these resources.

The proposed Otay Ranch project would result in the development of a planned community in phases over a 30- to 50-year period. The proposed short-term and long-term uses of the land would include development of single and multifamily residential units, industrial and commercial areas, active and passive recreational facilities, resort facilities, a university, natural open space, and the public infrastructure required to serve these uses. These uses would comprise both the short- and long-term use of the property and would preclude the beneficial uses described above. The unavoidable adverse impacts associated with the conversion of the area to urban land uses would include potential land use conflicts within and adjacent to the proposed project, visual impacts, degradation of air quality, increased pressure on the local and regional transportation network, increased noise levels, and increased potential from a risk of upset associated with the use or transport of hazardous materials.

Baldwin Vista, the project applicant, believes the Otay Ranch project is both appropriate and timely for two major reasons. First, much of Otay Ranch is currently surrounded by urban development. Residential, commercial, and industrial uses are adjacent to the property on the north, northwest, and south. Otay Ranch is uniquely located to weave

diverse uses into a smooth overall pattern of urban uses, rural uses, and open spaces. This can only be achieved now, before continued expansion of these uses on a piece-meal basis eliminates flexibility, making it difficult, if not impossible, to ensure smooth transitions from one area to another. Second, the preliminary Series 8 Regional Growth Forecast suggests there will be a shortfall of developable land. Otay Ranch is in an ideal location to accommodate such growth. It is near existing urban areas and basic infrastructure is already in place. With expansion and upgrading, additional people and jobs can accommodate the projected growth.

9.2 Significant Irreversible Environmental Changes

Section 15126(f) of the CEQA Guidelines requires the identification of significant irreversible environmental changes associated with implementation of a proposed project. As discussed above in Section 8.1, there would be irreversible changes to the existing environment resulting from the conversion of the property from open space and agricultural uses to an urban development. This development would result in the irretrievable commitment of important biological resources as well as agricultural resources; mineral resources; and prehistoric, historic, and paleontological resources. These resources are described in detail in Section 3 of this EIR.

Additional resource losses would include water, wood and aggregate materials used in construction, and the direct consumption of non-renewable fossil fuels (diesel fuel, gasoline, and oil) for construction equipment and automobiles traveling to and from the residential, commercial, and industrial development. The project would also result in the indirect consumption of fossil fuels for generation of electricity to operate the infrastructure to support the development. As discussed above, there would also be an increased risk to the environment of an upset condition from the use and transport of hazardous materials.

9.3 Unavoidable Significant Environmental Impacts

There are a number of impacts which cannot be avoided with the development of the Otay Ranch. Unavoidable impacts would occur with development of the proposed New Town Plan as well as the project alternatives, although to different degrees. Unavoidable adverse impacts would occur to the following resources with the development of Otay Ranch:

- Land Use, Planning, and Zoning
- Landform Alteration/Aesthetics
- Biological Resources
- Agricultural Resources
- Transportation, Circulation, and Access
- Air Quality
- Noise

Potential unavoidable impacts include impacts for which no mitigation is possible, as well as impacts that would remain following the implementation of mitigation measures. Table 1.1-1 identifies the potential impacts and recommended mitigation measures associated with the implementation of the proposed project or the project alternatives. The "Analysis of Significance" column in this table indicates the unavoidable significant impacts associated with the development of Otay Ranch.

9.4 Effects Not Found to be Significant

According to CEQA (Section 15128), EIRs shall identify any environmental impacts that were determined not to be significant and were therefore not discussed in detail in the EIR.

The Otay Ranch Program EIR did not dismiss any potential impacts from detailed consideration in the EIR.

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SECTION 10
REFERENCES

Advanced Sciences, Inc. (ASI). 1987. Miscellaneous sensitive resource maps and species lists of United Enterprises Property, Otay Ranch, California.

Advanced Sciences, Inc. (ASI). 1988. Draft Interim Report on Vernal Pools/Mima Mound Areas on the Otay Ranch Property. ASI, San Diego, California.

Allen, Robert. 1990. *Euphydryas editha quino* (Behr) (Lepidoptera: Nyumpalidae) Quino Checkerspot, Behr's Checkerspot, Wright's Checkerspot Butterfly. Edited by MBA, May 18, 1990. February.

Alquist Priolo. 1990. Fault-Rupture Hazard Zones in California, Department of Conservation, Division of Mines and Geology.

American Ornithologists' Union. 1957. Check-list of North American Birds. 5th Edition. American Ornithologists' Union. Baltimore. MD. 691 pp.

American Ornithologists' Union. 1983. Check-list of North American Birds. 6th Edition. American Ornithologists' Union. Washington. D.C. 877 pp.

American Ornithologists' Union. 1984. Report of meeting of the Committee on Classification and Nomenclature. Auk 101:348.

American Ornithologists' Union. 1985. Thirty-fifth supplement to the American Ornithologists' Union checklist of North American birds. Auk 102:680-686.

American Ornithologists' Union. 1987. Thirty-sixth supplement to the American Ornithologists' Union checklist of North American birds. Auk 104:591-596.

American Ornithologists' Union. 1989 Thirty-seventh supplement to the American Ornithologists' Union checklist of North American birds. Auk 106:532-538.

American Ornithologists' Union. 1991 Thirty-eighth supplement to the American Ornithologists' Union checklist of North American birds. Auk 108:752.

Artim, E.R. and C.J. Pinckney. 1973. La Nacion fault system, San Diego, California: Bulletin, Geological Society of America. 84:1075-1080.

Artim, E.R. and Streiff, D. 1981. Trenching the Race Canyon fault zone, San Diego, California. Final Technical Report sponsored by U.S. Geological Survey, Contract No. 14-08-0001.

Atwood. 1980. The United States distribution of the California black-tailed gnatcatcher. Western Birds 11:65-78.

Axelrod, D.I. and T.A. Demere. 1984. A Pliocene flora from Chula Vista. San Diego County, California. Transactions, San Diego Society of Natural History. 20(15)277-300.

Baldwin Vista. 1991. Otay Ranch Facility Implementation Plans. December.

Baldwin Vista. 1992. Draft Otay Ranch General Development Plan/Subregional Plan. March 11.

Bauder, E.T. 1986. San Diego vernal pools, recent and projected losses; their condition; and threats to their existence 1979-1990. U.S. Fish and Wildlife Service, Office of Endangered Species.

Beauchamp, R. Mitchel and T.L. Cass. 1979. San Diego Vernal Pool Survey. California Department of Fish and Game, Non-Game Wildlife Investigation, Endangered Plant Program. 145 Job I-1.0.

Beauchamp, R.M. 1986. A flora of San Diego County, California. Sweetwater River Press.

Beauchamp, R.M. and T. Cass. 1979. San Diego County regional vernal pool survey. California Department of Fish and Game.

Bedwell, S.F. 1970. *Prehistory and Environment of the Pluvial Fork Rock Lake Area of South Central Oregon*, Ph.D. dissertation. Department of Anthropology, University of Oregon, Eugene.

Beedy et al. 1991. Breeding status, distribution, and habitat associations of the tricolored blackbird (prepared for USFWS Sac California and in cooperation with Jones & Stokes Associates, Inc.).

Berryman, Stanley R. and Judy A. Berryman. 1987. Archaeological Overview and Planning Document for the Proposed Rancho Otay Project. Prepared for Rancho Otay/United Enterprises Archaeology Report #1, April.

Bond, S.I. 1977. An annotated list of the mammals of San Diego County, California. Trans. San Diego Soc. Nat. Hist., 18:229-247.

Bonilla, M.G. 1970. Surface faulting and related effects, in Earthquake Engineering, Robert L. Wiegel, editor, Prentice-Hall, p. 47-74.

Brown Field Airport Master Plan. 1990.

Brown, J.W. and W.W. McGuire. 1983. A new subspecies of *Euphyes vestris* (Boisduval) from Southern California (Lepidoptera: Hesperiidae). Trans. San Diego Society of Natural History 20: 57-68.

Brown-Berry. 1992. Biology and management of bats in Southern California. Prepared for: Southern California Chapter of the Wildlife Society bat workshop. July 16-17, 1992.

Bureau of Land Management. 1974. Technical Note: Habitat Management Series for Endangered Species. Report No. 4: Spotted Bat *Euderma maculatum*. June 13 pp.

Bureau of Land Management. 1974. Technical Note: Habitat Management Series for Unique or Endangered Species. Report No. 11: Burrowing owl (*Speotyto cunicularia hypugaea*). June. 25 pp.

California Air Resources Board (CARB), Stationary Source Divisions and California Air Pollution Control Officer's Association, Technical Review Group Landfill Gas Subcommittee, 1990. "Suggested Control Measure for Landfill Gas Emissions", Resolution 90-57. Approved September 13.

California Air Resources Board (CARB). 1985-1990. California Air Quality Data - Annual Summary of 1985, 1986, 1987, 1988 and 1989: Gaseous and Particulate Pollutants. Technical Support Division, Sacramento, California.

California Association of Resource Conservation Districts. 1989. Certification of Local Committee (LAC) Review and Approval of the San Diego County Important Farmland Map. July 31.

California Department of Conservation and State Mining and Geology Board. 1985. Designation of Regionally Significant Construction Aggregate Resource Areas in, the Western San Diego County Production - Consumption Region, SMARA Designation Report No. 4.

California Department of Conservation. 1988. San Diego County Important Farmlands Map. Released 1990.

California Department of Conservation. 1990. 1986 to 1988 Farmland Conversion Report. Prepared by Farmland Mapping and Monitoring Program, April.

California Department of Fish and Game (CDFG). 1965. California fish and wildlife plan. The Resources Agency, Volume 3(c):908.

California Department of Fish and Game. 1991. Special animals. August.

California Department of Fish And Game. 1992. Natural Diversity Database. Sacramento, California.

California Department of Food and Agriculture (CDFA). 1981. Important farmlands inventory as applied to the State of California (CA Sec. 506.17[k]). February.

Carrico, Richard L., Theodore G. Cooley and Andrew Pigniolo. 1991. Cultural Resources Inventory and Evaluation of the 22,874-Acre Otay Ranch. Draft Technical Report prepared by ERCE for the City of Chula Vista and the County of San Diego.

Chandler, R.M. 1982. A second record of Pleistocene Passenger Pigeon from California. Condor 84:242.

Church Engineering, Inc. 1990. Otay Ranch Master Drainage Plan, prepared for the Baldwin Company.

City of Chula Vista. 1985. Chapter 19.68, Performance Standards and Noise Control.

City of Chula Vista. 1988. City of Chula Vista Design Standards Policy.

City of Chula Vista. 1989a. General Plan Update. March.

City of Chula Vista. 1989b. General Plan - Open Space and Conservation Element, July 11.

City of Chula Vista. 1989c. Addendum to Draft EIR 89-9, EastLake III/Olympic Training Center. October

City of Chula Vista. 1990. General Plan.

City of Chula Vista. 1991. Growth Management Program, Resolution No. 1610, adopted April 23.

City of San Diego Noise Ordinance. Section 59.5.0401, Sound Level Limits, as Amended October 28, 1985.

City of San Diego. 1979. Progress Guide and General Plan - City of San Diego.

City of San Diego. 1981. Otay Mesa Community Plan, April.

City of San Diego. 1987. Street Design Manual.

City of San Diego. 1989. Progress Guide and General Plan Map.

Cleveland, G.B. 1960. Geology of the Otay Bentonite Deposit, San Diego County, California CDMG Special Report 64.

Cleveland, G.B. 1960. Geology of the Otay bentonite deposit, San Diego County California. California Division of Mines Special Report 64, 16 p.

County of San Diego Noise Ordinance. Section 36.404, As Amended, March 25, 1986.

County of San Diego. 1977. Open Space Element, Part I of the San Diego County General Plan - 1990. Revised August 25.

County of San Diego. 1979. Regional Land Use Element, Policy 2.5. Amended August 1, 1990.

County of San Diego. 1980. Conservation Element (Part X) of the County General Plan. Planning Department, GPA-80-61.

County of San Diego. 1983. Jamul/Dulzura Subregional Plan, Part XXIV of the San Diego County General Plan - 1995. Amended December 14.

County of San Diego. 1983. Supplemental Draft Environmental Impact Report: Phase II of the Otay Mesa Land Use Plan. Ms. on file at South Coast Information Center, San Diego State University, San Diego, California.

County of San Diego. 1984. Otay Subregional Plan, Part 23. San Diego County General Plan-1995.

County of San Diego. 1985. Department of Public Works, Public Road Standards. January.

County of San Diego. 1985. Zoning Ordinance.

County of San Diego. 1986. Housing Element, Part IX of the San Diego County General Plan. October.

County of San Diego. 1990a. Regional Land Use Element, Part II. San Diego County General Plan.

County of San Diego. 1990b. Conservation Element of the General Plan. August.

County of San Diego. 1991. Recreation Element, Part IV of the San Diego County General Plan. Amended June 12.

Cowardin, L.M., F.C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service, U.S. Department of Interior, December.

Dames & Moore. 1990a. Viewshed Line of Site Analysis of Otay Ranch.

Dames & Moore. 1990b. Slope Analysis of Otay Ranch.

Dames & Moore. 1990c. Program Environmental Impact Report for Otay Ranch. Prepared for the Otay Ranch Interjurisdictional Task Force, January 11.

Dames & Moore. 1991. Draft Report Off-Site Alternatives Analysis for Otay Ranch Project. March 8.

Davis, Emma Lou, Clark W. Brott and David L. Weide. 1969. The Western Lithic Co-Tradition. *San Diego Museum Papers* 6. San Diego Museum of Man, San Diego.

Demere, T.A. 1983. The Neogene San Diego Basin: A review of the marine Pliocene San Diego Formation. In Larue, D.K., and Steel, R.J. (eds.), Cenozoic Marine Sedimentation, Pacific Margin, U.S.A. Pacific Section Society of Economic Paleontologists and Mineralogists, Guidebook, V. 28, 187-195.

Demere, T.A. 1986a. The fossil whale, *Balaenoptera davidsonii* (Cope 1872), with a review of other Neogene species of *Balaenoptera* (Cetacea: Mysticeti). Marine Mammal Science 2(4):277-298.

Demere, T.A. 1986b. EastLake: A new chapter in the geologic history of San Diego County. Environment Southwest. 515:9-13.

Demere, T.A. 1988. Early Arikareean (late Oligocene) vertebrate fossils and biostratigraphic correlations of the Otay Formation at EastLake, San Diego County, California. In Filewicz, M.V. and R.L. Squires (eds.), Paleogene Stratigraphy, West Coast of North America. Pacific Section Society of Economic Paleontologists and Mineralogists, V. 58, 35-43.

Department of Social Services (DSS). 1990. Fact Sheet Prepared by DSS Revenue and Budget Management (Revised 2-90).

Detrich, Phillip J. 1981. Results of the California Winter bald eagle survey 1979-1981. Prepared for: U. S. Fish and Wildlife Service. 15 pp. and appendices.

Domning, D.P. and T.A. Demere. 1984. New material of *Hydrodamalis cuestae* (Mammalia:Dugongidae) from the Miocene and Pliocene of San Diego County, California. Transactions, San Diego Society of Natural History. 20(12):169-188.

Dudek and Associates, Inc. 1991. A report on the sensitive butterfly species present or potentially present on the Otay Ranch Property.

Dudek and Associates, Inc. 1992a. Report on the Flora of the Otay Ranch Vernal Pools, 1990-1991, San Diego County, California. Prepared for Baldwin Vista Associates. March 12.

Dudek and Associates, Inc. 1992b. Draft Phase 1 Otay Ranch Resource Management Plan. Submitted to Otay Ranch Joint Project Planning Team. July 31.

Ehrlich, P.R. et al. 1975. Checkerspot butterflies: a historical perspective. Science 188:221-228.

Emmel, T.C. and J.F. Emmel. 1973. The Butterflies of Southern California. Natural History Museum of Los Angeles County, Science Series 26:1-148.

Engineering-Science, Inc. 1988. Paleontologic resource assessment overview, southern Ventura County, California. Prepared for Ventura County Resource Management Agency.

Engstrand, Iris H.W. 1980. San Diego: California's Cornerstone. Tulsa: Continental Press.

Environmental Protection Agency. 1985. Compilation of Air Pollution Emission Factors (AP-42).

ERCE. 1990. Biological Survey Report for the Hidden Valley Estates Property. Prepared for the County of San Diego.

ERCE. 1990a. Santee Light Rail Transit Project, Air Quality/Energy Technical Report, September.

ERCE. 1990b. Sunbow Phase II Environmental Impact Report. Prepared for City of Chula Vista Planning Department.

ERCE. 1990c. Salt Creek Ranch Annexation/General Development Plan/Pre-Zone Environmental Impact Report. Prepared for City of Chula Vista.

ERCE. 1990d. Sound level measurements taken at the Cold Canyon Landfill. San Luis Obispo, California.

ERCE. 1991. Third Annual Report for the San Diego Thorn-Mint (*Acanthominthe illicifolia*) Biological Mitigation Plan for the Westview Planned Residential Development Submitted to the California Department of Fish and Game, Endangered Plant Program.

ERCE. 1991a. Sound level measurements taken at Syar Quarry, Solano County, California.

ERCE. 1991b. Sound level measurements taken at the El Dorado County Landfill. El Dorado County, California.

ERCE. 1991c. The Mission Valley West Light Rail Transit Project, Air Quality/Energy Technical Report, August.

ERCE. 1992. Second Annual Report for the Palos Vista Thorn-mint Mitigation Program. Submitted to the California Department of Fish and Game, Endangered Plant Program.

Everett, W.T. 1979. Threatened, declining and sensitive bird species in San Diego County. San Diego Audubon Society, Sketches, June.

Fahrig, L. and G. Merriam. 1985. Habitat patch connectivity and population survival. Ecology 66(6):1762-1768.

Gallegos, Dennis R. 1987. A Review and Synthesis of Environmental and Cultural Material for the Batiquitos Lagoon Region. In San Dieguito-La Jolla: Chronology and Controversy. San Diego County Archaeological Society Research Paper, No. 1.

Gallegos, Dennis R. and Richard Carrico. 1984. Windsong Shores Data Recovery Program for Site W-131 Carlsbad, California. Report prepared by, and on file, ERC Environmental and Energy Services, Co.

Garth, J.S. and J.W. Tilden. 1988. California butterflies. University of California Press, Berkeley, California. 246 pp.

Golz, D.J. and J.A. Lillegraven. 1977. Summary of known occurrences of terrestrial vertebrates from Eocene strata of southern California in Contributions to Geology-Wyoming University V15 No. 1 pp. 43-65.

Greensfelder, R.W., 1974. Maximum credible rock acceleration from earthquakes in California. California Division of Mines and Geology, Map Sheet 23.

Gregg & Associates, Inc. 1987. Preliminary geotechnical investigation-United Enterprises Property, western San Diego County, California. Prepared for United Enterprises.

Gregg and Associates, Inc. 1987. Phase II Geotechnical Investigation and Conceptual Reclaimed Wastewater Disposal Plan.

Harding, M. 1951. La Jollan Culture. *El Museuo*. 1(1)10-11,31-38.

Hayes, Marc P. and Dana M. Krempels. 1986. Vocal sac variation among frogs of the genus *Rana* from western North America. Copeia 1984: 1018-1022.

Hayes, Marc P. and Mark R. Jennings. 1986. Decline of ranid frog species in western North America: Are bullfrogs (*Rana catesbiana*) responsible? Journal of Herpetology 20: 490-509.

Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. State of California, The Resources Agency.

Hughes, Heiss & Associates. 1991. Technical Report describing the Assumptions and Methodology employed to complete macro analysis of the three development alternatives for the Otay Ranch project. Page 50, Table 18. February.

Ingles, Lloyd G. 1965. *Mammals of the Pacific States: California, Oregon and Washington*. Stanford University Press. Stanford, California. 506 pp.

Jameson, E. W. and H. J. Peeters. 1988. *California Mammals*. University of California Press. 403 pp.

JBF & Associate. 1989. Existing conditions report, Otay Ranch, San Diego, California. Prepared for Baldwin Vista Associates.

JBF & Associates. 1989a. Public Services Technical Report, Otay Ranch. October 23.

JBF & Associates. 1989b. Existing Conditions Report. Otay Ranch. San Diego, California. October 30.

Jennings, M.R. 1987. Annotated checklist of the Amphibians and Reptiles of California. Second Edition. Southwestern Herpetelogists' Society. Special Publication Number 3.

JHK & Associates (JHK). 1988. Chula Vista General Plan Circulation Element.

JHK & Associates (JHK). 1990. Technical Summary of the Transportation Analysis of the Otay Ranch General Plan Amendment.

Johnsgard, Paul A. 1988. *Hawks, Eagles and Falcons of North America*. Washington D. C.: Smithsonian Institution Press.

Johnsgard, Paul A. 1988. *North American Owls: Biology and Natural History*. Washington D.C.: Smithsonian Institution Press.

Jones, D.A. and R.H. Miller. 1982. Jurassic fossils from the Santiago Peak Volcanics, San Diego County, California. In Abbott, P.L. (ed.) Geologic Studies in San Diego. San Diego Association of Geologists, Guidebook, 93-103.

Jones, J.K., Jr., D.C. Carter, H.H. Genoways, R.S. Hoffman, and D.W. Rice. 1982. Revised checklist of North American mammals north of Mexico, 1982. Occasional Papers, Museum, Texas Tech University, No. 80.

Jones, J.K., Jr., D.C. Carter, H.H. Genoways, R.S. Hoffman, D.W. Rice, and C. Jones. 1986. Revised checklist of North American mammals north of Mexico, 1986. Occasional Papers, Museum, Texas Tech University, No. 107.

Kaldenburg, Russell L. 1982. Rancho Park North, A San Dieguito-La Jolla Shellfish Processing Site on Coastal Southern California. *Occasional Paper No. 6*. Imperial College Museum Society, El Centro, California.

Karr, J.R. 1990. Avian Survival Rates and the Extinction Process on Barro Colorado Island, Panama. Conservation Biology, 4:391-397.

Kennedy, G.L. 1973. A marine invertebrate faunule from the Lindavista Formation, San Diego, California: San Diego Society of Natural History. Transactions. V. 17, pp. 119-128.

Kennedy, M.P. 1975. Geology of San Diego Metropolitan Area, California Division of Mines and Geology, Bulletin 200.

Kennedy, M.P. and G.W. Moore. 1971. Stratigraphic relations of upper Cretaceous and Eocene formations, San Diego coastal area, California. Bulletin, American Association of Petroleum Geologists. 55:709-722.

Kennedy, M.P. and S.S. Tan. 1977. Geology of National City, Imperial Beach, and Otay Mesa quadrangles, southern San Diego Metropolitan area, California. California Division of Mines and Geology, Map Sheet 29.

Kennedy, M.P. and Welday, E.E. 1980. Character and Recency of faulting offshore, Metropolitan San Diego, California. California Division of Mines and Geology, Map Sheet 40.

Kennedy, M.P., and Tan, S.S., 1977. Geology of National City, Imperial Beach, and Otay Mesa Quadrangles, Southwestern San Diego Metropolitan Area, California. CDMG Map Sheet 29.

Kennedy, M.P., S.H. Clark, H.G. Greene, and M.R. Legg, 1980b. Recency and character of faulting offshore, Metropolitan San Diego, California.

Kern, J.P. 1977. Origin and history of upper Pleistocene Marine terraces, San Diego, California. Geological Society of America Bulletin, Vol. 88 pp. 1553-1566.

Kern, J.P. 1978. Paleoenvironment of new trace fossils from the Eocene Mission Valley Formation, California. Journal of Paleontology. 52:186-194.

Kleinfelder, Inc. 1990. Otay Ranch New Town Integrated Solid Waste Management Plan Overview. May.

Kornblatt, Helene B. 1989. Final Environmental Impact Report, Oceanside - San Diego Commuter Rail Project, December.

Kuper, H.T. and R.G. Gastel. 1977. Reconnaissance of marine sedimentary rocks of southwestern San Diego County: (in Farrand, G.T. (ed) Geology of southwestern San Diego County, California and northwestern Baja, California. San Diego Association of Geologists Field Trip Guidebook). pp. 9-15.

Kyle, C., A. Schroth and D. Gallegos. 1990. Early Period Occupation of the Kuebler Ranch Site SDi-8654, Otay Mesa, San Diego County, California. Report on file at ERC Environmental and Energy Services Co.

LAFCO. 1990. Agricultural and Open Space Hands Preservation Policy. Amended June 4.

LAFCO. 1990. Agricultural Lands Preservation Policy. Amended June 4.

Laudenslayer, William F., Jr., W. E. Grenfell, Jr. and D. Zeiner. 1991. A check-list of the amphibians, reptiles, birds, and mammals of California. The Resources Agency: 77(3): 109-141.

Leighton and Associates. 1983. Updated City of San Diego Seismic Safety Study.

LeRoy Crandall & Associates. 1980. Report of Geologic-Seismic Study, Marina Redevelopment Project Area, San Diego, Calfironia, for Centre City Development Corporation.

Lindvall, S.C., Rockwell, T.K., and Lindvall, C.E. 1990 (in press). The seismic hazard of San Diego revised: new evidence for magnitude 6+ Holocene earthquakes on the rose Canyon fault zone: Proceedings Volume of the Fourth U.S. Conference on Earthquake Engineering, May 20-24, 1990, Earthquake Engineering Research Institute.

McGowan, Charlotte. 1977. Archaeological Excavation F:5:1. Paper prepared for Southwestern College. Ms. on file at ERC Environmental and Energy Services, Co., San Diego, California.

McGurty, B.M. 1980. Status survey report on the orange-throated whiptail lizard and the San Diego coast horned lizard occurring on Camp Pendleton, NAS Miramar, and Fallbrook Naval Weapons Station Annex, August to November 1981. U.S. Fish and Wildlife Service, Endangered Species Office.

McGurty, B.M. 1980. Survey and status of endangered and threatened species of reptiles natively occurring in San Diego, California. San Diego Herpetological Society.

McGurty, B.M. 1980. Status of the Endangered Amphibians of San Diego County. San Diego Herpetological Society.

Michael Brandman Associates (MBA). 1989. Biological Resources Survey Report, Otay Ranch-Proctor Valley Area. Prepared for The Baldwin Company. September.

Michael Brandman Associates (MBA). 1991. Report on the Hydrology and Flora of the Otay Ranch Vernal Pools, 1990. Prepared for The Baldwin Company. March.

Moratto, Michael J. 1984. *California Archaeology*. Academic Press, Inc.

Moriarty, James R. III. 1967. Transitional Pre-Desert Phase in San Diego County. *Science*, 155-37-62.

Mumford, Bart 1992. Otay Water District. Telephone conversation. November 11.

Mumford, Bart. 1992. Planning Manager, Otay Water District. Personal Communication. March.

MWD. 1990. The Regional Urban Water Management Plan for the Metropolitan Water District of Southern California. November.

National Audubon Society. 1978. Proceedings of the National Audubon Society's symposium on the Current status of peregrine falcon populations in North America. Philip P. Schaeffer and S. M. Ehlers eds. 67 pp.

National Oceanic and Atmospheric Administration (NOAA). 1982. Climate of the United States (California), Climatography of the United States No. 81. National Climate Center, Asheville, North Carolina.

Oberbauer, T.A. 1978. Distribution of dynamics of San Diego County grasslands. Unpublished M. S. thesis, California State University, San Diego. 120 pp. and map.

Oberbauer, T.A. and J.M. Vanderwier. 1991. The Vegetation and Geologic Substrate Association and Its Effect on Development in San Diego County. In: Abbott, P.L. and W.J. Elliott, eds. Environmental Perils, San Diego Region. San Diego Association of Geologists, October 20.

Office of Historic Preservation. 1989. California Archaeological Handbook for Completing an Archaeological Site Record. California Department of Parks and Recreation, Sacramento, California.

Ogden Environmental and Energy Services Company. 1992a. Otay Ranch Raptor Management Study. Prepared for the Otay Ranch Project Team. July.

Ogden Environmental and Energy Services Company. 1992b. Baldwin Otay Ranch Wildlife Corridor Studies. Prepared for the Otay Ranch Project Team. December.

Owen Consultants. 1990. Geotechnical and Environmental Investigation for proposed Civic Centre Site, San Diego, California.

Pacific Southwest Biological Services (PSBS). 1978. Biological Survey of the Nelson and Sloan Rock Quarry.

Pacific Southwest Biological Services (PSBS). 1987. Botanical survey.

Pacific Southwest Biological Services (PSBS). 1988. Olympic Training Center Biological Survey.

Pacific Southwest Biological Services (PSBS). 1989. Biological Survey of the Nelson and Sloan Otay Valley Rock Quarry at Rock Mountain.

Pacific Southwest Biological Services (PSBS). 1989. Sunbow.

Painter, Susan. 1985. Otay Mesa: A study of the impact of water on land use. M.A. Thesis, San Diego State University.

Peterson, G.L., 1970. Quaternary deformation of the San Diego area, southwestern California. American Association of Petroleum Geologists Guidebook, Pacific Section, Fall Field Trip, pp. 120-126.

Phillips, Roxana. 1988. Historical/Archaeological Report on the Schott Homestead Otay Mesa. Prepared for ERC Environmental and Energy Services, Co., San Diego, California.

Pigniolo, Andrew and Dennis Gallegos. 1990. Investigation of Early and Late Period Occupation at SDi-7197 Loci A-1 and E and SDi-11,626, Salt Creek I Project, Chula Vista, California. Draft Ms. on file at ERC Environmental and Energy Services, Co.

Ploessel, M.R., and Slosson, J.E. 1974. Repeatable high ground acceleration from earthquakes. California Geology, Vol. 27, No.9, p. 195-199.

Pourade, Richard F. 1976. *Historic Ranchos of San Diego*. San Diego: Union-Tribune Publishing Company.

Rea, R.M. and K.L. Weaver. 1990. The taxonomy, distribution, and status of coastal California cactus wrens. Western Birds vol. 21:81-126.

RECON. 1991. Biological resources inventory report for the Otay Ranch property. Prepared for the Baldwin Company, San Diego, California (revised October 12, 1989 report).

Regional Water Quality Control Board (RWQCB). 1975a. Comprehensive Water Quality Control Plan Report, San Diego Basin 9, State Water Resource Control Board.

Regional Water Quality Control Board (RWQCB). 1975b. Water Quality Control Plan, San Diego Basin, California.

Regional Water Quality Control Board (RWQCB). 1979. Comprehensive Water Quality Control Plan Report, San Diego Basin 9, State Water Resource Control Board.

Reinen, R.H. 1978. Notice of exercise of Section 404 jurisdiction over certain streams and wetlands in California. Los Angeles District, Corps of Engineers, July 15.

Remsen, V. 1978. The species of special concern list: an annotated list of declining or vulnerable birds in California. Western Field Ornithologist, Museum of Vertebrate Zoology, University of California, Berkeley.

Ritz, F., M. Davis, R. Collett, W. Manley and S. Hector. 1989. Otay Ranch Archaeological Survey: San Ysidro Mountains Parcel, Proctor Valley Parcel, Otay River Parcel. Report prepared by RECON for the Baldwin Company. Ms. on file at ERC Environmental and Energy Services, Co.

Ritz, Frank and Charles S. Bull. 1990. Otay Ranch Archaeological Survey: San Ysidro Mountains Parcel, Proctor Valley Parcel, Otay River Parcel. Report prepared by RECON for the Baldwin Company. Ms. on file at ERC Environmental and Energy Services, Co., San Diego, California.

Rockwell, J.K., and Lindvall, S. 1990. Halocene activity of the Rose Canyon fault in San Diego, California, based on trench exposures and tectonic geomorphology [abst.]: Geological Society of America, Abstracts with Programs, V. 22, No. 3, p. 78.

Rogers, Malcolm J. 1939. Early Lithic Industries of the Lower Basin of the Colorado and Adjacent Desert Regions. *San Diego Museum Papers,* No. 3 (May).

Rogers, Malcolm J. 1945. An Outline of Yuman Prehistory. *Southwestern Journal of Anthropology.* 1(2):167-198.

Rolle, Andrew F. 1975. *California History.* Arlington Heights: AHM Publishing Corporation.

Rush, Phillip S. 1965. *Some Old Ranchos and Adobes.* San Diego: Neyenesch Printers, Inc.

Sacco, R. 1991. County Noise Abatement Officer. Personal communication with Ray Sacco, May 17.

San Diego Acoustics, Inc. 1991. Environmental Noise Analysis, Daley Road Quarry and Crushing Plant - Otay Lakes Road. March 26.

San Diego Associates of Government (SANDAG). 1981.

San Diego County General Plan. 1979. Regional Land Use Element, Part II, XXIII, XXIV. Adopted January 3, 1979.

SANDAG. 1988. Series 7 Regional Growth Forecast, 1986-2010, Census Tract 100.07, SPA 20, Sweetwater, and Census Tract 213.00 (Jamul SPA). July.

SANDAG. 1990. San Diego Trip Generators, January.

SANDAG. 1991. 1990 Regional Transportation Plan.

SANDAG. 1991. Model Regional Transportation Demand Management Program.

Santa Barbara Air Pollution Control District (SBAPCD). 1989. Draft 1989 Air Quality Attainment Plan; Appendix C - Stationary Source Control Measures, November.

Saper, Irene. 1987. Social Services Plan for the City of Chula Vista. April.

Scheidemann, R.C., Jr. and H.T. Kuper. 1979. Stratigraphy and lithofacies of the Sweetwater and Rosarito Beach formations, southwestern San Diego County, California and northwestern Baja California, Mexico. In Stuart, C.J. (ed.), A Guidebook to Miocene Lithofacies and Depositional Environments, Coastal Southern California and Northwestern Baja California: Pacific Section Society of Economic Paleontologists and Mineralogists, Guidebook, p. 107-118.

Schmidt, Martin. 1992. Landscape Architect, City of Chula Vista Parks and Recreation Department. Written correspondence August 28.

Scott, T.A. 1985. Human impacts on the Golden Eagle population of San Diego County from 1928 to 1981. Master's thesis, San Diego State University.

SDCWA 1992. 1992 Strategic Plan of the San Diego County Water Authority. Adopted May. 14.

SDCWA 1992. Water Talk. Volume.5 Number 4. July

Seed, H.B., and Idriss, I.M. 1982. Ground motions and soil liquefaction during earthquakes. Earthquake Engineering Research Institute.

Soil Conservation Service (SCS). 1973. Soil Survey of San Diego County. U.S. Department of Agriculture.

Soulé, M.E., D.T. Bolger, A.C. Alberts, R. Sauvajot, J. Wright, M. Sorice, and S. Hill. 1988. Reconstructed dynamics of rapid extinctions of chaparral-requiring birds in urban habitat islands. Conservation Biology 2:75-92.

SourcePoint. 1991a. 1990 Census Population by Race. April.

SourcePoint. 1991b. 1990 Census Total Population and Housing Units. April.

South Coast Air Quality Management District (SCAQMD). 1987. Air Quality Handbook, April.

South Coast Air Quality Management District (SCAQMD). 1988. Draft Air Quality Management Plan 1988 Revision. Draft Appendix IV - A Tier I and Tier II Control Measures, June.

South Coast Air Quality Management District (SCAQMD). 1989. Final Air Quality Management Plan 1989 Revision, March.

State of California. 1986. California Environmental Quality Act (CEQA) Guidelines. Section 15126(g).

Stebbins, R. C. 1985. *A Field Guide to Western Reptiles and Amphibians*. Houghton-Mifflin Co. 279 pp.

Stock, C. 1944. New occurrences of fossil tapir in southern California. Transactions, San Diego Society of Natural History. 10(9):127-130.

Strand, R.G. 1962. Geologic map of California - San Diego-El Centro sheet. California Division of Mines and Geology.

Tate, J. 1986. The Blue List for 1986. American Birds 40:227-236.

Tax Factor Inc. 1928. Aerial Photographs from an Aerial Survey flown between November 1928 and March 1929. On file, San Diego County, Survey Records.

The Professional Research Office. 1990. Long-Range Master Plan for Educational Facilities in Otay Ranch. May.

Treiman, J.A. 1984. The Rose Canyon Fault Zone: A Review and Analysis. California Division of Mines and Geology, funded by Federal Emergency Management Agency Cooperative Agreement EMF-83-K-0148, 106p.

True, Delbert T. 1958. An Early Complex in San Diego County, California. *American Antiquity*, 23(3):255-264.

U.S. Fish and Wildlife Service. 1991. Endangered and threatened wildlife and plants; animal candidate review for listing as endangered or threatened species, proposed rule, 50 CFR Part 17. Federal Register 56 (225):58804-58836, November 21.

United States Department of the Interior, Bureau of Land Management (BLM). 1991. South Coast Planning Area, Draft Resource Management Plan and Environmental Impact Statement. May.

United States Fish and Wildlife Service (USFWS). 1991. Summary of the proposed tale to list the coastal California gnatcatcher (*Polioptilia californica californica*) as endangered in California and Baja, Mexico. September. 114 pp.

United States Geological Services (USGS). 1902. Topographic Map, Jamul Mountains Quadrangle.

United States Geological Survey. 1974. Reported Occurrences of Selected Minerals in the Southern Third of California Map MR-49.

Unitt, P. 1984. *The Birds of San Diego County*. Memoir 13, San Diego Society of Natural History. 276 pp.

Vance, R. 1980. The effect of dispersal on population size in a temporally varying environment. Theoretical Population Biology.

VTN Southwest, Inc. 1989. Drainage and Flood Control Plan for the Development of Otay Ranch by the Baldwin Company.

Wallace, Roberts & Todd. 1988. Plan for the properties of United Enterprises, San Diego, California. Prepared for United Enterprises.

Wallace, W. 1955. A Suggested Chronology for Southern California Coastal Archaeology. In Southwestern Journal of Anthropology, 11:214-230

Warren, Claude N. 1966. The San Dieguito Type Site: M.J. Rogers' 1938 Excavation on the San Dieguito River. *San Diego Museum Paper*, No. 6, San Diego, California.

Watry, Peter 1992. Letter of response to review of the Otay Ranch Draft Program EIR, dated October 7.

Weber, F.H. 1963. Geology (Mines) and Mineral Resources of San Diego County, California. CDMG County Report No. 3.

Weber, F.H., Jr. 1963. Geology and mineral resources of San Diego County. California Division of Mines and Geology County Report 3, 309 p.

Wesnousky, S.G. 1986. Earthquakes, Quaternary faults, and seismic hazard in California. Journal of Geophysical Research, Vol. 91, No. B12, p. 12, 587-12 - 12,631.

WESTEC Services Inc. 1979a. Proponent's Environmental Assessment Miguel to Tijuana Interconnection Project, 230kV Transmission Line. Report prepared for SDG&E. Ms. on file at South Coast Information Center, San Diego State University.

WESTEC Services, Inc. 1977. Survey of chiroptera and carnivora in Imperial, Riverside and San Diego counties. Prepared for: Department of the Interior, Bureau of Land Management. Riverside District. September. 79 pp.

WESTEC Services, Inc. 1979b. Environmental Assessment: Miguel to Tijuana Interconnection Project 230 KV Transmission Line. Prepared for San Diego Gas and Electric Co. September.

WESTEC Services, Inc. 1982. California State Prison at San Diego EIR. Prepared for the California Department of Corrections. October.

Wilcore, D.S., C.H. McLellan, and A.P. Dobson. 1986. Habitat fragmentation in the temperate zone. Chapter 11 in M.E. Soulé (ed.), Conservation Biology: the science of scarcity and diversity. Sinauer Press, Sunderland, Mass.

Wilson Engineering. 1989. Otay Ranch Master Plan of Water and Sewage. October 30.

Wilson Engineering. 1990. Lower Otay Reservoir Urban Runoff Protection Report. May.

Wilson Engineering. 1992a. Written Correspondence regarding the Draft Program EIR. October 1, 1992.

Woodward, Gizienski & Associates. 1974. Seismic Safety Study for the City of San Diego.

Woodward-Clyde Consultants. 1989a. Hazardous Substance Contamination Investigation, Otay Ranch Operations Center. April.

Woodward-Clyde Consultants. 1989b. Hazardous Substance Contamination Site Assessment. Baldwin Otay Ranch West, Parcels 1 and 8. September 18.

Zweifel, Richard G. 1955. Ecology, distribution, and systematics of frogs of the *Rana boylei* group. University of California Publications in Zoology 54 (4): 207-292.

SECTION 11
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