

FINAL DRAFT REPORT

ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE CALIFORNIA GNATCATCHER

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ABBREVIATION AND ACRONYM INDEX

Act	The Endangered Species Act of 1973, as amended
ANF	Angeles National Forest
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
BO	Biological Opinion
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CH	Critical Habitat
CHD	Critical Habitat Designation
CNF	Cleveland National Forest
CSS	Coastal Sage Scrub
DEM	digital elevation model
DFG	California Department of Fish and Game
DoD	Department of Defense
EIR/EIS	Environmental Impact Report/Environmental Impact Statement
EPS	Economic & Planning Systems, Inc.
EUA	Existing Use Area (under the Central/Coastal HCP/NCCP)
Fallbrook	U.S. Naval Weapons Station Seal Beach, Detachment Fallbrook
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
GIS	Geographic Information Systems
HCP	Habitat Conservation Plan
HLP	Habitat Loss Permit
INRMP	Integrated Natural Resource Management Plan
KV	kilovolt
MCAS	Marine Corps Air Station
MHCP	Multiple Habitat Conservation Plan (northern San Diego County)
MHPA	Multiple-Habitat Planning Area (under the MSCP)
MSCP	Multiple Species Conservation Plan (San Diego County)
MSHCP	Multiple-Species Habitat Conservation Plan (western Riverside County)
MWD	Metropolitan Water District
NCCP	Natural Community Conservation Plan

ABBREVIATION AND ACRONYM INDEX (continued)

NRPPA	North Ranch Policy Plan Area (under the Central/Coastal HCP/NCCP)
PCEs	primary constituent elements
RTP	Regional Transportation Plan
SAIA	Sikes Act Improvement Act
SANDAG	San Diego Association of Governments Service
SBNF	San Bernardino National Forest
SBREFA	Small Business Regulatory Enforcement Fairness Act
SCAG	Southern California Association of Governments
SCE	Southern California Edison
SCGC	Southern California Gas Company
SDG&E	San Diego Gas & Electric
the Service	United States Fish & Wildlife Service
SLA	Special Linkage Area (under the Central/Coastal HCP/NCCP)
TCA	Transportation Corridor Agency
UMRA	Unfunded Mandate Reform Act
USACE	United States Army Corps of Engineers
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
USMC	U.S. Marine Corps

EXECUTIVE SUMMARY AND REPORT ORGANIZATION

INTRODUCTION

The purpose of this report is to identify and analyze the potential economic effects of the proposed designation of critical habitat (CH) for the coastal California Gnatcatcher (*Polioptila californica californica*), hereafter referred to as the gnatcatcher. The U.S. Fish and Wildlife Service proposed CH for the gnatcatcher on April 24, 2003 for approximately 495,795 acres of land in Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties in California. This report has been prepared by Economic & Planning Systems, Inc. (EPS), under subcontract to Industrial Economics, Inc., for the U.S. Fish and Wildlife Service's Division of Economics.

Section 4(b)(2) of the Endangered Species Act (the Act) requires the U.S. Fish and Wildlife Service (Service) to designate CH on the basis of the best scientific data available, after taking into consideration the economic effect, and any other relevant effect, of specifying any particular area as CH. The Secretary of the Interior may exclude areas from critical habitat designation (CHD) if the benefits of exclusion outweigh the benefits of including the areas within CH, provided the exclusion will not result in extinction of the species.

The focus of this economic analysis is on section 7 of the Act, which requires Federal agencies to insure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of CH. Federal agencies are required to consult with the Service whenever they propose an action that may affect a listed species or its designated CH.

The Service published a determination of threatened status for the gnatcatcher on March 30, 1993 (58 FR 16742). On October 24, 2000, the Service published a Final Rule designating approximately 514,000 acres as CH(65 FR 63680). In response to a number of lawsuits filed subsequent to the designation, the Service requested a remand of the

designation, which the U.S. District Court for the Central District of California granted on June 11, 2002. The Court ordered the Service to complete a new proposed rule by April 11, 2003, and held that the designation should remain in place until a new, final regulation becomes effective.

36 **ORGANIZATION OF REPORT**

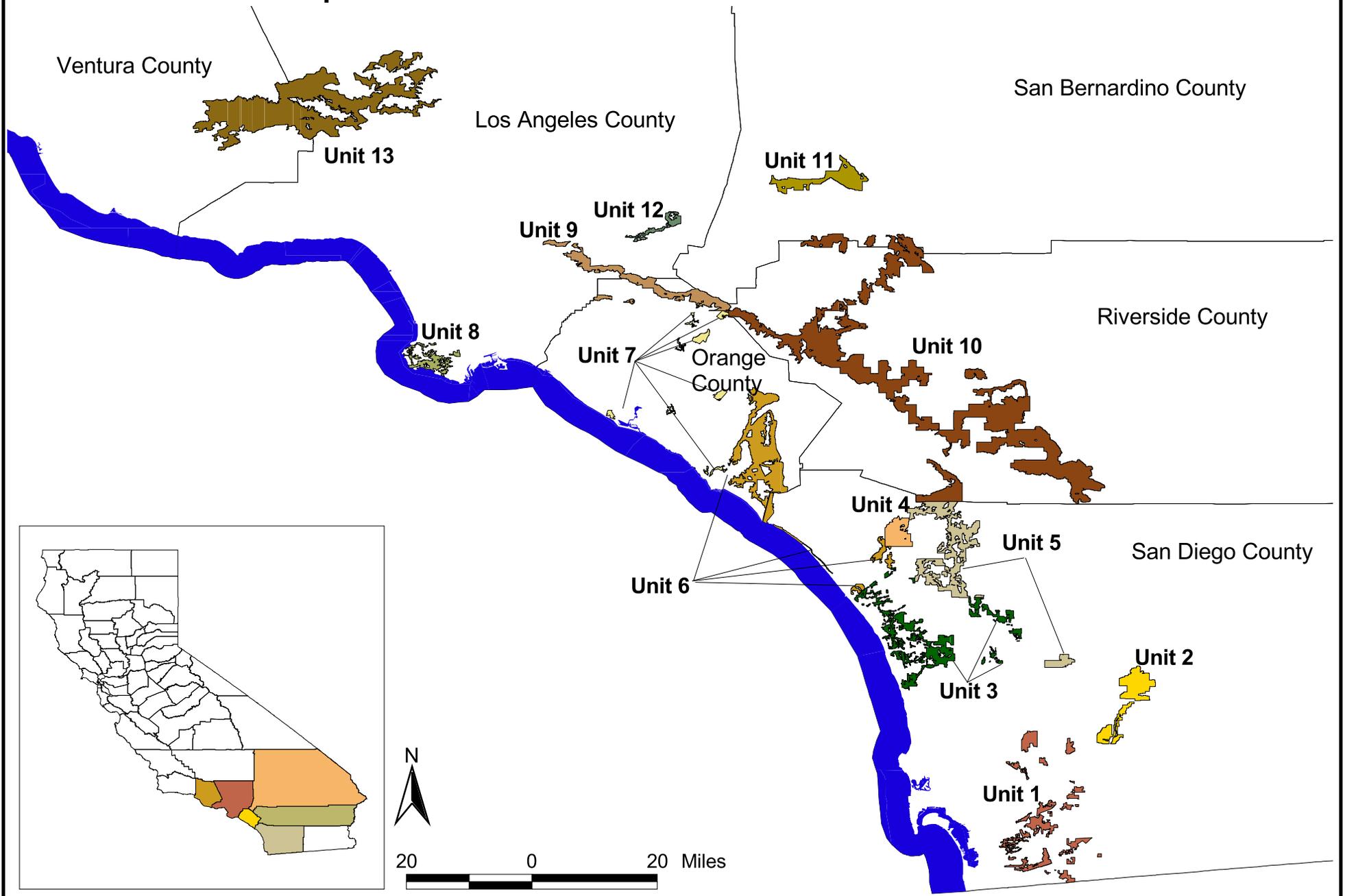
This report is organized into six chapters. Following the Executive Summary, **Chapter I** provides an introduction to this report, describes the species and its habitat, and lays out the framework and methodology for the analysis. **Chapter II** describes the relevant regulatory context, and its relationship to coastal sage scrub (CSS) habitat. **Chapter III** focuses on the economic impact of section 7 on private development activities. **Chapter IV** addresses the effects of section 7 on public land development activities. **Chapter V** evaluates other categories of economic impact, including delay, uncertainty, and indirect effects. **Chapter VI** presents the Small Business Regulatory Enforcement Act analysis, **Chapter VII** presents the Energy Industry Effects analysis, **Chapter VIII** presents an Unfunded Mandate Reform Act (UMRA) analysis, and **Chapter IX** discusses the benefits of the proposed CHD.

CRITICAL HABITAT DESIGNATION

On April 24, 2003, the Service published a proposed rule in the Federal Register outlining its proposal to designate CH for the gnatcatcher. The proposed rule delineated 13 CH units in six counties in California – San Diego, Riverside, San Bernardino, Orange, Los Angeles, and Ventura. The proposed designation consists of approximately 495,795 total acres, which include 431,785 acres (87 percent) private land, 45,380 acres (9 percent) Federal land, and 18,630 acres (4 percent) State or local land. The proposed rule also identified an additional 264,280 acres of “essential” gnatcatcher habitat that was proposed for exclusion from final CH boundaries because of either existing special management considerations, or an evaluation of economic and other relevant impacts. Proposed CH boundaries are shown in **Figure 1**.

Figure 1

Proposed Critical Habitat Units for the California Gnatcatcher



SUMMARY OF FRAMEWORK AND APPROACH

This Draft Economic Analysis, provides an estimate of the economic effects of the designation of CH, as proposed on April 24, 2003, for the gnatcatcher. These effects include direct costs that result from compliance with section 7 of the Act, such as administrative costs of completing informal and formal consultations with the Service and the project modification costs occurring as a result of these activities. This analysis also evaluates indirect effects of the designation, such as costs of project delays and regulatory uncertainty, and costs associated with changes in implementation of other laws such as the California Environmental Quality Act (CEQA).

This analysis does not consider any costs that would occur in the absence of the designation, such as other land use regulation by Federal, State, or local governments. The one exception to this statement is the total cost associated with section 7, which may result either from the listing of the species (the jeopardy standard) or from the designation itself (the adverse modification standard). Because it can be difficult to pre-determine the standard that drives a section 7 consultation, all costs related to the implementation of section 7 are included in the total cost estimates presented in this document.

The direct compliance costs mentioned above represent a reasonable approximation of how society as a whole will be affected by the designation when compliance activity is not expected to significantly affect housing or other markets. This analysis evaluated the estimated impacts in relation to the regional housing market to determine whether an analysis of changes in consumer and producer surplus within the market for new homes would be appropriate.

Other economic effects considered in the analysis include the benefits of the designation and distributional impacts on small entities, the energy industry, and local/tribal governments and private industry in accordance with the UMRA. Potential benefits of the designation are discussed qualitatively.

This analysis estimates the economic effects of the proposed designation through 2025, beginning on the publication date of the proposed rule.

This analysis differs significantly from the economic analysis completed in September 2000 in support of the Service's original CHD for the gnatcatcher. Major differences are described below.

- 101 • Both analyses apply a baseline approach that compares the “world *without*
critical habitat” to the “world *with* critical habitat.” However, the earlier
analysis assumed that all costs associated with the listing of the species,
including impacts resulting co-extensively from the jeopardy provision of
section 7, were part of the baseline. This analysis acknowledges that given the
similarity in regulatory definitions between the terms “jeopardy” and “adverse
106 modification,” in practice it can be difficult to pre-determine the standard that
drives a section 7 consultation. In order to ensure that no costs of CH are
omitted, this analysis includes all section 7 costs, including those resulting solely
or co-extensively from the jeopardy standard. As a result, this analysis likely
overstates the costs associated with the proposed designation.

- 111 • Because the Service asserted that no project modifications would be requested
beyond those implemented to avoid jeopardy, the 2000 economic analysis found
that the designation would not result in project modification costs attributable to
CH. This analysis quantifies the costs of project modifications associated with
both the jeopardy and adverse modification standards.

- 116 • Both analyses identify potential additional costs associated with section 7
administrative activities, project delays, and regulatory uncertainty. These
impacts were discussed qualitatively in the 2000 analysis and are quantified in
this analysis.

- 121 • This analysis also considers potential indirect effects of the designation resulting
from the triggering of additional requirements under CEQA, and it addresses
potential impacts to the regional economy and the housing market.

- 126 • This analysis relies on a broader range of information/data obtained from a
number of different sources.

- 131 • The 2000 economic analysis reflected the final designation of 513,650 acres (i.e.,
areas proposed but ultimately excluded from the final designation were not
considered in the final economic analysis). This analysis considers potential
impacts resulting from the designation of 495,795 acres that are proposed for
inclusion in the final designation, as well as 264,280 acres that are proposed for
exclusion from the final rule.

GENERAL ANALYTIC STEPS

- 136 This report relies on a sequential methodology and focuses on distilling the salient and
relevant aspects of potential economic impacts of the designation. These are the steps
followed in this analysis:
- 141 • Describing current and projected economic activity within and around the
proposed CH area;
 - Identifying whether such activities are likely to involve a Federal nexus;
 - 146 • For activities with a Federal nexus, evaluating the likelihood that these activities
will require consultations under section 7 of the Act and, in turn, result in any
modifications to projects.
 - Estimating the direct costs of expected section 7 consultations, project
modifications and other economic impacts associated with the designation;
 - 151 • Estimating the likelihood that current or future activities may require additional
compliance with other Federal, State, and local laws as a result of new
information provided by the designation;
 - 156 • Estimating the likelihood that projects will be delayed by the consultation
process or other regulatory requirements triggered by the designation;
 - Estimating the likelihood that economic activity will be affected by regulatory
uncertainty, and/or property values affected;
 - 161 • Estimating the indirect costs of the designation, as reflected in the cost of
compliance with State and local laws, project delays, regulatory uncertainty, and
effects on property values;
 - 166 • Estimating the potential fraction of total section 7 costs that likely would not
have occurred but for CHD (i.e., attributable solely to the designation);
 - Assessing the extent to which CHD will create costs for small businesses as a
result of modifications or delays to projects;
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- Assessing the effects of administrative costs and project modifications on the supply, distribution, and use of energy; and
- Determining the benefits that may be associated with CHD.

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As noted above, this analysis considers both the efficiency effects and distributional effects that could result from this designation. It begins by considering direct compliance costs associated with the designation, as well as potential indirect effects, such as those effects associated with compliance with other Federal, State, and local laws, project delays, and impacts to property values. As necessary, regional economic impacts are described, as are impacts on significantly affected markets. Impacts on small entities and the energy industry are discussed separately, in **Chapter VI** and **Chapter VII**, respectively. Impacts to local/Tribal governments and private industry are discussed in **Chapter VIII**, in accordance with UMRA. Potential benefits of critical habitat are discussed qualitatively, in **Chapter IX**.

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KEY FINDINGS

This section summarizes the economic costs associated with section 7 implementation in areas proposed for gnatcatcher CH. Summary descriptions of key findings – including total costs, costs by unit, and costs by project type – are provided below. Summaries of total estimated section 7 costs by proposed Unit are presented in **Table 1**.¹ **Table 2** provides a comparison of total section 7 costs for areas proposed for designation versus areas proposed for exclusion – these results are discussed briefly in the relevant unit summaries, below (a more detailed summary of combined analytical results for areas proposed for designation and exclusion is presented in **Appendix H**). **Table 3** summarizes administrative and project modification costs by activity. **Table 4** summarizes key assumptions employed in this analysis and the likely direction of bias each assumption represents. **Figure 2** shows total cost distribution by project type.

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Costs have been calculated using a 12 percent discount rate for private development projects and a 7 percent discount rate for public projects.

Table 1
Estimated Costs of the Proposed Designation by Unit (1)

Proposed CH Unit	Project Modification Costs	Administrative Costs (2)	Delay Costs	Uncertainty Costs	Total Cost	Percent
Unit 1	\$2,230,500	\$387,500	\$63,300	\$1,333,000	\$4,014,400	0.4%
Unit 2	\$2,027,500	\$281,500	\$55,500	\$1,168,600	\$3,533,100	0.4%
Unit 3	\$6,329,300	\$532,500	\$188,100	\$3,959,300	\$11,009,200	1.2%
Unit 4	\$2,448,900	\$266,700	\$200	\$3,300	\$2,719,100	0.3%
Unit 5	\$6,978,600	\$709,000	\$277,600	\$5,841,900	\$13,807,000	1.5%
Unit 6	\$85,111,800	\$966,100	\$173,200	\$2,817,900	\$89,068,900	9.7%
Unit 7	\$4,883,800	\$83,200	\$19,600	\$319,700	\$5,306,400	0.6%
Unit 8	\$332,700	\$116,400	\$0	\$0	\$449,100	0.0%
Unit 9	\$38,074,200	\$392,500	\$254,200	\$3,950,100	\$42,671,000	4.7%
Unit 10	\$435,551,700	\$3,069,900	\$2,213,000	\$19,072,900	\$459,907,500	50.2%
Unit 11	\$90,433,200	\$297,300	\$233,000	\$2,400,900	\$93,364,400	10.2%
Unit 12	\$3,649,200	\$64,900	\$44,000	\$271,800	\$4,029,800	0.4%
Unit 13	\$168,719,000	\$1,723,800	\$2,156,400	\$12,858,000	\$185,457,200	20.3%
Total Cost	\$846,770,400	\$8,891,400	\$5,678,200	\$53,997,300	\$915,337,200	100%
Annualized Cost (3)	\$105,461,200	\$1,022,500	--	(4) \$6,995,900	\$113,479,600	--

All dollar values have been rounded to the nearest hundred; summed totals may not add exactly.

(1) Assumes discount rates of 12% for private development projects and 7% for public development projects.

(2) Average administrative consultation costs (low and high) were allocated among units in proportion to the number of projected growth acres in each unit with a Federal nexus (see Table 8).

(3) Represents the annual amount that is equivalent to the Total Costs, when distributed over a 23-year period. Annualized costs for Project Modification and Administrative cost categories were calculated using discount rates of 12 and 7 percent for private and public development projects, respectively. Reported annualized costs for Uncertainty totals are an overestimate of the actual cost because private/public cost categories could not be differentiated in the unit summary format. A 12 percent discount rate was therefore applied universally to this cost category, rather than selectively applying a 7 percent discount rate to the public projects.

(4) Delay costs are assumed to occur in Year 1 only, and were therefore removed from the calculation of annualized costs (which assume equal distribution through 2025). The reported annualized value for 'Total Costs' is an estimate of annual costs Years 2-23; annual costs in Year 1 would be equal to this amount plus the full delay costs (approximately \$119 million).

Table 2
Estimated Section 7 Costs for Areas Proposed for Designation and Exclusion

Proposed CH Unit	Proposed for Critical Habitat (1)	Proposed for Exclusion (2)	Total (3)
Unit 1	\$4,014,400	\$70,687,500	\$74,701,900
Unit 2	\$3,533,100	\$0	\$3,533,100
Unit 3	\$11,009,200	\$0	\$11,009,200
Unit 4	\$2,719,100	\$0	\$2,719,100
Unit 5	\$13,807,000	\$3,669,600	\$17,476,600
Unit 6	\$89,068,900	\$395,100	\$89,464,000
Unit 7	\$5,306,400	\$6,841,600	\$12,148,000
Unit 8	\$449,100	\$0	\$449,100
Unit 9	\$42,671,000	\$0	\$42,671,000
Unit 10	\$459,907,500	\$0	\$459,907,500
Unit 11	\$93,364,400	\$0	\$93,364,400
Unit 12	\$4,029,800	\$0	\$4,029,800
Unit 13	\$185,457,200	\$0	\$185,457,200
Project-Specific HCPs (4)	\$0	\$141,500	\$141,500
Total Cost	\$915,337,200	\$81,735,300	\$997,072,400
Annualized Cost (5)	\$113,479,600	\$10,788,100	\$124,267,700

All dollar values have been rounded to the nearest hundred; summed totals may not add exactly.

- (1) Summary of economic cost calculations -- including project modification, administrative, time delay, and uncertainty costs -- for areas proposed for critical habitat designation on April 24, 2003 (see Table 1). Assumes 12% discount rate.
- (2) The Proposed Rule published on April 24, 2003 proposed that a number of areas containing essential habitat not be designated (under section 3(5)(a)) or be excluded from critical habitat designation (under section 4(b)(2)) of the Act. This analysis evaluates the economic cost of designating these areas, however, to allow the Service to consider "economic and any other relevant impacts" in deciding whether to exclude these areas in the final designation. These values are equal to "Total" costs minus costs of "Areas Proposed for Critical Habitat." It is important to note these costs do not represent areas that have been proposed for critical habitat designation.
- (3) This analysis evaluates the potential economic costs if the Service designated critical habitat for all areas proposed for both designation and exclusion. A summary table for this separate cost model is included as Appendix H.
- (4) Because the location of all existing project-specific HCPs was not known, this item is reported individually.
- (5) Represents the annual amount that is equivalent to the Total Costs, when distributed over a 23-year period (2003-2025). Assumes a discount rate of 12 percent (private/public costs could not be separated in the Unit Summary table)

Table 3
Administrative and Project Modification Costs by Project Type for the Proposed Designation (1)

Project/Consultation	Relevant CH Unit(s)	Project Modification Costs	Administrative Costs	Total
<u>Private Land Development</u>				
CSS mitigation requirements	All	\$709,957,400	--	--
Other project modifications		<u>\$32,854,500</u>	--	--
Subtotal, Private Land Development		\$742,811,900	\$5,720,900	\$748,532,800
<u>Public Land Development</u>				
Transportation and Road Construction				
Caltrans District 7	8,9,12,13	\$369,200	--	--
Caltrans District 8	10-11	\$42,301,400	--	--
Caltrans District 11	1-5	\$23,500	--	--
<u>Caltrans District 12</u>	6,7,9	\$443,800	--	--
Subtotal, Caltrans		\$43,137,900	\$1,691,000	\$44,828,900
Transportation Corridor Agency	6	\$35,085,000	\$18,100	\$35,103,100
Municipal Water Supply				
Regional Infrastructure	All	\$6,628,600	\$115,700	\$6,744,300
Flood Control	All	\$153,300	\$66,900	\$220,200
Municipal Power Supply				
	All	\$11,535,900	\$52,100	\$11,588,000
Federal Land Management				
Angeles National Forest	11-13	\$196,000	\$52,400	\$248,400
Cleveland National Forest	1,2,4-6,9-10	\$203,800	\$339,500	\$543,300
San Bernardino National Forest	11	\$49,000	\$47,200	\$96,200
Bureau of Land Management	All	\$25,800	\$58,700	\$84,500
Federal Emergency Management Activities	All	--	\$385,700	\$385,700
Military Operations				
Camp Pendleton (non-training areas)	6	\$4,833,300	\$177,700	\$5,011,000
Fallbrook	4	\$2,110,000	\$114,500	\$2,224,500
El Toro	7	--	\$14,600	\$14,600
Future Habitat Conservation Plans (HCPs)	All	--	\$36,500	\$36,500
<u>Reinitiated Section 7 Consultations</u>	All	--	\$0	\$0
Subtotal, Public Land Development		\$103,958,500	\$3,170,500	\$107,129,200
Total Costs		\$846,770,400	\$8,891,400	\$855,662,000
Annualized Cost (2)		\$105,461,200	\$1,022,500	\$106,483,700

All dollar values have been rounded to the nearest hundred; summed totals may not add exactly.

(1) Assumes discount rates of 12% for private development projects and 7% for public development projects.

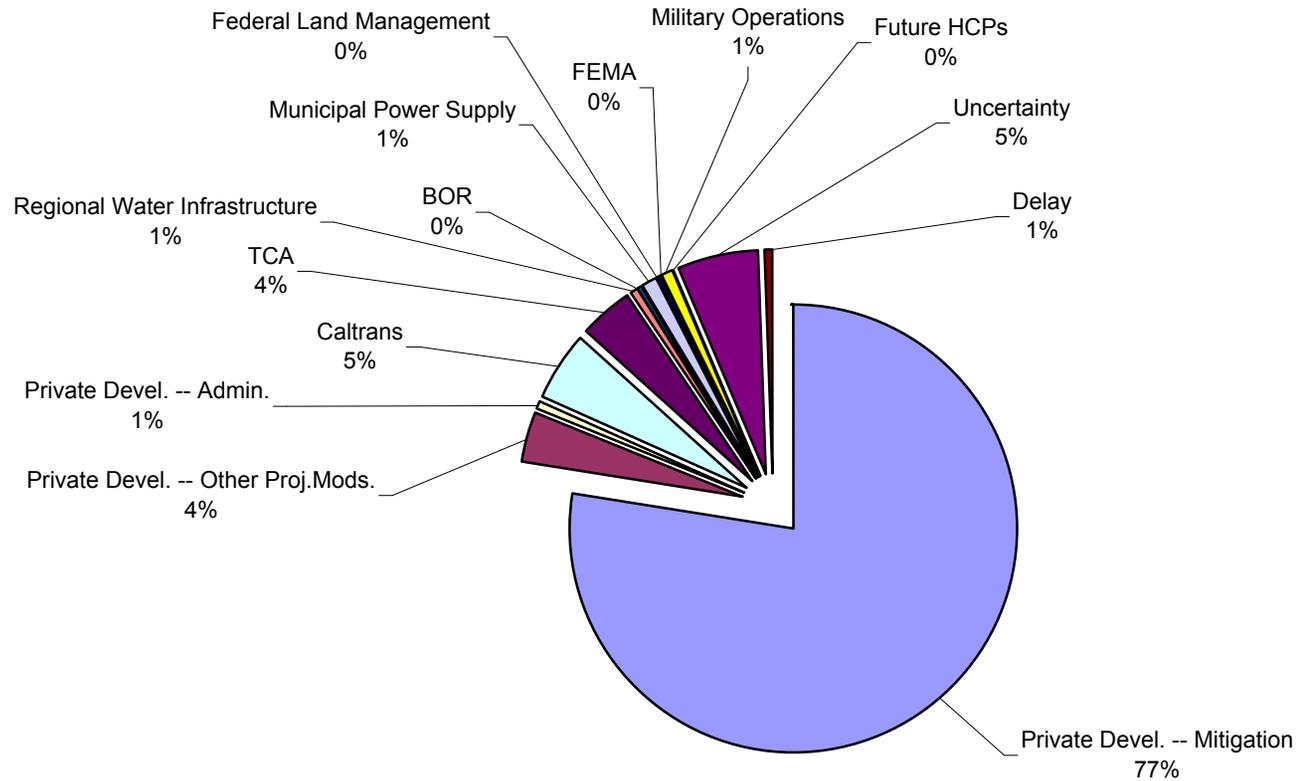
(2) Represents the annual amount that is equivalent to the Total Costs, when distributed over a 23-year period and assuming the discounts rates in footnote (1).

206 **Table 4. Caveats to the Economic Analysis**

	Key Assumption	Effect on Cost Estimate
	69 percent of projected private development will have a Federal nexus through U.S. Army Corps of Engineers section 404 permitting.	+/-
211	The section 7 biological opinions summarized in Appendix C express on-site set-aside, off-site preservation, and restoration ratios that are representative of future section 7 consultations.	+/-
216	The California Environmental Quality Act (CEQA) is a baseline regulation in San Diego and Orange counties, where it requires baseline mitigation for CSS impacts at a 2:1 ratio.	+/-
	The 4(d) Special Rule is a baseline regulation in San Diego County, Orange County, and Rancho Palos Verdes (Unit 8). CSS impacts from projects that qualify for 4(d) Rule approval will be regulated through the 4(d) Rule and not through section 7.	-
221	All estimated project modifications (and costs) are assumed to be attributable entirely to the gnatcatcher, even when other endangered species or environmental considerations may be present.	+
- : This assumption may result in an underestimate of real costs. + : This assumption may result in an overestimate of real costs. +/- : This assumption has an unknown effect on estimates.		

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Figure 2. Total Cost Distribution



TOTAL ECONOMIC IMPACT

231 The total future potential economic impact from section 7 consultations associated with
the gnatcatcher listing and proposed CHD is estimated to be \$915 million through the
year 2025, or \$113 million per year on an annualized basis. This is an estimate of the
“co-extensive” cost of both the listing and proposed CHD for the gnatcatcher under
section 7; no attempt was made to estimate the economic impact solely attributable to
236 the proposed CHD. The year 2025 was selected as the appropriate timeframe for
analysis because 2025 is the last year for which the Southern California Association of
Governments (SCAG) provides demographic projections. The bulk of this impact –
over 77 percent – results from the on- or off-site preservation or restoration of CSS
habitat² as a result of section 7 consultations (referred to as “CSS mitigation”) in
association with private development projects.³ Estimates of CSS mitigation associated
241 with section 7 consultations deduct mitigation likely to be required through pre-existing
regulations (such as the 4(d) Special Rule and the California Environmental Quality Act,
for example), and costs therefore represent “net” mitigation costs attributable solely to
section 7. The components of this total economic impact are further described below.

2

CSS is the primary habitat type associated with the gnatcatcher, and is the most predominant habitat in the proposed designation. Because the link between CSS, the gnatcatcher, and its habitat is well established in both biological and regulatory terms, this analysis evaluates CSS development as a proxy for regulation under the Act, when appropriate.

3

The term “mitigation” is given a specific meaning within the regulations that support the Act – it is typically used to describe measures taken in response to provisions of section 10, and is not generally used in the context of section 7. Nonetheless, this analysis uses the terms “mitigation” and “mitigation ratio” broadly to refer to habitat compensation measures and mechanisms negotiated through the section 7 process, in part due to the widespread use of these terms in the context of other land use regulations prevalent in southern California (i.e., regional HCPs, CEQA, etc.). In this analysis, “mitigation” is used to describe the suite of land-based project modifications that applicants often implement in association with section 7 consultations, including “conservation measures” that Federal Action Agencies and/or project applicants can take to avoid jeopardy.. The term “mitigation ratio” is used to describe the relationship between acres developed and acres preserved in the context of historical and projected future, section 7 consultation outcomes. In practice, the Service addresses each project individually, and does not rely on fixed mitigation ratios to determine the amount of habitat preservation required.

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Economic Impact by Proposed Critical Habitat Unit

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Unit 1. This unit encompasses approximately 25,100 acres in San Diego County, and includes the San Diego National Wildlife Refuge as well as several areas without approved subarea plans under the Multiple Species Conservation Plan (MSCP). Although a moderate amount of development is projected in this unit given its size, pre-existing baseline regulations through the 4(d) Special Rule and California Environmental Quality Act (CEQA) significantly limit the project modification costs attributable to section 7. Total section 7 costs are estimated at approximately \$4 million. If areas proposed for exclusion are designated as CH, the additional section 7 cost is estimated to be approximately \$71 million, or more than a 18-fold increase in total costs. The additional projected cost is associated almost entirely with CSS mitigation for development in the City of Poway, where minimal baseline conditions are assumed to apply.

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Unit 2. This unit includes approximately 16,000 acres in and around the upper San Diego River drainage and Cleveland National Forest. A moderate amount of growth is projected within the unit, though the presence of 4(d) Rule and CEQA baseline requirements result in a small amount of future estimated CSS mitigation associated with section 7. Total costs for proposed CH are approximately \$3.5 million. No areas in Unit 2 have been proposed for exclusion.

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Unit 3. Unit 3 includes approximately 32,000 acres within the proposed North San Diego County Multiple Habitat Conservation Plan (MHCP) planning area. A large amount of growth is projected within this unit relative to its size, though the presence of 4(d) Rule and CEQA baseline considerations result in relatively few acres mitigated in association with the section 7 consultation process. The total estimated economic costs for this unit are approximately \$11 million. It is worth noting that if the MHCP is approved, a significant portion of future development in CSS habitat would be regulated by the MHCP and would not be attributable to section 7. No areas in Unit 3 have been proposed for exclusion.

281 **Unit 4.** Unit 4 encompasses approximately 8,700 acres within U.S. Naval Weapons
Station Seal Beach, Detachment Fallbrook (Fallbrook). Almost no future development is
projected by the San Diego Association of Governments (SANDAG) within this unit.
Construction of weapons storage facilities and other infrastructure is expected to result
in section 7 costs of approximately \$2.7 million through 2025. No areas in Unit 4 have
been proposed for exclusion.

286 **Unit 5.** Approximately 35,000 acres of CH have been proposed for Unit 5, which
includes the North County subarea of the MSCP for unincorporated San Diego County.
A large amount of growth is projected in this unit relative to its size, although 4(d) Rule
and CEQA baseline regulations result in a relatively small number of acres mitigated in
association with section 7 consultation. Total section 7 costs for this unit are
291 approximately \$13.8 million. The Pala Band of Mission Indians Reservation has been
proposed for exclusion, and would add approximately 7,700 acres to Unit 5 if it were
designated as CH. The estimated economic cost associated with the Pala Reservation
would result in additional section 7 costs of approximately \$3.7 million through 2025,
primarily associated with housing and infrastructure construction involving Bureau of
296 Indian Affairs (BIA) funds.

Unit 6. Approximately 44,000 acres of CH have been proposed for Unit 6, which
includes the Southern Natural Community Conservation Plan (NCCP) Subregion of
Orange County, as well as habitat linkages to Units 3 and 4, and non-training areas in
301 Camp Pendleton, in San Diego County. Significant growth is projected in this unit.
Though the 4(d) Rule constitutes a regulatory baseline in both San Diego and Orange
counties, this analysis assumes that one or more large-scale, proposed development
projects in southern Orange County will take place that will not qualify for 4(d)
approval (baseline requirements under CEQA is still assumed, however). The resulting
306 economic cost estimate is approximately \$89 million through 2025. If mission-essential
training areas at Camp Pendleton, which have been proposed for exclusion, are
designated as CH in Unit 6, this analysis estimates that additional section 7 costs would
be approximately \$400,000.⁴

⁴An evaluation of the impact of CHD on military readiness is beyond the scope of this analysis.

311 **Unit 7.** Unit 7 encompasses approximately 5,800 acres, which includes the El Toro
Reuse Area, the Irvine Ranch Land Reserve, and Existing Use Areas (EUAs) within the
Orange County Central/Coastal NCCP planning area. Only Planned Activities covered
by the NCCP are allowed within El Toro and the Irvine Ranch. Limited private
development is projected within EUAs. The resulting costs are estimated at
316 approximately \$5.3 million, which takes into account CEQA as the only applicable
baseline regulation. All remaining reserve areas under the NCCP, totaling over 35,000
acres, have been proposed for exclusion. Although a very large land area, the proposal
of these reserves as CH would result in an estimated additional cost of only \$6.8
million, because little private development is anticipated, and nearly all future projects
321 would be addressed by the NCCP (which would constitute a baseline regulation).

Unit 8. Critical habitat (CH) has been proposed for approximately 7,200 acres in Unit 8
within the Palos Verdes Peninsula in Los Angeles County, including the City of Rancho
Palos Verdes Multiple Species Habitat Conservation Plan (MSHCP). This analysis
326 estimates minimal future section 7 costs – approximately \$450,000 through 2025 – due
both to low projected growth and the presence of the 4(d) Rule as a baseline regulation.
No areas in Unit 8 have been proposed for exclusion.

Unit 9. This unit includes approximately 22,600 acres in northern Orange, eastern Los
331 Angeles, and parts of western Riverside and San Bernardino counties. Moderate
growth is projected within the unit, though the fact that CEQA regulation in northern
Orange County constitutes the only baseline consideration results in significant total
costs relative to the unit's size. Total costs are estimated at approximately \$43 million
through 2025. No areas in Unit 9 have been proposed for exclusion.

336 **Unit 10.** Unit 10 is the largest proposed unit, encompassing over 176,000 acres
throughout western Riverside County. The unit lies entirely within the proposed
planning area of the Riverside County MSHCP. Based on very large projected growth
estimates, the absence of any baseline regulations, and the size of the unit, this analysis
341 concludes that section 7 costs in Unit 10 are approximately \$460 million through 2025 –
over 50 percent of the total cost estimate for all units. It is worth noting that although

346 no baseline regulations were identified, if the MSHCP is approved, a significant portion
of future development in CSS habitat would be regulated by the Plan and would not be
attributable to section 7. No areas in Unit 10 have been proposed for exclusion.

351 **Unit 11.** Approximately 15,000 acres of CH have been proposed for Unit 11 in
southwestern San Bernardino County. A significant amount of growth is projected
relative to the size of the unit, and the absence of any baseline regulations means that all
future project modifications are attributable to section 7. The estimated future section 7
costs associated with the proposed designation is approximately \$93 million, which
represents about 10 percent of total costs for all units. No areas in Unit 11 have been
proposed for exclusion.

356 **Unit 12.** This unit encompasses approximately 3,900 acres in eastern Los Angeles
County. Although this analysis identified no applicable baseline regulations, a
relatively small amount of growth is projected in this unit. Total section 7 costs are
estimated at approximately \$4 million. No areas in Unit 12 have been proposed for
361 exclusion.

366 **Unit 13.** Unit 13 is the second largest unit, encompassing more than 103,000 acres in
western Los Angeles and Ventura counties. Based on large projected growth estimates,
the absence of any baseline regulations, and the size of the unit, this analysis concludes
that section 7 costs in Unit 13 are approximately \$185 million – over 20 percent of the
total cost estimate for all units. No areas in Unit 13 have been proposed for exclusion.

Economic Impact by Project Type

371 The discussion below addresses project modification and administrative costs for future
projects anticipated within proposed CH boundaries (indirect costs due to delay or
uncertainty are not included here). The costs described below are summarized in
Table 3.

376 **Private Land Development.** The total section 7 cost related to projected private land
development is estimated at approximately \$749 million through 2025, which
represents roughly 82 percent of total estimated costs. This total includes estimates of

381 (1) project modification costs related to mitigating future development of CSS habitat
through on-site set-aside, off-site preservation, and restoration; (2) project modification
costs related to biological monitoring, fencing, and education programs; and (3)
386 administrative costs incurred through section 7 consultation. These costs are assumed
to be associated with an estimated 866 future private development projects that will
involve a Federal nexus through the United States Army Corps of Engineers (USACE).
The largest component of total cost is the estimated loss in land value for acres set-aside
through the section 7 process, and therefore permanently removed from developable
land supply.

This analysis estimates that about 12,500 acres of CSS habitat will be set-aside through
2025 as a result of section 7 consultations associated with projected land development.
391 This represents approximately 1.7 percent of total projected land development in the
six-county region over the same period. This percentage is not considered a regionally
significant reduction in future development opportunities and is not expected to affect
regional real estate market prices. As a result, the primary burden of section 7
regulation for private land development is expected to fall on the regulated landowners
396 rather than consumers at large.

Transportation and Road Construction. Future transportation projects include road
construction by California Department of Transportation (Caltrans) Districts 7, 8, 11,
and 12, and the Transportation Corridor Agency (TCA). Total costs for the four
401 Caltrans districts are estimated at approximately \$45 million, or roughly 5 percent of
total costs. This analysis estimates that all Caltrans districts combined will participate
in 191 formal consultations resulting in project modification costs, though construction
in Riverside and San Bernardino counties is expected to result in significantly higher
section 7 costs than any other district. The TCA's proposed SR-241 Foothill-South toll
406 road is estimated to result in an estimated section 7 cost of approximately \$35 million,
based on an average of two potential development scenarios.

Municipal Water Supply. This analysis estimates that the Metropolitan Water District
(MWD) and the San Diego County Water Authority will engage in 13 future regional
411 water infrastructure projects requiring section 7 consultation. This analysis estimates
that the Bureau of Reclamation (BOR) will participate in 12 informal section 7

consultations and three formal consultations involving a combination of local water reuse and flood control projects. This analysis assumes that local-level utility projects, such as those carried out by local retail water agencies, are associated with urban development, and related section 7 costs are therefore captured in the private development section. Combined regional water projects are estimated to result in total section 7 costs of approximately \$7 million.

Municipal Power Supply. This analysis estimates that the Southern California Gas Company, San Diego Gas and Electric, and Southern California Edison will require six total future section 7 consultations for regional gas and electric infrastructure projects through 2025. Though very little project-specific information was available, this analysis estimates that total section 7 costs will be approximately \$11.6 million.

Federal Land Management. Angeles National Forest, Cleveland National Forest, San Bernardino National Forest, and the Bureau of Land Management will all engage in land management projects (fire prevention, prescribed burns, etc.) that are expected to require section 7 consultation. These agencies collectively estimated a total of 3 technical assistance calls, 81 informal consultations, and 50 formal consultations. These consultations and associated project modifications are estimated to result in a total section 7 cost of approximately \$1 million through 2025.

Federal Emergency Management. By the nature of its activities, the Federal Emergency Management Agency (FEMA) is not able to provide estimates of future planned projects. Based on historical projects, FEMA estimates it will participate in approximately 75 informal and 30 formal consultations through 2025, most likely related to flood control and fire prevention activities. This analysis estimates that administrative consultation costs for these activities will be approximately \$386,000. No information was provided that allowed quantification of project modification costs.

Military Operations. Military lands proposed for CHD include parts of United States Marine Corps (USMC) Camp Pendleton (non-training areas only), the U.S. Navy's Naval Weapons Station Seal Beach, Detachment Fallbrook (Fallbrook), and the U.S.

Navy's El Toro Reuse Area. Based on previous section 7 consultation history and costs, this analysis estimates 37 formal consultations for Camp Pendleton through 2025, resulting in total costs of approximately \$5 million.

451 Fallbrook staff estimate that future construction of storage facilities for explosive ordnance will result in approximately 16 formal section 7 consultations, and will result in total costs of approximately \$2.2 million.

456 Finally, one road construction project is anticipated with the El Toro Reuse Area, a U.S. Navy parcel currently managed as a reserve to the Central/Coastal Orange County NCCP. This project is a Planned Activity under the NCCP, however, and has already been mitigated in full, so no section 7 project modification costs are anticipated. The estimated administrative cost of the single consultation is \$14,600.

461 **Existing Habitat Conservation Plans.** All existing project-specific habitat conservation plans (HCP) that address the gnatcatcher either do not meet the definition of CH (under section 3(5)(a)) or have been proposed for exclusion (under section 4(b)(2)). If these HCPs were designated as CH, each would require an internal consultation between the Service's section 7 and section 10 branches to insure the plan is consistent with section 7 requirements. This analysis assumes that 28 HCPs would require internal, informal consultations, and that costs would be borne entirely by the Service. In addition, future projects with a Federal nexus within HCPs that are designated as CH would require section 7 consultation. This analysis assumes that any mitigation requirements for such projects would be determined by the HCP, so only administrative costs are estimated.

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471 Based on previous consultation rates for such projects, this analysis estimates 8 additional formal section 7 consultations would be required. The total estimated costs for these 28 informal and 8 formal consultations is approximately \$142,000. These costs are shown in **Table 2** (column 2), but not in **Table 1** or **Table 3**, because all existing HCPs have been proposed for exclusion.

476 **Future Habitat Conservation Plans.** In order to be approved, any future HCP that addresses the gnatcatcher or includes land designated as CH will require an internal consultation between the Service's section 7 and section 10 branches to insure the plan is consistent with section 7 requirements. These consultations will be informal. This

481 analysis identified 16 planned or proposed HCPs, all of which are assumed will reach
completion and require consultation by the Service. The estimated administrative cost
of these consultations is estimated at approximately \$37,000, which would be borne
entirely by the Service.

486 **Reinitiated Consultations.** No information regarding the number of previous section 7
consultations that will require reinitiation following the designation of CH was
identified. Public comment is specifically requested for this issue.

491 **Time Delay.** Private development projects could be delayed due to restrictions on land
development activities during specific periods of the year. Section 7 regulation
associated with the gnatcatcher will require projects not to conduct habitat-disturbing
land development activities during the breeding season, a six-month period from
February 15 to August 15. It is assumed that all land development projects expected to
occur in the 12 months following CHD will be delayed by 6 months. It is also assumed
496 that projects further away from development will be able to plan habitat disturbing
land development activities outside the breeding season and will not experience any
additional time delays. The analysis finds that the economic costs associated with
section 7 time delays experienced by private development projects will be
approximately \$5.7 million.

501 **Uncertainty/Stigma.** Uncertainty effects may result due to the case-by-case nature of
section 7 consultations and the corresponding uncertainty associated with the scope and
level of project modifications. The economic cost associated with uncertainty is likely to
lie somewhere between zero and the additional cost associated with an upper-end set of
mitigation requirements associated with section 7. Once known factors such as clear
506 differences in habitat quality and the presence of other species are accounted for, the
remaining uncertainty appears to be in the plus-or-minus 25 percent range based on a
review of “effective” mitigation ratios from biological opinions (BOs) provided by the
Service. The analysis estimates an uncertainty cost of about \$54 million, or roughly 6
percent of total costs. Stigma represents another form of uncertainty, and while real, is
511 likely to be arbitrated away as the true uncertainty over project modifications becomes
apparent.

516 **CEQA Indirect Costs.** This analysis evaluates the possibility that CHD might result in
additional costs to project applicants through lead agencies' administration of CEQA.
CH may result in additional indirect costs if (1) lead agencies are compelled to require
additional habitat mitigation based on new information provided by the designation,
(2) the required level of CEQA review is elevated, or (3) applicants incur additional
expense to address CH in preparing CEQA documentation. Though in some cases CH
521 can result in one or more of these cost effects, this analysis concludes that none of these
indirect effects is likely due to CHD for the gnatcatcher. Due to the presence of a
number of pre-existing regulations, public processes, and information sources that
address the gnatcatcher, it is not likely that this CHD will provide lead agencies with
new information, or compel them to change how they apply and enforce CEQA
526 regulations.

Effects on Small Businesses and Governments. As required by the Small Business
Regulatory Enforcement Fairness Act of 1996, this analysis evaluated the effects of the
proposed rule on small businesses and governments. The analysis concluded that
531 potentially affected entities would be limited to small businesses in the land
development and real estate industry (SIC 6552) and small governments. The analysis
estimated that 1.1 percent of small businesses and 6 percent of small governments
would be affected annually. A comparison of annual per-business gross revenue
estimates with per-business section 7 costs determined that those small businesses
536 affected by the proposed designation would experience a reduction in annual revenues
of approximately 1.5 percent. Affected small governments would experience effects
equal to approximately 0.02 percent of their gross annual revenue.

Effects on the Energy Industry. Following guidance from the OMB, this analysis
541 evaluated the effect of the proposed designation on the energy industry. The analysis
screened all OMB criteria, and concluded that the only relevant consideration was
whether the proposed rule would result in an increase in energy distribution costs
greater than one percent. After comparing annualized section 7 costs with reported
annual distribution costs for the three major energy utilities in southern California, this
546 analysis concluded that the annual section 7 costs represent only 0.14 percent of annual
distribution costs. Because this is well below the one-percent significance threshold,

this analysis concludes the proposed designation would not have a significant effect on the energy industry.

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Unfunded Mandate Reform Act. UMRA guidance requires that a written statement be prepared if annualized effects to either non-Federal (State/local/Tribal) governments or the private sector exceed \$100 million. This analysis estimates that average annual costs for non-Federal governments will be approximately \$7.9 million, and annual costs for the private sector will be approximately \$112 million. Because annual private sector costs were estimated to exceed \$100 million, this analysis provides an evaluation of relevant criteria to help the Service prepare a written statement; this analysis does not provide an official written statement as required by UMRA. This analysis concludes that the annual effect to the private sector represents approximately 0.008 percent of National Gross Domestic Product (GDP), and less than 0.07 percent of total California Gross State Product (GSP) or California GSP for private industries. Consistent with OMB screening criteria, the proposed rule is unlikely to result in a significant effect on the national economy, or on a particular geographic region or economic sector.

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Benefits. Potential benefits of the proposed CHD include improved ecosystem health and water quality, educational benefits, increased support for existing conservation efforts and amenity/ open space-driven land and development value increases. However, insufficient data is available to accurately monetize the ecological and economic benefits of this CHD.

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Key Assumptions

The following table presents the key assumptions of this economic analysis, as well as the potential direction of the bias introduced by each assumption.

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I. INTRODUCTION AND BACKGROUND

On April 24, 2003, the U.S. Fish and Wildlife Service (the Service) proposed designating critical habitat (CH) for the coastal California gnatcatcher (*Polioptila californica californica*), hereafter referred to as the gnatcatcher, on approximately 495,475 acres of land in Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties, California. The purpose of this report is to identify and analyze the potential economic effects that would result from this designation. This report was prepared by Economic & Planning Systems, Inc. (EPS), under subcontract to Industrial Economics, Inc., under contract to the Service's Division of Economics.

Section 4(b)(2) of the Endangered Species Act (the Act) requires that the Service base the designation of CH upon the best scientific and commercial data available, after taking into consideration the economic impact and any other relevant impact of specifying any particular area as CH. The Service may exclude areas from critical habitat designation (CHD) when the benefits of exclusion outweigh the benefits of including the areas within CH, provided the exclusion will not result in extinction of the species.

Upon the listing of a species, section 7(a)(2) of the Act requires Federal agencies to consult with the Service in order to ensure that activities they fund, authorize, permit, or carry out are not likely to jeopardize the continued existence of the species. The Service defines jeopardy as any action that would appreciably reduce the likelihood of both the survival and recovery of the species. For designated CH, section 7(a)(2) also requires Federal agencies to consult with the Service to ensure that activities they fund, authorize, permit, or carry out do not result in destruction or adverse modification of CH. Adverse modification of CH is construed as any direct or indirect alteration that appreciably diminishes the value of CH for conservation of a listed species.

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SPECIES DESCRIPTION AND DISTRIBUTION

A brief description of the gnatcatcher, is provided below. Refer to the proposed rule for a more complete description of the species, its associated habitat types, and relevant citations.⁵

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The gnatcatcher is a long-tailed member of the old-world warbler and gnatcatcher family (Sylviidae) characterized by dark blue-gray plumage above and grayish white below, mostly black tail, and distinctive white eye-ring. The male population is further distinguished by a black cap, which is absent during the winter. The U.S. population of the gnatcatcher is restricted to coastal southern California from Ventura and San

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Bernardino counties to the north, to the U.S.-Mexico border to the south. The gnatcatcher typically occurs in or near sage scrub habitat, which is a broad category of vegetation that includes various sage scrub communities. Refer to the proposed rule for a detailed description of each type of sage scrub community.

PROPOSED CRITICAL HABITAT DESIGNATION

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On March 30, 1993, the gnatcatcher was listed as a threatened species pursuant to the Act (58 FR 16742). When a species is listed as threatened or endangered, the Act stipulates that the Service must also "to the maximum extent prudent and

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determinable...designate critical habitat." On October 24, 2000, the Service published a Final Rule designating approximately 514,000 acres as CH for the gnatcatcher (65 FR 63680). The Service prepared an economic analysis of the original CHD prior to publication of the Final Rule. As described in the Executive Summary, the assumptions and methodology employed in this analysis differ significantly from those employed in the original.

⁵ U.S. Fish and Wildlife Service, *Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Coastal California Gnatcatcher (Polioptila californica californica) and Determination of Distinct Vertebrate Population Segment for the California Gnatcatcher (Polioptila californica)*, April 24, 2003 (68 FR 20228).

631 In response to a number of lawsuits filed subsequent to the designation and economic
analysis, the Service requested a voluntary remand of the designation, which the U.S.
District Court for the Central District of California granted on June 11, 2002. The Court
ordered the Service to complete a new proposed rule by April 11, 2003, and held that
the designation should remain in place until a new, final regulation becomes effective.

636 On April 24, 2003, the Service published in the Federal Register a proposed rule
outlining its proposed CHD for the gnatcatcher. The proposed rule delineated 13 CH
units in Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura
counties, totaling approximately 495,795 acres. The proposed rule also identified an
641 additional 264,280 acres that it recognized as “essential” habitat, but proposed for
exclusion from the final CH boundaries, citing sections 3(5)(a) and 4(b)(2) of the Act. A
summary of proposed CH acreage, as well as lands considered essential, and those
excluded, is presented in **Table 5**.

646 **Table 5. Approximate Proposed Critical Habitat Area, Essential Areas, and
Excluded Areas**

Areas considered essential	760,075 acres
Areas excluded under 3(5)(a) – special management or protection	6,740 acres
651 Areas excluded under 4(b)(2) – economic and other relevant impacts	257,540 acres
Proposed Critical Habitat	495,795 acres

656 Section 3(5)(a) defines CH as areas within the geographic area occupied by the species
that contain physical and biological features (I) essential to the conservation of the
species, and (II) which may require special management consideration and protection.
Under section 3(5)(a), CH must therefore meet both provisions of the definition. The
proposed rule identified approximately 6,740 acres in San Diego County, corresponding
to MCAS Miramar Air Station, that the Service proposed for exclusion from CH under
section 3(5)(a). The proposed rule states that MCAS Miramar has completed a final
661 Integrated Natural Resource Management Plan (INRMP) that provides for adequate
management and protection of the gnatcatcher, and that lands covered by the plan
therefore do not meet the second provision of the definition of CH pursuant to section
3(5)(a)(i)(II). Furthermore, to the extent any of these lands do meet this second

666 provision of the definition, the proposed rule states that it is additionally appropriate to
exclude these areas from CH pursuant to the "other relevant impacts" provisions of
section 4(b)(2), as described below.

671 Section 4(b)(2) of the Act stipulates that CH shall be designated on the basis of the best
available scientific data after taking into consideration the economic impact, and any
other relevant impact, of specifying any particular area as CH. An area may be
excluded from CH if it is determined that the benefits of exclusion outweigh the
benefits of specifying the area as CH. The proposed rule identified 257,540 total acres
676 that the Service proposes for exclusion based on a determination that the benefits of
exclusion outweigh the benefits of designating those areas as CH. Areas proposed for
exclusion include mission-essential training areas on Marine Corps Base Camp
Pendleton, reserve lands in the San Diego Multiple Species Conservation Program
(MSCP) and the Orange County Central-Coastal NCCP/HCP, Tribal lands of the Pala
Band of Mission Indians, and lands covered by individual completed and approved
HCPs that address the gnatcatcher.

681 The primary focus of this document is to evaluate and report the likely economic impact
of the proposed CHD, which in this case is limited to the 13 proposed CH units
described below. However, to ensure that the Service is able to fully consider the
economic and any other relevant impacts in deciding to exclude certain biologically
686 essential areas under section 4(b)(2), this analysis will also evaluate the likely economic
impact were CH to be designated for areas currently proposed for exclusion in the
proposed rule.

691 PROPOSED CRITICAL HABITAT UNITS

696 Section 3 (5)(a) of the Act defines CH as "the specific areas within the geographic area
occupied by a species...on which are found those physical or biological features...
essential to the conservation of the species and...specific areas outside the geographic
area occupied by a species...upon a determination that such areas are essential for the
conservation of the species." In order to delineate potential CH boundaries, the Service
must first use the "best available scientific information" to identify those physical and

biological features — or primary constituent elements (PCEs) — that are essential to the conservation of the species. PCEs for the gnatcatcher include various types of sage scrub communities as discussed above. The Service used PCEs, distribution and occurrence data, and occurrence ranking criteria to delineate habitat areas essential for the conservation of the species. A more complete discussion of gnatcatcher occurrences, land ownership within each unit, specific PCEs, and factors considered in delineating CH can be found in the proposed rule.

Each of the 13 proposed CH units is described briefly below. **Table 6** also summarizes the approximate area of proposed CH by county and land ownership. Refer to the proposed rule for a more complete description of each unit.

- Unit 1 encompasses approximately 25,100 acres of land within the MSCP planning area. The proposed unit contains lands essential to the conservation of the gnatcatcher within the cities of Chula Vista, El Cajon, and Santee; major amendment areas within the San Diego County subarea plan; the Otay-Sweetwater Unit of the San Diego National Wildlife Refuge Complex; and water district lands owned by Sweetwater Authority and Otay Water District. This unit contains core populations of the species, sage scrub and areas providing connectivity between core populations and sage scrub.
- Unit 2 encompasses approximately 16,075 acres in the upper San Diego River drainage. This unit also contains a core population of the species, and includes lands that serve as a corridor connecting the adjacent core population on Cleveland National Forest lands to populations located in Unit 1.
- Unit 3 encompasses approximately 32,465 acres of land within the North San Diego County MHCP planning area in northwestern San Diego County. Included are lands within the cities of Carlsbad, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, and Vista. This unit provides connectivity among core populations in Units 1, 5 and 6.

731 **Table 6. Proposed Critical Habitat Acreage by County and Land Ownership**

County	Federal*	Local/State	Private	Total
Los Angeles	6,825 acres	2,010 acres	68,900 acres	77,735 acres
Orange	1,045 acres	4,535 acres	48,580 acres	54,160 acres
736 Riverside	10,740 acres	8,740 acres	150,465 acres	169,945 acres
San Bernardino	830 acres	1,590 acres	20,890 acres	23,310 acres
San Diego	25,940 acres	1,755 acres	97,110 acres	124,805 acres
Ventura	0	0	45,840 acres	45,840 acres
Total	45,380 acres	18,630 acres	431,785 acres	495,795 acres

741 *Federal lands include Bureau of Land Management, Department of Defense, National Forest, Tribal, and Fish and Wildlife Service lands.

- 746 • Unit 4 encompasses approximately 8,690 acres of land on Fallbrook Naval Weapons Station in northern San Diego County. This unit contains core gnatcatcher population supporting adjacent populations in Units 5, 6, and 10. The northern boundary of this unit also functions as an essential linkage connecting coastal populations with inland populations in San Diego and Riverside counties.
- 751 • Unit 5 encompasses approximately 34,705 acres of land within the planning area for the North County Subarea of the MSCP for San Diego County. This unit contains several gnatcatcher populations and intervening linkage areas of sage scrub. This unit constitutes the primary inland linkage along the I-15 corridor between San Diego populations and those in southwestern Riverside County (Unit 10).

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- 761 • Unit 6 encompasses approximately 44,340 acres of land within the planning area for the Southern NCCP Subregion of Orange County. This unit contains some of the largest, most robust populations known, as well as essential regional populations. This unit also provides primary linkage for core populations in Units 3, 4, and 7. Proposed CH in Camp Pendleton is limited to lands outside training area boundaries, and includes a coastal corridor linking populations in

San Diego and southern Orange counties, Wire Mountain and De Luz housing areas, and State Park lease lands (San Onofre State Beach).

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- Unit 7 encompasses approximately 5,775 acres of land within the Orange County Central/Coastal NCCP planning area. This unit includes core gnatcatcher populations and sage scrub habitat within select Existing Use Areas (EUAs), portions of the Irving Ranch Land Reserve, and the designated reserve (panhandle portion) of the El Toro Reuse Area.

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- Unit 8 encompasses approximately 7,160 acres of land within and adjacent to the subregional planning area for the Palos Verdes Peninsula in Los Angeles County, including the City of Rancho Palos Verdes MSHCP area. This unit also includes a core population of gnatcatcher and essential sage scrub habitat.

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- Unit 9 encompasses approximately 22,595 acres of land in East Los Angeles County. The unit contains core populations and also provides primary connectivity between core gnatcatcher populations and sage scrub habitat in Units 7, 10, and 12.

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- Unit 10 encompasses approximately 176,720 acres within the proposed planning area for the Western Riverside County MSHCP. These areas include core populations and CSS habitat that provides connectivity between core populations within Riverside County and to populations in San Diego, San Bernardino, Orange, and Los Angeles counties. Lands proposed as CH within Unit 10 are generally encompassed by the proposed Criteria Area (from which the future preserve area will be delineated), designated as part of the ongoing MSHCP process.

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- Unit 11 encompasses approximately 14,990 acres of land along the foothills of the San Gabriel Mountains in San Bernardino County. This unit contains populations that persist in complex habitat assemblages not found in other proposed Units.

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- 801 • Unit 12 encompasses approximately 3,890 acres of land in eastern Los Angeles County. This unit functions as an archipelago of persistent populations toward the northern end of the range of the species, and is a likely source population for the pairs that are reported from the foothills of the San Gabriel mountains north of the Los Angeles basin.

- 806 • Unit 13 encompasses approximately 103,290 acres of land in eastern Ventura and western Los Angeles counties. It includes the only known breeding population of the gnatcatcher in Ventura County, and constitutes the northern and western distributional extreme of its current range.

FRAMEWORK FOR THE ANALYSIS

811 The primary purpose of this analysis is to estimate the economic impact that will result from the designation of CH for the gnatcatcher.⁶ This information is intended to assist the Secretary in making decisions about whether the benefits of excluding particular areas from the designation outweigh the benefits of including those areas in the designation.⁷ In addition, this information allows the Service to address the requirements of Executive Orders 12866 and 13211, the Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA), and the UMRA.⁸

821 This chapter provides the framework for this analysis. First, it defines the economic effects considered in the analysis. Second, it establishes the baseline against which these effects are measured. Third, it describes the measurement of direct compliance costs, which include costs associated with, and generated as a result of, section 7 consultations. Fourth, it identifies potential indirect economic effects of the rule

⁶ This analysis considers the effects of the regulatory action as proposed in the Federal Register on April 24, 2003 (68 *Federal Register* 20228, April 24, 2003).

⁷ 16 U.S.C. § 1533(b)(2).

⁸ Executive Order 12866, "Regulatory Planning and Review," September 30, 1993; Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," May 18, 2001; 5 U.S.C. §§ 601 *et seq.*; and Pub Law No. 104-121; and 2 U.S.C. §§658-658g and 1501-1571.

826 resulting from (1) compliance with other parts of the Act potentially triggered by CH,
(2) compliance with other laws, and (3) time delays and regulatory uncertainty. Fifth, it
discusses the need for an economic assessment of the benefits of CHD. Finally, the
section concludes by discussing the time frame for the analysis and the general steps
followed in the analysis.

Types of Economic Effects Considered

831 This economic analysis considers both the economic efficiency and distributional effects
that may result from the designation. In the case of CHD, economic efficiency effects
generally reflect the “opportunity costs” associated with the commitment of resources
required to comply with the Act. For example, if the activities that can take place on a
836 parcel of private land are limited as a result of a designation, and thus the market value
of the land reduced, this reduction in value represents one measure of opportunity cost
or change in economic efficiency. Similarly, the costs incurred by a Federal action
agency to consult with the Service under section 7 represent opportunity costs of the
designation.

841 This analysis also addresses how the impacts of the designation are distributed,
including an assessment of any local or regional economic impacts of the designation
and the potential effects of the designation on small entities, the energy industry, or
governments. This information can be used by decision-makers to assess whether the
846 effects of the designation might unduly burden a particular group or economic sector.

For example, while the designation may have a relatively small impact when measured
in terms of changes in economic efficiency, individuals employed in a particular sector
of the economy in the geographic area of the designation may experience relatively
851 greater effects. The difference between economic efficiency effects and distributional
effects, as well as their application in this analysis, are discussed in greater detail below.

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Efficiency Effects

861 At the guidance of the Office of Management and Budget (OMB) and in compliance
with Executive Order 12866 "Regulatory Planning and Review," Federal agencies
measure changes in economic efficiency in order to understand how society, as a whole,
will be affected by a regulatory action.⁹ In the context of this regulatory action, these
efficiency effects represent the opportunity cost of resources used or benefits foregone
866 by society as a result of CHD. Economists generally characterize opportunity costs in
terms of changes in producer and consumer surpluses in affected markets.¹⁰

In some instances, compliance costs may provide a reasonable approximation for the
efficiency effects associated with a regulatory action. For example, a landowner or
871 manager may need to enter into a consultation with the Service to ensure that a
particular activity will not adversely modify CH. The effort required for the
consultation represents an economic opportunity cost, because the landowner or
manager's time and effort would have been spent in an alternative activity had the
parcel not been included in the designation. When compliance activity is not expected
876 to significantly affect markets -- that is, not result in a shift in the quantity of a good or
service provided at a given price, or in the quantity of a good or service demanded
given a change in price -- the measurement of compliance costs can provide a
reasonable estimate of the change in economic efficiency.

881 Where a designation is expected to significantly impact a market, it may be necessary to
estimate changes in producer and consumer surpluses. For example, a designation that
precludes the development of large areas of land may shift the price and quantity of

⁹ Executive Order 12866, "Regulatory Planning and Review," September 30, 1993; U.S. Office of Management and Budget, "Draft 2003 Report to Congress on the Costs and Benefits of Federal Regulations; Notice," 68 *Federal Register* 5492, February 3, 2003; and U.S. Office of Management and Budget, "Appendix 4: Guidelines to Standardize Measure of Costs and Benefits and the Format of Accounting Statements," in *Report to Congress on the Costs and Benefits of Federal Regulations*, March 22, 2000.

¹⁰ For additional information on the definition of "surplus" and an explanation of consumer and producer surplus in the context of regulatory analysis, see Gramlich, Edward M., *A Guide to Benefit-Cost Analysis (2nd Ed.)*, Prospect Heights, Illinois: Waveland Press, Inc., 1990; and U.S. Environmental Protection Agency, *Guidelines for Preparing Economic Analyses*, EPA 240-R-00-003, September 2000, available at <http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/Guidelines.html>.

housing supplied in a region. In this case, changes in economic efficiency can be measured by considering changes in producer and consumer surplus in the real estate market.

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This analysis begins by measuring reasonably foreseeable compliance costs resulting from the designation. As noted above, in some cases, compliance costs can provide a reasonable estimate of changes in economic efficiency. However, if the designation is expected to significantly impact markets, the analysis will consider potential changes in consumer and/or producer surplus in affected markets.

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Distributional and Regional Economic Effects

Measurements of changes in economic efficiency focus on the net impact of the regulation, without consideration for how certain economic sectors or groups of people are affected. Thus, a discussion of efficiency effects alone may miss important distributional considerations concerning groups that may be disproportionately affected. OMB encourages Federal agencies to consider distributional effects separately from efficiency effects.¹¹ This analysis considers several types of distributional effects, including impacts on small entities; impacts on energy supply distribution and use; impacts on governments; and regional economic impacts. It is important to note that these are fundamentally different measures of economic impact than efficiency effects, and thus cannot be added to or compared with estimates of changes in economic efficiency.

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Impacts on Small Entities, Energy Supply, Distribution and Use, and Governments

This analysis considers how small entities, including small businesses, organizations, and governments, as defined by the RFA, might be affected by CHD.¹² In addition, in response to Executive Order 13211 "Actions Concerning Regulations That Significantly

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¹¹ Office of Management and Budget, "Draft 2003 Report to Congress on the Costs and Benefits of Federal Regulations; Notice" 68 *Federal Register* 5492, February 3, 2003.

¹² 5 U.S.C. § 601 *et seq.*

Affect Energy Supply, Distribution, or Use,” this analysis considers the impacts of CH on the energy industry and its customers.¹³ Finally, in accordance with UMRA, this analysis considers the effects of the regulatory action on State, local, and tribal governments and the private sector.¹⁴

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Regional Economic Effects

Regional economic impact analysis provides an assessment of the potential localized effects of CHD. Specifically, regional economic impact analysis produces a quantitative estimate of the potential magnitude of the initial change in the regional economy resulting from a regulatory action. Regional economic impacts are commonly measured using regional input/output models. These models rely on multipliers that mathematically represent the relationship between a change in one sector of the economy (e.g., hydroelectric power generation) and the effect of that change on economic output, income, or employment in other local industries (e.g., manufacturers relying on the electricity generated). These economic data provide a quantitative estimate of the magnitude of shifts of jobs and revenues in the local economy.

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The use of regional input/output models in an analysis of the impacts of CH can overstate the long-term impacts of a regulatory change. Most importantly, these models provide a static view of the economy of a region. That is, they measure the initial impact of a regulatory change on an economy but do not consider long-term adjustments that the economy will make in response to this change. For example, these models provide estimates of the number of jobs lost as a result of a regulatory change, but do not consider re-employment of these individuals over time. In addition, the flow of goods and services across the regional boundaries defined in the model may change as a result of the designation, compensating for a potential decrease in economic activity within the region.

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¹³ Executive Order 13211, “Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use,” May 18, 2001.

¹⁴ 2 U.S.C. §§658-658g and 1501-1571.

946 Despite these and other limitations, in certain circumstances, regional economic impact analysis may provide useful information about the scale and scope of localized impacts. It is important to remember that measures of regional economic effects generally reflect shifts in resource use rather than efficiency losses. These types of distributional effects, therefore, should be reported separately from efficiency effects (i.e., not summed). In addition, measures of regional economic impact cannot be compared with estimates of efficiency effects.

Defining the Baseline

951 OMB guidelines for conducting economic analysis of environmental regulation direct Federal agencies to measure the costs of a regulatory action against a baseline.¹⁵ In its guidance, OMB states, the "baseline should be the best assessment of the way the world would look absent the proposed action" (i.e., absent the designation of CH). In other words, the baseline includes the currently existing regulatory and socio-economic 956 burden imposed on landowners and managers potentially affected by the designation of CH. The baseline burden may include, for example:

- Local zoning laws¹⁶;
- State natural resource laws;
- Enforceable management plans and best management practices applied by other State and Federal agencies;
- Federal, State, and local protections already in place in the same geographic area for other (Federal and State) listed species;¹⁷ and/or

¹⁵ U.S. Office of Management and "Draft 2003 Report to Congress on the Costs and Benefits of Federal Regulations; Notice," 68 *Federal Register* 5492, February 3, 2003; and U.S. Office of Management and Budget, "Appendix 4: Guidelines to Standardize Measure of Costs and Benefits and the Format of Accounting Statements," in *Report to Congress on the Costs and Benefits of Federal Regulations*, March 22, 2000.

¹⁶ An evaluation of every local land use regulation that could potentially address development of gnatcatcher habitat was beyond the scope of available resources for this analysis. This analysis considered only those local land use regulations that were specifically identified by the Service. In omitting potential local regulations that may in fact constitute a regulatory baseline, this analysis is more likely to overestimate than underestimate the actual cost of the proposed designation.

¹⁷ Certain regulations that provide baseline protection for the species and its habitat may also be the source of indirect costs resulting from new information provided by the designation.

- 966 • Statutory protections provided for the species by the Act that exist in the
absence of designated CH.

971 This analysis also assumes that any costs already incurred or agreed upon as a result of
the original CHD in October 2000 are part of the baseline. Existing baseline laws,
regulations, and policies are described in greater detail in **Chapter II** of this analysis.

976 This analysis describes impacts that are expected to occur above and beyond the
baseline. In other words, it measures the costs of compliance with the Act that would
not occur in the absence of the currently proposed CH. Importantly, economic impacts
associated with sections 9 and 10 of the Act, with a few exceptions, are considered to be
part of the regulatory baseline and thus are not addressed in this report. These costs are
considered to be part of the baseline, because they remain unaffected by the designation
of CH.

981 **Direct Compliance Costs Associated With Section 7 of the Act**

986 The measurement of direct compliance costs focuses on the implementation of section 7
of the Act. This section requires Federal agencies to consult with the Service to ensure
that any action authorized, funded, or carried out will not likely jeopardize the
continued existence of any endangered or threatened species or result in the destruction
or adverse modification of CH. The administrative costs of these consultations, along
with the costs of project modifications resulting from these consultations, represent the
direct compliance costs of designating CH.

991 This analysis does not differentiate between consultations that result from the listing of
the species (i.e., the jeopardy standard) and consultations that result from the presence
of CH (i.e., the adverse modification standard). Consultations resulting from the listing
of the species, or project modifications meant specifically to protect to the species as
opposed to its habitat, may occur even in the absence of CH. However, in 2001, the U.S.
10th Circuit Court of Appeals instructed the Service to conduct a full analysis of all of
the economic impacts of CHD, regardless of whether those impacts are attributable

co-extensively to other causes.¹⁸ Given the similarity in regulatory definitions between the terms “jeopardy” and “adverse modification,” in practice it can be difficult to pre-determine the standard that drives a section 7 consultation. Consequently, in an effort to ensure that this economic analysis complies with the instructions of the 10th Circuit as well as to ensure that no costs of the proposed designation are omitted, the potential effects associated with all section 7 impacts in or near proposed CH are fully considered. In doing so, the analysis ensures that any critical habitat impacts that are co-extensive with the listing of the species are not overlooked. As a result, this analysis likely overstates the regulatory effects under section 7 attributable to the proposed designation of critical habitat.

Indirect Costs

The designation may, under certain circumstances, affect actions that do not have a Federal nexus and thus are not subject to the provisions of section 7 under the Act. The potential exists for several types of such indirect effects: three examples are discussed in this section. First, some landowners may voluntarily elect to complete a habitat conservation plan (HCP) in response to having their land designated as critical habitat. Second, some State laws may require landowners and managers to consider the effects of their actions on sensitive species and habitat. Thus, designation of critical habitat could trigger additional regulatory burden due to new information provided by the designation. Third, the consultation process may result in time delays for upcoming or ongoing projects, and the designation may foster regulatory uncertainty for prospective projects. If such additional efforts would not have occurred in the absence of critical habitat (i.e., “but for” critical habitat), then they are considered by this analysis to be an impact of the designation. The three most common categories of indirect effects are discussed further below.

¹⁸ *New Mexico Cattle Growers Ass’n v. U.S.F.W.S.*, 248 F.3d 1277 (10th Cir. 2001).

CREATION OF HABITAT CONSERVATION PLANS

1031 Under section 10(a)(1)(B) of the Act, a non-Federal entity (i.e., a landowner or local
government) may develop an HCP for an endangered animal species in order to meet
the conditions for issuance of an incidental take permit in connection with the
development and management of a property.¹⁹ The HCP intends to counterbalance
1036 potential harmful effects that a proposed activity may have on a species, while allowing
the otherwise lawful activity to proceed. As such, the purpose of the habitat
conservation planning process is to ensure that the effects of incidental take are
adequately minimized and mitigated. Thus, HCPs are developed to ensure compliance
with section 9 of the Act and to meet the requirements of section 10 of the Act. HCPs
are not necessarily precipitated by a CHD.

1041 However, a connection may exist between the creation of HCPs and the costs these
plans impose and CHD. The Service, being a Federal entity, must formally consider
whether an HCP will jeopardize a listed species or adversely modify its designated
critical habitat before approving the plan. This review process may be a direct impact
1046 under section 7 of the Act. However, in certain circumstances, the effort involved in
creating the HCP and associated conservation actions may also generate indirect effects
associated with CHD. For example, in one past instance, landowners preemptively
developed HCPs in an effort to avoid having their property designated as critical
habitat.²⁰ In this case, the effort involved in creating the HCP and undertaking
associated conservation actions were considered to be an effect of designation.

1051 The following scenarios regarding HCP creation provide general guidance regarding
the degree to which associated costs should be considered within the context of a
critical habitat economic analysis:

- 1056 • In cases in which an HCP existed prior to a proposed designation, the costs of
developing the HCP and the added costs of management imposed by the HCP

¹⁹ U.S. Fish and Wildlife Service, "Endangered Species and Habitat Conservation Planning."
From: <http://endangered.fws.gov/hcp/>, as viewed on August 6, 2002. Sections 9 and 10 of the Act
do not apply to plants.

²⁰ See Industrial Economics, Incorporated, *Draft Economic Analysis of CHD for the Nine Bexar County
Texas Invertebrate Species*, prepared for the U.S. Fish and Wildlife Service, October 2002.

1061 should not be considered in the analysis of the effects of the designation. These
costs are appropriately considered to be part of the regulatory baseline, because
their creation was driven by the listing of the species and the need to avoid
1066 “take,” which is prohibited under section 9 of the Act. However, in cases where
designated critical habitat overlaps with completed HCPs, the economic analysis
will need to consider the cost to the Service to re-consult on the plan’s impact to
critical habitat and whether or not this process may result in additional
conservation actions.

- 1071 • In cases in which an HCP is proposed, or reasonably foreseeable absent CHD,
the administrative costs associated with the required internal section 7
consultation should be included in the economic analysis of total section 7 costs,
because the Service will need to consider the effects of the plan on designated
critical habitat. In addition, if, as a result of the designation, additional project
modifications will be recommended by the Service and incorporated into the
HCP in order to avoid adversely modifying critical habitat, the costs of these
project modifications should also be included in the economic analysis of critical
habitat.²¹
- 1076 • In cases in which development of one or more HCPs can be documented as
being precipitated by CHD (i.e., to avoid designation or to reduce the costs of
the designation), the costs of development of the HCP and the added costs of

²¹ Project modification costs associated with the jeopardy standard are not considered for the following reason. Section 10(a)(2)(B) of the Act requires that for the issuance of an incidental take permit, the HCP must assure that “the taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild.” According to the Service’s *Habitat Conservation Planning and Incidental Take Permit Processing Handbook*, “the wording of this criterion is identical to the “jeopardy” definition under the section 7 regulations (50 CFR Part 402.02)...Congress was explicit about this link, stating in the Conference Report on the 1982 ESA amendments that the Services will determine whether or not to grant a permit, “in part, by using the same standard as found in section 7(a)(2) of the ESA, as defined by the [Services’] regulations.” (U.S. Department of the Interior and U.S. Department of Commerce, *Habitat Conservation Planning and Incidental Take Permit Processing Handbook*, November 4, 1996). As a result, during the HCP process, actions undertaken to meet the jeopardy provision of section 7 are also required under section 10 of the Act and are therefore considered to be part of the baseline of this economic analysis.

1081 management imposed by the HCP should be included in the critical habitat economic analysis. In such cases the analysis should be presented with appropriate caveats as to the uncertainty regarding the extent to which the HCP would have existed absent CHD.

OTHER STATE AND LOCAL LAWS

1086 Under certain circumstances, CHD may provide new information to a community about the sensitive ecological nature of a geographic region, potentially triggering additional economic impacts under other State or local laws. In cases where these costs would not have been triggered “but for” CHD, they are included in this economic analysis.

1091 For example, CEQA requires that lead agencies -- public agencies responsible for project approval -- consider the environmental effects of proposed projects that are considered discretionary in nature and not categorically or statutorily exempt. Among other effects, the CEQA statutes specifically require lead agencies to consider a project’s effects on rare or endangered plant and animal communities. To approve qualifying projects, lead agencies must require applicants, who are not “categorically exempt,” to mitigate effects to less than significant levels for projects that are not granted a “statement of overriding considerations.”²²

1101 In some instances, CHD can have an indirect effect on CEQA- related requirements. This is most likely to occur in areas where the Federal designation provides clearer information on the importance of particular areas as habitat for a listed species. In addition, applicants who were “categorically exempt” from preparing an Environmental Impact Report under CEQA may no longer be exempt once critical

²² Article 19 of CEQA provides a list of categorical exemptions, which are descriptions of types of projects that usually do not have a significant effect on the environment (e.g., replacement or reconstruction of existing facilities, actions taken by regulatory agencies as authorized by State law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resource.) (<http://ceres.ca.gov/ceqa/flowchart/exemptions/categorical.html>, as viewed on April 21, 2003.)

1106 habitat is designated. In cases where the designation triggers the CEQA significance test or results in a reduction of categorically exempt activities, associated costs are considered to be an indirect effect of the designation.

1111 In these and other cases in which costs are incurred by landowners and managers above and beyond what would be required under State or local law and policy in the absence of the designation, these costs are considered to be an indirect effect of the designation. As such, these economic effects are reported in the analysis.

TIME DELAYS AND REGULATORY UNCERTAINTY

1116 In addition to the indirect effects of compliance with other laws triggered by the designation, project proponents, land managers and landowners may face additional indirect impacts. These can include costs due to project delays associated with the consultation process or compliance with other regulations, or, in the case of land location within or adjacent to the designation, loss in property values due to regulatory uncertainty, and loss (or gain) in property values resulting from public perceptions regarding the effects of critical habitat. These categories of potential effects are described in greater detail below.

Time Delays

1126 Both public and private entities may experience incremental time delays for projects and other activities due to requirements associated with the section 7 consultation process and/or compliance with other laws triggered by the designation. The need to conduct a section 7 consultation will not necessarily delay a project, as often the consultation may be coordinated with the existing baseline regulatory approval process.

1131 However, depending on the schedule of the consultation, a project may experience additional delays, resulting in an unanticipated extension in the time needed to fully realize returns from the planned activity. To the extent that delays result from the designation, they are considered in the analysis. Specifically, the analysis considers costs associated with any incremental time delays associated with section 7 consultation

1136 or other requirements triggered by the designation above and beyond project delays resulting from baseline regulatory processes.

Regulatory Uncertainty

1141 The Service conducts each section 7 consultation on a case-by-case basis and issues a BO
on formal consultations based on species-specific and site-specific information. As a
result, government agencies and affiliated private parties who need to consult with the
Service under section 7 may face uncertainty concerning whether project modifications
will be recommended by the Service and what the nature of these modifications will be.
1146 This uncertainty may diminish as consultations are completed and additional
information becomes available on the effects of critical habitat on specific activities.
However, a degree of regulatory uncertainty may persist. In some cases, this
uncertainty may be incorporated by the project proponent into the costs of completing a
proposed activity. For example, mining companies uncertain about potential
1151 restrictions to their activities in designated areas of critical habitat may lease mining
rights at a reduced rate. Additionally, landowners may incur costs determining
whether their property constitutes critical habitat.²³ They may retain outside experts or
legal counsel to better understand their responsibilities with regard to critical habitat.
Where appropriate, the analysis considers the potential costs associated with regulatory
uncertainty.

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Stigma

1161 In some cases, the public may perceive that CHD may result in incremental changes to
private property values, above and beyond those associated with anticipated project
modifications and regulatory uncertainty described above. That is, the public may
perceive that, all else being equal, a property that is designated as critical habitat will
have lower market value than an identical property that is not within the boundaries of
critical habitat. Public attitudes about the limits and costs that critical habitat may
impose can cause real economic effects to the owners of property, regardless of whether
1166 such limits are actually imposed.

²³ Designated critical habitat may also reduce such costs in the sense that boundaries are legally defined in the rule, which in some cases, clarifies the importance of specific land parcels.

1171 Conversely, the direction of property value effects resulting from critical habitat may be
positive rather than negative. For example, property owners may believe that CHD will
increase property values, if they believe that such designation will slow sprawling
development in a given community (i.e., protect the rural character of an area) o
1176 increase water quality of neighborhood streams and rivers. This perception alone may
result in real increases in land values, even in cases where the economic analysis
predicts no additional requirements on activities taking place in the area. In either case,
as the public becomes aware of the true regulatory burden imposed by critical habitat,
the impact of the designation on property markets should decrease. This analysis
considers the implications of public perceptions related to critical habitat on private
property values within the proposed designation.

Benefits

1181 The published economics literature has documented that real social welfare benefits can
result from the conservation and recovery of endangered and threatened species. Such
benefits have also been ascribed to preservation of open space and biodiversity, both of
1186 which are associated with species conservation. Likewise, regional economies and
communities can benefit from the preservation of healthy populations of endangered
and threatened species, and the habitat on which these species depend. Finally, in some
cases the preservation of open space may result in increased property values, either to
on-site or adjacent parcels, due to the amenity value associated with owning property
next to permanently protected open space.

1191 In Executive Order 12866, OMB directs Federal agencies to provide an assessment of
costs and benefits of a proposed regulatory action.²⁴ However, in its guidance for
implementing Executive Order 12866, OMB acknowledges that often, it may not be
feasible to monetize, or even quantify, the benefits of environmental regulations.²⁵

²⁴ Executive Order 12866, "Regulatory Planning and Review," September 30, 1993.

²⁵ U.S. Office of Management and Budget, "Draft 2003 Report to Congress on the Costs and Benefits of Federal Regulations; Notice," 68 *Federal Register* 5492, February 3, 2003; and U.S. Office of Management and Budget, "Appendix 4: Guidelines to Standardize Measure of Costs and Benefits and the Format of Accounting Statements," in *Report to Congress on the Costs and Benefits of Federal Regulations*, March 22, 2000.

1196 Where benefits cannot be quantified, OMB directs agencies to describe the benefits of a
proposed regulation qualitatively. This report provides insight into the potential
economic benefits of CHD based on information obtained in the course of developing
the economic analysis. It is not intended to provide a complete analysis of all of the
benefits that could result from the designation. *Given these limitations, the Service believes*
1201 *that the benefits of CHD are best expressed in biological terms that can be weighed against the*
expected cost impacts of the rulemaking.

Analytic Time Frame

1206 The analysis examines activities taking place both within and adjacent to the proposed
designation. It estimates impacts based on activities that are “reasonably foreseeable,”
including, but not limited to, activities that are currently authorized, permitted, or
funded, or for which proposed plans are currently available to the public. Accordingly,
the analysis bases estimates on activities that are likely to occur through the year 2025,
1211 beginning on the day that the current proposed rule becomes available to the public.
As discussed in **Chapter III**, official regional demographic projections for the majority
of counties included in the proposed designation are available only through 2025.
Because EPS did not have adequate data to provide reliable forecasts beyond 2025 for
the majority of the proposed designation, this timeframe was deemed the most
1216 appropriate for the analysis.

General Analytic Steps

1221 This report relies on a sequential methodology and focuses on distilling the salient and
relevant aspects of potential economic impacts of the proposed designation. The steps
followed in this analysis consist of:

- Describing current and projected economic activity within and around the
proposed critical habitat area;
 - Identifying whether such activities are likely to involve a Federal nexus;
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- 1231 • For activities with a Federal nexus, evaluating the likelihood that these activities will require consultations under section 7 of the Act and, in turn, result in any modifications to projects;
- Estimating the direct costs of expected section 7 consultations, project modifications and other economic impacts associated with the designation;
- 1236 • Estimating the likelihood that current or future activities may require additional compliance with other Federal, State, and local laws as a result of new information provided by the proposed designation;
- Estimating the likelihood that projects will be delayed by the consultation process or other regulatory requirements triggered by the designation;
- 1241 • Estimating the likelihood that economic activity will be affected by regulatory uncertainty, and/or property values affected;
- Estimating the indirect costs of the designation, as reflected in the cost of compliance with State and local laws, project delays, regulatory uncertainty, and effects on property values;
- 1246 • Assessing the extent to which CHD will create costs for small businesses as a result of modifications or delays to projects;
- 1251 • Assessing the effects of administrative costs and project modifications on the supply, distribution, and use of energy; and
- 1256 • Determining the benefits that may be associated with CHD.

As noted above, this analysis considers both the efficiency effects and distributional effects that could result from this designation. It begins by considering direct compliance costs associated with the designation, as well as potential indirect effects, such as those effects associated with compliance with other Federal, State, and local laws, project delays, and impacts to property values. As necessary, regional economic impacts are described, as are impacts on significantly affected markets. Impacts on small entities and energy production and consumption are discussed separately, in **Chapter VII**. Potential benefits of critical habitat are discussed qualitatively, in **Chapter VIII**.

REFERENCES

Publications

CEQA, Article 19. <http://ceres.ca.gov/ceqa/flowchart/exemptions/categorical.html>, as viewed on April 21, 2003.

Gramlich, Edward M., *A Guide to Benefit-Cost Analysis (2nd Ed.)*, Prospect Heights, Illinois: Waveland Press, Inc., 1990.

Industrial Economics, Incorporated, *Draft Economic Analysis of Critical Habitat Designation for the Nine Bexar County Texas Invertebrate Species*, prepared for the U.S. Fish and Wildlife Service, October 2002.

U.S. Department of the Interior and U.S. Department of Commerce, *Habitat Conservation Planning and Incidental Take Permit Processing Handbook*, November 4, 1996.

U.S. Environmental Protection Agency, *Guidelines for Preparing Economic Analyses*, EPA 240-R-00-003, September 2000.

U.S. Fish and Wildlife Service, "Endangered Species and Habitat Conservation Planning." From: <http://endangered.fws.gov/hcp/>, as viewed on August 6, 2002.

1291 U.S. Office of Management and Budget, "Appendix 4: Guidelines to Standardize
Measure of Costs and Benefits and the Format of Accounting Statements," in
Report to Congress on the Costs and Benefits of Federal Regulations, March 22, 2000.

1296 U.S. Office of Management and Budget, "Draft 2003 Report to Congress on the Costs
and Benefits of Federal Regulations; Notice," *68 Federal Register* 5492, February 3,
2003.

Legislation

1301 2 U.S.C. §§658-658g and 1501-1571

5 U.S.C. §§ *et seq*; and Pub Law No. 104-121.

5 U.S.C. § 601 *et seq*.

1306 50 CFR Part 402.02.

Executive Order 12866, "Regulatory Planning and Review," September 30, 1993.

1311 Executive Order 13211, "Actions Concerning Regulations That Significantly Affect
Energy Supply, Distribution, or Use," May 18, 2001.

New Mexico Cattle Growers Assn. v. U.S.F.W.S., 248 F.3d 1277 (10th Cir. 2001).

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POTENTIALLY AFFECTED ACTIVITIES

Any activities on Federal lands that may affect the gnatcatcher or its CH, as well as any activities on State or private lands that require Federal agency approval or oversight, would be subject to section 7 consultation. In particular, the proposed rule identified the following activities that, when funded, authorized, or carried out by a Federal agency, may affect the gnatcatcher or its CH:

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1. Development on private lands requiring permits from Federal agencies, such as authorization from the United States Army Corps of Engineers (USACE) pursuant to section 404 of the Clean Water Act, or a section 10(a)(1)(B) permit from the Service, or some other Federal action that includes Federal funding that will subject the action to the section 7 consultation process (e.g., from the Federal Highway Administration, Federal Emergency Management Agency, or the Department of Housing and Urban Development);
2. Military activities of the Department of Defense on its lands or lands under its jurisdiction;
3. The release or authorization of release of biological control agents by the U.S. Department of Agriculture;
4. Regulation of activities affecting point source pollution discharges into waters of the United States by the Environmental Protection Agency under section 402 of the Clean Water Act;
5. Construction of communication sites licensed by the Federal Communications Commission (FCC); and
6. Authorization of Federal grants or loans.

1341 After reviewing the above listed activities, and conducting interviews with the relevant
Federal agencies, the following activities were identified that may affect the gnatcatcher
or its habitat, and will be the foci of this analysis:

1. Private development requiring USACE permitting under the Clean Water Act;
- 1346 2. Transportation projects by Caltrans and the TCA that either require USACE section 404 authorization or receive Federal funding (e.g., FHWA funds);
3. Construction of regional municipal water infrastructure by the San Diego County Water Authority (SDCWA) and the MWD that involves USACE section 404 authorization;
4. Flood control and water treatment projects that receive funds from the BOR;
- 1351 5. Construction of regional gas and electricity infrastructure by SDG&E, SCE, and the SCGC that involves Federal Energy Regulatory Commission (FERC) approval or USACE section 404 authorization;
6. Land management practices (e.g., fire prevention) by the USFS and Bureau of Land Management (BLM);
- 1356 7. Emergency management actions by FEMA;
8. Military operations and land management by the USMC and U.S. Navy; and
9. Internal section 7 consultations required by the Service to approve existing and future Habitat Conservation Plans that address the gnatcatcher.

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II. REGULATORY BACKGROUND

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This chapter describes the existing regulatory environment relevant to gnatcatcher and CSS habitat in California. As described, a number of existing regulations and regulatory regimes require agencies and applicants to consider the impacts of their actions or projects on CSS, and thus gnatcatcher habitat, and to mitigate those impacts independent of section 7. In other words, in the “world without section 7,” project applicants would be required to mitigate CSS impacts under these baseline regulations and regulatory regimes. As discussed in **Chapter I**, the costs associated with such mitigation requirements are therefore appropriately considered as baseline, and are not attributed to project modification requirements under section 7.

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The relevant baseline regulations identified as part of this analysis include:²⁶

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1. Section 4(d) Special Rule,
2. CEQA,
3. Project-Specific Habitat Conservation Plans,
4. Regional Habitat Conservation Plans, and
5. Integrated Natural Resource Management Plans.

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In attempting to define the baseline regulatory environment, this analysis also considered Riverside County’s local grading permit application requirement. Through this process, permit applicants are required to perform a habitat assessment if the County alerts them that their property “may contain vegetation...which could support the [gnatcatcher].” Negative survey results allow applicants to receive grading permits, while positive survey results require them to perform additional surveys and engage the Service, if necessary. The survey requirement is a purely informational procedure, and thus does not provide any additional protection to the species or its habitat. The costs associated with the preliminary habitat assessment may overlap with similar activities undertaken during a biological assessment as part of a section 7 consultation. However, the reduction in section 7 administrative costs resulting from this baseline requirement is assumed to be negligible. Therefore, this analysis does not attempt to net out the baseline costs of surveying that result from Riverside County’s grading permit approval process.

1381 This analysis evaluates the economic impact of critical habitat in areas proposed for
designation as well as in areas proposed for exclusion. As described in **Chapter I**, areas
proposed for exclusion include lands within a variety of existing project-specific HCP
reserves, lands in approved regional HCP planning areas (i.e., the MSCP and Orange
County Central/Coastal NCCP/HCP), areas covered by an existing INRMP (MCAS
Miramar), and lands excluded due to a consideration of economic and other relevant
1386 impacts (i.e., mission-essential training areas at Camp Pendleton and Tribal lands of the
Pala Band of Mission Indians).

The following discussion is divided into three sections: the first describes baseline
regulations relevant to lands proposed for designation (i.e., regulations 1 and 2, listed
above); the second describes baseline regulations relevant to lands proposed for
1391 exclusion (i.e., regulations 1-5, listed above); and the third describes ongoing regulatory
processes that could potentially constitute baseline regulations, if approved. **Table 5**
provides a schematic summary of where and to what extent each of these regulations
applies.

BASELINE IN AREAS PROPOSED FOR CRITICAL HABITAT

1396 The following discussion addresses project-specific HCPs, the Orange County
Central/Coastal NCCP/HCP, the 4(d) Special Rule, and CEQA, which this analysis
considers to be a complete list of all baseline regulations that apply to lands proposed
for CHD. As discussed in the next section, some of these regulations may also
constitute baseline conditions for areas proposed for exclusion.²⁷

²⁷ Although all of the areas proposed for designation in Unit 1 lie within the planning area of the MSCP, only the Otay-Sweetwater Unit of the San Diego National Wildlife Refuge Complex (SDNWR) is officially enrolled in the MSCP. The MSCP is not considered a baseline regulation for the SDNWR because it is a federally owned refuge – this analysis assumes that future projects would be purely Federal in nature and any project modifications would be negotiated through the section 7 consultation process. The MSCP is not considered a baseline regulation for the remaining areas in Unit 1 because these areas are not within the boundaries of approved sub-area plans.

1401 ORANGE COUNTY CENTRAL/COASTAL NCCP/HCP

1406 *This analysis assumes that no future section 7 project modification costs will be incurred by Participating Landowners in the Plan. Any future section 7 consultations required for projects with a Federal nexus that are carried out by non-participating landowners in EUAs may result in project modification costs attributable to section 7. Two additional section 7 consultations are anticipated within the El Toro Reuse Area and the Irvine Ranch Land Reserve, which would result in administrative section 7 costs only.*

Background

1411 The Central/Coastal Orange County NCCP/HCP is a regional HCP that was approved and adopted on July 17, 1996. Regional HCPs generally encompass larger planning areas than project-specific HCPs and are designed to provide systematic processes for granting incidental take to a broad range of future projects or activities. This plan reflects conservation measures committed to by the County of Orange, cities within Orange County, and Participating Landowners, and approved by the Service. Participating landowners are agencies or entities that participated in the development of the plan and contributed land and/or funds for administration, management, or reserve creation.²⁸ The plan established a defined reserve system, composed of both public land and private land dedicated by participating landowners, parts of which – the El Toro Reuse Area and the Irvine Ranch Land Reserve – have been proposed for CHD in Unit 7. The plan also established several classes of “non-reserve supplemental habitat areas,” including Special Linkage Areas (SLAs), EUAs, and the North Ranch Policy Plan Area (NRPPA). Several EUAs have also been proposed for critical habitat as part of Unit 7.

1426 The Central/Coastal HCP/NCCP is a conservation plan that provides conservation measures to minimize and mitigate the impacts of take resulting from planned activities by participating landowners. By contributing land or money through the plan

²⁸ Participating landowners are the San Joaquin Hills Transportation Corridor Agency, the Foothill/Eastern Transportation Corridor Agency, the Orange County Fire Authority, the Orange County Flood Control District, the Regents of the University of California, the Santiago County Water District, the Irvine Ranch Water District, the Metropolitan Water District of Southern California, Southern California Edison, M.H. Sherman Company, Chandis Security Company, Sherman Foundation, and The Irvine Company.

1431 development process, participating landowners received assurances that they had
satisfied their mitigation requirements for future “take” occurring as a result of planned
activities. These assurances also apply to planned activities within the reserves, as
described below. In accordance with its “No Surprises” policy, and consistent with the
plan’s goal of conserving habitat essential to the gnatcatcher within the HCP’s
boundaries, the Service assured Participating Landowners that any future CHD would
not require additional mitigation by participating landowners for activities covered by
the plan.²⁹

1436 **Application to Economic Cost Calculation**

This analysis assumes that no section 7 project modification costs will be incurred for
planned activities by participating landowners within the Central/Coastal HCP plan
area (and thus within proposed CH unit 7). As described below, certain activities by
non-participating landowners that have a Federal nexus may result in project
1441 modification costs. All future projects with a Federal nexus within Unit 7, including
those by participating landowners, will incur administrative section 7 consultation
costs. Consultations for activities by participating landowners are assumed to be
streamlined informal consultations. The estimated administrative cost of these
anticipated section 7 consultations is shown in Appendix Table A-9. The assumptions
1446 within each planning areas are as follows:

- El Toro Reuse Area: The only Planned Activity with a Federal nexus is the
proposed construction of Alton Parkway by the County of Orange through the
southeast corner of the El Toro parcel. As a planned activity in an established
1451 reserve area, CSS impacts for this project have already been mitigated in full,
and the project applicants would incur only administrative section 7 costs.

²⁹ Section 8.3.5(e) of the Implementation Agreement for the Central/Coastal HCP/NCCP stipulates that “in the event that a CH determination is made for any CSS Species [such as the Gnatcatcher]...no additional mitigation in the form of land or financial compensation shall be required of any Participating Landowner in connection with Planned Activities through the section 7 consultation process under FESA or otherwise.”

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- Irvine Ranch Land Reserve: The only Planned Activities with a Federal nexus are potential future trail construction projects throughout the reserve that may require USACE section 404 authorization; other land uses are prohibited by a conservation easement, which is considered a baseline regulation that is not attributed to section 7. Service staff have indicated they do not expect these projects to require section 7 consultation because the Irvine Company has made extensive efforts to collaborate with the Service and to design all its projects in reserve areas to avoid impacts to CSS and gnatcatcher habitat. As a conservative measure (i.e., to more likely overestimate than underestimate economic impacts), this analysis assumes that future trail construction will lead to one informal section 7 consultation. As a planned activity, CSS impacts for this project have already been mitigated in full, so the project applicant would incur only administrative consultation costs.

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- Existing Use Areas: CH has been proposed for approximately 3,200 acres that have been established as EUAs in the Orange County NCCP/HCP. EUAs are private land owned by non-participating landowners. Current land uses are allowed, but any future changes in land use would require consultation with the Service (under section 7 or section 10). Incidental take has not been authorized for any EUAs. Any future development with a Federal nexus would require section 7 consultations with the Service, and may incur administrative and project modification costs.

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SECTION 4(D) SPECIAL RULE

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This analysis assumes that the 4(d) Rule constitutes a regulatory baseline for qualifying projects in southern Orange County, the City of Rancho Palos Verdes (Los Angeles County), and San Diego County, outside the San Diego National Wildlife Refuge. Future projects in these areas that have a Federal nexus would incur administrative section 7 costs, but would not incur project modification costs attributable to section 7. Future projects with a Federal nexus that are carried out only by a Federal agency, or do not meet 4(d) Special Rule qualifying criteria, will be processed entirely through section 7, and all administrative and project modification costs will be attributable to section 7 and/or other baseline regulations.

1486 **Background**

1491 In December 1993, following the listing of the gnatcatcher as a Federally threatened species, the Service issued a Special Rule under section 4(d) of the Act (hereafter, the 4(d) Rule). The 4(d) Rule exempts from the take prohibitions of section 9 of the Endangered Species Act incidental take of gnatcatchers resulting from projects in local jurisdictions that have voluntarily enrolled lands in the NCCP program, and that are actively developing NCCPs that address the gnatcatcher and CSS. It allows these jurisdictions to approve projects that will alter CSS habitat by issuing Habitat Loss Permits (HLPs). If the Service concludes the project is consistent with the 4(d) guidelines, the HLP allows an applicant to remove a specified amount of CSS without having to obtain an incidental take permit through section 10(a) of the Act for any associated take of the gnatcatcher.

1501 As discussed in more detail below, projects with a Federal nexus must still consult under section 7 to obtain incidental take authorization, though any required CSS mitigation is processed according to 4(d) Rule standards. When the HCP/NCCP is ultimately approved, all ensuing CSS impacts will be processed through the approved plan and the 4(d) Rule no longer applies.

1506 For a project to be approved under the 4(d) Rule, the local jurisdiction must insure, with the Service's approval, that each HLP it issues meets all of the following criteria:

- The habitat loss does not exceed five (5) percent of the total available CSS at the time the 4(d) Rule took effect.
- The habitat loss will not preclude connectivity between areas of high habitat value.
- The habitat loss will not preclude or prevent the preparation of the sub-regional NCCP.
- Habitat loss has been minimized and mitigated to the maximum extent practicable.
- The habitat loss will not jeopardize the continued existence of the coastal California gnatcatcher.

- Any take is incidental to the pursuit of otherwise lawful activities.

Participating Areas

1521 Currently, San Diego County, southern Orange County, and the City of Rancho Palos
Verdes (Los Angeles County) are the only areas within the proposed CH boundaries
that are enrolled in the 4(d) Rule program and are authorized to issue HLPs. The
remaining counties and jurisdictions either have approved NCCPs/HCPs in place
(central/coastal Orange), have chosen not to participate in the 4(d) Rule by declining to
1526 enroll lands in the NCCP program (Riverside County), or are not actively pursuing
regional HCP/NCCPs that address the gnatcatcher and CSS (northern Orange, San
Bernardino, Los Angeles, and Ventura counties). Within San Diego County, projects in
the SDNWR (Unit 1) are assumed to involve only Federal agencies on Federal land –
these projects would be processed entirely through section 7, and the 4(d) Rule would
not constitute a baseline regulation.

The 4(D) Rule and Section 7

1531 The 4(d) Rule is intended primarily to obviate the need for private entities to seek
individual section 10(a) permits when their projects are likely to result in the take of
gnatcatchers and the local jurisdictions in which the proposed project is located are
actively engaged in the NCCP process. Projects with a Federal nexus that may affect
1536 the gnatcatcher but still comply with the 4(d) Rule criteria listed above will require
independent section 7 consultation, and the Service would authorize any incidental take
through issuance of a BO. Based on input from the Service, and on an independent
review of selected BOs for projects in the 4(d) Rule area, CSS mitigation incorporated
into projects that go through the section 7 process is equivalent to mitigation typically
1541 required for HLP issuance under the 4(d) Rule. Furthermore, loss of CSS habitat
identified in the section 7 process is deducted from the enrolled jurisdiction's five-
percent allotment as established by the 4(d) Rule, including CSS take authorized for
Federal projects only (i.e., those with no third party applicant).

1546 These facts demonstrate that (1) applicants with a Federal nexus would incur the same
mitigation costs under the 4(d) Rule if they were not required to consult under section
7, and (2) both the Service and local agencies in 4(d) Rule areas track incidental take of
CSS permitted through section 7 consultation with reference to levels established by the

1551 4(d) Rule. In other words, in the “world without section 7,” projects with a Federal
nexus would be required to mitigate CSS impacts under the 4(d) Rule, and the overall
amount of habitat loss would be the same (five percent). This analysis therefore
considers the 4(d) Rule a baseline regulation in San Diego County, southern Orange
County, and the City of Rancho Palos Verdes, and project modification costs for CSS
impacts are not considered attributable to section 7. All projects with a Federal nexus in
1556 4(d) Rule areas will incur administrative section 7 consultation costs.

Projects Without 4(d) Rule Baseline Protection

1561 It is important to note that not all future projects within the 4(d) Rule area will meet all
five criteria listed above. Any project that does not meet all of the criteria is entirely
exempt from the 4(d) Rule process, and those exempt projects with a Federal nexus
would require independent section 7 consultation. All administrative and project
modification costs of any such project would be entirely attributable to section 7.
According to Service and local agency staff, no proposed projects have been denied 4(d)
Rule approval in Orange County or the City of Palos Verdes, though some have had to
agree to project redesigns in order to secure approval. A small number of projects in
1566 San Diego County have been denied 4(d) approval, though Service staff estimates that
greater than 95 percent of projects seeking 4(d) approval are successful. In general, the
only projects that are likely to be denied 4(d) approval are very large, identifiable ones.
In San Diego and Orange counties, these projects are also likely to be regulated under
the requirements of CEQA, as described further below.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

1571 *This analysis assumes that lead agencies’ enforcement of CEQA regulations in San Diego and
Orange counties constitutes a regulatory baseline for projects not already covered by the 4(d)
Rule. However, CSS mitigation required through the CEQA process may not be as onerous or
consistently applied as typical project modifications under section 7 – in such cases, the
1576 difference between CSS mitigation associated with section 7 and that associated with CEQA
would be attributable to section 7. In contrast, all project modification costs for projects with a
Federal nexus in Riverside, San Bernardino, Los Angeles and Ventura counties are assumed to
be attributable to section 7. CEQA is not considered a baseline regulation for purely Federal*

1581 *projects with no third party applicants. All future projects with a Federal nexus will require
administrative section 7 consultation costs.*

Background

1586 CEQA requires that lead agencies – public agencies responsible for project approval –
consider the environmental effects of proposed private projects that are considered
“discretionary” in nature, and that are not categorically or statutorily exempt.³⁰ Among
other effects, the CEQA statutes specifically require lead agencies to consider a project’s
effects on rare or endangered plant and animal communities.³¹ To approve qualifying
projects, lead agencies must require applicants to mitigate effects to “less than
significant” levels for projects that are not granted a “statement of overriding
considerations.”³² In certain cases, therefore, it is possible that a lead agency’s
1591 enforcement of CEQA regulations will result in mitigation for impacts to rare or
endangered species’ habitat independent of section 7 or section 10 requirements. In
these cases that involve a Federal nexus, CEQA enforcement of CSS mitigation would
constitute a baseline regulation, and associated costs would not appropriately be
attributable to section 7. For a discussion of potential indirect economic effects due to
1596 lead agencies’ enforcement of CEQA guidelines, refer to **Chapters I and IV.**

³⁰Much case law has been devoted to clarifying the definitions of “project” and “discretionary” since CEQA’s adoption in 1970. In general, a project is defined as “any activity that has the potential for a direct physical change or a reasonably foreseeable indirect physical change to the environment.” A discretionary project is one that requires an exercise of judgement or deliberation on the part of a public agency (as opposed to a “ministerial” project subject to automatic approval). A list of categorical exemptions can be found in the CEQA Guidelines (14 C.C.R. 15301 *et seq*), and a list of statutory exemptions can be found in the CEQA Statutes (Pub. Res. Code 21080 *et seq*).

³¹ Appendix G of the CEQA Guidelines (14 C.C.R. 15000 *et seq*) requires lead agencies to issue a “mandatory finding of significance” when performing an Initial Study if a project has the potential to “...reduce the number or restrict the range of a rare or endangered plant or animal.”

³²Unlike the National Environmental Policy Act (NEPA), which is considered purely an informational act, CEQA requires lead agencies to ensure applicants mitigate their projects to a “less than significant” level. A lead agency may consider the adverse environmental effects of a project “acceptable,” and issue a statement of overriding considerations if it finds and demonstrates that the “...specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects” (14 C.C.R. 15093).

Regional Difference in CEQA Implementation

The California Department of Fish and Game (DFG) has officially assigned CSS habitat a sensitivity ranking, recognizing it as a “very threatened” (S2.1) habitat type on its list of “Sensitivity of Top Priority Rare Natural Communities in Southern California”.

Though this official recognition may compel certain lead agencies to pay special attention to CSS impacts, and possibly require mitigation accordingly, it does not legally require lead agencies to do so. CEQA implementation and enforcement is therefore entirely at the discretion of the lead agency with respect to CSS mitigation. As a result, CEQA provides effective baseline mitigation for CSS habitat in certain regions, and does not in others, depending on the likelihood the region’s local lead agencies require CSS mitigation. Research conducted during the course of this analysis indicates that the following regions address CSS under CEQA as follows:

- San Diego and Orange Counties. According to DFG staff, nearly all lead agencies in San Diego and Orange counties currently require mitigation for CSS impacts as part of their administration of the CEQA process. This is likely due to either the fact that (1) lead agencies voluntarily require CSS mitigation under CEQA, and/or (2) these regions contain lands enrolled in the NCCP process through the NCCP Act of 1991, and CEQA enforcement therefore specifically requires consideration of impacts to CSS.³³ As discussed previously, the 4(d) Rule constitutes a baseline requirement in San Diego County and southern Orange County. This analysis assumes that CEQA constitutes a baseline requirement for CSS mitigation in areas in Orange County outside 4(d) Rule jurisdiction (e.g., EUAs) , and when projects in either county do not qualify for 4(d) approval.

³³The California legislature passed the NCCP Act in 1991, designed in part to establish a proactive mechanism to preserve CSS habitat in southern California and to potentially avert the need to list the gnatcatcher under the Endangered Species Act. Since then, a number of cities and counties in southern California have voluntarily enrolled lands in the NCCP program. Once enrolled, CEQA Guidelines require lead agencies to consider whether a project would “conflict with the provisions of an adopted...Natural Community Conservation Plan” in performing an Initial Study (Appendix G, 14 C.C.R. 15000 et seq.).

- 1626 • Riverside and San Bernardino Counties. DFG staff indicates that lead agencies in Riverside and San Bernardino counties have not historically required CSS mitigation as part of the CEQA process.³⁴ This analysis assumes that CEQA does not constitute a baseline requirement for CSS mitigation in these counties.

- 1631 • Los Angeles and Ventura Counties. According to DFG staff, lead agencies in Los Angeles and Ventura counties have not historically exhibited a clear pattern, requiring CSS mitigation under CEQA in certain cases and not requiring it in others.³⁵ This analysis assumes that CEQA does not constitute a baseline requirement for CSS mitigation in these counties.

Level of CSS Mitigation Required Under CEQA

1636 The level of CSS mitigation required under CEQA is an important factor in determining the incremental cost of section 7 above CEQA baseline requirements. Service staff has indicated that in areas where lead agencies have required CSS mitigation under CEQA, those mitigation standards have typically been similar to project modifications resulting from section 7 consultations for the gnatcatcher. DFG staff has concurred that, on
1641 average, mitigation requirements under CEQA are similar to the on-site measures that typically result from section 7 consultations. However, overall the mitigation requirements of CEQA may not be as onerous and consistently applied as those under section 7 due to the following factors:

- 1646 1. Large projects under CEQA may be able to proceed with “statements of overriding considerations,” an option not available under section 7; and

- 1651 2. The CEQA mitigation requirements are generally based on a different set of considerations than those under section 7. Specifically, CEQA mitigation requirements are focused on CSS rather than the gnatcatcher per se and thus

³⁴ Personal communication with Jeff Drongensen, Senior Environmental Scientist, Inland Desert District, California Department of Fish and Game, on March 3, 2003.

³⁵ Personal communication with Don Chadwick and Morgan Wehtje, Senior Environmental Scientists, South Coast District, California Department of Fish and Game, on February 28 and March 3, 2003.

may ignore factors such as jeopardy or the preservation of key habitat areas (e.g., “stepping-stones”).

1656 Due to the foregoing considerations, this analysis assumes that in areas where lead
agencies have traditionally required CSS mitigation under CEQA (and other baseline
standards are assumed not to apply), section 7 consultation may generate slightly
greater project modification costs than those that would have been required under
CEQA. In other words, in the “world without section 7,” all projects in San Diego and
Orange counties not addressed by the 4(d) Rule would be required to mitigate CSS
1661 impacts under CEQA to a slightly lower degree than would be required under section
7.

1666 DFG staff have indicated that, on average, it encourages local lead agencies that enforce
CSS mitigation under CEQA to employ a 2-to-1 mitigation ratio. While the actual ratio
implemented for any particular project may vary, this is considered a reasonable
estimate of baseline CSS mitigation standards under CEQA in San Diego and Orange
counties. Therefore, this analysis considers the difference between this 2-to-1 baseline
standard and the mitigation levels typically resulting from section 7 to be attributable
entirely to section 7 – that this increment represents the “net” CSS mitigation ratio
1671 attributable to section 7. Furthermore, because both the Service and the DFG suggest
that additional project modification costs incurred as a result of section 7 generally take
the form of project redesign/avoidance, the cost of the additional section 7 mitigation
will be calculated assuming it represents an on-site set-aside requirement (as opposed
to off-site preservation or restoration).

1676 Finally, any project with a Federal nexus within proposed CH will incur administrative
section 7 consultation costs.

BASELINE IN AREAS PROPOSED FOR EXCLUSION

1681 This section evaluates baseline regulations that would apply if critical habitat were
designated in areas that have currently been proposed for exclusion. As described in
Chapter I, areas proposed for exclusion include approved project-specific HCPs that
address the gnatcatcher, areas within the MSCP and Orange County Central/Coastal
NCCP/HCP planning areas, MCAS Miramar, mission-critical training areas at Camp
1686 Pendleton, and Tribal lands owned by the Pala Band of Mission Indians. The 4(d) Rule
and CEQA also apply to some of the areas proposed for exclusion; in contrast, several
other baseline regulations – most notably the two approved regional HCPs and INRMP
for MCAS Miramar – apply only to areas that have been proposed for exclusion. **Table
7** provides a summary of each baseline regulation’s applicability.

1691 CEQA would constitute a regulatory baseline for areas proposed for exclusion that are
considered “non-reserve supplemental habitat areas” within the Orange County
Central/Coastal NCCP/HCP (see below for a more detailed discussion of these areas).
Regulatory baseline conditions for all other areas that have been proposed for exclusion
are addressed either through approved HCPs (project-specific or regional) or military
1696 INRMPs. No regulatory baseline has been identified for Tribal lands of the Pala Band
of Mission Indians. The 4(d) Rule does not constitute a regulatory baseline for any
lands proposed for exclusion (all lands in San Diego and Orange counties would be
addressed by either approved HCPs, CEQA, or INRMPs; Federal activities on military
and/or Tribal land would not qualify for 4(d) approval). A discussion of regulatory
1701 conditions related to approved HCPs is provided below.

PROJECT-SPECIFIC HABITAT CONSERVATION PLANS

*If critical habitat were designated in established project-specific HCP reserve areas, no section 7
project modification costs would be incurred. Projects with a Federal nexus could require
administrative section 7 consultation costs, though future projects within established HCP
1706 reserves are considered unlikely. Finally, each HCP would require one internal, informal
consultation by the Service if CH were designated.*

Table 7
Summary of Baseline Regulations that Address the Gnatcatcher and Coastal Sage Scrub

Region	Applicable Baseline Regulation						Section 7 Costs (1)	
	Small-scale HCPs	MSCP	4(d) Rule	Central/Coastal NCCP	CEQA	INRMP	Admin.	Project Modification
Areas Proposed for Designation								
San Diego County								
Unit 1								
Cities of Chula Vista, El Cajon, and Santee	--	--	X	--	✓	--	Yes	Some (2)(3)
County MSCP major amendment areas	--	--	X	--	✓	--	Yes	Some (2)(3)
San Diego National Wildlife Refuge	--	--	--	--	--	--	Yes	Yes
Water district lands	--	--	X	--	✓	--	Yes	Some (2)(3)
Fallbrook Naval Weapons Station (Unit 4)	--	--	--	--	--	--	Yes	Yes
Remainder of County (Units 2, 3, & 5)	--	--	X	--	✓	--	Yes	Some (2)(3)
Orange County								
Southern Orange County	--	--	X	--	✓	--	Yes	Some (2)(3)
Northern Orange County	--	--	--	--	X	--	Yes	Some (3)
Central/Coastal Orange (HCP/NCCP)	--	--	--	--	--	--	--	--
EUAs	--	--	--	--	X	--	Yes	Some (3)
El Toro and Irvine Ranch Reserves	--	--	--	X	✓	--	Yes	No
Riverside County								
San Bernardino County								
Los Angeles County								
City of Rancho Palos Verdes	--	--	X	--	--	--	Yes	No (4)
Remainder of County	--	--	--	--	--	--	Yes	Yes
Ventura County								
Areas Proposed for Exclusion								
San Diego County								
Multiple Species Conservation Plan (MSCP)								
Cities of San Diego & La Mesa; SD County	--	X	--	--	--	--	Yes	No
City of Poway	--	--	--	--	X	--	Yes	Some (3)
MCAS Miramar	--	--	--	--	--	X	Yes	No
USMC Camp Pendleton (training areas)	--	--	--	--	--	--	Yes	Yes
Pala Band of Mission Indians Reservation	--	--	--	--	--	--	Yes	Yes
Orange County								
Central/Coastal Orange (HCP/NCCP)	--	--	--	--	--	--	--	--
Reserves	--	--	--	X	--	--	Yes	No
Approved Project-specific HCPs (all Units)	X	--	--	--	--	--	Yes	No

Notes:

- X : For the purposes of this analysis, this baseline regulation is treated as the primary determinant of CSS mitigation requirements in this region.
- ✓ : For the purposes of this analysis, this baseline regulation applies in this region but is not the primary determinant of the CSS mitigation requirement.
- : This baseline regulation is assumed not to apply to this region.
- (1) Answer to question: "For projects with a Federal nexus, will there be costs attributable to section 7?"
- (2) : The 4(d) Rule is the primary baseline requirement with respect to CSS mitigation. CEQA requirements are considered a baseline regulation when a project does not qualify for 4(d) Rule consideration.
- (3) : Project modification costs above the "CEQA baseline" are attributable to section 7.
- (4) : According to City staff, no projects in Rancho Palos Verdes have been denied 4(d) approval.

1711 **Background**

1716 An HCP is a conservation plan provided for in section 10(a) of the Act that identifies conservation measures an applicant will undertake to minimize and mitigate the impacts of “take” on a listed species. In return for committing to develop an HCP consistent with the statutory criteria of section 10, the applicant is granted an “incidental take permit” for the species. An HCP must be approved by the Service and applied within a specified geographic area.

1721 The project-specific HCPs that have been proposed for exclusion are limited to reserve areas identified in approved HCPs that address the gnatcatcher. For some HCPs the Service has not proposed critical habitat because the approved HCP already establishes adequate management for the species (in which case the areas do not meet the definition of critical habitat under section 3(5)(a)); other HCPs have been proposed for exclusion based on the Service’s determination that the benefits of exclusion outweigh the benefits of inclusion (in which case they have been proposed for exclusion under section 4(b)(2)).

1731 Any future projects that take place within these reserve areas will be regulated by the terms and conditions of the HCP and its implementing agreement, which would therefore constitute a regulatory baseline if critical habitat were to be designated on these lands. The section 10(a) permits associated with these HCPs authorize a range of activities, including incidental take for discrete development projects as well as a variety of ongoing and planned activities by a particular applicant. In all cases, the associated HCPs specify reserve areas to be preserved as mitigation for expected take. Through the terms of these project-specific HCPs, land has already been acquired for these reserves (either through fee-title or conservation easement) and reserve management established.

1736 **Application to Economic Cost Calculation**

1741 In general, approved HCPs contain assurances to the applicant that activities covered by the HCP will not require additional mitigation or project modifications above those already negotiated as part of the HCP. As a result, if critical habitat were to be designated within these project-specific HCP reserve areas, future section 7 costs would

1746 be limited to (1) the administrative cost of section 7 consultations for future projects with a Federal nexus, and (2) the administrative cost of an internal consultation (for each HCP) by the Service to insure the HCPs are consistent with the adverse modification standard. This analysis assumes that land use activities consistent with and inside project-specific HCPs would not accrue added project modification costs as a result of CH.

SAN DIEGO MULTIPLE SPECIES CONSERVATION PLAN

1751 *If CH were designated in areas proposed for exclusion that are within approved MSCP sub-area plans, this analysis concludes that the CHD would not result in any additional project modification costs for projects that require section 7 consultation within the sub-area boundaries of San Diego County or the cities of San Diego or La Mesa. In contrast, projects with a Federal nexus in the City of Poway's sub-area plan would incur projects modification costs attributable to section 7. Finally, all costs for Federal projects with no third party applicants as well as all administrative consultation costs for projects with a Federal nexus in the MSCP are attributable to section 7.*

1756

Background

1761 A regional HCP generally encompasses a larger planning area than a project-specific HCP and is designed to provide a systematic process for granting incidental take to a broad range of future projects or activities. The MSCP is a regional HCP/NCCP that encompasses a 582,000-acre planning area in San Diego County. The City of San Diego was the lead agency for the Plan, and the City's subarea plan – the first approved under the MSCP – was approved in July 1997. The plan area is divided into jurisdictional sub-areas for administration. Four jurisdictions currently have approved sub-area plans – San Diego County, and the cities of San Diego, Poway, and La Mesa. Additional sub-
1766 area plans are proposed or pending for the northeast County (MSCP North), the Otay Water District, and the cities of Chula Vista, Santee, Coronado, Del Mar, and El Cajon. Because these sub-area plans have not officially been adopted, however, this analysis does not consider them participating jurisdictions in the MSCP.

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1776 The MSCP provides for the creation of a 172,000-acre habitat preserve, which will be established over time within the boundaries of a multiple habitat planning area (MHPA), within the larger MSCP planning area. Each approved sub-area plan defines the MHPA boundaries within its plan area and establishes a mechanism by which future development within the plan area will contribute to the establishment of preserves inside the MHPA. Each sub-area plan also defines the types of future land uses that will be permitted in each jurisdiction's preserve.

The MSCP and Section 7

1781 Proposed CH Unit 1 contains land within all four approved MSCP sub-area plans, as well as land within proposed or pending sub-area plans. All areas proposed for designation are within the MHPA and consist of land that is either already preserved, or is intended for preservation.

1786 In issuing local permits for development, jurisdictions with approved sub-area plans are required to comply with and enforce the terms of the MSCP, including requiring CSS mitigation consistent with the MSCP. Private development projects – either with or without a Federal nexus – that need local agency approvals must therefore negotiate CSS mitigation with local implementing agencies independent of section 7 consultation. In other words, in the “world without section 7,” project applicants would be required to mitigate impacts to CSS habitat in a manner consistent with the terms and conditions of the MSCP for all projects inside approved sub-area plan areas. Federal projects with no third party applicants must always consult purely through section 7, and the MSCP is not considered a baseline regulation for these activities.

Applicability to San Diego County, San Diego City, and La Mesa

1796 Based on input from Service staff and an independent review of selected section 7 BOs addressing impacts to the gnatcatcher for projects within approved sub-area plan jurisdictions, this analysis assumes that section 7 consultation will not require any additional project modifications (e.g., mitigation) over and above what is already required by the relevant sub-area plan. Typically, the section 7 consultation for projects within the MSCP area consists of a letter of concurrence from the Service that an applicant has appropriately mitigated according to the standards of the approved sub-area plan. This analysis therefore assumes that projects with a Federal nexus that are

1806 proposed in areas covered by approved sub-area plans will incur only administrative informal section 7 consultation costs, and will not incur any project modification costs attributable to section 7.

Applicability to Poway

The City of Poway’s approved sub-area plan provides one exception to the general assumption above. Unlike other jurisdictions with approved sub-area plans, the City of Poway does not require project applicants to participate in the MSCP process.

1811 Individual applicants have the option of pursuing an independent section 7 consultation (assuming there is a Federal nexus) or an independent section 10 incidental take permit (assuming there is not Federal nexus). In reality, it is very likely that most future applicants, particularly those whose projects lack a Federal nexus, will choose to participate in the City’s HCP, in recognition of the greater regulatory certainty and
1816 faster permit approval process, rather than pursuing individual consultation with the Service. Nevertheless, in order to be more likely to overestimate than underestimate section 7 economic impacts, this analysis conservatively assumes that all future applicants with a Federal nexus within the City of Poway’s jurisdiction will decide to pursue independent section 7 consultation. In such cases, all administrative and project
1821 modification costs will be attributable to section 7.

CENTRAL/COASTAL ORANGE COUNTY HABITAT CONSERVATION PLAN

The proposed rule identified approximately 35,000 acres of NCCP reserve lands that either do not meet the definition of critical habitat or have been proposed for exclusion under section 4(b)(2). The only future projects allowed in these reserves are Planned Projects under the NCCP.
1826 *This analysis did not identify any Planned Projects with a Federal nexus in the reserve areas proposed for exclusion, so no section 7 costs are anticipated.*

The Orange County Central/Coastal NCCP/HCP includes both lands that have been proposed for CHD and lands that do not meet the definition of critical habitat (under
1831 section 3(5)(a)) or have been proposed for exclusion under section 4(b)(2). As described

1836 above, the Irvine Ranch Reserve, the El Toro Reuse Area, and certain EUAs have been proposed for designation. The proposed rule also identifies approximately 35,000 acres of habitat reserves that have been proposed for exclusion.

1841 The only projects allowed in the Reserve area are Planned Projects by Participating Landowners. The Implementing Agreement for the HCP specifically states that CH will not result in any additional mitigation or costs for Planned Projects under the HCP. Therefore, the only section 7 costs would be administrative consultation costs for Planned Projects with a Federal nexus. This analysis did not identify any Planned Projects within the reserve areas proposed for exclusion that would involve a Federal nexus.³⁶ This analysis therefore assumes there will be not be any administrative or project modification costs associated with these areas.

1846 INTEGRATED NATURAL RESOURCE MANAGEMENT PLANS

1851 The Sikes Act Improvement Act (SAIA) of 1997 requires Department of Defense (DoD) military installations to develop INRMP to provide for the conservation, protection, and management of wildlife resources. Military areas proposed for exclusion include USMC Camp Pendleton (mission-essential training areas), and MCAS Miramar. Although mandatory, an INRMP must reflect the mutual agreement of the DoD and the Department of Interior, acting through the Service. A completed INRMP that meets the requirements of SAIA must provide for, among other things, the following:

- 1856 • Fish and wildlife management, land management, forest management, and fish- and wildlife oriented recreation;
- Fish and wildlife enhancement or modifications,
- Integration of, and consistency among, the various activities conducted under the plan; and

³⁶

Since the NCCP has been enacted, USACE has not initiated any section 7 consultations covering the gnatcatcher for Planned Activities in the HCP reserve areas. Based on this consultation record, this analysis assumes that the USACE will not initiate future consultations for Planned Activities in the reserve areas.

- Establishment of specific natural resource management goals and objectives and time frames for proposed action.

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Given the above, a completed INRMP can provide a baseline set of requirements for the protection of the gnatcatcher and/or CSS if completed and approved. In other words, in the "world without section 7," future projects or activities on DoD military installations would mitigate for impacts to the gnatcatcher and/or CSS. The costs associated with such mitigation requirements are appropriately considered as baseline, and are not attributed to project modification requirements under section 7. However, CHD may provide additional requirements over and above those specified in an existing INRMP. Consequently, although a completed INRMP constitutes a baseline requirement, the designation of CH may result in consultations and/or project modifications above and beyond those already specified in the INRMP. These incremental costs are evaluated separately for the three military installations included in the gnatcatcher CH that have INRMPs (Pendleton, Miramar, and Fallbrook).

POTENTIAL FUTURE BASELINE REGULATIONS

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The discussion above describes regional HCPs that have been approved and officially adopted, and can therefore be considered "baseline" regulations. In contrast, this analysis does not consider regional HCPs that are currently under development as part of the baseline, as they have yet to be officially approved or adopted. As described below, however, a number of regional HCPs that will address the gnatcatcher are currently under development, and are expected to be completed in the near term. The approval of one or all of these HCPs would impose an additional layer of land use regulation specifically focused on CSS and gnatcatcher habitat, which would be applied independent of section 7. In turn, such approved HCPs could therefore significantly reduce the "net" cost burden attributable to section 7.

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Following is a brief description of four regional HCPs that could potentially be completed in the near term, including a preliminary evaluation of relevant baseline considerations, based on the most current information publicly available. A complete

1891 analysis of the regulatory baseline effects of each of these plans can not be developed until the plans are officially approved and adopted.

WESTERN RIVERSIDE COUNTY MULTI-SPECIES HABITAT CONSERVATION PLAN

1896 Western Riverside County is actively developing a regional HCP. Service staff expect that the plan will be approved as early as Fall of 2003. Take authorization will apply to all projects in the planning area, and all projects will contribute to establishing a 500,000-acre reserve (including 153,000 acres of private land to be acquired through mitigation). No specific parcels have been identified as reserves, though the 153,000
1901 acres will be acquired from within the "MSHCP Criteria Area." The Plan establishes an incentive system to encourage private landowners in the Criteria Area to contribute land to the reserve.

1906 Preliminary estimates suggest that the proposed Unit 10 lies entirely within the MSHCP planning area. If the MSHCP is approved in its current form, take authorization and CSS mitigation would therefore be regulated through the MSHCP. Future projects with a Federal nexus would require consultation, but project modification costs would not be attributable to section 7. As discussed in the Executive Summary, this analysis estimates that economic costs for Unit 10 constitute approximately 50 percent of the
1911 total section 7 costs. Approval of the NCCP would shift a significant portion of the estimated costs from section 7 to the NCCP.

SOUTHERN ORANGE COUNTY HCP/NCCP

1916 As part of the Southern Orange County Coordinated Planning Process, southern Orange County is actively developing an HCP/NCCP that will address the gnatcatcher and CSS. No specific information is available regarding the status or expected completion date of this regional HCP/NCCP.

Research indicates that the NCCP will likely cover approximately 91,000 acres in southern Orange County. Preliminary estimates suggest that all portions of proposed Unit 6 that are within Orange County lie within the proposed NCCP planning area. If

1921 approved, all future incidental take of CSS habitat will be regulated by the NCCP, and
future project modification costs will not be attributable to section 7. As discussed in
the Executive Summary, this analysis estimates that future projects in Unit 6 account for
approximately 9 percent of the total cost estimate. Approval of the NCCP would shift
the portion of the cost burden related to projects in southern Orange County from
1926 section 7 to the NCCP. These estimates take into account baseline conditions under the
4(d) Rule and CEQA

NORTHERN SAN DIEGO COUNTY MULTIPLE HABITAT CONSERVATION PLAN

1931 Northern San Diego County governments are currently developing a regional HCP that
will address the gnatcatcher and CSS. The public comment period on the Draft EIR/EIS
closed in April 2002, and public comment on the majority of draft subarea plans was
completed in 2001. The plan is expected to be adopted sometime in 2003.

1936 The HCP will authorize incidental take of CSS habitat (but will not authorize
purposeful take of gnatcatcher individuals), and will establish differential mitigation
standards inside/outside "Focused Planning Areas" (potential future reserves areas).
Preliminary estimates indicate that proposed Unit 3 lies within the MHCP planning
area. If approved, future CSS take would therefore be mitigated through the Plan, and
project modification costs would not be attributed to section 7. As discussed in the
1941 Executive Summary, this analysis estimates that economic costs in Unit 3 constitute
approximately one percent of total section 7 costs. Approval of the HCP would shift a
portion of these costs from section 7 to the HCP.

NORTH COUNTY SUBAREA PLAN TO THE MSCP

1946 The County of San Diego is currently developing a subarea plan to the MSCP that will
apply to unincorporated areas in the northern County. If approved, CSS mitigation
within the subarea plan boundaries would be regulated under standards consistent
with the MSCP (and therefore section 7). Preliminary estimates suggest that proposed
Unit 5 lies within the planned subarea boundaries. If approved, future CSS mitigation

1951 would therefore not be attributed to section 7. As discussed in the Executive Summary, this analysis estimates that economic costs in Unit 5 constitute approximately one percent of total section 7 costs. Approval of the HCP would shift a portion of these costs from section 7 to the HCP.

CITY OF PALOS VERDES HCP/NCCP

1956 No specific information was obtained regarding the status, scope, or expected completion date of this Plan. However, because Palos Verdes currently processes CSS take through the 4(d) Rule, they must, by definition, be actively pursuing an NCCP that addresses the gnatcatcher and CSS. Proposed Unit 8 would likely be included in the

1961 future NCCP planning area, and future CSS mitigation would be regulated according to the NCCP. As discussed in the Executive Summary, this analysis estimates that economic costs in Unit 8 constitute less than one percent of total section 7 costs. Approval of the HCP would shift a portion of these costs from section 7 to the HCP.

OTHER FUTURE REGIONAL HCPS

1966 In addition to the regional HCPs discussed above, EPS understands that at least two other regional HCPs have been proposed to address the gnatcatcher and CSS -- San Bernardino Valley MSHCP and the Matrix NCCP Subregion of (northern) Orange County. The planning areas for these HCPs would correspond with proposed Unit 11 and Unit 7, respectively. Preliminary indications suggest, however, that negotiations have stalled for these plans, and that they therefore might not be considered "reasonably foreseeable" within the context of this analysis.

1971 **III. DESIGNATION IMPACT ON PRIVATE LAND**
DEVELOPMENT

1976 This chapter evaluates the economic impact of section 7 and the proposed CHD on private real estate development activities and markets. Specifically, it focuses on the effect of section 7 and CH on the supply and demand for land used in residential and commercial real estate development. **Chapter IV** addresses the economic impact of section 7 and the proposed CHD public sector projects and activities. The indirect effects of CH, such as the potential for increased uncertainty, project delay, and additional CEQA-related costs, are estimated separately in **Chapter V**.

1981 An overview of our general methodology and approach for evaluating the economic impact of section 7 and the proposed CHD on private development is provided below followed by a presentation of the analysis and estimated total economic costs.

ANALYTICAL APPROACH AND METHODOLOGY

1986 Potential modifications to land use projects stemming from section 7 and the designation of CH can affect landowners, consumers, and real estate markets in general. The total economic impact will depend on the scope and intensity of section 7 consultations and project modifications, the pre-existing regulatory framework in the region, and the nature of regional land and real estate markets. In order to accurately account for all of these factors, and to estimate the corresponding economic impacts, this evaluation employs a series of methodological tasks, as described below (as noted above, indirect effects such as time delay, uncertainty, and CEQA effects are estimated separately in **Chapter V**).

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1. Determine Overlap between CHD and Land Development with Federal Nexus

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The first step in evaluating the effect of section 7 on private land development is to identify the amount, type and location of land included in the proposed designation. The effect on private development only includes projects on land that can be developed during the timeframe being considered that are also likely to have a Federal nexus. For example, the analysis excludes non-developable areas such as parks and other permanent open space (the effect of CH on public activities and major infrastructure projects is evaluated separately in **Chapter IV**).

2001

2. Identify Mitigation Associated with Section 7 and Baseline Requirements

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The actual effects of section 7 on applicable land development projects ultimately depend on the type and level of project modifications likely to result from section 7 consultations. Thus, the second step is to estimate the expected modifications to land use projects associated with section 7, including on-site land set-asides, habitat restoration, and off-site mitigation. This step includes the subtraction of the requirements associated with pre-existing regulations or land use restrictions, including state, local, or regional laws and agreements (see **Chapter II** for the “baseline” regulations relevant to the gnatcatcher).

2011

3. Evaluate Effects on Regional Real Estate Market and associated Cost Incidence

2016

The third step is to determine the significance of the additional section 7-related land use project modifications relative to regional real estate demand and supply dynamics, and the resulting regulatory cost incidence. The incidence or burden of the project modification and other compliance costs will ultimately depend on their scope and intensity and the nature of the regional real estate markets. The cost incidence either falls primarily on individually affected landowners or on consumers of real estate products (e.g., homes and commercial buildings).

2021

2026 The economic impacts are likely to extend beyond the regulated landowners and affect
the real estate market, real estate consumers, and the regional economy if: (1) the
amount of land set-aside (e.g., not developed as a result of section 7 is high relative to
the total developable land in the region, and/or (2) other compliance costs are high
relative to real estate development value and cover a significant proportion of
2031 developable land. In these cases, landowners and developers pass on the costs to real
estate consumers in the form of higher prices.

Conversely, if project modification costs are low and/or section 7 only affects a small
fraction of the total developable land supply in a region, then the economic effects are
2036 likely to be limited to the sub-set of individual landowners and/or projects with a
Federal nexus. In this case, the regulated landowners will not be able to pass on their
increased costs to consumers and their development projects will either relocate to
other available sites or proceed with a reduced land value.

2041 **4. Estimate Economic Impacts**

The fourth step involves taking the data and conclusions from the first through third
steps and estimating the potential economic costs associated with section 7. The
approach to economic cost estimation is different depending on the cost incidence. If
2046 the project modification requirements do not affect the overall regional real estate
market dynamics due to the limited scale of the designation, cost impacts are borne by
the regulated landowners and reduced land values are estimated. The economic costs
are estimated based on the loss in land value associated with required on-site set-asides,
increased mitigation costs, and other project modifications incurred by individual
2051 landowners/developers.

If, however, the scale and intensity of the CHD is sufficient to affect regional real estate
dynamics, regulatory requirements will primarily affect consumers through some mix
of increased real estate prices and reduced real estate production. Producers or
2056 landowners will also be affected although those with land outside of the designation

2061 area will actually gain from the reduced supply and corresponding price increase. The
total economic effect is measured through the change in producer and consumer
surplus, a measure of social welfare.³⁷

PROJECTED LAND DEVELOPMENT WITH A FEDERAL NEXUS

2066 *A total of about 41,517 acres out of the 495,795 acres proposed for designation are expected to
overlap with projected land development through 2025 with a Federal nexus.*

2071 Following the methodology outlined above, this section estimates the number of acres
of projected development within proposed CH that will involve a Federal nexus. This
calculation starts with the total number of acres within the proposed CH area and
deducts from this the amount of land that is unlikely to be affected by the designation
(e.g., there is no nexus, or it would not be developed in any case). A summary of this
calculation is provided in **Table 8** and further described below.

PRIMARY DATA AND TIME HORIZON

2076 The estimated number of acres of private development potentially affected by CH is
based on the designation boundary maps provided by the Service and regional
demographic projections by census tract. Specifically, Geographic Information Systems
(GIS)-level maps of the proposed CH boundaries were correlated with census-tract-
level land use projections provided by the Southern California Association of
Governments (SCAG), and the San Diego Association of Governments (SANDAG).

2081

³⁷ Consumer surplus is the difference between the total value consumers receive from a particular good and the total amount they pay for that good. When the price of a good goes up, consumer surplus falls since a portion of the consumers fall out of the market altogether and the remainder pay a higher price. Producer surplus, alternatively, is the difference between the total market value associated with a particular level of output and the total market costs associated with supplying that level of output.

Table 8
Calculation of Projected Growth Acres with a Federal Nexus

Critical Habitat Unit	Total Acres Proposed for CH	Proposed CH Acres Available for Development (1)	Total Projected Growth Acres in CH (2025) [2]	Projected Growth Acres with a Federal Nexus (3)
Unit 1	25,100	12,868	1,684	1,162
Unit 2	16,075	13,902	1,821	1,256
Unit 3	32,465	27,241	6,769	4,670
Unit 4	8,690	11	6	4
Unit 5	34,705	27,889	6,864	4,736
Unit 6	44,340	34,027	4,909	3,387
Unit 7	5,775	4,468	117	81
Unit 8	7,160	6,991	80	55
Unit 9	22,595	17,595	1,498	1,034
Unit 10	176,720	164,085	22,650	15,628
Unit 11	14,990	12,581	4,502	3,106
Unit 12	3,890	2,032	213	147
Unit 13	103,290	101,983	9,057	6,250
Total	495,795	425,674	60,170	41,517

(1) Excludes proposed acres occupied by parks and other public lands not subject to private development.

(2) Total projected growth for portions of all census tracts within each unit that were proposed for critical habitat designation.

For census tracts partially covered by critical habitat, growth acres within critical habitat were estimated assuming even distribution of projected growth throughout all developable areas in the census tract.

(3) Assumes 69 percent of acres in each unit have a Federal nexus through the USACE as described in Chapter III and Appendix B.

2086 SCAG and SANDAG are quasi-governmental agencies responsible for providing official demographic projections for the counties of Los Angeles, Ventura, Riverside, San Bernardino, and Orange counties, and San Diego County, respectively.

2091 The timeframe for this analysis is 2025, which corresponds to the time frame for the regional demographic and economic projections provided by SCAG (rather than 2030 as provided by SANDAG). Because EPS does not have adequate data to provide reliable forecasts beyond 2025 for five out of the six counties included in this analysis, the SCAG time horizon was deemed most appropriate. The land use projections are calculated as undeveloped acres slated for residential, retail, office, or industrial development. SANDAG provides acreage estimates for these land use categories while SCAG data were converted to an acreage format based on assumptions regarding employees and households per acre. These calculations are further described in **Appendix A**. A summary of projected land development for each County based on SCAG and SANDAG data is shown in **Table 9**.

PROJECTED GROWTH IN PROPOSED CRITICAL HABITAT

2101 Prior to screening which census tracts intersect with proposed CH, land areas identified as parks, permanent open space, and other publicly owned areas are removed from the analysis of private real estate development. This analysis assumes future private development will not occur in these areas. The potential for public land development activities on publicly owned lands is addressed in **Chapter IV**. As shown in **Table 8**, approximately 426,000 acres of proposed CH remain available for private development.

2106 A GIS analysis was performed to identify all census tracts that intersect the remaining proposed CH acres. For census tracts that were partially covered by CH, projected growth was assumed to be evenly distributed throughout all land available for development in that census tract. The amount of growth projected within CH was then

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Table 9
Projected Growth Acres by County

County	Source	Projected Growth Acres in County by 2025				Total
		Residential	Office	Industrial	Retail	
San Diego County	SANDAG	252,614	871	6,701	5,063	265,248
Orange County	SCAG	11,917	27,430	19,698	8,815	67,860
Riverside County	SCAG	46,236	87,041	52,517	33,494	219,288
San Bernardino County	SCAG	35,350	31,578	21,737	11,602	100,266
Los Angeles County	SCAG	71,871	27,670	-33,101	7,462	73,902
Ventura County	SCAG	4,737	7,204	4,307	2,416	18,663
Total		422,724	181,795	71,858	68,852	745,229

Sources: SCAG; SANDAG; Economic & Planning Systems, Inc.

2116 estimated according to the amount of land available for development in CH, relative to the amount available in that census tract as a whole. Census tracts were grouped according to CH unit, and projected growth was summed by development type (residential, office, etc.). As summarized in **Table 8**, approximately 60,000 acres of growth are projected in proposed CH through 2025.

FEDERAL NEXUS ASSUMPTIONS

2121 Based on input from the Service and the development community, as well as a review of historical section 7 consultations involving the gnatcatcher, this analysis assumes that the primary Federal nexus for future private development activities is the issuance of section 404(b) permits by USACE. Under section 404(b) of the Clean Water Act, the USACE regulates development in jurisdictional “waters of the U.S.,” which are often defined broadly and potentially encapsulate a large amount of future development.

2126 A GIS analysis was performed to estimate the approximate percentage of land proposed for CH that the USACE would consider “waters of the U.S.” The GIS analysis compared the relationship between United States Geological Survey (USGS) “blue line” stream networks and “waters of the U.S.,” as identified by the USACE in a detailed survey of the San Jacinto/Santa Margarita drainage basin in Riverside County. A digital elevation model was used to estimate the prevalence of “waters of the U.S.” relative to slope classes and “blue line” stream coverage. Results of this “pilot area study” were then applied to slope classes and “blue line” streams throughout the entire proposed CH area. This analysis estimates that approximately 0.03 percent of the total land area proposed for CH contains “waters of the U.S.” Detailed calculations and a summary report are presented in **Appendix B**.

2141 This analysis recognizes that, in practice, the Service considers the entire project area when evaluating species and habitat impacts, rather than only that portion of the site containing “waters of the U.S.” (i.e., the Service’s “action area” is often larger than the USACE’s “scope of analysis”). This analysis assumes an average future project size of 300 acres, based on a review of previous private development projects that have required section 7 consultation for the gnatcatcher. A GIS analysis using a 300-acre grid system determined that approximately 69 percent of land within proposed CH would

2146 be subject to a Federal nexus through the USACE. Detailed calculations and a summary report are also presented in **Appendix B**. As shown in **Table 8**, this analysis estimates that 41,517 acres of projected growth with a Federal nexus will occur within proposed CH through 2025.

REGULATORY BASELINE AND SECTION 7 COMPLIANCE

2151 *Subtracting the baseline regulatory requirements, a total of about 25,233 acres of projected land development through 2025 will face additional regulation under section 7. Regulatory requirements will include the set-aside of about 12,500 acres on-site, off-site preservation of about 8,000 acres, and restoration of about 2,800 acres, among others.*

2156 Land developers in California often implement a variety of measures designed to off-set or mitigate impacts to sensitive biological resources. As discussed in **Chapter II**, the amount and type of mitigation associated with CSS, the gnatcatchers' predominant habitat, will be determined both through the section 7 process and through enforcement of a number of baseline regulations that predate the designation of CH. Thus, this
2161 analysis distinguishes between the CSS mitigation clearly required due to regulatory provisions other than section 7 and the incremental CSS mitigation likely to occur in association with section 7 consultation alone.

2166 As summarized in **Table 10**, this analysis estimates that approximately 41,500 acres of future private land development through 2025 will require section 7 consultation due to a Federal nexus through the USACE. Projected growth acres in CH that are subject to CSS mitigation under the 4(d) Rule are subtracted, leaving approximately 25,000 acres growth acres estimated to be subject to some form of habitat mitigation (e.g. on-site and off-site habitat set-aside and/or restoration) related solely to section 7. Finally, an
2171 estimated 12,485 acres, out of the 25,000 acres, will be removed from the private development pipeline as a result of the on-site habitat set-aside resulting from section 7 consultations. This estimate of "net" acres subject to mitigation solely in association with section 7 consultation, and the typical project modifications arising from that

Table 10
Calculation of Mitigation Acres Associated with Section 7

Critical Habitat Unit	Projected Growth Acres with a Federal Nexus (1)	Projected Growth Acres Affected by Section 7 (2)	Estimated CSS Mitigation Acres (3)		
			On-Site Set-Aside	Off-Site Preservation	CSS Restoration
Unit 1	1,162	72	4	0	0
Unit 2	1,256	58	3	0	0
Unit 3	4,670	215	12	0	0
Unit 4	4	0	0	0	0
Unit 5	4,736	292	16	0	0
Unit 6	3,387	426	275	0	0
Unit 7	81	100	64	0	0
Unit 8	55	0	0	0	0
Unit 9	1,034	951	482	0	265
Unit 10	15,628	14,376	7,745	7,982	42
Unit 11	3,106	2,858	2,086	0	215
Unit 12	147	135	41	0	68
Unit 13	6,250	5,750	1,757	0	2,207
Totals	41,517	25,233	12,485	7,983	2,798

(1) From Table 8.

(2) Excludes projected growth acres in areas covered by the 4(d) Rule.

(3) Calculated by applying "net" section 7 mitigation ratios to "Projected Growth Acres Affected by Section 7."

These values reflect mitigation implemented through the section 7 process, and do not include acres mitigated through CEQA.

See Appendix E for detailed calculations

consultation, serve as the basis for determining the effect on regional real estate market dynamics and calculating the total costs by unit. The derivation of these estimates are further described below.

2181 REGULATORY BASELINE REQUIREMENTS

To determine the “net” level of CSS mitigation attributable to section 7, the private land development projections were adjusted to account for the following baseline requirements.³⁸

- 2186 • **Central/Coastal Orange County NCCP (Unit 7):** The NCCP contains areas for which mitigation has already been secured (e.g., the El Toro Reuse Area and the Irvine Ranch Reserve) and areas for which mitigation must be negotiated independently. The reserve areas covered by the plan have already been mitigated in full, so the “net” mitigation associated with section 7 is zero. In contrast, future development in EUAs is not covered by the NCCP, so all project 2191 modifications (e.g., mitigation) in these areas will be associated with section 7.

- 2196 • **4(d) Rule (Units 1-6, 8):** All areas outside the jurisdiction of approved HCPs/NCCPs in Units 1 through 6 and all of Unit 8 are subject to regulation under the 4(d) Rule. CSS mitigation for projects that meet all 4(d) Rule criteria is assumed to be consistent with section 7 and attributable to the 4(d) Rule. Thus, for these projects the “net” mitigation ratio associated with section 7 is zero. However, this analysis assumes that 5 percent of future projects in 4(d) Rule areas in San Diego County (Units 1-5) fail to meet 4(d) criteria and are therefore subject to mitigation associated with section 7.

³⁸Several baseline regulations are also relevant to calculating the “net” section 7 effect in the areas proposed for exclusion. Specifically, private development will not occur in reserve areas already established under project-specific HCP agreements. In addition, approved MSCP subarea plans (i.e. San Diego County and the cities of San Diego and La Mesa) are expected to result in CSS mitigation requirements identical to section 7, so the “net” mitigation ratio associated with section 7 would be zero. The only exception is the approved subarea plan within the City of Poway where it is conservatively assumed that future applicants would choose to pursue independent section 7 consultation rather than participate in the city’s HCP.

2201 For Unit 6 (Orange County), the Service’s records indicate that no past projects
have been denied approval under the 4(d) Rule. However, this analysis assumes
that all residential growth projected in the vicinity of the proposed Foothill-
South toll road will not qualify for 4(d) approval, and will be addressed by
section 7 and other baseline regulations. The scale of this proposed
development makes 4(d) approval unlikely. Finally, staff from the City of
2206 Rancho Palos Verdes (Unit 8) indicate that all future projects will meet the
requirements of 4(d), resulting in no additional section 7-related mitigation
costs.

- **CEQA (Units 1-6, 7, 9):** As described in **Chapter II**, this analysis assumes that
CEQA constitutes a baseline requirement only in San Diego and Orange
2211 counties. Specifically, based on input from Service and DFG staff, lead agencies
in San Diego and Orange counties are assumed to require 2-to-1 mitigation for
CSS impacts under CEQA. Any difference between mitigation standards
associated with section 7 and this 2-to-1 baseline is considered the “net”
mitigation ratio for that county that is attributable to section 7. Lead agencies in
2216 Riverside, San Bernardino, Los Angeles, and Ventura counties are assumed not
to require CSS mitigation under CEQA, so no baseline condition exists in these
counties.

MITIGATION STANDARDS

2221 The economic impact of CHD on private sector land development will be directly
linked to the type and level of CSS mitigation likely to be associated with future section
7 consultations. Thus, this analysis reviewed a number of historical section 7 BOs to
generate county-specific estimates of typical “effective mitigation ratios” following
implementation of the conservation measures described in each BO. The majority of
BOs reviewed were issued following the designation of gnatcatcher CH in 2000, so the
2226 resulting mitigation standards provide an accurate estimate of section 7 consideration of
both jeopardy and adverse modification standards. A detailed summary of each of the
BOs is presented in **Appendix C**.

2231 While an attempt was made to obtain BOs that represent a range of development
types and a diverse geographic distribution, it is not possible to collect a discrete
sample that is perfectly representative of all future projects. In particular, fewer BOs
were provided for certain geographic areas than for others, and many of the reviewed
BOs involve impacts to breeding gnatcatcher pairs and/or multiple listed species. In
2236 such cases, the calculated “effective mitigation ratios” may overestimate the actual
amount of future mitigation in areas that do not contain breeding pairs or than
contain only the gnatcatcher and/or its habitat.³⁹ While the average “effective
mitigation ratios” calculated from these sample BOs are generally considered
representative of likely future section 7 outcomes, these potential sources of error are
2241 nonetheless worthy of mention. It is also worth noting that applying these mitigation
ratios to future projects is more likely to overestimate than underestimate actual
section 7 costs attributable to the gnatcatcher.

2246 **Table 11** summarizes the resulting CSS mitigation ratios—divided among on-site set-
aside, off-site preservation, and restoration—and sorted by county. The reported ratios
represent the ultimate level of CSS mitigation that is enforced in each county, and thus
reflect a combination of pre-existing baseline requirements and section 7 consultations.
The “net” mitigation ratio associated with section 7 deducts the typical mitigation
standards that would apply under CEQA independent of section 7 (in Orange and San
Diego counties only).⁴⁰

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The net effect of the presence of other Federally-listed species in the proposed critical habitat areas for the gnatcatcher is that the number of consultations conducted for the gnatcatcher alone is likely to be smaller than would be expected in the absence of these species. Indeed, most past consultations on the gnatcatcher have involved at least one or two other species per consultation. Thus, the cost of a consultation that involves the gnatcatcher may not be fully attributable to the presence of this species or its habitat. Nonetheless, because consultations must consider project related effects to each listed species separately, a certain amount of research and time will be spent on the gnatcatcher regardless of the presence of other species. In order to present a conservative estimate of the economic impacts associated with the implementation of section 7, this analysis assumes that all future section 7 consultations within the extant boundaries of the proposed critical habitat are fully attributable to the presence of the gnatcatcher and its habitat.

⁴⁰Baseline mitigation under CEQA typically occurs via on-site set-aside requirements. When possible, the 2-to-1 CEQA baseline is thus subtracted from the relevant on-site section 7 ratio to calculate the “net” on-site set-aside ratio. In the case of San Diego County, however, the section 7 on-site set-aside ratio was less than 2 (i.e., 0.77-to-1). In this case, the CEQA baseline was subtracted from the *total* section 7 mitigation ratio (2.06-to-1), yielding a “net” ratio of 0.06-to-1. This “net” ratio was applied as an on-site ratio throughout the subsequent calculations.

Table 11
Average Coastal Sage Scrub Mitigation Ratios by County

County	Reported Mitigation Ratios (1)				"Net" Section 7 Mitigation Ratios
	On-site	Off-site	Restoration	Total	
San Diego	0.77	1.28	0.01	2.06	0.06 (2) (3)
(SD Military)	0.00	2.00	0.00	2.00	same as "Reported Ratios"
Riverside	1.14	1.22	0.00	2.37	same as "Reported Ratios"
San Bernardino	2.70	0.00	0.40	3.10	same as "Reported Ratios"
Orange	3.82	0.00	0.00	3.82	1.82 (2)
Los Angeles	0.44	0.00	0.93	1.37	same as "Reported Ratios"
Ventura (3)	N/A	N/A	N/A	N/A	same as Los Angeles
Average, All Counties	1.26	1.04	0.08	2.39	

(1) Ratio reflects the number of implemented mitigation acres for every acre of CSS habitat disturbed, as determined from the selected Biological Opinions summarized in Table C-1.

(2) This "net" ratio reflects deduction of assumed CEQA 2-to-1 baseline mitigation ratio.

(3) This ratio is applied to subsequent calculations as "on-site set-aside," which yields the most conservative cost estimate.

(4) No biological opinions were obtained from Ventura. Los Angeles ratios were used as a proxy.

N/A = Not available

NET AREA AFFECTED BY SECTION 7

2256 The “net” mitigation ratios described above were applied to the projected growth acres with a Federal nexus to calculate project modifications and conservation measures (e.g., “mitigation”) attributable to section 7. Detailed calculations by development type are shown in **Appendix E**, with a summary of projected mitigation acres associated with section 7 provided in **Table 10**. As shown, projected “net” CSS mitigation associated with section 7 is estimated to include approximately 12,500 acres of on-site set-aside, 8,000 acres of off-site preservation, and 2,800 acres of restoration.

2261 **SIGNIFICANCE FOR REGIONAL REAL ESTATE MARKET**

The scale and intensity of the additional project modification requirements associated with section 7 and CHD are not sufficient to affect regional real estate market dynamics. As a result, the cost burden of project modifications falls on the regulated landowners.

2266 The cost incidence or economic burden of land development project modifications stemming from section 7 will be determined by their impact on the regional real estate market (i.e., on overall real estate production and prices). If project modification requirements are expected to significantly constrain development opportunities in a regional real estate market, the economic burden will be felt by consumers as well as
2271 landowners and developers. This is most likely to occur in regions where development opportunities are already limited and project modifications and associated on-site set-aside requirements affect a significant proportion of remaining developable land. Conversely, if project modifications due to section 7 represent a relatively insignificant component of total market supply, then the economic burden will be felt primarily by
2276 individual landowners / developers rather than consumers at large.

2281 To determine the significance of section 7-related project modifications for regional real estate markets, the lost development potential associated with the project modifications should be compared to the total regional development potential. Specifically, on-site land set-aside requirements should be compared with the total supply of developable

land in the region.⁴¹ In reality, accurate estimates of total regional development potential are not readily available. Consequently, for the purposes of this analysis, projected acres of growth through 2025 in the five counties covering the CHD are used as proxy for regional market supply.

2286

A comparison of the total acres of on-site habitat set-aside stemming from section 7 consultations with the total projected acres of growth through 2025 for each county is provided in **Table 12**. As shown, the estimated habitat set-aside represents approximately 1.7 percent of future growth in the six counties through 2025. San Diego County, Orange County, and Los Angeles County are the lowest at 0.01 percent, 0.8 percent, and 1.7 percent, respectively; San Bernardino County and Riverside County, both with ample developable land, follow with 2.4 percent and 3.4 percent, respectively; and Ventura County is the highest, with 4.2 percent. If the areas proposed for exclusion from CHD are included, the estimated habitat set-aside as a percent of future growth in the six counties increases by less than 0.1 percent. This marginal difference is due to the fact that most of the excluded areas are already covered by existing baseline regulations.

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It is important to note that the 1.7 percent estimate provided above represents an over-estimate of the section 7 effect on regional development opportunities. The following factors suggest that the section 7-related on-site habitat set-aside will actually represent a much smaller proportion of the regional real estate market.

2301

1. **Regional land supply is greater than projected demand through 2025.** The above estimate relies on projected land consumption through 2025 as a proxy for long-term supply. In reality, the long-term land supply is greater than demand through 2025 because many of the communities within the six-county area are expected to reach build-out significantly beyond that date.

2306

⁴¹ Off-site set-aside requirements are not included in this analysis as they are assumed to be satisfied by the large amount of non-developable CH land.

Table 12
Regional Significance of Acres Impacted by Section 7

County	Projected Growth Acres in County by 2025					Acres Set-Aside On-site (1)	Acres Set-aside as % of Projected County Growth
	Residential	Office	Industrial	Retail	Total		
San Diego County	252,614	871	6,701	5,063	265,248	37	0.01%
Orange County	11,917	27,430	19,698	8,815	67,860	566	0.8%
Riverside County	46,236	87,041	52,517	33,494	219,288	7,444	3.4%
San Bernardino County	35,350	31,578	21,737	11,602	100,266	2,391	2.4%
Los Angeles County	71,871	27,670	-33,101	7,462	73,902	1,258	1.7%
Ventura County	4,737	7,204	4,307	2,416	18,663	790	4.2%
Total	422,724	181,795	71,858	68,852	745,229	12,485	1.7%

(1) The total on-site set-aside acreage for each Unit (total residential, office, industrial, and retail, as shown in Appendix E) was allocated among the counties composing that Unit according to the relative proportion of proposed CH available for development (see Table 8).

Sources: SCAG; SANDAG; Economic & Planning Systems, Inc.

2316 2. **Developers will adjust to reduced land supply by increasing density.** The above estimate assumes that development in areas unaffected by CHD cannot occur at higher densities. In practice, densification and revitalization of under-utilized “in-fill” sites can continue to provide significant development opportunities in land constrained markets.

2321 3. **Developers will integrate on-site habitat set-asides into project design.** The above analysis assumes that the set-aside acres represent a 1-to-1 reduction in development capacity. In reality, many developers will incorporate habitat reserve acres into their project design, thereby minimizing the impact on total project size. In addition, habitat reserves often serve as an open space amenity that can enhance the value of the remaining developable areas.

2326 Given the factors described above, and the fact that 1.7 percent is itself a relatively small component of real estate supply, the project modifications associated with section 7 are not expected to have a significant impact on the dynamics of the regional real estate market. Hence, housing prices in each county are not expected to be affected, and regulated landowners will bear the cost incidence associated with section 7 and CHD.
2331 Some projects will be distributed to other parts of the respective counties, while other projects may proceed with higher mitigation costs and lower land values.

ESTIMATED PROJECT MODIFICATION COSTS

2336 *“Co-extensive” project modification costs associated with the listing and proposed CHD are estimated to be approximately \$743 million through 2025. These costs will be borne by regulated landowners and experienced through lower land values. These estimates do not include consideration of any potential increases in land values associated with the amenity values of open space. Landowners outside of CH may experience increased land values as some growth is distributed towards their land.*

2341 The cost of section 7 was estimated by calculating:

1. the loss in land value for acres set-aside under “net” section 7 requirements,
2. the cost of acquiring off-site mitigation acres under “net” section 7 requirements,

- 2346
3. the cost of restoring CSS habitat under “net” section 7 requirements, and
 4. the costs to implementing other project modifications (biological monitoring, exclusionary fencing, etc.) for each project.

2351 These costs are described further below, and are summarized for each proposed CH unit in **Table 13**. Detailed time-series calculations are presented in **Appendix E**. Costs were calculated assuming proposed development is distributed evenly through 2025, and assuming a discount rate of 12 percent to account for the opportunity cost of investment decisions in the private real estate development market.

2356 Residential, commercial, and market data for each of the six counties were used to estimate the cost, or lost value, of on-site set-aside acres. A summary of raw market data is presented in **Table 14**. **Appendix D** shows assumptions and detailed calculations of how these data were used to develop per-acre estimates of residual land values for each development type. The residual land value is an estimate of the value of a raw, unimproved parcel with no infrastructure. This measure is appropriate because a developer seeking project entitlement will not invest money in infrastructure or other improvements on land designated as a habitat set-aside through the consultation process.

2366 The analysis also collected market data from a number of private CSS mitigation banks in relevant counties (no private mitigation banks exist in Los Angeles or Ventura counties) to determine average off-site mitigation prices by county. A summary of these data and the estimated averages by county are presented in **Table 15**. To estimate restoration costs, this analysis assumes an average per-acre cost of \$30,000 across the entire proposed CH area.

2376 Finally, based on a review of the section 7 BOs summarized in **Appendix C**, this analysis estimates that each future private development project will incur costs related to full-time biological monitoring during construction activities, the construction of exclusionary fencing to protect adjacent gnatcatcher individuals and habitat, and the development and implementation of an employee education program. This analysis

Table 13
Private Land Development Project Modification Costs

Critical Habitat Unit	Project Modification Costs (1)				Total
	On-Site Set-Aside	Off-Site Preservation	CSS Restoration	Other Project Modifications	
Unit 1	\$472,600	\$0	\$0	\$919,400	\$1,392,000
Unit 2	\$414,300	\$0	\$0	\$994,100	\$1,408,400
Unit 3	\$1,403,700	\$0	\$0	\$3,696,000	\$5,099,700
Unit 4	\$1,200	\$0	\$0	\$3,100	\$4,300
Unit 5	\$2,071,200	\$0	\$0	\$3,748,100	\$5,819,300
Unit 6	\$40,541,500	\$0	\$0	\$2,680,500	\$43,222,000
Unit 7	\$4,600,200	\$0	\$0	\$64,000	\$4,664,300
Unit 8	\$0	\$0	\$0	\$43,800	\$43,800
Unit 9	\$33,519,600	\$2,000	\$2,669,000	\$818,100	\$37,008,700
Unit 10	\$334,138,600	\$42,861,400	\$422,900	\$12,367,400	\$389,790,400
Unit 11	\$80,919,300	\$0	\$3,110,500	\$2,458,300	\$86,488,100
Unit 12	\$2,491,200	\$0	\$878,500	\$116,200	\$3,485,900
Unit 13	\$122,056,200	\$0	\$37,383,400	\$4,945,500	\$164,385,100
Total	\$622,629,600	\$42,863,500	\$44,464,300	\$32,854,500	\$742,811,800

All dollar values have been rounded to the nearest hundred; summed totals may not add exactly.
(1) Assumes a discount rate of 12%.

Table 14
Residential and Commercial Market Data

County/Region	Average Residential Sales Price (1)	Commercial Sales Price (\$/SqFt)		
		Office (2)	Industrial (3)	Retail
Los Angeles	\$394,230	\$193	\$43	\$144
Riverside (4)	\$250,923	\$125	\$41	\$108
San Bernardino (5)	\$202,240	\$125	\$41	\$108
Orange	\$464,304	\$220	\$59	\$142
San Diego	\$410,435	\$195	\$65	\$124
Ventura (6)	\$415,458	\$175	\$69	N/A

N/A: Not Available

(1) 2002 sales prices are reported by RAND in 1998 dollars. These values were adjusted to 2002 dollars assuming a 3% annual inflation rate.

(2) Weighted average, class A space outside central business district. Rates for San Diego are CBD space.

(3) Reported sales price for suburban space between 100,000 and 250,000 square feet.

(4) & (5) Commercial Sales Price for these counties come from the sales price of Inland Empire.

(6) Retail data for Ventura County was not available, so data for Los Angeles was used as a proxy.

Source: RAND; Marcus & Millichap Retail Research Report, November 2002; Economic & Planning Systems, Inc.

Table 15
Coastal Sage Scrub Mitigation Bank Prices

Average Price	Per Acre Cost	
	Low	High
Riverside	\$6,500	\$9,500
San Diego	\$17,125	\$19,750
Orange	\$75,000	\$78,333
Average, All Counties	\$28,846	\$31,692

Notes: no approved CSS mitigation banks are located in Los Angeles or Ventura counties.

Source: personal communication with various mitigation bank personnel, February 2003.

2386 assumes that a single full-time biological consultant will be employed for one year at an annual cost of \$85,000, that exclusionary fencing will cost approximately \$18,000 per project, and that developing an employee education program will cost \$10,000 per project.

2391 Based on records provided by the USACE, there have been approximately 88 section 7 consultations for private development projects involving gnatcatcher CH since October 24, 2000, when the Service designated CH for approximately 514,000 acres.⁴² Adjusting this rate to the current proposed designation of 495,795 acres yields an average annual rate of 37.6 consultations per year, or 866 future section 7 consultations through 2025. This analysis assumes that each of these consultations will involve implementation of the additional project modifications described above, resulting in total project modification costs of approximately \$743 million, as summarized in **Table 13**.

2396 **ESTIMATED ADMINISTRATIVE CONSULTATION COSTS**

Administrative consultation costs are estimated to be approximately \$5.7 million through 2025.

2401 As described above, this analysis assumes that 866 future private residential projects will require section 7 consultation through 2025, based on a historical consultation rate. Each of these is expected to be a formal consultation, and consultations are assumed to be distributed evenly through 2025. **Table 16** shows the estimated administrative costs for these consultations. These costs were estimated using the consultation cost model described and shown in **Appendix F**. Total costs were calculated by multiplying the number of consultations by the average cost per participant. Because this calculated value essentially represents the administrative costs assuming all consultations
2406 occurred in Year 1, it was adjusted to reflect a discount rate of 12 percent.

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Based on query of USACE consultation database through January 15, 2003, provided by Michael Jewel, Acting Chief, Regulatory Branch, USACE Los Angeles District.

Table 16
Private Land Development Costs

Critical Habitat Unit	Total Section 7 Costs (1)		
	Project Modification Costs	Administrative Costs (2)	Total
Unit 1	\$1,392,026	\$160,097	\$1,552,123
Unit 2	\$1,408,444	\$173,110	\$1,581,554
Unit 3	\$5,099,691	\$643,577	\$5,743,268
Unit 4	\$4,267	\$538	\$4,804
Unit 5	\$5,819,257	\$652,654	\$6,471,911
Unit 6	\$43,222,017	\$466,755	\$43,688,772
Unit 7	\$4,664,263	\$11,148	\$4,675,412
Unit 8	\$43,756	\$7,619	\$51,376
Unit 9	\$37,008,671	\$142,456	\$37,151,127
Unit 10	\$389,790,380	\$2,153,533	\$391,943,914
Unit 11	\$86,488,072	\$428,058	\$86,916,129
Unit 12	\$3,485,931	\$20,237	\$3,506,168
Unit 13	\$164,385,059	\$861,162	\$165,246,220
Total	\$742,811,835	\$5,720,944	\$748,532,779

(1) Assumes a discount rate of 12%.

(2) Average administrative consultation costs (of low and high) were allocated among units in proportion to the number of projected growth acres in each unit with a Federal nexus (see Table 8).

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SUMMARY OF PRIVATE LAND DEVELOPMENT IMPACTS

Total “co-extensive” costs associated with section 7 regulation of private development in proposed CH are estimated to be approximately \$749 million through 2025.

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Table 16 summarizes the estimated project modification, administrative, and total costs due to section 7 regulation of private development in proposed CH for the gnatcatcher.

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The bulk of these costs are borne by regulated landowners. As shown in **Table 13**, the bulk of these costs (approximately \$623 million) are primarily associated with the loss in development value of land required for on-site set-aside. This impact is a result of the on-site set-aside of approximately 12,500 acres, which represents about 1.7 percent of total projected development within the six-county region through 2025. This degree of impact is assumed not to affect the dynamics of the regional real estate market, housing prices are not expected to be affected, and regulated landowners will bear the cost incidence associated with section 7 regulation.

2426

IV. IMPACT OF DESIGNATION ON PUBLIC LAND DEVELOPMENT

2431 This chapter evaluates the economic impact of the proposed CHD on public projects and activities, such as major utility or infrastructure projects, that have a Federal nexus. The discussion includes a description of the activity, how the activity would be affected, and a calculation of the associated costs due to section 7.⁴³

2436 A summary of administrative and project modification costs for public projects and activities is shown in **Table 17** – again, these estimates are of “co-extensive” section 7 costs, attributable to both the listing and the proposed designation. Detailed calculations of project modifications and costs by agency/project are presented in **Appendix G**.⁴⁴ The consultation cost model is provided in **Appendix F**. The estimated project modification costs summarized in the text below were calculated using a discount rate of 7 percent, which is consistent with OMB guidelines.

TRANSPORTATION AND ROAD CONSTRUCTION

2441 This analysis used data from the California Department of Transportation (Caltrans) regarding future road construction projects within the proposed CH area. Though Caltrans is a State agency and its projects do not necessarily require section 7 consultation, many of its projects receive funding from the Federal Highway Administration (FHWA) and many impact “waters of the United States” under USACE

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The public agency officials contacted for this analysis provided data and analysis for the combined CH areas proposed for inclusion and exclusion. The estimates provided in the text on areas proposed for inclusion only are scaled down based on the proportional reduction in CH acres. The estimates for the combined inclusion and exclusion CH areas are provided in **Table 5**.

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The project modification costs calculated in **Tables G-1** through **G-19** were based on public agency interviews conducted prior to publication of the proposed rule. Agencies were asked to estimate impacts assuming all known CSS was proposed as CH. The impact estimates summarized in **Table 3** and **Table 17** were calculated by multiplying the estimates in **Appendix G** by the project-specific acreage-adjustment factors indicated in each Appendix table.

Table 17
Public Land Development Costs

Critical Habitat Unit	Total Section 7 Costs, Scenario A (1)		
	Project Modification Costs (2)	Administrative Costs (3)	Total
Unit 1	\$838,500	\$88,700	\$927,200
Unit 2	\$619,100	\$95,900	\$715,000
Unit 3	\$1,229,600	\$356,700	\$1,586,200
Unit 4	\$2,444,600	\$300	\$2,444,900
Unit 5	\$1,159,300	\$361,700	\$1,521,000
Unit 6	\$41,889,800	\$258,700	\$42,148,400
Unit 7	\$219,500	\$6,200	\$225,700
Unit 8	\$288,900	\$4,200	\$293,200
Unit 9	\$1,065,600	\$78,900	\$1,144,500
Unit 10	\$45,761,300	\$1,193,500	\$46,954,800
Unit 11	\$3,945,200	\$237,200	\$4,182,400
Unit 12	\$163,200	\$11,200	\$174,400
Unit 13	\$4,334,000	\$477,200	\$4,811,200
Total	\$103,958,600	\$3,170,500	\$107,129,000

All dollar values have been rounded to the nearest hundred; summed totals may not add exactly.

- (1) Assumes a discount rate of 7%.
- (2) Project modification costs were allocated among units assuming area-weighted distribution among 'relevant units,' as indicated in Table 3.
- (3) Average administrative consultation costs (of low and high) were allocated among units in proportion to the number of projected growth acres in each unit with a Federal nexus (see Table 8).

jurisdiction, both of which constitute Federal nexuses under section 7. The four Caltrans regulatory districts that overlap with proposed gnatcatcher CH include;
2451 District 7 (Los Angeles County), District 8 (Riverside County), District 11 (San Diego County), and District 12 (Orange County).

In general, Caltrans personnel were unable to provide detailed estimates of future projects that will require section 7 consultations. Consequently, the project
2456 modification costs estimated in the following sections are based on a variety of information provided by each Caltrans districts. In contrast, future administrative costs due to section 7 consultations are based on aggregated information for all four districts from the USACE. Specifically, the USACE estimates that there have been 20 section 7 consultations since the original gnatcatcher CHD in October 2000 that have addressed
2461 transportation projects with impacts to the gnatcatcher or its habitat. After accounting for the reduced size of the proposed CHD, this consultation history yields an average rate of 5.6 transportation consultations per year for the four Caltrans Districts that overlap the proposed gnatcatcher CH. Over 23 years, the USACE is therefore expected to have to initiate 129 formal section 7 consultations for transportation projects within
2466 the proposed gnatcatcher CH. The total estimated administrative cost (average of low and high estimates) due to future section 7 consultations is \$1.7 million, as summarized in **Table 3**. Section 7 project modification costs have been estimated separately for each Caltrans district, as described below.

CALTRANS DISTRICT 7 (LOS ANGELES AND VENTURA COUNTIES)

2471 According to a preliminary estimate provided by Caltrans District 7 staff, approximately six (6) acres of CSS will be impacted by planned or proposed projects through 2025, and that CSS mitigation costs would be approximately \$117,000 per acre disturbed. Caltrans was unable to provide information regarding the number or timing of projects contributing to this impact estimate, however. For the purposes of
2476 estimating a total project modification cost, this analysis assumes that Caltrans will consult on six separate projects, each of which will impact one acre of CSS, and each spaced evenly through 2025 (one every four years, beginning in 2003). As shown in **Table 3**, this results in a total project modification cost estimate of \$369,200.

CALTRANS DISTRICT 8 (RIVERSIDE AND SAN BERNARDINO COUNTIES)

2481 According to Caltrans District 8 personnel, estimated impacts to CSS habitat as a result
of future transportation projects were developed as part of the ongoing Western
Riverside MSHCP.⁴⁵ After reviewing the available supporting data, the biological
consulting firm to the MSHCP estimated that approximately 750 acres of CSS habitat
2486 would be disturbed by future transportation projects in western Riverside County.⁴⁶
While some of these impacts may be associated with “long term” projects beyond the
2025 time horizon, this analysis conservatively assumes that all projects will occur prior
to 2025. Caltrans personnel recommended assuming that all projects would involve a
Federal nexus, either as a result of FHWA funding or USACE section 404 permitting
requirements.

2491 The MSHCP data is limited to future projects in Riverside County, and does not include
CSS impacts related to projects in San Bernardino County and Caltrans personnel could
not provide additional information regarding projects in San Bernardino County.
Consequently, this analysis assumes that future CSS impacts in San Bernardino due to
2496 transportation construction projects will be proportional to projected urban
development within proposed CH area, based on Riverside data. Specifically, dividing
750 acres of future CSS impacts in Riverside County (Unit 10) by 22,650 acres of
projected growth in CH, as summarized in **Table 8**, yields a factor of 33 acres of CSS
impact for every 1,000 acres of projected growth. Applying this factor to the 4,502 acres
2501 proposed in San Bernardino County (Unit 11) yields an estimate of 149 acres of CSS
impact, or a total estimate of 900 acres for Caltrans District 8.

2506 According to Caltrans personnel, previous projects in gnatcatcher habitat requiring
section 7 consultation have mitigated direct impacts at ratios between 2-to-1 and 3-to-1,
and have mitigated indirect impacts (e.g., noise, lighting, “growth inducing effects”) at

⁴⁵ Personal communication with Paul Gonzales, Senior Environmental Planner, Caltrans District 8, on January 30, 2003.

⁴⁶ Personal communication with Joe Monaco, Senior Project Manager, Dudek & Associates, on February 10, 2003.

2511 a 1-to-1 ratio.⁴⁷ Caltrans has typically mitigated through private mitigation banks, and has recently paid approximately \$32,000 per acre, including land and management costs. Assuming an overall mitigation ratio of 3-to-1, a per-acre mitigation cost of \$32,000 per acre, and impacts to the 900 acres are spread evenly through 2025, the net present value of project modification costs is approximately \$42 million, as shown in **Table 3**. As mentioned in **Chapter II**, if the western Riverside MSHCP is approved, mitigation costs associated with future Caltrans activities in Riverside County will be attributable to the MSHCP and not to section 7.

CALTRANS DISTRICT 11 (SAN DIEGO COUNTY)

2516 According to Caltrans District 11 personnel, the best source of information regarding planned or proposed transportation projects and impacts to CSS habitat is SANDAG's 2030 Regional Transportation Plan (RTP).⁴⁸ The RTP identifies all planned or proposed new road construction projects, road widenings and improvements, light rail transit construction, and high-speed coastal rail construction in San Diego County through 2030. SANDAG personnel researched the supporting RTP data and estimated that 2521 approximately 143 acres of CSS habitat would be developed through 2030.⁴⁹

2526 The 143-acre estimate of impacted CSS habitat includes proposed road development through Camp Pendleton associated with the Transportation Corridor Agencies' (TCA's) proposed Foothill-South toll road. This proposed toll road is one of only two new road construction projects proposed in the County and is located entirely within the proposed CH area. Consequently, it is likely that a significant amount of the total 143-acre CSS is due to this project. Specifically, based on the estimated CSS impact per linear road mile for the Foothill-South toll road, and the length of this road in the 2531 County, EPS estimates that approximately 50 percent of the 143-acre CSS impact is due

⁴⁷ Personal communication with Scott Quinnell, Environmental Planner, Caltrans District 8, on February 10, 2003.

⁴⁸ Personal communication with Charles Stoll, Deputy Director of Environmental Planning, and Bruce April, Environmental Stewardship Branch Chief, February 6, 2003.

⁴⁹ Personal communication with Kim Kawada, Manager of Transportation Planning, and Steven Bouchard, SANDAG, February 11, 2003.

to this project. The economic impact on the toll road due to CHD is estimated separately below since it is not a Caltrans project. Consequently, approximately 72 out of the 143 acres CSS impact is attributable to Caltrans projects.

2536 This analysis assumes a typical net mitigation ratio of 0.06 -to-1 based on conservation
measures described in historical BOs, and after accounting for CEQA baseline
requirements, as shown in **Table 11**. For every habitat acre preserved off site, Caltrans
estimates land acquisitions costs of approximately \$20,000, average supporting costs
2541 (e.g., appraisals, surveys, administration) of \$6,000, and average on-going maintenance
costs of \$6,000, resulting in a total average cost of \$32,000 per off-site acre. As shown in
Table 3, the total net present value of these “net” off-site habitat acquisition costs,
assuming a 7 percent discount rate and equal acres mitigated each year through 2025, is
approximately \$24,000.

CALTRANS DISTRICT 12 (ORANGE COUNTY)

2546 Caltrans District 12 staff were unable to provide estimates of future projects or likely
impacts to CSS through 2025. As a proxy, this analysis assumes that the relationship
between road construction activity and urban growth in Orange County is similar to
that in neighboring San Diego County. As described above, approximately 72 acres of
CSS impact are estimated in San Diego County, which is associated with approximately
2551 35,000 acres of projected growth in Units 1 through 5 (San Diego County).⁵⁰ This results
in a factor of approximately 2 acres of CSS impact for every 1,000 acres of projected
development. Applying this factor to the 11,486 acres of projected development in
Units 6, 7, and 9 (Orange County) yields a total estimate of 24 acres of CSS impact.

2556 This analysis assumes that CSS in Orange County is mitigated at 1.82-to-1.0, as shown in
Table 11; the per-acre cost for off-site mitigation is \$32,000, as shown in **Table 15**; and
projects are evenly distributed through 2025. The total estimated section 7 project
modification cost is approximately \$444,000, as shown in **Table 3**.

⁵⁰This estimate of projected growth in CH is derived by running the private land development model described in **Chapter III** assuming all “essential habitat,” including areas proposed for exclusion, are in fact designated as CH. For certain counties these estimates therefore differ from those summarized in **Table 8**.

TRANSPORTATION CORRIDOR AGENCY TOLL ROAD

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Background

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The TCA is a multi-jurisdictional agency with joint powers authority that currently owns and operates several toll roads in southern California. The TCA has proposed to expand the SR-241 toll road (Foothill-North) from its current terminus at the Oso Parkway, south to Interstate 5 near San Clemente (the proposed Foothill-South extension). The proposed alternatives for this road all lie within proposed CH Unit 6, which straddles southern Orange County and northern San Diego County (San Onofre State Beach Park). This project involves a Federal nexus through the USACE. Several of the proposed alignments currently under review transect significant portions of proposed gnatcatcher CHD. Much of this habitat is also occupied by a number of other State and/or federally listed endangered and/or threatened species, and includes designated CH for other species.

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The TCA is engaged in active planning for this project, and is currently in the process of preparing a joint draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS), which is expected to be completed in the 3rd quarter 2003. As the project is still in the early environmental review phase, very little information is publicly available regarding the details of various proposed alignments, including estimates of potential impacts to CSS.⁵¹ The presence of multiple listed species and their habitat, the existence of a number of complex land use regulations in southern Orange County (CEQA/NEPA, the 4(d) Rule, local zoning restrictions, CESA, section 7, etc.), as well as general local concerns about growth and development in the region, further complicate this project. The public review, comment, and approval process is expected to be time-consuming and politically contentious, and the ultimate outcome is impossible to predict at this time.

Whatever alignment is ultimately constructed will have a significant impact on local, and possibly regional, traffic flow. In turn, future differences in traffic flows and volumes can have a variety of economic outcomes, including opportunity costs of labor,

⁵¹ EPS contacted the TCA to obtain information to evaluate the economic impacts of proposed CH, but no information was provided before completion of this draft analysis.

2591 efficiency of goods delivery, and growth-inducing effects, among other factors. In
addition, TCA points out that because the “Far East Alignment” has been included in
the County’s RTP, many local jurisdictions have incorporated this project in their future
growth plans and projections.

2596 Given the politically-charged climate surrounding this project, which involves a
complex interplay of public opinion, multiple species issues, and pre-existing land use
regulations other than section 7, this analysis does not consider the ultimate selection of
a particular alignment to be dependent on section 7. This analysis therefore does not
consider the various economic effects of the alignment selected – other than CSS
2601 mitigation – to be attributable to section 7 regulations associated with the gnatcatcher.
In reality, a portion of the future section 7 costs will be attributable to other listed
species, though this analysis assumes all section 7 costs are due to the gnatcatcher.

Alternatives Considered

2606 According to TCA’s website, the EIR/EIS will evaluate six alternatives for Foothill-
South. This analysis focuses on two scenarios – the “Far East Corridor” and a
combination of the “Arterial Improvements” and “I-5 Improvements” alternatives. The
Far East Corridor was selected because it represents TCA’s preferred alternative, has
been included in the County’s RTP, and appears to intersect more undisturbed habitat
than any other alternative. The Arterial and I-5 Improvements alternatives were
2611 selected because the combined scenario appears to disturb the least amount of CSS of all
alignments that still achieve the objective of providing a connection between Foothill-
North and the I-5 (as opposed to the I-5 widening alternative alone). In that respect,
these two scenarios represent good approximations of “high-impact” and “low-impact”
case studies. The two cost estimates bracket a reasonable range of expected costs, while
2616 the average of the two can be considered a “best guess” of total costs, given the current
state of uncertainty over final project approval.

Impact of Designation by Toll Road Alternative

Far East Corridor

2621 The Far East Corridor is TCA’s preferred alternative, and will provide the highest
future roadway capacity between Oso Parkway and I-5 of all the alternatives under
consideration. According to an article published in the Los Angeles Times, this
proposed alternative consists of 16 miles of new road construction. As summarized in
2626 **Table G-5**, EPS estimated potential impacts to CSS by assuming all 16 new road miles
intersect CSS habitat, and that the average right-of-way width is 300 feet – resulting in a
total estimate of 583 acres of CSS impacts.⁵²

While section 7 consultation will likely result in project modifications to minimize and
mitigate this impact, both the 4(d) Special Rule and CEQA constitute baseline
2631 regulations for CSS mitigation in southern Orange County, as described in **Chapter II**.
This analysis assumes that the scope of this project would make it ineligible for
approval under the 4(d) Special Rule. According to the DFG, lead agencies in Orange
County have historically required CSS mitigation at an average ratio of approximately
2-to-1. As discussed in **Chapter III**, EPS’ review of historical section 7 BOs in Orange
2636 County identified an average effective mitigation ratio of approximately 3.8-to-1,
meaning that the net CSS mitigation ratio above the CEQA baseline is approximately
1.8-to-1 (**Table 11**).

This analysis assumes that all impacted CSS acres will be mitigated through purchase of
off-site preservation credits at a private mitigation bank. As described previously, EPS’
2641 review of mitigation banks in Orange County determined an average price per-acre of
approximately \$78,000. According to TCA’s website, the Foothill-South project is
expected to be constructed between 2005 and 2008. The net present value of the
estimated mitigation costs incurred over this time period is approximately \$61.4 million,
as shown in **Table G-5**. The estimated administrative costs of the single formal
2646 consultation is \$18,100, as calculated in **Appendix F** and summarized in **Table 3**.

⁵² This assumed right-of-way width was selected based on input from Caltrans District 11 staff regarding the average width of new highway construction.

Arterial and I-5 Improvements Alternatives

2651 According to TCA’s website, the Arterial Improvements alternative consists of
widening Antonio Parkway and Avenida La Pata and installing “smart street”
technologies on Ortega Highway, Camino Las Ramblas, and Avenida Pico. The I-5
Improvements alternative involves adding additional lanes between the SR-405
intersection and Cristianitos Road near Camp Pendleton. As summarized in **Table G-6**,
EPS estimates that approximately 10.4 miles of arterial roads will require widening,
approximately 9.4 miles of arterial roads will be constructed with smart street
technology, and approximately 4.5 total miles of I-5 will be widened in areas where CSS
2656 is present.⁵³ This analysis assumes that arterial and I-5 widening will consist of
installing two new lanes (10 ft. each), and the expanded right-of-way (ROW) will extend
an additional 10 feet on either side of the new lanes, for a total expanded ROW of 40
feet. It is also assumed that installation of smart street technology will increase the
ROW by 10 feet. All habitat traversed by these road miles is assumed to be CSS,
2661 mitigable under section 7.

As described for the Far East Corridor, this analysis assumes an effective CSS mitigation
ratio above CEQA baseline of 1.8-to-1, and an off-site mitigation cost of \$78,000 per acre
in Orange County. As shown in **Table G-6**, the estimated project modification cost of
2666 the Arterial and I-5 Improvement scenario is approximately \$8.8 million. The estimated
administrative costs of the single formal consultation is \$18,100, as calculated in
Appendix F and summarized in **Table 1**.

Total Economic Cost of Designation on Toll Road

2671 Given the uncertainty surrounding which alignment will ultimately be constructed, this
analysis presents the section 7 cost of the TCA’s proposed Foothill-South toll road as a
an average of the two potential outcomes described above. Because these two cost
estimates are assumed to bracket the potential section 7 costs of all the proposed
alignments that meet project objectives, their average represents a reasonable

⁵³ These estimates were made based on review of proposed alignments, highway maps of southern Orange County, and aerial photographs overlaid with gnatcatcher biological and habitat data.

2676 approximation of the likely economic outcome. The average section 7 project
modification cost is \$35.1 million.

PRIVATE ROADS

2681 Private road development would require section 7 consultation for future projects with
a Federal nexus. This analysis assumes that the vast majority of future road
construction by private parties will be associated with the forms of private land
development (residential, commercial, industrial, etc.) addressed in **Chapter 3**. All road
2686 construction associated with these future projects will be incorporated in the project
description, and any required project modifications required because of road-based
impacts to CSS will be addressed in the BO for the project as a whole. This analysis
therefore assumes that no additional private road construction projects will require
section 7 consultation, and that there will be no additional economic cost.

LOCAL AND REGIONAL WATER PROJECTS

2691 The Metropolitan Water District of Southern California (MWD) is responsible for
constructing and maintaining the water delivery system to the majority of southern
California water users, with the exception of San Diego County. In general, the MWD
provides “regional” water delivery infrastructure, while the local “retail” water districts
are responsible for constructing and maintaining municipal water infrastructure to end-
users on a local scale. In San Diego County the SDCWA provides water delivery
infrastructure between the MWD network and the local distribution systems.

2696 Local water agencies indicate that the vast majority of construction projects undertaken
by local retail agencies occur in association with, and as a result of, new residential
development.⁵⁴ This analysis assumes that the section 7 consultations required for
residential development projects will also address and cover the cost of any new water

⁵⁴ Personal communication with Karl Seckel, Assistant Manager, Municipal Water District of Orange County, and Dan Ferons, Chief Engineer, Santa Margarita Water District, on January 30, 2003.

2701 (or other utility) infrastructure that is specifically associated with those projects (see
Chapter II). This analysis therefore concludes that no additional section 7 consultations
will be required for construction projects by local retail water agencies beyond those
that serve and are paid for by new development.

2706 This analysis assumed that CSS impacts related to regional water supply activities
would be associated with 13 future formal consultations, based on information
provided by the utilities and acreage adjustments reflecting the amount of CSS
proposed for CHD. The estimated administrative cost of these consultations is
approximately \$116,000, as shown in **Table 3**.

SAN DIEGO COUNTY WATER AUTHORITY

2711 The SDCWA has recently completed a 25-year Water Facilities Master Plan, which
outlines planned or proposed projects likely to occur within that timeframe. SDCWA
staff estimate that approximately ten (10) future projects will require section 7
consultation, eight of which will result in impacts to CSS habitat.⁵⁵ As summarized in
Table G-7, the SDCWA provided estimates of the potential impacts of each project
(permanent vs. temporary), and the likely timing of each project. EPS assumed that CSS
2716 impacts were evenly distributed throughout the indicated timeframe, and applied
“net” CSS mitigation ratios of 2-to-1 and 1.2-to-1 (permanent and temporary,
respectively), which take into account baseline CEQA mitigation in San Diego County.
Based on SDCWA input, EPS also assumed both off-site mitigation and restoration will
cost approximately \$15,000 per acre, resulting in a total project modification cost
2721 estimate of approximately \$538,000, when adjusted to CSS acreage proposed for CH.

⁵⁵ According to SDCWA staff, the SDCWA may undertake projects that are not listed in the Master Plan. Staff also pointed out, however, that CSS-impact estimates may include habitat acreage that is not considered suitable for the gnatcatcher. On the whole, the SDCWA therefore considers the estimates provided as accurate an approximation of future CSS impacts as is currently available.

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

2726 MWD staff were unable to provide estimates of future projects or CSS acres impacted
within proposed CHD. As a proxy, this analysis assumes that the relationship between
regional water infrastructure and projected urban growth for the counties served by the
MWD is the same as it is for San Diego County. As discussed above, the SDCWA
authority anticipates 10 future consultations impacting a total of 146 acres of CSS
through 2025. Approximately 35,000 acres of future growth is projected in Units 1
through 5, yielding a ratio of 4.2 CSS acres for every 1,000 acres of projected growth.⁵⁶
2731 Applying this factor to the estimated 48,000 acres of projected growth in the remaining
CH units yields an estimate of 199 acres of impact. This analysis assumes that these
impacts will be associated with 14 future formal section 7 consultations, based on a rate
of one consultation for every 14.6 acres of CSS impact.

2736 This analysis assumes that future CSS impacts will be mitigated at a 2.1-to-1 ratio and at
a per-acre cost of approximately \$48,000. These estimates represent the average ratio
and cost, respectively, for counties other than San Diego, taking into account CEQA
baseline in Orange County. Assuming future impacts are distributed evenly through
2025, the total estimated cost of section 7 project modifications is approximately \$6.1
million, when adjusted for CSS acres actually proposed for CH.

2741 BUREAU OF RECLAMATION

2746 The Bureau of Reclamation (BOR) develops and maintains water projects such as dams,
canals, irrigation systems and water reclamation. BOR personnel indicated that
previous section 7 consultations involving the gnatcatcher have generally fallen into
two categories – relatively small-scale water reuse project initiated by local water
agencies that involve BOR funds, and larger-scale water delivery infrastructure projects
that involve BOR funds and oversight. Based on historical and anticipated project
frequencies, BOR staff suggested assuming that each five years the BOR will initiate
four section 7 consultations for small-scale reuse projects, and one consultation for a

⁵⁶See footnote 52.

2751 large-scale infrastructure project. This analysis assumes that three of the small-scale
reuse projects will require informal consultations, and the remaining two projects will
require formal consultation, including the preparation of a BO. Based on this
frequency, and adjusting for the amount of CSS acreage actually proposed for CHD, this
analysis estimates that the BOR will initiate 12 informal consultations and 3 formal
consultations through 2025.

2756 Typical section 7 project modifications and costs differ for the two types of projects
described above. According to BOR staff, the small-scale reuse projects usually occur in
San Diego County and tend to be located in already developed areas or along existing
rights of way. These projects therefore often disturb very little CSS habitat, if any
2761 (which is why many only require informal consultation). Based on consultation with
BOR staff, this analysis assumes that each reuse project will impact 0.5 acres of CSS
habitat, for which the applicant will mitigate through off-site preservation at standard
San Diego mitigation ratios and acquisition costs. BOR staff also indicated that these
applicants must comply with the MSCP and CEQA regulations, as appropriate.

2766 As mentioned above, the BOR anticipates being involved in approximately one large-
scale infrastructure project every five years, which could occur in any of the six counties
proposed for critical habitat. The BOR suggested using the San Sevaine Creek Water
Project section 7 consultation to develop assumptions of future project modifications
and costs. As described in the summary of the BO (see **Appendix C**), this project
2771 involved the construction/ replacement of a levee, a debris basin, and over 13 miles of
flood control channels. The project impacted 64 acres of gnatcatcher habitat, and is
assumed to be representative of future large-scale flood control projects. This analysis
applies a “net” section 7 ratio of 0.06-to-1 to all projects requiring formal consultation,
2776 which takes into account baseline CEQA mitigation in San Diego County.

As shown in **Table 15**, the average price for CSS mitigation credits across the proposed
CH area is approximately \$32,000 per acre. As shown in **Table 3**, the net present value
of project modifications for the “large-scale” consultations is approximately \$153,000.
2781 The total estimated administrative cost for three formal consultations and twelve
informal consultations is \$67,000, as calculated in **Appendix F** and summarized in **Table
3**.

MUNICIPAL POWER SUPPLY

2786 Regional-scale gas and electric service to southern California residents within the
proposed CH boundaries is provided primarily by three companies – San Diego Gas &
Electric (SDG&E), the Southern California Gas Company (SCGC), and Southern
California Edison (SCE). SDG&E and the SCGC are owned by the same parent
company, Sempra Energy. SDG&E provides gas and electric service to residents of San
Diego County while SCGC provides natural gas service to southern California residents
2791 outside San Diego County. SCE provides electricity service to southern California
residents outside San Diego County. Both companies own and operate a large network
of utility infrastructure, including power generating stations, substations, transmission
lines, and natural gas pipelines.

2796 As with municipal water supply (see above), the analysis assumes that new gas and
electric infrastructure at the local scale will be associated with new private
development. As such, the section 7 consultations required for those private
development projects with a Federal nexus will incorporate and address the associated
local-serving gas and electric infrastructure. No additional section 7 costs are estimated
2801 for these local-scale developments. Regional-scale gas and electric infrastructure would
not be addressed by the section 7 consultations for private developments, however. An
evaluation of section 7 costs associated with regional projects planned or proposed by
SDG&E, the SCGC, and SCE is provided below. This analysis assumes a total of six
future formal consultations for the municipal power supply projects described below.
2806 This estimate is based on projected consultation rates provided by the major utility
companies. Total estimated administrative costs are approximately \$52,000, as shown
in **Table 3**.

SOUTHERN CALIFORNIA EDISON

2811 SCE delivers electricity to over 4.8 million customers throughout much of southern and
central California, including parts of Ventura, Los Angeles, San Bernardino, western
Riverside, and northern Orange counties. SCE owns and operates power generating
stations and substations as well as a large network of transmission lines.

2816 SCE personnel estimate that approximately four future projects will require section 7
consultation due to the gnatcatcher.⁵⁷ Due to the competitive nature of the electricity
industry and the difficulty in forecasting infrastructure projects in the long-term, SCE
staff were not able to provide project-specific detail. In general, one new 500-kilovolt
(KV) substation and two new 500-KV transmission lines are expected within the next 10
2821 years, and an additional “large-scale” project is expected by 2020 based on historical
infrastructure construction cycles. Federal nexus would be in the form of Federal
Energy Regulatory Commission approval of the new transmission line(s), USACE
section 404(b) regulation, or the need to traverse BLM, United States Forest Service
(USFS), or other federal land for one or more of the projects. SCE staff estimated that
2826 the substation would be located entirely within one county (location undisclosed),
while one 500-KV line would traverse two counties and one would traverse three
counties (route undisclosed).

SCE personnel estimated that approximately 250 acres of CSS habitat would be
disturbed by the four projects, and suggested that EPS assume mitigation ratios
2831 consistent with other linear utility projects, and mitigation costs consistent with private
mitigation banks in the southern California region.⁵⁸ EPS assumed the four projects will
be constructed in years 3, 6, 9, and 15, and CSS impacts are evenly distributed among
the projects. Assuming a 1.5-to-1 mitigation ratio for 250 acres,⁵⁹ and an average
mitigation price of \$48,000 per acre (an average of prices in mitigation banks outside
2836 San Diego County), total estimated project modification costs are approximately \$7
million, when adjusted for acreage proposed for CHD.

⁵⁷ Personal communication with Dan Pearson, Manager, Land Services & Environmental Affairs, Southern California Edison, February 10, 2003.

⁵⁸ Mr. Pearson qualified this assumption by stating that if the Service requires mitigation for indirect effects (e.g., mitigation for the growth inducing effects of providing electricity infrastructure to an area), that the mitigation costs would escalate exponentially. He stated that SCE would strongly oppose any effort by the Service to require mitigation for anything other than direct impacts to habitat.

⁵⁹ These estimates represent the average ratio and cost, respectively, for counties other than San Diego, taking into account CEQA baseline in Orange County.

SAN DIEGO GAS & ELECTRIC

2841 While it is possible that future construction, operation, and/or maintenance activities
conducted by either SDG&E or the SCGC may result in section 7 consultations
involving the gnatcatcher, Sempra Energy personnel declined to provide any
information regarding the likelihood of future consultations or estimates of any
resulting costs.⁶⁰ According to staff at the California Public Utilities Commission,
2846 SDG&E has conceptualized construction of a 500-KV transmission line sometime in the
timeframe of this analysis that could potentially intersect proposed gnatcatcher CH.
CUPC staff called this potential line the “Imperial Valley-to-Miguel line,” which they
said might parallel the US-Mexico border just south of San Diego. No additional
project-specific information was provided, however.

2851 Though SDG&E staff were unable to provide estimates of future projects or
modification costs, this analysis assumes that the relationship between regional
electricity infrastructure and projected urban growth is the same for San Diego County
as for remaining counties proposed for CH. As discussed above, SCE anticipates four
2856 future consultations impacting a total of 250 acres of CSS through 2025. Approximately
48,000 acres of future growth is projected in proposed units outside San Diego, yielding
a ratio of 5.2 CSS acres for every 1,000 acres of projected growth. Applying this factor to
the estimated 35,000 acres of projected growth in San Diego County yields an estimate
of 183 acres of impact.⁶¹

2861 This analysis assumes that future CSS impacts will be mitigated at a net 0.06-to-1 ratio
and at a per-acre cost of \$19,750 (the average ratio and cost, respectively, for San Diego
County). Assuming future impacts are distributed evenly through 2025, the total
2866 estimated cost of section 7 project modifications is approximately \$70,000, when
adjusted for acres proposed for CH.

⁶⁰ Personal communication with Don Haines, Manager, Land Planning & Natural Resources Group, Sempra Energy, February 13, 2003. Mr. Haines cited the uncertainty of capital improvement projects and the energy market through 2025, as well as the commitment of staff resources that would be required to develop an estimate, in declining to provide information.

⁶¹

See footnote 52.

It is worth noting that many of SDG&E's operational activities are addressed in its "Subregional Natural Community Conservation Plan," which was approved by the Service in 1995 and therefore constitutes a "regulatory baseline" for covered activities. In approving the plan, the Service issued a 50-year section 10(a) permit covering the installation, use, maintenance, and repair of the existing gas and electric system and typical expansions to that system. Because the 50-year permit establishes mitigation requirements for all covered activities under the plan, any potential section 7 costs would be limited to administrative consultation costs, and project modification costs for activities not covered in the plan.

SOUTHERN CALIFORNIA GAS

As mentioned above, Sempra Energy personnel declined to provide any information regarding the likelihood of future consultations or estimates of any resulting costs.⁶² In order to provide an estimate of future project modification costs, this analysis assumes that future CSS impacts resulting from SCGC regional infrastructure projects will be roughly proportional to those estimated for electricity infrastructure projects conducted by SCE. This analysis uses SCE as a proxy because SCE and SCGC have similar service territories (southern California outside San Diego County), and both are involved in the construction of "linear" regional utility infrastructure.

The SCE company website indicates that SCE's service territory encompasses approximately 50,000 square miles. As described above, electric utility projects through 2025 built to serve this territory are estimated to impact approximately 250 acres of CSS habitat. The SCGC website indicates its service territory is approximately 23,000 square miles. Assuming habitat impacts due to infrastructure construction are proportional to service territory size, this analysis estimates that SCGC infrastructure projects through 2025 will result in impacts to approximately 115 acres of CSS habitat. Applying the same scaling factor to SCE's anticipated four consultations yields an estimate that SCGC will be involved in two projects through 2025 that require formal section 7 consultation.

⁶² Personal communication with Don Haines, Manager, Land Planning & Natural Resources Group, Sempra Energy, February 13, 2003. Mr. Haines cited the uncertainty of capital improvement projects and the energy market through 2025, as well as the commitment of staff resources that would be required to develop an estimate, in declining to provide information.

2896 To estimate the cost associated with these utility projects, this analysis assumes that
section 7 project modifications will include off-site mitigation at a 2.11-to-1 ratio, and
that per-acre CSS acquisition costs will be approximately \$55,000. These assumptions
correspond to the average “net” mitigation ratio and costs for counties other than San
Diego, as shown in **Table 11** and **Table 15**, respectively. The estimated project
2901 modification cost for these projects is approximately \$4.4 million, after adjusting for
acreage proposed for CH.

FEDERAL LAND MANAGEMENT

2906 Future activities on Federal land constitute a section 7 Federal nexus. Categories of
Federal land proposed for gnatcatcher CH include land owned or managed by the USFS
and BLM. USFS activities likely to require section 7 consultation primarily consist of
protecting CSS habitat during prescribed burns conducted as part of fire
control/prevention programs. The BLM anticipates a number of future section 7
consultations involving the gnatcatcher, but is unable to predict the specific projects
that will require consultation.

2911 U.S. FOREST SERVICE LAND

Angeles National Forest

2916 The Angeles National Forest (ANF) estimates that one informal consultation will occur
each year for prescribed burns and that numerous phone calls and field visits may be
necessary.⁶³ In 2002, one informal consultation was required for a joint prescribed burn
with the County due to the presence of coastal sage scrub. This analysis estimates 23
informal consultations through 2025 associated with prescribed burns in the ANF.

2921 ANF staff estimated that project modifications required to protect CSS adjacent to burn
areas typically result in an additional cost of approximately \$10,000 for every 100 acres
of CSS habitat protected. ANF personnel indicated that there are approximately 4,000
acres of CSS remaining within the ANF.

⁶³ Personal communication with Forest Biologist, Bill Brown, Angeles National Forest January 30, 2003.

2926 Estimating project modification costs for future prescribed burns is difficult given
uncertainties inherent in fire management practices. However, in order to be more
likely to overestimate than underestimate costs, this analysis assumes that all 4,000
acres of CSS will require protection as a result of the 23 prescribed burns anticipated
through 2025. As shown in **Table 3**, the total estimated project modification cost for
these future prescribed burns is approximately \$196,000. The estimated administrative
cost of the 23 informal consultations is approximately \$52,000, as calculated in
Appendix F and summarized in **Table 3**.

2931 **Cleveland National Forest**

2936 The Cleveland National Forest (CNF) estimates that two to three formal consultations
and three informal consultations a year may be required through 2025 due primarily to
protecting coastal sage scrub during prescribed burns.⁶⁴ In 2001, the CNF was involved
in three section 7 consultations regarding grazing, a prescribed burn, and the forest
management plan due to the presence of coastal sage scrub. This analysis assumes 41
informal consultations and 41 formal consultations through 2025, after adjusting for
acreage actually proposed for CHD, half of which will require Biological Assessments.

2941 Based on previous consultations, the CNF estimated that formal consultations for
prescribed burns would add an additional \$10,000 for every 100 acres of coastal sage
scrub requiring protection. While CNF staff indicated that an extra \$4,000 may be
required if an in-house species survey is required, this analysis assumes these costs are
represented in the cost of preparing Biological Assessments. Staff estimated that
approximately 20,000 acres of CSS is present within the CNF.

2946 Estimating project modification costs for future prescribed burns is difficult given
uncertainties inherent in fire management practices. However, in order to be more
likely to overestimate than underestimate costs, this analysis assumes that all 20,000
acres of CSS will require protection as a result of the 41 prescribed burns anticipated

⁶⁴ Personal communication with Forest Biologist, Kirsten Winter, Cleveland National Forest January 28, 2003. Ms. Winter was interviewed again on June 18, 2003 to confirm this estimate in light of the recently completed programmatic section 7 BO for the 4 Southern California Forests. Ms. Winter stated that the programmatic BO specifically did not address future activities such as prescribed burns, and that given the amount of CSS habitat in the ANF, she believed her original estimate remained accurate.

2951 through 2025. As shown in **Table 3**, the total estimated project modification costs for
these future prescribed burns is approximately \$204,000. The estimated administrative
cost of the informal and formal consultations is approximately \$340,000, as calculated in
Appendix F and summarized in **Table 3**.

San Bernardino National Forest

2956 The San Bernardino National Forest (SBNF) estimated that three to five formal
consultations and three to five informal consultations may be required through 2025
due primarily to protecting coastal sage scrub during prescribed burns.⁶⁵ This analysis
assumes that five informal and five formal consultations will be required through 2025.

2961 Staff indicated that approximately 1,000 acres of CSS habitat is present in the SBNF, and
that the costs to protect CSS during prescribed burns are similar to those of the other
National Forests (\$100 per acre of CSS protected). Assuming that all 1,000 acres will
require protection through 2025, the total estimated project modification cost is
approximately \$49,000 as shown in **Table 3**. The estimated administrative cost of 5
2966 informal and 5 formal section 7 consultations is approximately \$47,000, as summarized
in **Table 3**.

BUREAU OF LAND MANAGEMENT

The BLM estimated that it will participate in approximately 4 formal and 12 informal
section 7 consultations through 2025. Three technical assistance calls were also
2971 estimated over the same time period.⁶⁶

The BLM has been involved in several formal and informal consultations involving the
gnatcatcher, though only one formal consultation was recent enough to have records
available on project modification costs. In that consultation, the BLM was required to
2976 mitigate construction and maintenance activities on four acres of CSS habitat through
off-site acquisition of CSS at a 2-to-1 ratio, maintenance outside the breeding season,

⁶⁵ Personal communication with Forest Biologist, Steve Loe, San Bernardino National Forest
February 13, 2003.

⁶⁶ Personal communication with Wildlife Biologist, Joel Schultz, January 27, 2003 and Endangered
Species Specialist, Ed Lorentzen January 29, 2003.

redirection of roads around habitat areas, and closure of trails leading through gnatcatcher habitat. The BLM was able to acquire CSS habitat off site at \$1,500 per acre.

2981 BLM staff were unable to provide any estimates of likely habitat impacts for future projects requiring section 7 consultation. In the absence of any additional supporting data, EPS assumed that future consultations are similar in size, scope, and cost to the single BLM historical consultation described above (i.e., each requiring 4 acres of 2-to-1 mitigation at \$1,500 per acre). The estimated net present value of project modifications
2986 associated with future consultations is \$26,000. The estimated administrative cost of 4 formal consultations, 12 informal consultations, and 3 technical assistance calls is \$59,000, as calculated in **Appendix F** and summarized in **Table 3**.

FEDERAL EMERGENCY MANAGEMENT ACTIONS

2991 The Federal Emergency Management Agency (FEMA) has engaged in formal and informal consultations for construction, prescribed burns, and flood prevention. FEMA personnel estimate that 30 formal consultations and 75 informal consultations involving the gnatcatcher will be required through 2025.⁶⁷

2996 FEMA staff estimated that formal consultations will require preconstruction surveys, avoidance of construction activities during breeding season, and avoidance of CSS habitat when possible. FEMA staff were unable to provide estimates regarding likely impacts due to future projects or the extent of avoidance required. Due to the lack of available information, this analysis assumes that the future project modification costs will be limited to preconstruction survey costs, and that these costs are captured by
3001 consultation cost model estimates for Biological Assessments. The estimated administrative cost of future consultations is approximately \$386,000, as calculated in **Appendix F** and summarized in **Table 3**.

⁶⁷ Personal communication with FEMA Program Manager, Chris Barkley, URS Corporation (contracted with FEMA to handle technical support), February 2, 2003

MILITARY PROPERTY AND OPERATIONS

3006 This section estimates potential section 7 economic costs associated with military base property and operations in areas proposed as critical habitat and areas proposed for exclusion.⁶⁸

MARINE CORPS BASE CAMP PENDLETON

3011 Some areas within Marine Corps Base Camp Pendleton have been proposed for CH while mission-essential training areas have been proposed for exclusion. This section first addresses the economic costs associated with those areas proposed for CH. The economic cost of designating mission-essential training areas is evaluated separately below to assist with weighing the benefits of exclusion against the benefits of inclusion.

Description of Areas Proposed and Areas Proposed for Exclusion

3016 The Marine Corps Base Camp Pendleton has approximately 16,471 acres of proposed CH. Of this amount, approximately 3,546 acres represent lands leased to the State of California for use as a State Park (i.e., San Onofre State Beach). The remaining 12,925 acres are located within or adjacent to existing developed or urbanized areas of the Base, including Marine Corps housing and other base support-related land uses. The proposed CH does not include military training areas, although these areas are known to include essential gnatcatcher habitat. The Service has proposed for exclusion all mission-essential training areas that contain essential gnatcatcher habitat, citing section 4(b)(2) of the Act.

Consultation Background

3026 The current INRMP for Camp Pendleton was completed in October 2001. Although the INRMP meets the requirements of the SAIA, the Service has expressed concern that the document possesses a number of inadequacies with regard to resource and ecosystem

⁶⁸The economic cost estimates do not account for the potential effect of CHD, if any, on military readiness. Such an estimate is beyond the scope of this analysis.

management.⁶⁹ Consequently, for the purposes of estimating the economic costs of CHD, this analysis assumes that the INRMP does not serve as a baseline regulatory requirement for the gnatcatcher. This is a conservative approach (e.g., more likely to overestimate than underestimate actual costs) because in reality the INRMP does articulate guidelines and protection measures for gnatcatcher habitat, as do existing biological opinions.⁷⁰

A summary of the consultation history for the gnatcatcher on Camp Pendleton is provided in **Table 18**. As shown, there have been a total of 17 biological opinions issued for the gnatcatcher since 1995, 13 of which pertain to activities outside the military training area boundaries. In addition, the Service is currently involved in a programmatic section 7 consultation with Camp Pendleton regarding numerous activities that are ongoing or expected to occur within the upland areas, the primary location for training activities. Once completed, this document will provide further protection for gnatcatcher habitat.

Estimated Economic Costs

Because the analysis assumes that the existing INRMP and BOs provide no baseline protection for the gnatcatcher, all future consultation and project modifications costs are attributable entirely to section 7. Camp Pendleton staff provided no information regarding future projects that may require section 7 consultation, so future cost estimates are based on the historical consultation rates as calculated in **Table 18**. As shown, the non-training areas average about 1.6 consultations and \$428,800 in CSS mitigation/restoration costs per year (or 37 consultations through 2025). Assuming these costs will be incurred at the same rate over the next 23 years, the estimated net

⁶⁹ See USFWS letter to the Lupe Amas, Commanding General of Marine Corps Base Camp Pendleton, October 19th, 2001 (FWS-MCBCP-2317.1)

⁷⁰Camp Pendleton maintains a 20-acre CSS Restoration bank located near the O'Neil Heights housing area in the south east portion of the Base. Approximately 7.7 surplus acres currently remain.

Table 18
Biological Opinions for the Gnatcatcher at Pendleton (1995 to Present)

Location / Project Name	Service Project #	Date of BO	Acres of CSS Impact		Estimated Cost (1)
			Permanent	Temporary	
<u>Non-Training Areas</u>					
San Onofre Sewage Effluent	1-6-95-F-25	3/30/1995	0	0.3	\$11,400
Bridge Retrofit - Interstate 5	1-6-96-F-31	8/15/1996	0	1.08	\$41,040
Santa Margarita Sewage Effluent	1-6-96-F-36	10/21/1996	26.3	0.8	\$2,029,200
Slope Stabilization at SDGE Talega Substation	1-6-98-F-27	9/8/1998	0	3.5	\$133,000
DeLuz Housing	1-6-98-F-38	11/23/1998	3.93	0	\$298,680
Ammunition Handling Facility	1-6-99-F-30	4/19/1999	2.57	1.07	\$235,980
Santa Margarita River Levee	1-6-95-F-02-R10	7/19/1999	1.65	0	\$125,400
PPM Burn at San Mateo	1-6-00-F-34	5/12/2000	5.0	0	\$380,000
Las Flores Estancia	1-6-01-F-910.2	2/2/2001	0.74	0	\$56,240
SDGE Talega Substation Expansion	1-6-02-F-1988.2	12/10/2001	0	0	\$0
SDGE Access Road	1-6-02-F-2464.2	1/31/2002	0	0	\$0
San Onofre Housing Firebreak	1-6-02-F-2869.1	5/23/2002	0.77	0	\$58,520
San Mateo BEQ Parking	1-6-02-F-2729.3	<u>5/30/2002</u>	<u>2.21</u>	<u>0</u>	<u>\$167,960</u>
Subtotal		0	43.17	6.75	\$3,537,420
Amount Per Year		0.00	5.23	0.82	\$428,778
<u>Training Areas</u>					
Northern Power Line	1-6-99-F-45	6/28/1999	0.0013	0.148	\$5,723
SFPP Petroleum Pipeline	1-6-99-F-54	8/23/1999	0	0	\$0
Electrical Towers M3-T3	1-6-99-F-76	10/28/1999	0.17	0.12	\$17,480
Range 314 Road Upgrade	1-6-03-F-3001.3	1/10/2003	3.5	0	\$266,000
Biological Assessment of Upland Habitat		on-going	-	-	-
Subtotal		0	3.6713	0.268	\$289,203
Amount Per Year		0.00	0.45	0.03	\$35,055

(1) Assumes a 2:1 total mitigation requirement for permanent impacts, 1:1 restoration for temporary impacts, and a cost of \$ per mitigated or restored acre. Does not represent actual amount paid.

Source: US Fish & Wildlife Service; Fallbrook Naval Weapons Station; Economic & Planning Systems, Inc.

present value of project modification costs is \$4,833,000, as shown in **Table G-17** and **Table 3**. These estimates assume a CSS mitigation/restoration cost of \$38,000 based on information provided by the Fallbrook Naval Weapons Station. The estimated administrative cost of the 37 future formal section 7 consultations is \$178,000, as calculated in **Appendix F** and summarized in **Table 3**.

Using the methodology described for non-training areas, mission-essential training areas will average about 0.6 consultations and \$35,100 in CSS mitigation/restoration costs per year (or 14 consultations through 2025). Assuming these costs will be incurred at the same rate over the next 23 years, the estimated net present value of project modification costs is \$395,000, as shown in **Table G-17**. The estimated administrative cost of 14 future section 7 consultations is \$67,000. Because training areas have been proposed for exclusion, these administrative and project modification cost estimates are not included in the total economic impact summary provided in **Table 3** or in totals calculated in **Appendix F**. These value are included in the Unit summaries provided in **Table 2** (“Proposed for Exclusion” column).

MARINE CORPS AIR STATION MIRAMAR

Background

The Marine Corps Air Station (MCAS) Miramar contains approximately 2,524 acres of essential habitat that have been proposed for exclusion. Thus, the cost estimates provided herein are designed to provide information for weighing the benefits of exclusion against the benefits of inclusion, and are not included in the total cost summary in **Table 3**.

The current INRMP for Miramar was completed in May 2000 and is well regarded by the Service.⁷¹ In addition, MCAS has completed two other documents that articulate standards and obligations for the protection of CSS and the gnatcatcher. These include: (1) a BO/Conference Opinion for the Realignment of Naval Air Station Miramar to Marine Corps Air Station Miramar completed in April 11, 1996, and (2) Implementation, Maintenance and Monitoring of Coastal Sage Scrub Restoration on Marine Corps Air

⁷¹ Conversation with Service staff on March 6th, 2001.

Station Miramar, completed on December 8, 1999. The standards and commitments outlined in these documents include, but are not limited to, the following:

- 3086 • A commitment to develop and implement land management practices consistent with the guidelines that established for other sub-area plans through the Multiple Specials Conservation Program (MSCP) adopted by a number of San Diego County jurisdictions.

- 3091 • Mitigation at a 2-to-1 replacement ratio for the authorized destruction of suitable gnatcatcher habitat and at a 1-to-1 ratio for other CSS. The unauthorized destruction of CSS habitat will be mitigated or restored at a 5-to-1 ratio.

- 3096 • Limit of land-use activities disruptive to gnatcatcher habitat to the non-breeding season.

- A commitment and detailed plan to restore, manage, and maintain approximately 87.5 acres of abandoned agricultural fields to a permanent CSS plant community.

3101 EPS has identified a total of five BOs related in part or in whole to the gnatcatcher and CSS habitat on Miramar since 1993, which equates to an average of approximately 0.5 consultations per year. These BOs, which articulate conservation measures that require continued management on Miramar, include the following:

- 3106 1. BO on the proposed maintenance, improvements, and use of existing roads, lots, driveways, and loading docks at Miramar (1-66-99-F-64) completed in August 1999.

- 3111 2. BO on Nobel Drive/I-805 Interchange and Extension project San Diego County (1-6-97-F-30) completed on August 1, 1997.

3. BO / Conference Opinion for the realignment of Naval Air Station Miramar to Marine Corps Air Station Miramar completed on April 11, 1996.

- 3116 4. BO for the Fiesta Island Replacement Project/North Sludge Processing Facility and West Miramar Landfill Overburden Disposal (1-6-94-F-37) completed on September 29, 1994 (an amendment to this opinion was completed on January 12, 1995).
- 3121 5. BO on Nave Family Housing at Eucalyptus Hills San Diego County, (1-6-93-F-33) completed on November 12, 1993.

Estimated Economic Costs

As described above, the Miramar INRMP, past BOs, and other documents represent a strong set of existing commitments, standards and obligations for the protection and mitigation of CSS and gnatcatcher habitat. Consequently, this analysis assumes these documents constitute a regulatory baseline for future measures designed to protect gnatcatcher habitat, such as CSS mitigation or restoration. In other words, these mitigation costs will be incurred independent of future section 7 consultations. However, this economic analysis assumes that the administrative costs associated with future section 7 consultations are attributed to designation. Thus, at an average of 0.5 gnatcatcher-related consultations per year, there will be 12 estimated consultations over the next 23 years with a total administrative cost of \$58,000.

U.S. NAVAL WEAPONS STATION SEAL BEACH, DETACHMENT FALLBROOK

The Naval Weapons Station Seal Beach, Detachment Fallbrook (Fallbrook) is a facility operated by the U.S. Navy that is charged primarily with storing and replenishing military ordnance; no training activities occur on site. CH has been proposed for Fallbrook as part of critical habitat Unit 4, which overlaps the eastern portion of Camp Pendleton; no areas within Fallbrook have been proposed for exclusion. Fallbrook staff estimate that approximately 16 formal consultations for the CAGN will be necessary through 2025.⁷² Future projects include:⁷³

⁷² Personal communication with Robert Knight, Station Biologist and Jan Larson, Director of Environmental Operations March 6, 2003.

⁷³ Fallbrook staff also provided information on projects currently undergoing section 7 consultation and estimated conservation fund allocations expected to be expended on the CAGN. These data were not considered relevant to a consideration of future section 7 costs for the CAGN.

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- Widening of Ammunition Road and installation of fencing in the 1st quarter 2004, which is expected to disturb 20 acres of CSS.
 - Construction of up to 10 magazines (earth-covered storage vaults for explosive ordnance) between 5 and 25 years out, each disturbing a maximum of 5 acres of habitat.
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- One future road construction project every 5 years, each with an assumed ROW coverage of approximately 6.7 acres, 50 percent of which (3.3 acres) is assumed to contain CSS.
 - Construction of one warehouse building in year 15, which is expected to disturb approximately 5 acres of CSS.

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Based on previous section 7 consultation experience, Fallbrook personnel suggested assuming future impacts to CSS would be mitigated through on-site restoration at a 1-to-1 ratio at a cost of \$38,000 per acre. As shown in **Table 3**, the total estimated cost of section 7 project modifications is \$2.1 million. The total estimated administrative cost of

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the 16 formal consultations is \$115,000.

EL TORO REUSE AREA

The El Toro Reuse Area is a former military installation that the U.S. Navy currently manages as a reserve area for the Central/Coastal Orange County HCP/NCCP. CH has been proposed for El Toro as part of Unit 6; no areas within El Toro have been proposed

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for exclusion. El Toro staff estimate that, at most, one project requiring formal consultation for the CAGN will be necessary through 2025.⁷⁴ This possible consultation would address construction of the Alton Parkway, which could affect up to 4,000 acres of CSS habitat. As discussed in **Chapter II**, this project is a Planned Activity under the Central/Coastal Orange County HCP/NCCP, and CSS mitigation has already been

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addressed by the Plan, so no section 7 project modification costs are anticipated. The required formal section 7 consultation will result in administrative costs of \$14,600, as shown in **Appendix F** and **Table 3**.

⁷⁴ Personal communication with Gordon Brown, Remedial Project Manager on February 3, 2003, and Robert Palmer, Biological Consultant on January 2, 2003.

HABITAT CONSERVATION PLANS

EXISTING CONSERVATION PLANS

3171 All established reserve areas within existing, approved project-specific HCPs that
adequately address the gnatcatcher have been proposed for exclusion. This section
evaluates the economic impact were these reserve areas to be designated as critical
habitat, in order to allow the Service to weight the costs of inclusion with the costs of
exclusion.

3176 This analysis was unable to estimate accurately the number of future activities that have
been authorized under existing project-specific HCPs that would involve a Federal
nexus. Furthermore, neither the Service's nor the USACE's section 7 consultation
record consistently specifies whether a particular consultation involves a project
3181 authorized by an existing HCP, or is within the plan area of a project-specific HCP,
which makes it difficult to estimate a historical consultation rate. The Service's
consultation record (2000-2003) appears to indicate, however, that at least one informal
and one formal consultation were completed in 2000 for proposed developments within
a project-specific HCP boundary.

3186 Assuming this rate of one formal and one informal consultation every three years, this
analysis estimates approximately eight formal and eight informal section 7
consultations would be required through 2025 for future projects in existing HCP
reserves. In addition, based on a review of Service records, this analysis assumes that
3191 28 existing HCPs would require internal, reinitiated section 7 consultations. This
analysis assumes each of these would be informal consultations, and all costs would be
borne entirely by the Service. Estimated administrative costs of the 8 formal and 36
informal section 7 consultations are \$142,000, as shown at the bottom of **Table 2**, in the
"Proposed for Exclusion" column.

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FUTURE HABITAT CONSERVATION PLANS

Any future HCP that addresses the gnatcatcher or includes lands designated as CH will
result in an internal section 7 consultation between the Service's Habitat Conservation
Branch and its section 7 branch. Each consultation is assumed to be approximated by

3201 an informal consultation, and will result in administrative costs that will be borne solely
by the Service.

Based on research conducted during the course of this analysis, at least 16 regional and
project-specific HCPs are planned or proposed that will address the gnatcatcher and
CSS. While it is not certain at this point that every one of these proposed plans will
3206 reach completion and be adopted, this analysis assumes that all 16 are “reasonably
foreseeable” within the scope of this analysis. One informal section 7 consultation is
assumed to be required for each of the following planned HCPs:

- 3211 • Chula Vista subarea plan to MSCP
- Otay Water District subarea plan to MSCP
- East County subarea plan to MSCP
- North County subarea plan to MSCP
- Joint Water Agencies Subregional Plan
- 3216 • San Diego County MHCOSP
- Western Riverside County MSHCP
- Palos Verdes HCP/NCCP
- San Bernardino Valley MSHCP (planned)
- Bonelli Water Park HCP, San Dimas (planned)
- 3221 • Newport Benning Ranch HCP, Coastal Orange
- Southern California Edison HCP
- Southern Orange County NCCP
- SD Water Districts HCP(s)
- SD County Water Authority

3226 The estimated administrative cost of informal section 7 consultations for these 16
assumed future HCPs is approximately \$37,000, as shown in **Appendix F** and **Table 3**.

REINITIATION OF SECTION 7 CONSULTATIONS

No information was available regarding the number of future consultations that may
require reinitiation as a result of the proposed CHD.

3231 **TRIBAL LANDS**

The Pala Band of Mission Indians is a federally recognized sovereign Nation, which owns and occupies a 13,000-acre reservation in northern San Diego County. All Tribal lands on the Pala reservation that contain essential gnatcatcher habitat have been
3236 proposed for exclusion under section 4(b)(2). This analysis evaluates the economic impacts if the essential habitat within the Pala reservation were proposed for CHD. According to the Pala tribe’s attorney, virtually all decisions made by the Pala Tribal Government can require section 7 consultation, either because the decision involves the use of Federal funds (e.g., United States Department of Housing and Urban
3241 Development housing grants) or because the decision requires approval by the Bureau of Indian Affairs (e.g., project approval by the Pala Environmental Protection Agency).⁷⁵

Pala tribal representatives anticipate that approximately 60 housing projects (one private residence per project) and five community development projects (gymnasium, medical clinic, recycling facility, etc.) will require section 7 consultation for the
3246 gnatcatcher through 2025.⁷⁶ This analysis assumes that each housing project will require informal consultation, and the community facility projects will require formal consultation. Based on input from tribal representatives, this analysis assumes that each housing project will disturb one acre of land and that each community project will
3251 disturb five acres. GIS-based calculations indicate that approximately 26 percent of the reservation is within proposed CH, resulting in an estimate of approximately 22 acres of CSS disturbed.

Assuming the housing projects are evenly distributed through 2025, and one
3256 community project is constructed every five years, starting in Year 1, the estimated total section 7 project modification cost is \$433,000, and the estimated administrative cost of the 60 informal and 5 formal consultations is approximately \$256,000. These costs are included in the Unit 5 cost summary shown in **Table 2** for areas proposed for exclusion.

⁷⁵Personal communication, Ted Griswald, February 24, 2003.

⁷⁶Personal communication, Robert Smith, Pala Tribal Chairman, and Lenore Volturmo, Pala Tribal Environmental Protection Agency, March 10, 2003.

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V. OTHER ECONOMIC EFFECTS

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This chapter evaluates the other economic effects of CHD on private land development activities. It focuses on the designations potential to result in project delays, increase costs due to regulatory uncertainty, and/or trigger other regulatory requirements such as CEQA.

TIME DELAY

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CH designation of the gnatcatcher adds an additional layer of regulatory requirement to private land development projects. This requirement may include the conduct of section 7 technical assistance, informal, and/or formal consultation for projects with a Federal nexus. The need to conduct section 7 consultations in and of themselves does not automatically delay private development projects as these consultations can generally be coordinated with existing baseline regulatory processes and do not necessarily increase the time to obtain approvals. CHD could, however, cause time delays to some private land development projects through requirements not to conduct certain land development activities (e.g., grading and clearing) during specific periods of the year.

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Section 7 and CHD for the gnatcatcher will require projects not to conduct habitat-disturbing land development activities during the breeding season of the gnatcatcher, a six and one-half month period from February 15 to August 31. Depending on the timing of the final designation of critical habitat, this requirement may delay some projects that would have begun construction during this period. Projects that might have begun shortly before the start of the breeding season might also be delayed to avoid the costly process of starting, stopping, and re-starting construction activities. Private development projects further down the path of development are not expected to be affected. It is assumed that most private development projects can time their habitat-disturbing land development activities to avoid the six month non-breeding period.

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The following assumptions were made to estimate the economic cost of time delay associated with the CHD breeding season requirements:

- Projects expected to begin more than 12 months after CHD are not expected to face any additional delay due to section 7, as land development activities can be planned around the gnatcatcher breeding season.

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- Section 7 will delay all private land development projects slated to begin development in the 12 months following designation.
- The average delay to projects slated to occur in the next 12 months is 6 months.

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- Private land development will occur at a constant rate over the next 23 years.

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- The land value loss associated with this delay can be estimated by applying the appropriate discount rate – a measure of the time value of money. As discussed in **Chapter 3**, the private land developer annual discount rate is about 12 percent, though an alternative annual three percent social discount rate is also considered. These discount rates are halved to calculate the time loss associated with a six-month delay.

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Table 19 summarizes the results of the economic cost of time delay by unit, with a more detailed summary provide in **Appendix I**. As shown, about 12,700 acres of private land development with a Federal nexus is expected to occur in CH over the next 23 years (projected land development affected by section 7 minus required on-site set-aside). Of this, one-twenty third (1/23), or 554 acres, are expected to be developed in the first 12 months after designation and are expected to be delayed by an average of 6 months.

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Assuming a 12 percent discount rate, this time delay results in a total land value loss of approximately \$5.7 million.

Table 19
Cost of Section 7 Time Delays

Unit	Developable Acres with nexus in CH through 2025 (1)	Acres Delayed (2)	Land Value of Delayed Acres (3)	Value Impact of Delay (4)
Unit 1	68	3	\$1,055,700	\$63,300
Unit 2	55	2	\$925,500	\$55,500
Unit 3	203	9	\$3,135,600	\$188,100
Unit 4	0	0	\$2,600	\$200
Unit 5	276	12	\$4,626,600	\$277,600
Unit 6	151	7	\$2,886,200	\$173,200
Unit 7	35	2	\$327,500	\$19,600
Unit 8	0	0	\$0	\$0
Unit 9	469	20	\$4,236,600	\$254,200
Unit 10	6,631	288	\$36,883,300	\$2,213,000
Unit 11	772	34	\$3,882,900	\$233,000
Unit 12	94	4	\$733,500	\$44,000
Unit 13	3,993	174	\$35,940,000	\$2,156,400
Totals	12,747	554	\$94,636,000	\$5,678,200

All dollar values have been rounded to the nearest hundred; summed totals may not add exactly.

(1) See Table 10. Equals 'Projected Growth Acres Affected by Section 7' minus 'On-site Set-aside' requirements.

(2) First year of land development after CHD is conservatively assumed to be delayed by six months due to lack of time to plan to avoid breeding season. Acres delay represents developed acres divided by 23, the number of years of the projection.

(3) Represents value of raw, entitled land ready for development. Based on 'Residual Value of Vacant Gross Acre' estimated in Table D-1.

(4) Based on 6 percent discount rate, as delay lasts six months (i.e., one-half of 12% annual discount rate).

3321 **UNCERTAINTY/STIGMA**

UNCERTAINTY

3326 Developers face uncertainty over the required project modifications due to CHD. The outcome of section 7 consultations are by their nature uncertain. The Service conducts each consultation on a case-by-case basis and issues BOs and recommends project modifications based on species-specific and site-specific considerations. While some differences in recommended project modifications are clearly linked to habitat quality and other determinable factors, an element of uncertainty remains. The costs estimated in **Chapter III** considered the economic costs associated with the average expected project modifications. While these represent the average economic costs, costs for individual landowners/ developers will fluctuate above and below this level.

3336 The economic effects of this uncertainty depend on the degree to which developers are risk-averse. If developers are only mildly risk averse, they will discount the value of potential land purchases at close to the average project modification cost. If, however, they are significantly risk averse, the element of uncertainty introduced by CHD will result in a further discounting of the land value. The quantity of discount will never, however, exceed the level of discount associated with a likely upper-end estimate of the project modification cost. On average, the level of discount is likely to fall between the discount associated with the average project modification cost and the likely upper-end project modification cost. This analysis estimates a likely upper-end project modification scenario and assumes the average economic cost associated with uncertainty will be the mid-point between the upper-end and average project modification cost.

3346 A review of the relevant past BOs provided by the Service and summarized in **Appendix C** implies that a reasonable upper-end scenario involves mitigation ratios 25 percent above the average (see **Table 20**). This estimate was derived based on Counties where more than one BO was available with outliers removed. The outliers do not reflect uncertainty, but rather reflect differences in habitat quality or the inclusion of

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Table 20
Upper-End Mitigation Ratios

County	Avg.	High	Percent Difference
San Diego	2.06	2.35	114%
Riverside	1.93	2.46	127%
Orange	3.82	4.64	121%

(1) From Table 11.

Highest ratio for each region from BOs summarized in Table C-1. Outliers, such as the 4.55:1 on-site ratio for Riverside County were excluded. Such outliers are likely connected to specific, identifiable differences in habitat quality or include mitigation for other species. As a result, the average and high ratios are adjusted.

Sources: USFWS, Carlsbad Office; Economic & Planning Systems, Inc.

3356 other mitigation requirements beyond those associated with CSS and the gnatcatcher. As shown, increases above the average mitigation ratio were 14, 21, and 27 percent, respectively, for San Diego, Orange, and Riverside counties.

3361 The 25 percent increment was applied to the average mitigation ratios estimated in **Chapter III** (see **Table 11**). On-site, off-site and restoration mitigation requirements were all increased by 25 percent. The overall average mitigation ratio for all counties increased from 2.39 to 2.99. As a result, the overall land value loss increases by about 15 percent, from approximately \$743 million to \$851 million (see **Table 13** and **Table 21**, respectively).⁷⁷ Costs associated with on-site set-asides, off-site preservation, and restoration costs all increase, though on-site set asides represent the majority of the project modification cost. Administrative costs do not change based on the uncertainty calculations.

3371 The additional economic cost associated with uncertainty (i.e., cost above and beyond that associated with the average project modification scenario) lies somewhere between a zero and 15 percent increase. Taking a mid-point, an estimate of the uncertainty effect of CHD on directly affected private landowners is that it increases costs by approximately 7.5 percent above the estimated average project modification costs. As a result, the increased land value loss is estimated at approximately \$54 million, as shown in **Table 1**.

3376 STIGMA

3381 The uncertainty costs estimated above do not include stigma-related effects. Stigma effects are a form of uncertainty that relate less to actual fluctuations in project modifications and more to perceived fluctuations when there is limited information on actual outcomes. Stigma effects last for a limited time period as increasing levels of information erode the perceived fluctuations, replacing them with a more accurate assessment of the actual uncertainty. They also tend to last only as long as the “fastest learners” remain unclear about the actual uncertainty associated with CHD. In a situation where some market actors are clear about the effects and are able to

⁷⁷ A 25 percent increase in the mitigation cost ratio does not increase land set-aside by 25 percent. As a result, the costs increase by less than 25 percent.

Table 21
Upper End Mitigation - Section 7 Project Modification Costs for Private Land Development (1)

Critical Habitat Unit	Estimated Mitigation Costs (2)			Other Project Modification Costs (3)	Total
	On-Site Set-Aside	Off-Site Preservation	CSS Restoration		
Unit 1	\$3,138,700	\$0	\$0	\$919,400	\$4,058,100
Unit 2	\$2,751,400	\$0	\$0	\$994,100	\$3,745,600
Unit 3	\$9,322,400	\$0	\$0	\$3,696,000	\$13,018,300
Unit 4	\$7,800	\$0	\$0	\$3,100	\$10,900
Unit 5	\$13,754,900	\$0	\$0	\$3,748,100	\$17,503,000
Unit 6	\$46,177,300	\$0	\$0	\$2,680,500	\$48,857,800
Unit 7	\$5,239,700	\$0	\$0	\$64,000	\$5,303,700
Unit 8	\$0	\$0	\$0	\$43,800	\$43,800
Unit 9	\$38,238,000	\$2,759,600	\$3,093,100	\$818,100	\$44,908,800
Unit 10	\$367,849,000	\$47,272,700	\$447,100	\$12,367,400	\$427,936,200
Unit 11	\$85,543,200	\$0	\$3,288,300	\$2,458,300	\$91,289,800
Unit 12	\$2,893,000	\$0	\$1,020,200	\$116,200	\$4,029,400
Unit 13	\$141,742,700	\$0	\$43,412,900	\$4,945,500	\$190,101,100
Total, All Units:	\$716,658,100	\$50,032,300	\$51,261,600	\$32,854,500	\$850,806,500

All dollar values have been rounded to the nearest hundred; summed totals may not add exactly.

(1) Assumes discount rate of 12.0%.

(2) Results of land development model described in Chapter III, using 'High' mitigation ratios summarized in Table 20.

(3) 'Other Project Modification Costs' are assumed not to change based on uncertainty factors, and are the same as reported in Table 13.

appropriately discount the land values, while others incorporate a stigma and discount the land further, arbitrage is likely to occur. The “fastest learners” will buy the land from others, gradually increasing the land price until it reaches the value of land associated with actual uncertainty discounting only.

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The previous designation of critical habitat for the gnatcatcher brings with it a history of knowledge concerning the types of project modifications required. As a result, the knowledge of the actual level of uncertainty is greater than in many other CHD cases. Furthermore, as noted above, the stigma effect primarily results in a land value distribution to the “fastest-learners” from others, all on the same site. The only actual stigma costs are the transaction costs associated with arbitrage (e.g., buying and selling of land, to the extent it occurs) and the investment made in understanding the project modification requirements. As a result, stigma impacts from the gnatcatcher CHD are expected to be short-lived and relatively minor and are not quantified as part of this analysis.

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CEQA-RELATED INDIRECT COSTS

As described in **Chapter II**, CEQA is a California state statute that requires state and local agencies (known here as “lead agencies”) to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. It is possible that CH could provide new information regarding the location of sensitive habitat areas to lead agencies (typically a county/city community development or planning department in the case of land development projects), which could result in additional costs to the project applicant. Because neither CEQA nor the Endangered Species Act specifically requires lead agencies to address Federally-designated CH, these potential effects are considered indirect effects, and potentially include one or more of the following:

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1. The lead agency may be more likely to require mitigation for habitat loss as part of the CEQA process.

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- 3421 2. Projects that would have submitted either a mitigated negative declaration or a negative declaration under CEQA prior to CHD must now complete an EIR because of assumed unavoidable impacts to an environmental resource of critical concern.
- 3426 3. The project applicant may incur additional costs in considering/addressing designated CH in the context of preparing required CEQA documentation (negative declaration, EIR, etc.)

3431 CEQA statutes specifically require lead agencies to consider a project's effect on rare or endangered plant and animal communities. However, in the case of the gnatcatcher, it is unlikely that CHD will alert many lead agencies to the presence of CSS that they did not already recognize. The assumption that lead agencies are currently aware of the presence and significance of CSS is based on the following regulations and observations, all of which predate the proposed CHD:

- 3436
- The State legislature officially recognized CSS as a sensitive habitat type in the 1991 NCCP Act.
 - 3441 • The DFG has also officially recognized CSS as a "threatened" habitat type, assigning it an S1.2 ranking on the "Sensitivity of Top Priority Rare Natural Communities in Southern California" list, and unofficially encourages lead agencies to require 2-to-1 mitigation, as discussed in **Chapter II**. Again, the S1.2 ranking for CSS predates the gnatcatcher listing.
 - 3446 • Two approved regional NCCPs and a number of regional NCCPs currently under development reflect an effort by many local/regional planning agencies to address the effects of land development on CSS habitat.
 - 3451 • Despite the CHD for the gnatcatcher in 2000 and the requirements under CEQA, which included units in Riverside and San Bernardino counties, local lead agencies in these counties do not currently require CSS mitigation under CEQA, as discussed in **Chapter II**.

3456 Given the historically widespread, well-publicized nature of CSS as a sensitive habitat type, as well as the previous designation, it appears that lead agencies are unlikely to require additional CSS mitigation or change CEQA reporting protocol due to the CHD. Both DFG and Service staff confirmed this conclusion and were not aware of any specific examples in which CEQA reporting or mitigation requirements were expanded due to CH.

3461 This analysis also concludes that CHD will not result in additional costs during the preparation of CEQA documentation. A series of consultants who specialize in EIRs were asked whether the presence of CH on a project site added to the cost of preparing the EIR and seeing it through public hearings as part of the project's entitlement
3466 process. The consensus view in the consultant community is that CHD adds no measurable CEQA-related cost for the project applicant.⁷⁸ Two primary reasons for this are described below.

3471 First, where listed species are present on the project site, the EIR's biological component will be required to discuss and evaluate habitat impacts. This requirement is unchanged after federal CHD. Second, where species are not present on the project site, CEQA directs the EIR to inventory the important natural resources on the project site and characterize project impacts to important habitat types. CEQA makes no reference to critical habitat, and methods used by EIR biologists are unlikely to change if CH is
3476 designated. In fact, according to State officials, State agency oversight of the quality and completeness of a project EIR concentrates wholly on the biological values of habitat in proximity to the project and on potential project impacts to that habitat, and not on the property's status as federally designated CH.

⁷⁸ Personal communication with senior staff from RBF Consulting (San Jose, CA), EDAW (Sacramento, CA) and HT Harvey & Associates (Watsonville, CA), February 24-28, 2003.

VI. SMALL BUSINESS REGULATORY ENFORCEMENT ACT

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POTENTIAL IMPACTS ON SMALL BUSINESS

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Under the Regulatory Flexibility Act (as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever a Federal agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comments a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions).⁷⁹ However, no regulatory flexibility analysis is required if the head of an agency certifies that the rule will not have a significant economic impact on a substantial number of small entities.⁸⁰ SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have significant economic impact on a substantial number of small entities. Accordingly, the following represents a screening level analysis of the potential effects of CHD on small entities to assist the Secretary in making this certification.

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This analysis estimates the number of small entities potentially affected by the CHD for the gnatcatcher in counties supporting CH areas. It also estimates the level of effect the designation will have on small entities. For both estimates, this analysis conservatively examines the total estimated section 7 costs calculated in earlier sections of this report.

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Federal courts and Congress have indicated that a Regulatory Flexibility Act/SBREFA analysis should be limited to direct and indirect impacts on entities subject to the requirements of the regulation. As such, entities indirectly impacted by the gnatcatcher listing and CHD, and, therefore, not directly regulated by the listing or CHD, are not considered in this screening analysis.

⁷⁹ 5 U.S.C. 601 et. seq.

⁸⁰ Thus, for a regulatory flexibility analysis to be required, impacts must exceed a threshold for “significant impact” and a threshold for a “substantial number of small entities.” See 5 U.S.C. 605 (b).

This analysis begins by identifying all formal and informal consultation activities generated by the proposed rule that may involve small entities (business or governments). The analysis then estimates the number of small entities that are potentially affected. Finally, the level of impact on those entities is examined. As specified in the proposed rule, certain “essential” conservation lands have been proposed for exclusion from CHD. In order to evaluate the economic and other relevant impacts of excluding these areas from CH, this analysis performs the calculations described above for both areas. The “Proposed” column in **Tables 22 through 24** represents an estimate of the effect(s) on small businesses if CH is designated only for those areas currently proposed; the “Prop. & Excluded” column represents an estimate of the effect(s) if CH is designated for all areas, including those currently proposed for exclusion.

IDENTIFICATION OF ACTIVITIES THAT MAY INVOLVE SMALL ENTITIES

Chapters III and IV of this report identify land use activities that are within the proposed CHD for the gnatcatcher and potentially impacted by section 7 implementation (i.e., requiring consultations or project modifications) under the “with section 7” scenario.

Of the projects that are potentially affected by section 7 implementation for the gnatcatcher, some do not have third party involvement (i.e., only the action agency and the Service are expected to be involved). Thus, small entities should not be affected by section 7 implementation for affected projects with the following agencies:

- Forest Service (prescribed burns)
- Bureau of Land Management (fire break projects)
- FEMA (construction, prescribed burn, and flood prevention)
- Marine Corps (various base operations and maintenance activities)
- Navy (construction and maintenance of base infrastructure)

Table 22
Estimated Annual Number of Small Businesses Affected by Critical Habitat Designation

Industry Name	Land Development SIC 6552	
	Proposed	Prop. & Excluded
Annual number of affected businesses in the industry (equal to the number of annual consultations)	38	58
Number of small businesses in industry within study area	2,953	2,953
Total number of all businesses in industry	3,313	3,313
Percent of businesses that are small (number of small businesses) / (total number of businesses)	89%	89%
Annual number of small businesses affected (number of affected businesses) * (percent of small businesses)	34	51
Annual percentage of small businesses affected (number of small businesses affected) / (total number of small businesses)	1.1%	1.7%

Sources: Dun and Bradstreet; Economic & Planning Systems, Inc.

Table 23
Estimated Annual Number of Small Governments Affected by Critical Habitat Designation

Industry Name	Small Governments	
	Proposed	Prop. & Excluded
Annual number of affected governments (equal to the annual number consultations)	5	7
Number of small governments in industry within study area	24	28
Total number of all governments	76	80
Percent of governments that are small (Number of small governments) / (Total number of governments)	32%	35%
Annual number of small governments affected (Number of affected governments) * (Percent of small governments)	1.5	2.5
Annual percentage of small governments affected (Number of small governments affected) / (Total number of small governments)	6%	9%

Sources: *2001 California County Profiles*, California Department of Finance; Economic & Planning Systems, Inc.

Table 24
Estimated Annual Effects on Small Businesses in Land Development and Real Estate Industry

Industry Name	Proposed		Proposed & Excluded	
	Land Development SIC 6552	"Small Businesses" SIC 6552	Land Development SIC 6552	"Small Businesses" SIC 6552
Project Size (acres)	300	27	300	27
Improved Land Value/SF (1)	\$10.26	\$10.26	\$10.26	\$10.26
Project Duration (2)	2	2	2	2
Per-business Annual Gross Revenue [(project size x 43560sf x land value/sf)/project duration]	\$67,016,615	\$6,000,000	\$67,016,615	\$6,000,000
Per-business Cost	\$988,028	\$88,458	\$678,156	\$60,715
Per-business Effect (per-business cost/annual gross revenue)	1.5%	1.5%	1.0%	1.0%

(1) This is calculated by taking the average of improved residential, office, industrial and retail land values for the six counties presented in Table D-1, D-2 and D3. Without the specific knowledge of where and what type of land-use development a small business will undertake, it is deemed appropriate to take gross average of improved land value for all land-use types. Although land values may differ significantly across the six counties, because they are proportional to both the gross revenue and the section 7 related costs, the average land value does not take geographic differences into account.

(2) Assuming that the required land-use zoning exists, land development projects take one to two years to complete (this process involves obtaining necessary permits, entitlements, etc.) To be conservative, this analysis assumes that each of the future private development projects will take about 2 years to complete.

In addition, major infrastructure and utility projects are potentially affected by section 7 implementation. These projects are expected to involve large public agencies and corporations such as TCA, MWD, SDCWA, SDG&E, SCGC, and SCE, which exceed the Small Business Administration's annual sales threshold for small utility corporations or population threshold for small governments. Therefore they do not fit the category of small entities.

- FHWA (construction and maintenance of state highways)
- USACE (expansion of SR-241 toll road; construction and maintenance of regional utility infrastructure)
- BOR (construction/replacement of levee, basin, and flood control channels)
- Federal Energy Regulatory Commission (construction of utility infrastructure)
- Bureau of Land Management (construction of utility infrastructure)
- Forest Service (construction of utility infrastructure)

After excluding these two sets of agencies and consultations noted above from the total universe of impacts identified in the body of the analysis, one action agency and 311 associated consultations remain. This subset represents the action agency and consultations that may produce significant impacts on small entities. Specifically, these actions feature activities that do not occur exclusively on Federal lands and may involve costly project modifications due to section 7 implementation:

- USACE (private land development)

DESCRIPTION OF AFFECTED ENTITIES

This section describes the industries most likely to be affected by section 7 implementation for the gnatcatcher. More information about the affected projects can be found in **Chapters III and IV** of this report.

Land Development and Real Estate (SIC 652)

The Small Business Administration defines small businesses within the land development and real estate industry as having less than \$6 million in average annual receipts (also referred to as sales or revenues). Projects permitted by USACE that

involve section 7 consultations for gnatcatcher species may affect small businesses under SIC code 6552. In order to determine whether or not small businesses in the land development and real estate industry are affected by USACE projects, the \$6 million threshold must be considered in the analysis.

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Significant levels of Federal agency review and permitting are often required for land development projects by public and private entities. This analysis assumes that the primary Federal nexus for future private development activities is the issuance of section 404(b) permits by USACE under the Clean Water Act for impacts to “waters of the U.S.” If the project is located within proposed CH, the nexus through a 404(b) permit from the ACOE would trigger a section 7 consultation with the Service.

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As discussed in **Chapter III**, past consultation history provided by the USACE serves as a basis for estimating the number of future private development projects that would involve the gnatcatcher. It is estimated that 866 formal consultations will take place involving businesses in the land development and real estate industry over the next 23-year period.

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Activities Funded by Small Governments

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The SBREFA defines a “small governmental jurisdiction” as “governments of counties with a population of less than fifty thousand.”⁸¹ This analysis assumes that the counties and cities in the study area will be involved in approximately 12.5 percent of the future private development projects.⁸² County and/or city governments may get involved in future private developments, and therefore section 7 consultations, through various permits, local utilities and infrastructures. All small governments for cities and counties that have a population that is less than 50,000 persons within the total study area constitute the universe of small governments in this analysis. It is estimated that about 108 out of the 866 formal consultations for future private development will involve cities and counties in the study area over the next 23-year period.

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⁸¹ U.S.C § 601.

⁸² This estimate is based on the past consultation history provided by the U.S. Fish and Wildlife Service. This analysis assumes that the past consultation rate will remain constant throughout the next 23-year period.

ESTIMATED NUMBER OF AFFECTED ENTITIES THAT ARE SMALL

To be conservative, (i.e., more likely to overstate impacts than understate them), this analysis assumes that each of the consultations in a given year is undertaken by a unique small entity, so the number of businesses/governments affected annually is equal to the total annual number of consultations (both formal and informal). This analysis also limits the universe of potentially affected entities to include only those within the counties in which CH units lie; this interpretation produces a more conservative analysis than including all entities nationwide.

Activities of the Army Corps of Engineers and Effects on the Land Development and Real Estate Industry (SIC 6552)

First, the number of affected small businesses for the land development and real estate industry is estimated. As shown in **Table 22**, the following calculations are used to arrive at this estimate:

- **Estimate the annual number of businesses within the study area affected by section 7 implementation (assumed to be equal to the number of annual consultations).** Thirty-eight formal consultations are estimated annually for USACE projects that are likely to affect businesses in the land development and real estate industry (866 total consultations over 23 years).
- **Calculate the percent of businesses in the affected industry that are likely to be small.** This is calculated by dividing the total number of small businesses in the study area for the SIC code (using the annual sales thresholds from the Small Business Administration described in the previous section) by the total number of businesses in the study area that fall under the same SIC code.⁸³ The analysis shows that 89 percent of the land development and real estate (SIC 6552) businesses within the study area are small.

⁸³ Dun Market Identifiers, File 516: Dun and Bradstreet, February 2003.

- 3646 • **Calculate the *number of affected small businesses*.** This is calculated by multiplying the percent of small businesses in the affected industry by the total number of annual consultations. According to this calculation, 34 small businesses in the land development and real estate industry are expected to be affected annually.

- 3651 • **Calculate the *percent of small businesses likely to be affected by CH*.** This is done by dividing the number of affected small businesses by the total number of small businesses in the study area. This analysis reveals that approximately one percent of all the small businesses in the study area for the land development and real estate industry are likely to be affected by gnatcatcher consultation activities.

3656 **Activities of the Army Corps of Engineers and Effects on Small Governments**

First, the number of affected small governments in the study area is estimated.⁸⁴ As shown in **Table 23**, the following calculations are used to arrive at this estimate:

- 3661 • **Estimate the annual number of governments within the study area affected by section 7 implementation (assumed to be equal to the annual number of consultations).** Five formal consultations are estimated annually for USACE activities that would involve government entities in the study area.

- 3666 • **Calculate the percent of governments in the study area that are likely to be small.** This is calculated by dividing the number of small governments by the total number of governments in the study area. The analysis shows that 32 percent of the governments within the study area are small.

- 3671 • **Calculate the *number of affected small governments in the study area*.** This is calculated by multiplying the percent of small governments by the total number of annual consultations. This analysis shows that less than 1.5 unique small government(s) in the study area are affected annually.

⁸⁴ Population count for the study area was obtained from California County Profiles – A Companion to the 2000 California Statistical Abstract, California Department of Finance, 2002. All cities and counties within the study area that have a total population less than or equal to 50,000 persons was considered small (according to Small Business Administration guidelines).

- **Calculate the percent of small governments likely to be affected by CH.** This is done by dividing the number of affected small governments in the study area by the total number of small governments in the study area. This analysis reveals that six percent of the small governments in the study area are likely to be affected by gnatcatcher consultation activities.

ESTIMATED EFFECTS ON SMALL ENTITIES

Activities of USACE and Effects on the Land Development and Real Estate Industry (SIC 6552)

As concluded in the previous section, less than one percent of small businesses (12 businesses) in the land development and real estate industry in the study area is expected to be affected by section 7 consultation activities. Costs of CHD to small businesses consist of the administrative cost of participating in section 7 consultations and the cost of project modifications. To be conservative, this analysis assumes that the small businesses undertaking future development projects own the land that is to be developed. In other words, a developer will bear all the costs involved in a consultation including on-site mitigation cost in the form of a reduced land value. In reality, however, a developer may purchase raw land from an individual landowner at a reduced price due to the costs (actual or perceived) associated with the designation. In this case, potential mitigation costs would likely be reflected in the selling price of the land, and therefore be incurred by the landowner.

In order to estimate the level of effect the designation may have on the 12 affected small businesses in the land development and real estate industry, this analysis calculates a per-business annual gross revenue of the affected small businesses in the industry and compares the cost to per-business cost of engaging in section 7 consultation. Steps taken to arrive at the estimate are described below and summarized in **Table 24**:

- **Calculate the per-business revenue.** As discussed in **Chapter III**, each of the future private land development projects in the study area is assumed to be 300 acres in size. This analysis makes the conservative assumption that an affected small business undertakes only one development project at a given time. As such,

gross annual revenue of an affected small business is calculated by dividing the total revenue generated by selling a 300-acre parcel of developed land by the number of years taken to complete the project (see **Table 24** for the illustration and details of the calculation). This calculation yields an average annual per-business gross revenue of approximately \$67 million for the entire land development and real estate industry. Despite the conservative assumption made, this annual gross revenue is \$61 million higher than the small business threshold of \$6 million for the industry. This illustrates the reality that a small business is not likely to undertake a project of such magnitude. As shown in **Table 24** (“Proposed,” column 2), this analysis assumes that project size is proportional to annual gross revenue, and that small businesses with revenues of \$6 million will be associated with projects around 27 acres in size.

- **Calculate the per-business cost.** This consists of third-party administrative and project modification costs of participating in a section 7 consultation. The average per-business cost for the entire land development and real estate industry is calculated by dividing the total consultation and project modification costs for future private development projects (**Table 3**) by the total number of consultations. As shown in **Table 24** (“Proposed,” column 1), this calculation yields a per-business cost of approximately \$990,000. Although project modification costs will vary across regions due to differences in land values, average project modification cost is used to derive the per-business cost because this section examines impact on small businesses in the entire study area. As shown in **Table 24** (“Proposed,” column 2), the estimated per-business cost for businesses with annual revenues of \$6 million or less (and therefore defined as “small”) is approximately \$88,000, because project size is also assumed to be proportional to section 7 consultation costs.⁸⁵

⁸⁵ As shown in Table 1, the majority of section 7-related costs for private land development projects come from project modifications involve setting aside on-site and purchasing off-site mitigation land, and these mitigation measures are directly correlated to project size.

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- **Estimate the level of effect on small businesses.** This is calculated by taking the per-business cost and dividing it by the per-business revenue. As presented in **Table 25** (“Proposed”), this calculation estimates an impact equivalent to approximately 1.5 percent (1.5%) of the annual per-business revenue for the affected small businesses in the industry.

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Activities of the Army Corps of Engineers, and Effects on Small Governments

As concluded in the previous section, approximately six percent of small governments in the study area are estimated to be affected by section 7 consultation activities. Costs of CHD to small governments are expected to be limited to the administrative costs of participating in section 7 consultations, because private developers are likely to bear the cost of project modifications. The following steps describe the methodology used to estimate the effect of section 7 consultation activities on directly affected small governments in the study area (see **Table 23**):

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- **Calculate the per-government costs.** This consists of the cost to a third party of participating in a section 7 consultation. The average per-government cost of participating in section 7 consultations for future development projects is estimated to be approximately \$3,500. This estimate is derived by dividing total consultation costs for the small governments by the total number of consultations.
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- **Determine the per-government revenue for the small governments in the study area.** This is derived by listing the revenues of all 24 small governments in the study area in ascending order and taking the mid-point—i.e., the median.⁸⁶
- 3761
- **Estimate the level of effect on small governments.** This is calculated by taking the per-government cost and dividing it by the median revenue to determine the percent of revenue represented by the per-government cost of a consultation. As presented in **Table 25**, small governments are likely to experience impacts equal to less than one percent of their median revenue.

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⁸⁶ The 24 small governments in the study area have a wide range of revenue from \$1 million to \$75 million. Because the specifics of small governments likely to be affected by future section 7 consultation activities are unknown, the analysis uses the median to represent the per-government revenue.

Table 25
Estimated Annual Effects on Small Governments

Median revenue of all affected small governments ^[1]	\$16,800,428
Per-government cost	\$3,500
Per-government effect (per-government cost/median revenue)	0.02%

[1] The median is calculated based on 1999 Cities Annual Report, California State Controller, and City of Rancho Santa Margarita Financial Transactions Report accessed at http://www.cityofrsm.org/rsm_website/citiesfinanrpt.asp, March 2003. These are represented in 2002 dollars.

SUMMARY

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Section 7 implementations for the gnatcatcher are likely to affect small businesses in the land development and real estate industry (SIC 6552) as well as small governments in the study area. According to the calculations above, about 34 small businesses in the land development and real estate industry would be affected annually, which
3776 represents approximately one percent of the total number of small businesses in the industry for the study area. These affected small businesses are likely to experience impacts equivalent to about 1.5 percent of their per-business annual gross revenue. For the small governments in the study area, approximately 1.5 agencies are likely to be affected annually, which represent about six percent of the total number of small
3781 governments in the study area. Affected small governments are likely to experience impacts equivalent to less than one percent of the median revenue of small governments in the study area.

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Finally, as shown in **Tables 23** through **25** (“Proposed & Excluded” column), CHD in areas currently proposed for exclusion would annually impact seventeen (17) additional small businesses in the land development and real estate industries, or 51 small businesses affected in total. This analysis estimates that each of these 51 small businesses would experience an economic effect equal to approximately one percent of its annual gross revenue. This estimate is approximately two-thirds of the per-business impact estimated for the small businesses within proposed critical habitat alone.⁸⁷ For the small governments, approximately two additional agencies are likely to be affected annually, or 7 total small governments each year. However, the level of impact on affected small governments is estimated to remain the same.

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⁸⁷ Although a reduced impact may be counterintuitive given an increase in the assumed size of the designation, this result can be explained by the fact that the relative increase in annual affected small entities (18 vs. 12, or a 50 percent increase) is greater than the relative increase in total private development project modification costs (\$748 million vs. \$727 million, or a 3 percent increase). A greater total cost is therefore allocated among an even greater number of businesses, resulting in a smaller estimated per-business cost.

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VII. ENERGY IMPACT ANALYSIS

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Pursuant to Executive Order No. 13211, “Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use,” issued May 18, 2001, Federal agencies must prepare and submit a “Statement of Energy Effects” for all “significant energy actions.” The purpose of this requirement is to ensure that all Federal agencies “appropriately weigh and consider the effects of the Federal Government’s regulations on the supply, distribution, and use of energy.”⁸⁸ The Office of Management and Budget has provided guidance for implementing this executive order that outlines nine outcomes that may constitute “a significant adverse effect” when compared without the regulatory action under consideration:

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- Reductions in crude oil supply in excess of 10,000 barrels per day;
- Reductions in fuel production in excess of 4,000 barrels per day;
- Reductions in coal production in excess of 5 million tons per year;
- 3811 • Reductions in natural gas production in excess of 25 million mcf
- Reductions in electricity production in excess of 1 billion kilowatt-hours per year or in excess of 500 megawatts of installed capacity;
- Increases in energy use required by the regulatory action that exceed the thresholds above;
- 3816 • Increases in the cost of energy production in excess of one percent;
- Increases in the cost of energy distribution in excess of one percent; or
- Other similarly adverse outcomes.⁸⁹
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Research conducted during the course of this analysis did not reveal any instances in which the proposed designation was anticipated to affect the construction of any new power-generating facilities, or the operation of any existing facilities. Furthermore, the proposed designation is not expected to affect crude oil supply or increases in energy use. This analysis therefore concludes that the effects of the proposed designation on

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Memorandum For Heads of Executive Department Agencies, and Independent Regulatory Agencies, Guidance For Implementing E.O. 13211, – 01-27, Office of Management and Budget, July 13, 2001, <http://www.whitehouse.gov/omb/memoranda/m01-27.html>

⁸⁹

Id.

3826 the energy industry will be limited to increases in the cost of delivering energy to end
users due to additional costs incurred through the section 7 consultation process. The
proposed designation is not expected to affect energy production, use, or supply. As a
result, only one screening criterion is relevant to this energy impact analysis – potential
increases in the cost of energy distribution in excess of one percent. Below, we analyze
3831 whether the electricity and natural gas industries are likely to experience “a significant
adverse effect” as a result of section 7 implementation for the gnatcatcher.

SECTION 7 EFFECT ON ENERGY DISTRIBUTION COSTS

3836 *The annualized section 7 costs borne by the energy industry within proposed CH represent 0.14
percent of annual distribution costs, which is well below the one-percent significance threshold
established by the OMB. This analysis therefore concludes that section 7 regulation under the
proposed designation will not result in a “significant adverse effect” to the energy industry.*

3841 This section evaluates whether the estimated section 7 administrative and project
modification costs that will be borne by the energy industry represent greater than one
percent of current energy distribution costs. The estimated administrative and project
modification costs for agencies involved with municipal power supply are summarized
3846 in **Table 3**; project modification costs are calculated in **Appendix G**. This section
compares these costs (on an annualized basis) to expenses incurred by the energy

industry to operate, maintain, and improve its gas and electric distribution systems in
2001 to determine whether the one percent “significance threshold” has been exceeded.
A summary of data sources and calculations is shown in **Table 26**.

3851 As described in **Chapter IV**, this analysis identifies three regional energy companies
with future projects that will likely require section 7 consultation – SCE, SDG&E, and
SCGC. Regional electricity supply is delivered by SDG&E (San Diego County) and SCE
(remainder of proposed critical habitat area); regional natural gas supply is delivered by
3856 SDG&E (San Diego County) and the SCGC (remainder of proposed critical habitat area).

As shown in **Table 3**, this analysis estimates that these three companies will incur section 7 administrative and project modification costs of approximately \$12 million through 2025. This is equivalent to an annualized cost of approximately \$1 million over 23 years, assuming a discount rate of 7 percent.

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To estimate annual distribution costs, EPS obtained General Rate Case applications submitted by each of the three companies to the California Public Utilities Commission (CPUC) in 2002. The CPUC is responsible for authorizing utility rate increases, which it evaluates on the basis of cost/revenue data and projections submitted by each utility company in its General Rate Case application. According to CPUC staff, the most recent applications were submitted in 2002, and contain official company statements of 2001 O&M and annual capital improvement expenditures made to support the gas/electric distribution system(s). As summarized in **Table 26**, total distribution costs for these three companies in 2001 were approximately \$754 million.⁹⁰

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Based on the annual distribution costs described above, section 7 regulation following the proposed designation would have to result in costs to the energy industry greater than \$7.54 million per year for the impact to be considered a “significant adverse effect.” As described above, the estimated annualized cost of the proposed designation on the energy industry is approximately \$1.5 million – or 14 percent of the significance threshold based on distribution costs. This analysis therefore concludes that the proposed designation of critical habitat for the gnatcatcher will not result in a significant adverse effect on the energy industry.

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⁹⁰This includes approximately \$390 million in capital improvement costs incurred in 2001 to support the energy distribution system(s). EPS was unable to find any historical information to estimate average annual capital improvement costs, so these values are assumed to be representative. The CPUC – the state agency responsible for regulating energy rates – instructed EPS to use these figures, which represent official submittals by the energy companies to support their rate increase applications.

Table 26
Energy Impact Analysis Summary

Item/Value	Electricity		Natural Gas		Total
	SCE	SDG&E	SCGC	SDG&E	
Distribution Costs (2001):					
O&M Costs (1)	218,821,000	\$53,152,000	\$82,532,000	\$9,964,000	\$364,469,000
<u>Annual Capital Improvements (1)</u>	N/A	<u>\$237,557,000</u>	<u>\$127,438,000</u>	<u>\$24,879,000</u>	<u>\$389,874,000</u>
Total Distribution Costs	218,821,000	\$290,709,000	\$209,970,000	\$34,843,000	\$754,343,000
Estimated threshold for a "Significant Adverse Effect:" (2)		--	--	--	\$7,543,430
Estimated Impact of Designation (3)	--	--	--	--	\$11,588,000
Annualized Impact (4)	--	--	--	--	\$1,028,017
Annualized Impact as Percent of Distribution Costs					0.14%
Annualized Impact as Percent of Significance Threshold:		--	--	--	14%

(1) From General Rate Case Applications to the California Public Utilities Commission (Application numbers 02-05-004 [SCE], 02-12-027 [SCGC], and 02-12-028 [SDG&E]) filed in 2002, based on 2001 data.

These include only those costs related to operating, maintaining, and construction the energy distribution system.

(2) A "significant adverse effect" is defined as a increase in the cost of energy distribution in excess of one percent.

(3) From Table 3.

(4) Represents the annual amount that is equivalent to the total impact estimate, when distributed over a 23-year period assuming a 7% discount rate. and assuming a 7% discount rate.

SCE -- Southern California Edison

SDG&E -- San Diego Gas & Electric

SCGC -- Southern California Gas Company

VIII. UNFUNDED MANDATES ANALYSIS

3886 Title II of the UMRA of 1995 requires Federal agencies to assess the effects of their
regulatory actions on State, local, and tribal governments and the private sector. Under
section 202 of the UMRA, the Service must prepare a written statement, including a
cost-benefit analysis, for significant regulatory actions that include a Federal mandate
resulting in the expenditure by State, local, and tribal governments, in the aggregate, or
by the private sector, of \$100 million or more in any one year.⁹¹ Federal rules are
3891 exempt from the UMRA requirements if: (1) the rule implements requirements
specifically set forth in law; or (2) compliance with the rule is voluntary for State and
local governmental entities. Although CHD is required by the Act, the Secretary has
discretion in designating specific geographic areas. Therefore, these two criteria are not
met.

3896 If a written statement is needed, section 205 of UMRA requires the Service to identify
and consider a reasonable number of regulatory alternatives.⁹² The Service must adopt
the least costly, most cost-effective or least burdensome alternative that achieves the
objectives of the rule, unless the Secretary publishes an explanation why that alternative
3901 was not adopted. These requirements apply to both proposed and final rules.

This analysis first determines whether a written statement is required, based on the
criteria set forth by UMRA. If such a statement is needed, section 202 of UMRA
provides specific direction regarding the contents of the cost-benefit analysis that must
3906 accompany such a statement.⁹³ This analysis describes and discusses each of the types
of costs that must be addressed.

⁹¹ 2 USC 1532.

⁹² UMRA includes several other requirements that may pertain to this rulemaking. Section 203 requires the Service to develop a Small Government Agency Plan for any rule that may significantly or uniquely affect small governments, regardless of whether the rule exceeds the \$100 million thresholds (i.e., thresholds for governments or the public sector) (2 USC 1533). In addition, section 204 requires the Service to develop an effective process that allows for meaningful and timely input during regulatory development by State, local, and tribal governments (2 USC 1534). The Service's compliance with these requirements is addressed separately from this analysis.

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2 USC 1532.

Significant Regulatory Action Under UMRA

3911 As shown in **Table 27**, the total estimated section 7 cost for State, local, and tribal
governments is approximately \$89 million. This estimate includes section 7 project
modification and administrative costs for all public projects, except regional utility
projects (e.g., water, power, etc.).⁹⁴ The total estimated section 7 cost for the private
3916 sector is approximately \$826 million, which includes project modification,
administrative, delay, and uncertainty costs for all private development projects, as well
as project modification and administrative costs for regional utility projects.

Annualized costs are estimated to be approximately \$7.9 million for State, local, and
tribal governments, and approximately \$112 million for the private sector in the first
3921 year following CHD. In general, this analysis relies on annualized expenditures instead
of a multi-year series of costs because most costs estimated in this document are
uncertain with regard to timing; one exception, however, are delay costs, which are
expected to occur entirely in Year 1.⁹⁵ In order to estimate the maximum single-year
annualized private sector expenditures, this analysis used cost estimates for Year 1,
3926 which include annualized costs for cost categories other than delay (\$106.4 million),
plus the full delay cost estimate (\$5.7 million).

Based on the criteria set forth by UMRA, CHD for the gnatcatcher may result in
expenditures by the private sector of more than \$100 million annually. Therefore, a
3931 written statement is required.

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Although the analysis categorized regional utility projects as “public” projects due to the public-nature of utility infrastructure provision (as opposed to private real estate development), the majority of large utility companies addressed in this report (e.g., MWD, SDG&E, SCE, and SCGC) are privately held companies. Section 7 costs are therefore appropriately attributable to the private sector.

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Had it been possible to determine the year in which consultations and associated project modifications would take place, the annualized expenditure method would not be necessary. The actual costs are likely to vary unevenly from year to year, as fiscal and market conditions change, with some years receiving a greater share of the costs than others.

Table 27
Unfunded Mandates Reform Act (UMRA) Calculation Summary

Measure	Non-Federal Governments (1)	Private Sector (2)
Total Cost	\$88,796,900	\$826,540,600
<u>Requirement for Written UMRA Statement (3)</u>		
Annualized Cost (4)	\$7,877,500	\$112,029,100
Percent of \$100M Threshold	8%	112%
<u>Effect on State/National Economy (5)</u>		
Percent of National GDP (6)	0.001%	0.008%
Percent of California GSP (7)	0.01%	0.06%
Percent of GSP, State & Local Gov't (8)	0.08%	--
Percent of GSP, Private Industries (9)	--	0.07%

(1) Includes project modification and administrative costs for all public projects, except regional utility (e.g., water, power) projects.

(2) Includes project modification, administrative, delay, and uncertainty costs for all private development projects, plus project modification and administrative costs for regional infrastructure projects.

(3) UMRA guidelines require that a written statement be prepared if aggregate expenditures by State, local, or tribal governments, or expenditures by the private sector, in any one year exceed \$100 million.

(4) Assumes a discount rate of 7 percent for non-Federal governments and 12 percent for the private sector. For the private sector, the 'Max. Year Annualized Cost' was calculated by (a) calculating the annualized cost of all private sector costs minus delay costs, and (b) adding the full delay cost to the annualized subtotal in (a). This calculation reflects an estimate of annualized costs in Year 1, which is expected to be the most expensive year for the private sector because all delay costs are experienced in this year.

(5) Evaluates the estimated Total Costs of the proposed rule relative to leading State and National economic indicators.

(6) The FY 2002 National GDP was \$10,446.2 billion, as reported by the U.S. Bureau of Economic Analysis (BEA).

(7) The FY 2000 California Gross State Product (GSP) was \$1,344.623 billion, as reported by the BEA.

(8) The FY 2000 GSP for State and local governments was \$109.023 billion, as reported by the BEA.

(9) The FY 2000 GSP for private industries was \$1,203.513 billion, as reported by the BEA.

Sources: Economic & Planning Systems; Bureau of Economic Analysis

Written Statement Requirements

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Section 202 of UMRA provides a list of the items that must be included in the written statement accompanying the rule. The components of the written statement must:

- I. Identify the authorizing legislation;
- 3941 II. Provide a qualitative and quantitative analysis of costs and benefits, including the impacts on State, local, and tribal governments and on the private sector, and the impacts on health, safety, and the environment;
- 3946 III. Estimate, to the extent possible, future compliance costs and disproportionate budgetary effects on particular geographic regions or types of entities;
- IV. Discuss effects on the national economy (e.g., effects on productivity, economic growth, full employment, creation of productive jobs, and international competitiveness); and,
- V. Describe the Service's consultations with elected officials.

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This purpose of the remainder of this section is to provide the Service with the economic information required to complete a written statement under UMRA. This section is not meant to be the actual statement, nor does it provide information on all of the issues (e.g., information about the Service's consideration of comments provided by State, local, or tribal governments) that must be addressed by the Service.

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1. Authorizing Legislation. Section 4(a)(3)(A) of the Act requires the Secretary, to the extent prudent and determinable, to designate critical habitat at the time the species is listed. Section 4(b)(2) requires CHDs to be made on the basis of the best

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scientific evidence available, taking into consideration the economic impact of the designation and any other relevant impacts.⁹⁶

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2. Costs and Benefits. The costs associated with the proposed designation of critical habitat for the gnatcatcher are described in the executive summary, as well as **Chapters III** through **V**. **Chapter III** and **Chapter V** focus on the effects on private landowners, the group that is likely to experience the majority of the impact from this designation. **Chapter IV** provides detailed information about impacts to public sector entities. The benefits of the designation are addressed qualitatively, in **Chapter VIII**. Impacts to health, safety, and the environment are beyond the scope of this analysis and will be addressed by the Service.

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UMRA also requires an analysis of the extent to which the costs to State, local, and tribal governments may be paid with Federal assistance.⁹⁷ **[placeholder - FWS to provide information about financial assistance options for governments]**

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3. Compliance costs and disproportionate budgetary effects. The magnitude and likelihood of compliance costs resulting from the designation are discussed extensively in **Chapters III** and **IV**. These costs are presented by region and by agency in the Executive Summary. In addition, **Chapter VI** examines the distributional impacts to small entities, and **Chapter VII** considers the effects of the designation on the energy industry.

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4. Effect on the national economy. UMRA directs the Service to consider the effect of the proposed gnatcatcher designation on the national economy (i.e., the macroeconomic effects of the rule). According to OMB, economic impacts of less than 0.25 to 0.5 percent of the Gross Domestic Product (GDP) are unlikely to result in measurable effects to the national economy, unless the effects are focused on a particular geographic region or economic sector.⁹⁸ As shown in **Table 27**, the total

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⁹⁶ 16 USC 1533.

⁹⁷ 2 USC 1532.

⁹⁸ Sally Katz, Administrator, Office of Information and Regulatory Affairs, Office of Management and Budget, Memorandum: Guidance for Implementing Title II of S.1., March 31, 1995.

estimated section 7 costs for State, local, and tribal governments represent approximately 0.001 percent of the National GDP, and estimated costs for the private sector represent approximately 0.008 percent of the National GDP.

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To evaluate the effect of the proposed rule on sub-regions or distinct economic sectors, this analysis also compared estimated section 7 costs to the total California Gross State Product (GSP), as well as the “State and Local Government” and “Private Industries” GSP industry segments. As shown in **Table 27**, this analysis revealed that total section 7 costs within both the State/ local/ tribal and private sector categories represent less than 0.08 percent of all economic indicators. Because these percentages fall well below the 0.25 to 0.5 percent threshold recommended by the OMB, this analysis concludes that the proposed designation will not result in a significant effect on the national economy, or on a particular geographic region or economic sector.

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5. Consultations with elected officials. The consultations with representatives of State, local, and tribal governments will be described in greater detail by the Service.

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XI. POTENTIAL BENEFITS OF PROPOSED CRITICAL HABITAT

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The published economics literature has documented that real social welfare benefits can result from the conservation and recovery of endangered and threatened species (Bishop (1978, 1980), Brookshire and Eubanks (1983), Boyle and Bishop (1986), Hageman (1985), Samples *et al.* (1986), Stoll and Johnson (1984)). Such benefits have also been ascribed to preservation of open space and biodiversity, both of which are associated with species conservation (see examples in Pearce and Moran (1994) and Fausold and Lilieholm (1999)). Likewise, regional economies and communities can benefit from the preservation of healthy populations of endangered and threatened species, and the habitat on which these species depend (ECONorthwest [2002]).

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However, a purpose of the Act is to provide for the conservation of endangered and threatened species. Thus, the benefits of actions taken under the Act are primarily measured in terms of the value placed by the public on species preservation (e.g., avoidance of extinction, and/or an increase in a species' population). Such social welfare values may reflect both use and non-use (i.e., existence) values. For example, use values might include the potential for recreational use of a species (e.g., bird viewing opportunities) should recovery be achieved. Non-use values are not derived from direct use of the species, but instead reflect the utility the public derives from knowledge that a species continues to exist.

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In addition, as a result of actions taken to preserve endangered and threatened species, various other benefits may accrue to the public. Such benefits may be a direct result of modifications to projects made following section 7 consultation, or may be collateral to such actions. For example, a section 7 consultation may result in the conservation of buffer strips along streams, in order to reduce sedimentation due to construction activities. A reduction in sediment load may directly benefit water quality, while the presence of buffer strips may also provide the collateral benefits of preserving habitat for terrestrial species and enhancing nearby residential property values (e.g., preservation of open space).

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4046 The remainder of this chapter describes the categories of benefits resulting from
implementation of section 7 of the Act in the context of areas affected by the proposed
designated. First, it qualitatively describes the types of benefits likely to result from
section 7 protections. Then, it addresses both the benefits associated with species
preservation as well as habitat protection.

4051 As discussed below, it is not feasible to fully describe and accurately monetize the
benefits of this designation in the context of this economic analysis. The discussion
presented in this report provides insight into the potential benefits of the designation
based on information obtained in the course of developing the economic analysis. It
4056 is not intended to provide a complete analysis of the benefits that could result from
section 7 of the Act. *Given these limitations, the Service believes that the benefits of critical
habitat designation are best expressed in biological terms that can be weighed against the
expected cost impacts of the rulemaking.*

4061 **Categories of Benefits**

Implementation of section 7 of the Act is expected to substantially increase the
probability of conservation for the gnatcatcher. Such implementation includes both the
jeopardy provisions afforded by the listing as well as the adverse modification
4066 provisions provided by the designation. Specifically, the section 7 consultations that
address the gnatcatcher will assure that actions taken by Federal agencies do not
jeopardize the continued existence of the species or adversely modify its habitat. Note
that these measures are separate and distinct from the section 9 "take" provisions of the
Act, which also provide protection to this species.

4071 The benefits of critical habitat designation can therefore be placed into two broad
categories: (1) those associated with the primary goal of species conservation and (2)
those that derive mainly from the habitat protection required to achieve this primary
goal. In the case of the gnatcatcher, habitat is generally restricted to coastal southern
4076 California and typically occurs in or near coastal sage scrub (CSS), which is a broad

category of vegetation that includes a variety of sage scrub communities.⁹⁹ Environmental benefits associated with recovery of the gnatcatcher and protection of its habitat may include:

- 4081 • **Preservation of open space** resulting from acquisition of mitigation lands;
- **Improved stability of native flora/fauna communities** resulting from removal of exotic species among coastal sage scrub habitat;
- 4086 • **Decreased habitat loss** resulting from habitat protection, restoration, and enhancement projects including revegetation; and
- **Improved quality and decreased destruction of coastal sage scrub habitat** resulting from restoration activity on marginal coastal sage scrub habitat
- 4091 acres.

4096 **Table 28** details those activities expected to generate section 7 consultations leading to project modifications associated with the proposed critical habitat for the gnatcatcher, organized by the category of physical/biological improvement expected to result from the project modification. For example, of the approximately 311 formal consultations anticipated, it is expected that the majority of these will result in project modifications providing for decreased habitat loss. These ecological and environmental benefits are expected to result from consultations regarding private development, transportation projects, utility projects, and Federal land management

4101 spread across the 13 proposed critical habitat units.

⁹⁹ Refer to the Proposed Rule for a detailed description of each type of sage scrub community

Table 28
Physical/Biological Improvements Expected to Result from Implementation of Section 7 of the Act

	Physical/Biological Improvement	Land Use Activity	Expected Project Modification	Critical Habitat Units	Number of Expected Consultations with project modifications^a
4106	Restoration of CSS habitat	Private Development	On-site set-aside	Unit 1	33916145850446710000
	Decreased habitat loss for gnatcatcher		Off-site preservation	Unit 2	
4111	Improved survival rates of gnatcatcher	Transportation Projects	Restoration of CSS habitat	Unit 3	
	Preservation of open space	Utility Projects/ O&M	Timing restrictions (e.g., construction outside breeding season)	Unit 4	
	Improved survival for other species found within gnatcatcher habitat			Unit 5	
4116	Improved stability of native flora/ fauna communities	Federal Land Management	Biological monitoring & construction practices (surveys, fencing, etc.)	Unit 6	
			Shield lighting away from habitat	Unit 7	
	Increased public awareness		Landscape with native vegetation	Unit 8	
			Education programs (employee & public)	Unit 9	
			Cowbird trapping program	Unit 10	
				Unit 11	
				Unit 12	
4121	Decreased habitat loss	Federal Land Management	Protecting CSS habitat during prescribed burns	Unit 13	253
	Expansion of coastal sage scrub habitat (post-burn re-colonization)				

4126 ^a This analysis assumes that any benefits from section 7 of the Act stem from the application of project modifications. Therefore, this analysis assumes that the projected number of consultations recommending project modifications most accurately represents the level of protection the gnatcatcher may receive as a result of section 7 implementation.

4131 The physical/biological improvements implied by **Table 28** may in turn provide for a
variety of economic benefits. For example, the conservation of open space in areas
previously planned for development may enhance the value of property located outside
of critical habitat and adjacent to the open space. The discussion below provides
4136 qualitative descriptions of the economic benefits associated with these environmental
improvements. While it is possible to estimate the number of projects that will generate
consultations requiring project modifications, as well as the number of acres set aside as
project mitigation, existing data do not allow for complete monetization of the
ecological or economic implications of these modifications.

Benefits Associated with Species Conservation

4141 The primary benefit of designating critical habitat is to increase the chance of
conservation for the gnatcatcher. Quantifying the benefits associated with improved
chance of conservation requires an assessment of the public's value for the designation
of critical habitat for species such as the gnatcatcher. This may include both a use and
non-use (i.e., existence value) component.

4146 Use Value

The value that the public holds for conservation of the gnatcatcher and its habitat may
include a direct use component related to viewing opportunities. Some bird species are
sought by recreational bird watchers. Thus, individuals may value species preservation
4151 to the extent that it increases the probability of future sightings. When large numbers of
birding enthusiasts visit an area to see one or more species, the regional economy can
also benefit (Manion et al., 2000). Several economic studies have considered the
economic benefit that accrues to birdwatchers. However, data do not exist to allow for
estimation of the number of additional bird viewing trips, or improved trips, that will
4156 result from actions taken to protect the gnatcatcher under section 7. Thus, it is not
possible to monetize this category of benefit.

Existence Value

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Existence value reflects the utility the public derives from knowledge that a species continues to exist. A number of published studies have demonstrated that the public holds values for endangered and threatened species separate and distinct from any expected direct use of these species (i.e. willingness to pay to simply ensure that a species will continue to exist). These studies include Boyle and Bishop (1987), Elkstrand and Loomis (1998), Kotchen and Reiling (2000), and Loomis and White (1996). There is little doubt that the gnatcatcher provides intrinsic values, and that these values will be enhanced by its survival and conservation.

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This analysis attempts to assess the benefits of protections afforded the gnatcatcher as a result of designating an additional unit of critical habitat. The existing economics literature does not provide quantitative estimates of these benefits. Instead, the data provided by the literature may be indicative of the value the public places on the protection of sensitive bird species in general, but do not represent the specific values sought by this economic analysis. To accurately quantify the existence value benefits for the gnatcatcher as described above would require information regarding the public's marginal willingness to pay for an incremental unit of critical habitat, in terms of the increased probability of conservation or increase in abundance of the species.

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Benefits Associated with Habitat Protection

Open Space Preservation and Real Estate Effects

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Section 7 consultations may result in less dense development and/or on-site set asides of land at a project site located within critical habitat. The portions of the site that might otherwise have been developed represent a cost of the designation. However, that cost in terms of development value foregone is off-set, to some degree, based on enhanced property value for homes located on larger lots or near open space. The net effect of on-site project modifications on land values is considered in **Chapter III**.

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Additional benefits of open space preservation are likely to result from off-site preservation. Section 7 applicants and third parties are sometimes advised to mitigate for developing habitat acres by purchasing a specified quantity of compensatory acres at an off-site location. For private development of CSS habitat, off-site mitigation usually includes purchase of credits at a private mitigation bank. Thus preservation of these acres represent a public benefit in terms of the value that the public places on the

4201 existence of undisturbed, open space. Off-site land preservation may also enhance
property values of homes located outside of critical habitat and near the mitigation
banks. As shown in **Table 10**, approximately 7,982 acres in unit 10 are expected to be
preserved off-site as a result of section 7 consultations.¹⁰⁰

4206 As noted in **Chapter III**, this report assumes that land mitigation set-asides will not
interfere with the demand for housing in the areas affected by critical habitat (i.e.,
development will not be precluded, but rather displaced). Therefore, it is possible that
displaced development attributable to critical habitat may result in (a) an increase in
development density elsewhere (i.e., a net gain in surplus associated with open space
preservation) or (b) an increase in low density development outside of critical habitat
(i.e., no net gain in surplus). To the extent that displaced development occurs in
existing urbanized areas or at higher densities, a net gain in open space may be
4211 realized. Where low density development is simply displaced to alternative locations
outside of critical habitat, no net gain in open space is expected.

4216 Various studies have documented the positive affect of environmental amenities,
including open space, on the value of nearby residential and commercial properties
(Thibodeau and Ostro (1981), Nelson (1985), Lacy (1990), Garrod and Willis (1992),
Bockstael (1996), Geoghegan (1998), Acharya and Bennet, 2001)). The enhancement of
real estate values depends on, among other things, the proximity of homes to open
space, the existing supply of conserved land, and local development pressure. Future
project modifications involving the purchase of off-site mitigation lands in and around
4221 the proposed critical habitat units are likely to occur in areas of significant development
pressure. Future residential and commercial growth in these areas will lead to a
reduction in the supply of open space within developing communities, which will likely
increase the value of existing and acquired open space, based on its relative scarcity.

4226 A review of the economics literature demonstrates that increasing the quantity of open
space (i.e., greenbelts, wetlands, wildlife corridors, and riparian areas) in a community
can lead to enhanced residential property values.¹⁰¹ To calculate the benefits of
additional open space, additional data are required. Fo example, as noted above, the
value of open space in a community depends upon a number of factors. Information on

¹⁰⁰ These figures do not include acres for which CSS mitigation is required due to baseline regulations other than section 7.

¹⁰¹ Furthermore, one study (Correll et al (1978)) found that by integrating open space into a housing development during the initial conceptual phase (i.e., purchased prior to construction), the positive effect on property values in the adjacent neighborhood is greater, than when land is acquired and conserved as an afterthought.

4231 the extent of existing open space in communities affected by the proposed critical
habitat would need to be compared with the existing levels of open space in
communities assessed by the hedonic literature. As discussed above, information is not
available regarding the extent of open space within the areas of the designation relative
to the extent of open space in areas outside of the proposed designation (i.e., locations
4236 that absorb the “displaced development” attributable to critical habitat). Various other
data would be required to make a defensible transfer of “open space value” as
identified in the literature to a community or neighborhood impacted by the
designation of critical habitat (e.g., median price of homes, available housing stock,
demand for housing, etc).

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Benefit to Other Species

The habitat protection measures recommended for the gnatcatcher generally encompass
stretches of CSS, which incidently provides ancillary benefits to other species that
4246 cohabit these areas throughout California. That is, protecting the primary constituent
elements for the gnatcatcher through future project modifications will lead to habitat
improvement benefits for other threatened and endangered flora and fauna. **Table 29**
provides a list of other species included in historic section 7 consultations with the
gnatcatcher and that are found in or around CSS habitat. Each one of these organisms
4251 may in turn provide some level of direct or indirect benefit to the public (e.g., existence
value) and/or local economies. Conservation recommendations that may benefit other
species include:

1. Exclusionary fencing, which restricts domestic pets from sensitive habitat areas;
- 4256 2. Redirecting of city lights to avoid illuminating habitat area for predators;
3. Timing restrictions to prevent land grading during breeding season (between
February 15 and August 15);
4. Cowbird trapping to capture and remove non-native, predator bird species
known to disturb the gnatcatcher and other sensitive bird species in coastal sage
4261 scrub habitat; and
5. Exotic species control which requires applicants to re-vegetate with native plant
communities and to eradicate nonnative species, thereby improving the stability
of native flora and fauna communities.¹⁰²

¹⁰² Non-native species that commonly threaten coastal sage scrub habitat include artichoke thistle (*Cynara cardunculus*), European annual grasses (e.g., *Bromus spp.*, *Avena spp.*, *Schismus spp.*), and mustards (e.g., *Brassica spp.*).

Table 29. Species Likely to Benefit From Coastal Sage Scrub Protection Measures Associated with Critical Habitat Designation for the Gnatcatcher

Riverside fairy shrimp	Orcutt's spineflower
Palos Verde Blue Butterfly	slender-homed spineflower
Delhi sands flower loving fly	Laguna Beach live-forever
Pacific pocket mouse	Santa Ana River woolly star
San Diego Thornmint	willowy monardella
San Diego ambrosia	spreading navarretia
Del Mar Manzanita	California Orcutt grass
San Jacinto Valley crownscale	Lyon's pentachaeta
Encinitas baccharis	Otay mesa mint
Thread-leaved brodieae	big-leaved crown beard
Vail Lake ceanothus	

These project modifications contribute generally to the maintenance of biodiversity and collectively act to protect CSS habitat. The purchase of mitigation lands (as described above) will also contribute to the preservation of this ecosystem. While these benefits can be described qualitatively, existing data are not available to monetize these changes.

Recreational Benefits

Protecting critical habitat for the gnatcatcher may result in preservation of habitat suitable for low-impact recreational uses, such as hiking, picnicking, and bird-watching. Project modifications involving the purchase of mitigation lands by residential developers sometimes allow for the limited trail use. In other circumstances, however, mitigation set-asides include fencing and restrict the development of recreational facilities (e.g., benches, picnic tables), thereby reducing potential recreational benefits. However, preservation of natural areas as parks or preserves for both species conservation and public enjoyment may provide public benefits. Monetization of these benefits, however, would require data on the number of additional trips or increased quality of trips resulting from the designation. Such data are not currently available.

Other Benefits

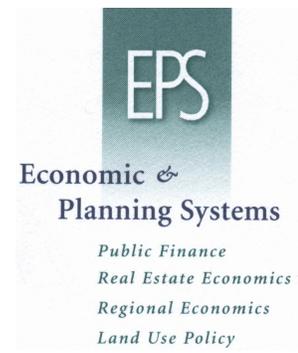
4301 Additional benefits of designating critical habitat for the gnatcatcher may include the
following:

Coastal Sage Scrub (CSS) Restoration. On-site restoration of otherwise degraded
4306 habitat may be recommended through section 7 consultation.¹⁰³ Frequently, CSS
restoration is associated with purchase of on-site mitigation lands in order to convert
marginal habitat into suitable habitat for the gnatcatcher and other species that depend
on CSS. Restoration of marginal habitat may represent a benefit to other species in
terms of improved possibility of conservation. Based on our analysis, approximately
4311 3,000 acres of on-site set-asides are expected to benefit from active restoration, primarily
in Units 8 through 13.

Educational/informational benefits. Both the gnatcatcher and other species that
inhabit CSS habitat will likely benefit from employee and public education programs
designed to improve understanding of how to protect these areas. To the extent that
4316 these educational programs improved best management practices (e.g., keeping
equipment staging areas out of the habitat, minimizing potential for spills, etc) and/or
increase awareness of issues related to habitat preservation and concern for endangered
species in general, species that inhabit other habitat types may also experience benefits.
At this time sufficient information does not exist to quantify or monetize these benefits.

4321

¹⁰³ Note that in some cases restoration is recommended to mitigate for “temporary project impacts” (i.e., excavation of CSS to install a pipeline and then revegetation after installation). This does not represent a net benefit to other species, because the species are no better off following restoration.



APPENDIX A

DEMOGRAPHIC PROJECTIONS AND METHODOLOGY

APPENDIX A: DEMOGRAPHIC PROJECTIONS AND METHODOLOGY

4331 The estimates for employment-related developed acres in the five SCAG counties
derive from three separate variables: (1) employment estimates (derived from SCAG
employment projections), (2) employee distribution among landuses (taken from SCAG
employment density report), and (3) employees per acre factor (taken from SCAG
employment density report).

4336 Employment estimates are based on the SCAG total employment projections by place of
work for 2000 and 2025.¹⁰⁴ The State of California Economic Development Department
(EDD) provides an estimate of the distribution of employment among industry
categories in 2000. Applying these percentages to the SCAG employment estimates at
the census tract level, provides an estimate of employment per industry category.
4341 **Appendix Table A-1** shows the distribution of employment by industry in each county.

Within each industry, the landuse requirements vary. SCAG provided a distribution of
landuses by industry in “Employment Density Study Summary Report” (October 31,
2001). **Appendix Table A-2** shows the distribution of landuses among the nine industry
4346 categories surveyed in the report. These industry categories match exactly with the
employment by industry estimates discussed above.

In “Employment Density Study Summary Report” (October 31, 2001), SCAG provides
an estimate for the number of employees per acre in each landuse category. As stated
4351 in the report, “the most appropriate factors are the regional employment density
factors.” Therefore, the weighted average regional factors were applied to each county,
rather than distinct county estimates. **Appendix Table A-3** shows the employment
densities employed for each land use category.

¹⁰⁴ SCAG provided employment estimates that combined industry classifications into Retail, Service, and Other. These broad categories did not correspond to the Employment Density report. By applying EDD percent of employment in each industry, EPS was able to create estimates for employment that were consistent with SCAG’s employment density report.

4356 By applying the employees per acre of landuse factor to the estimated number of
employees in each landuse, EPS arrived at an estimate for acres developed for
employment purposes in 2000 and 2025.

4361 EPS made an additional estimate for residential development based on common
residential development densities throughout California, as shown in **Appendix Table
A-4**. Combining the residential acreage and employment acreage estimates provided
the total developed land estimates.

4366 In heavily populated urban areas, landuse patterns differ from the surrounding county.
Agriculture and Open Space are not logically situated in urban areas. EPS assumed that
in the most heavily populated areas employment attributable to these landuses would
shift to the "All Other" landuses category.

Appendix Table A-1
Distribution of Employment by Industry in Each County

Industry	Riverside	San Bernardino	Los Angeles
Farming	3.73%	0.73%	0.19%
Mining	0.09%	0.13%	0.10%
Construction	10.08%	5.87%	3.21%
Manufacturing	11.45%	13.10%	15.37%
Transportation & Public Utilities	2.98%	6.73%	5.98%
Wholesale Trade	3.67%	5.72%	6.63%
Retail Trade	20.04%	19.50%	15.55%
Finance, Insurance, & Real Estate	3.22%	3.11%	5.64%
Service	26.71%	25.22%	33.08%
Government	18.03%	19.89%	14.25%
Total Employment	100.00%	100.00%	100.00%

Appendix Table A-2
Distribution of Employees per Land Use Category

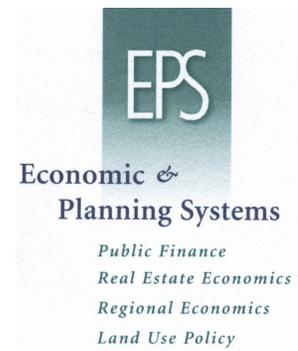
Land Use Category	Mining	Construction	Manufacturing	TCU	Wholesale Trade	Retail Trade	FIRE	Services	Government
Commercial									
1 Regional Retail	0%	0%	0%	0%	0%	4%	1%	1%	0%
2 Other Retail/Svc	11%	14%	8%	14%	14%	49%	27%	22%	11%
3 Low-Rise Office	10%	6%	5%	8%	9%	6%	19%	11%	11%
4 High-Rise Office	24%	2%	2%	3%	2%	2%	11%	5%	3%
5 Hotel/ Motel	1%	0%	0%	2%	1%	1%	2%	2%	0%
6 Misc. Commercial	0%	1%	0%	2%	1%	1%	1%	1%	3%
Industrial									
7 R&D/Flex Space	1%	1%	2%	1%	2%	1%	1%	1%	0%
8 Light Manufacturing	13%	27%	50%	22%	37%	7%	5%	9%	6%
9 Heavy Manufacturing	0%	0%	0%	0%	0%	0%	0%	0%	0%
10 Warehouse	1%	1%	5%	5%	5%	1%	0%	1%	0%
11 Misc. Industrial	6%	2%	1%	2%	2%	0%	0%	0%	1%
Public/Other									
12 Government Offices	0%	1%	1%	6%	0%	0%	1%	1%	25%
13 Primary/Secondary School	1%	1%	0%	0%	0%	1%	0%	4%	1%
14 Colleges and Universities	0%	0%	0%	0%	0%	0%	0%	1%	1%
15 Transportation	1%	1%	2%	9%	1%	1%	0%	1%	1%
16 Utilities	0%	1%	1%	1%	1%	0%	1%	0%	1%
17 Other Institutional	1%	1%	0%	1%	1%	1%	1%	2%	7%
18 Hospitals	0%	0%	0%	0%	0%	0%	1%	4%	0%
19 Agriculture	3%	1%	2%	1%	2%	1%	1%	1%	1%
20 Open Space	5%	6%	5%	5%	6%	5%	5%	6%	5%
21 All Other	9%	3%	4%	4%	3%	4%	4%	4%	11%
22 Residential	14%	32%	11%	13%	14%	16%	18%	23%	13%

**Appendix Table A-3
Employment Density per Land Use Category**

Land Use Category	Weighted Average
Commercial	
1 Regional Retail	19.71
2 Other Retail/Svc	21.98
3 Low-Rise Office	43.95
4 High-Rise Office	175.49
5 Hotel/ Motel	33.07
6 Misc. Commercial	13.4
Industrial	
7 R&D/Flex Space	20.53
8 Light Manufacturing	17.83
9 Heavy Manufacturing	31.14
10 Warehouse	11.4
11 Misc. Industrial	2.41
Public/Other	
12 Government Offices	51.67
13 Primary/Secondary School	5.65
14 Colleges and Universities	6.93
15 Transportation	4.88
16 Utilities	1.86
17 Other Institutional	15.2
18 Hospitals	37.7
19 Agriculture	0.34
20 Open Space	0.12
21 All Other	3.48
22 Residential	1.4

**Appendix Table A-4
Residential Development Density Assumptions**

Type	Units per Acre
Multi-Family Development	35
Single-Family Development	7



APPENDIX B
U.S. ARMY CORPS JURISDICTION ASSUMPTIONS,
METHODOLOGY, AND GIS ANALYSIS

SOURCE: ELLIS GEOSPATIAL

APPENDIX B: U.S. ARMY CORPS JURISDICTION ASSUMPTIONS, METHODOLOGY, AND GIS ANALYSIS

4386

GIS EVALUATION OF GNATCATCHER HABITAT UNITS, SCAG AND SANDAG

EXECUTIVE SUMMARY

Three major objectives were successfully completed across SCAG and SANDAG using GIS technology:

4391

- Determination of acreage and spatial relationships between habitat units (HU), census tracts, parks, and military bases
- Determination of probable extent of wetlands and waters within HUs

4396

- Impact of wetlands and “waters of the US” on 300- and 100-acre development tracts fully or partially within HUs

4401

The GIS analysis defined how much HU acreage was in each census tract and how much of the HU was covered with park and/or military. The analysis also provided statistics on the total amount of park and military within census tracts with HU. In addition, how much land was available for development (outside of HU, parks, and military) was also calculated to support the economic analysis.

4406

For those development tracts that intersect a HU, 69% of 300-acre tracts and 60% of 100-acre tracts will also intersect a Corps-defined, waters of the US. This is valid for large samples of tracts but the map derived in this study cannot be applied to individual tracts. The GIS models 2.74% of the HU area as covered with wetlands while 0.03% are covered with waters of the US.

4411 **INTRODUCTION**

GIS provided essential information on the spatial distribution and intersection of the various features of interest in SCAG and SANDAG. These features of interest included:

- Gnatcatcher HUs
- 4416 • Census Tracts
- Slope and Elevation
- Wetlands and Waters of the U.S.
- 300- and 100-Acre Development Tract Grids
- Parks and Military Bases

4421

The objectives of the GIS study included:

- Determining how much area HUs occupy in a Census Tract
- Determining how much Park and Military cover HUs in a Census Tract
- 4426 • Extrapolating the Corps of Engineers wetlands and “waters of the U.S.” findings from a Pilot Study in Riverside County to the rest of SCAG and SANDAG
- Documenting slope and elevation similarities and differences
- Evaluating the impact of Corps wetlands and waters of the US on 300- and 100-acre development tracts
- 4431 • Determining how much Park and Military acreage is within each Census Tract

DATA

The data used in the study were provided by EPS and Fish & Wildlife, Carlsbad office. These GIS layers were received in different map projections and datums - all the layers were georectified to UTM, NAD-27, Zone 11 and integrated into ESRI's premier natural resource software, ArcInfo, at HJW GeoSpatial in Oakland. The layers included:

4436

- Gnatcatcher HUs
- Census Tracts for SCAG and SANDAG
- California Blue Lines (drainage)
- 4441 • USGS Digital Elevation Models (DEM's) as 7.5' Quads
- Parks for SANDAG (downloaded from SANDAG's GIS - layer 14)

- Parks from Fish & Wildlife for SCAG
- Military Bases (with some parks) from MapInfo
- Corps of Engineers Pilot Study wetlands and Waters of the U.S., portions of
4446 Riverside County (see Lichvar and others, 2002)
- County Boundaries
- Color Landsat TM image of Southern California (30 m pixels - from HJW)
- 300 Acre and 100 Acre Grid (developed by HJW)

4451 Excel spreadsheets were supplied by EPS with 2000, 2025, and 2000-2025 change development statistics. These data were linked to the GIS census tract data as attributes.

METHODOLOGY

4456 GIS was used to integrate the mapping layers and development data across SANDAG and SCAG. Interactive manipulations were done to determine areas, intersections of lines with polygons and polygons with polygons between different layers, and relationship of different features to slope and elevation.

4461 ESRI's ArcInfo GIS was used for the vector (line and polygon) analysis while Leica's ERDAS image processing software was used for raster and grid (satellite imagery and DEM) analysis. The primary data analysis was done with UNIX servers and workstations. The GIS ArcInfo coverages were routinely transferred from the UNIX workstations to NT and XP systems for viewing with ESRI's ArcView 3.x software and integration with the Corps of Engineers Pilot Study in Riverside County that provided ArcView shapefiles of wetlands and waters of the U.S.

4466 As the data were being loaded, considerable time was spent on designing the analysis and formatting the data to answer the questions being posed by EPS. The study was largely focused on determining spatial relationships of different features (census tracts, parks, military bases, waters of the U.S., etc.) with HUs. During the conclusion of the
4471 study, however, more general questions were asked about the distribution of parks and military bases within census tracts that required modifying the established GIS work processes.

4476 The DEM's from the USGS were mosaicked and projected into UTM NAD-27. The
elevation model was sliced at 2500' to visually determine how much HU was above
2500' (Figure 1). The HUs were checked for integrity and reasonable shapes/locations
by superimposing them over an enhanced Landsat TM image of the SCAG and
4481 SANDAG area (Figure 2). The satellite image also was used effectively to check the
integrity and reasonable shapes/locations of parks and military bases and to evaluate
the accuracy of the California blue lines and the dense drainage network developed by
the Corps of Engineers in the Pilot Area.

4486 Park and military base polygons were obtained from different sources - duplication was
edited. SANDAG's parks were available via a download from their GIS site (layer 14) -
this layer was exceptionally accurate. SCAG's parks came in several layers from Fish &
Wildlife in Carlsbad, California. A MapInfo "Parks" layer contained mostly military
bases and proved very useful for the analysis of SANDAG (Figure 3).

4491 The different map layers had varying degrees of accuracy and precision (see Figure 4).
When the layers were superimposed, offsets and slivers could be seen along the
margins of some of the polygons. When layers were combined, these erroneous slivers
would become individual polygons that provided acreage amounts either in or out of
4496 the HU, park, or military base. To minimize the effect of slivers and reduce the number
of polygons, polygons with areas <0.1 acre were largely eliminated from the database
provided to EPS.

4501 Spatial dimensions (area and intersection) of overlapping polygons and lines could be
accurately calculated because all the GIS layers were in one map projection and datum,
the layers were relatively accurate, and the polygons and lines were correctly formatted
and attributed.

RESULTS

Three major objectives were successfully completed across SCAG and SANDAG using
GIS technology:

- 4506
- Determination of acreage and spatial relationships between HUs, census tracts,
parks, and military bases

Determination of probable extent of wetlands and waters within HUs

4511 Impact of wetlands and “waters of the US” on 300- and 100-acre development tracts
 fully or partially within HUs

Habitat Units in relation to Census Tracts, Parks, and Military Bases

4516 Polygons for census tracts, parks, and military were spatially layered with HUs to
 determine acreage amounts within overlap zones (Table 1). The initial calculation was
 to locate those census tracts that had HU acreage within their boundary and calculate
 the total HU acreage. Then we queried the GIS about the characteristics of the HU –
 was it covered by park (and by how many acres), was it covered by military (and by
 how many acres), and was it covered by both park and military (and by how many
 acres)? If the HU was *not* covered by park or military, the total HU acreage within the
4521 census tract was considered at risk.

4526 Toward the end of the analysis, the focus shifted from HU-centric queries to more
 general questions (Table 1). Queries were made about how much total park was in a
 census tract and how much of the census tract was not in park and available for
 development? If the census tract overlapped with military, the GIS was queried for
 how much military acreage was in the tract, how much military acreage was coincident
 with park acreage, and how much further was acreage available for development
 reduced due to military (Table 1 and Figure 4)?

4531

Table 1. Sample of GIS calculations derived from Census Tracts, HU, Parks, and Military Polygons

sand_hu_county_park3								
	A	B	C	D	E	F	G	H
1						Where Military Acreage in CT,		
2	highlighted a few	note: there are <i>NO</i> Census Tracts with Military				Reduced Acreage Available		
3	CT's with >1HU				Military acreage	for Development due to		Available for Development
4			Total Military	Total Military	coincident with	Military - (parks in	Total Park	Area of C.T.
5	CENSUS_TRA	COUNTY	covered by HU	in C.T.	Parks in C.T.	military subtracted out)	in C.T.	not in Park
6	100	San Diego					58.41	320.583624
7	100	San Diego					58.41	320.583624
8	200	San Diego					112.48	423.172144
9	200	San Diego					112.48	423.172144
198	9304	San Diego					1.16	1392.814180
199	9400	San Diego	183.166705	14846.05734	5181.605105	478.531662	5365.16	10142.983900
200	9400	San Diego	183.166705	14846.05734	5181.605105	478.531662	5365.16	10142.983900
201	9400	San Diego	183.166705	14846.05734	5181.605105	478.531662	5365.16	10142.983900
202	9400	San Diego	183.166705	14846.05734	5181.605105	478.531662	5365.16	10142.983900
203	9400	San Diego	183.166705	14846.05734	5181.605105	478.531662	5365.16	10142.983900
204	9502	San Diego	1.807467	256.910303	165.619187	442.621953	292.35	533.913069
205	9502	San Diego	1.807467	256.910303	165.619187	442.621953	292.35	533.913069
206	9502	San Diego	1.807467	256.910303	165.619187	442.621953	292.35	533.913069
207	9504	San Diego	4.27728	9.128964	5.566592	8334.558684	6314.46	8338.121056

(Left side of one Spreadsheet – see next page for continuation of rows 1-9, 198-207)

4536

*Final Draft Report
Economic Analysis of Critical Habitat Designation for California Gnatcatcher*

(Right side of above Spreadsheet)

Correlation of Census Tracts with Habitat Units and Parks and Military, SANDAG							
Habitat Unit	CEN_TOT	HU Acres subdivided	Total HU Acreage	HU covered by Park?	HU covered by Military?	HU covered by both Park & Military slivers in GIS..	HU at risk - not covered by Park or Military
ufchmhp27	378.998413	17.480107	48.369838	N	N	N	Y
ufchmhp27	378.998413	30.889732	48.369838	Y	N	N	N
ufchmhp27	535.652121	11.555404	66.256081	N	N	N	Y
ufchmhp27	535.652121	54.700677	66.256081	Y	N	N	N
ufchmhp27	1393.972012	0.054951	161.760175	Y	N	N	N
ufchmhp27	15508.147559	30.598184	236.199550	N	N	N	Y
ufchmhp27	15508.147559	45.588250	236.199550	N	Y	N	N
ufchmhp27	15508.147559	22.434660	236.199550	Y	N	N	N
ufchmhp27	15508.147559	27.984402	236.199550	Y	Y	Y	N
ufchmhp27	15508.147559	109.594053	236.199550	Y	Y	Y	N
ufchmhp27	826.258211	13.214560	91.875967	N	N	N	Y
ufchmhp27	826.258211	76.853940	91.875967	Y	N	N	N
ufchmhp27	826.258211	1.807467	91.875967	Y	Y	Y	N
ufchmhp27	14652.584624	3343.232498	4374.789142	N	N	N	Y

4541 **Extrapolation of Corps Pilot Area, Wetlands and Waters of the USA findings**
4542 **for HU 10 to rest of HUs across SCAG and SANDAG**

The Corps of Engineers completed a wetlands and waters of the US study of San Jacinto and portions of Santa Margarita watersheds, Riverside County in November 2002 (Lichvar and others, 2002). Their report documented their
4546 methodology, aquatic resources, and map units. Most importantly for this study, their report provided digital ArcView GIS 3.x shapefiles – these were reprojected and integrated with the gnatcatcher project’s mapping layers.

The GIS statistics developed within the Pilot Area were compared to the rest of
4551 SCAG and SANDAG to determine how similar the Pilot Area was to the rest of the gnatcatcher project area. If the geomorphic parameters were similar, then extrapolating statistics from the Pilot Area to the rest of SCAG and SANDAG could be justified.

Lichvar and others’ (2002) report contained data and information useful for this
4556 study on p. 27, 28 (Table 8), and 31 (Table 10). They interpreted and digitized “first order, ephemeral, and intermittent streams” from aerial photography and noted that this category of streams are “typically up to 10 feet wide.” They also digitized streams farther downslope – second and third order Stahler streams
4561 and noted these as having “narrow width...” due to “...human influences that caused down cutting in the channel.” They noted that their methodology resulted in more streams compared with the USGS 7.5 minute quadrangle map (Lichvar and others, 2002, p. 15).

Our gnatcatcher HU GIS study focused on the Corps mapping that was within HU 10
4566 (Figure 5). Acreage within each wetland class were determined (Table 2). The USGS DEM was used to subdivide the slopes into 0-5, 6-15 and >16% (Figure 6). The length of the Corps-digitized drainage (waters of the US) within HU10 was calculated using the GIS (Table 3). In addition, the length of the State of California “blue lines” streams
4571 within HU10 were determined (Table 2). By multiplying the Corps-defined waters of the US length by the width (10’ for 3 meters), an acreage was determined (Table 3).

Table 2. Wetlands Acreage by class for Corps Pilot Area

4576

Wetlands Data		
HU Acreage in Pilot Area		
Class	Acreage	%
1	1603	54
2	56	2
3	268	9
4	172	6
5	27	1
6	835	28
Total	2961	

4581

4586

Table 3: Example of Using GIS to Derive Acreage and % Area for Three Classes of Slope in the Corps of Engineers Pilot Area, Riverside County

DETAILS

4591

HU acreage in Pilot Area			
AREA	Slope	Acres	%
	0-5	20,377	19
	6-15	39,927	37
	>16	47,836	44
TOTAL		10,8140	

4596

CA BLUE LINES	Slope	Acres	%
	0-5	151,329	37
	6-15	150,014	37
	>16	104,631	26
TOTAL length		405,974	
TOTAL area (assume 3m wide)		1,217,922 m2	5 acres

4601

4606

CORPS DEFINED	Slope	Acres	%
W OF US (mapped)	0-5	281,951	14
	6-15	735,051	37
	>16	962,636	49
TOTAL length		1,979,638	
TOTAL area (assume 3m wide)		5,938,914 m2	24 acres

4611

(taken from data sheet delivered to EPS)

4616

After the Pilot Area was analyzed, the rest of the SCAG and SANDAG area was evaluated for slope and CA blue line measurements. The slope and CA blue line data for HUs in the “rest of the area” were relatively similar to that measured in the Pilot Area. This similarity encourages extrapolation of the wetlands and waters of the US from the Pilot Area to the rest of the area (see also Figure 5). Adjustments can be made to the factors and assumptions used in the extrapolation, as the procedure is further analyzed.

4621

A summary of some of the observations and assumptions that came out of this extrapolation is shown in Table 4. To determine the total HU acreage covered or intersected by wetlands and waters of the US, the pilot study and “rest of the area” acreages/percentages were summed (Table 5).

Table 4. Some Observations and Assumptions

4626

1. HU in rest of area 5.43 x size of HU in Pilot Area.
2. HU in rest of area has lower average elevation (~1200') compared to Pilot Area (~1800')
3. HU in rest of area has 7.35 x the length of CA blue line drainage compared with Pilot Area

4631

a. Probably because terrain is steeper on average in HUs outside of Pilot Area

4. Corps-defined W of US for area outside of Pilot Area estimated by multiplying Pilot Area streams by 7.35 (based on CA Blue Line ratio).
5. Area for Corps-defined W of US derived from length of mapped streams by multiplying by 3m (p. 15 of Nov. 2002 report – Planning Level Delineation - San Jacinto and portions of Santa Margarita Watersheds – states that the digitized lines of 1st order, ephemeral, and intermittent streams “...are typically up to 10 feet wide...”
6. Area for CA Blue Lines not substantiated.....used 3m based on Corps' observation above for their interpreted streams as place holder in analysis.

4636

4641

7. ~7% of the blue line drainage in the Pilot Area is not duplicated by the Corps' W of US mapping effort – based on visual inspection. Added 3 acres from CA blue line total to W of US total.
8. Add the Pilot Area Totals to the extrapolated outside of the Pilot Area Totals to arrive at solutions for different questions.

4646

9. 300 acre tracts intersect more drainages on a % basis than 100 acre tracts. This study summed tracts that were fully and partially contained within a HU.

The Corps Pilot Study enables acreage of wetlands and waters of the US across SCAG and SANDAG to be approximated using GIS technology (Table 5).

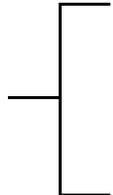
4651 **Table 5. Summary of GIS Study for Wetlands and Waters of the US**

HU Area Covered/Intersected by Wetlands/Waters of the US in SCAG/SANDAG

BY HABITAT UNITS

4656

2.74% of HUs are wetlands



% of HUs	Corps Class of Wetlands	Corps % Wetland
1.47%	Class 1	100%
0.05%	Class 2	67-98%
0.25%	Class 3	32-66%
0.16%	Class 4	2-32%
0.03%	Class 5	<2%
0.80%	Class 6	uplands

4661

0.3% of HUs have Corps-defined W of US (1st order, ephemeral, intermittent streams) with % of CA Blue Line

4666

BY DEVELOPMENT TRACTS

55% of full/partial 300 acre tracts intersect CA blue line drainage

69% of full/partial 300 acre tracts intersect Corps-defined W of US

46% of full/partial 100 acre tracts intersect CA blue line drainage

60% of full/partial 100 acre tracts intersect Corps-defined W of US

4671

(taken from data sheet delivered to EPS)

Impact of Wetlands and Waters of the US on 300- and 100-acre development tracts in HUs

4676

Starting at the SE corner, a 300- and 100-acre grid was generated by the GIS (Figure 7). Within the Pilot Area, the intersection of both CA blue line drainage (from USGS 7.5' maps) and the Corps more dense digitized drainage with the grid cells was determined. The analysis was completed for both cells fully contained within the HU and those that partially covered the HU (Figure 8).

4681 The process developed in the Pilot Area was extrapolated to the rest of SCAG and
SANDAG. The pilot area and rest of area measurements were summed for the overall
statistics (Table 5). Statistics for both full and partial grid cells were compiled. This
study combined the statistics derived from full and partial grid cells (Table 5)

4686 For those development tracts that overlap with a HU, 69% of 300-acre tracts and 60% of
100-acre tracts will intersect a Corps-defined, waters of the US. This is valid for large
samples of tracts, but the map develop for this project by the GIS (portions shown in
Figure 7 and 8) *cannot* be applied to individual tracts as the grid's arbitrary starting
point will determine which cells intersect the drainage.

4691 **CONCLUSION**

GIS effectively generated statistics on features of interest that can be used to support
economic modeling. Taking the time to understand what will be asked of the GIS and
to design and plan the GIS framework prior to processing was critical. Remote sensing
(satellite and airborne) provided an excellent and cost-effective QC tool for checking the
4696 accuracy and integrity of different map layers and for interpreting waters of the US and
wetlands in the Pilot Area.

REFERENCES

Lichvar, R., G. Gustina, M. Ericsson, 2002, Planning Level Delineation and Geospatial
Characterization of Aquatic Resources for San Jacinto and Portions of Santa
4701 Margarita Watersheds, Riverside County, CA. U.S. Army Corps of Engineers
Engineering and Research Development Center (ERDC), Cold Regions Research and
Engineering Laboratory (CRREL), Hanover, NH. Final Report to the Riverside
County Flood Control District and U.S. Army Corps of Engineers, Los Angeles
District, Regulatory Branch, the U.S. Environmental Protection Agency, Region IX.
4706 Digital ArcView 3.2 GIS shapefiles provided of wetlands and waters of the U.S.
provided.

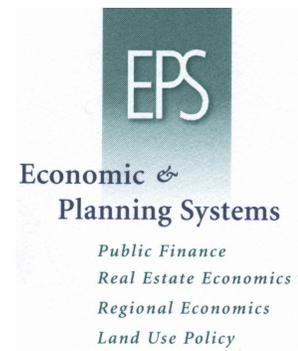
Ellis GeoSpatial Excel Spreadsheets "wetlands_wofus_hu2", "sand_hu_county_park3",
"ventura_hu_county_park3", and "scag_hu_county_park3" delivered to EPS 20 Feb
- 3 Mar 2003.

4711

ACKNOWLEDGMENTS

Hugh Dodd of HJW GeoSpatial, and the technology base at HJW GeoSpatial, enabled this GIS Project to be successfully undertaken and completed. Jason Tundermann and Christine McMillan of EPS, and Stacy Love of Fish & Wildlife, Carlsbad provided timely guidance and data.

4716



APPENDIX C

SUMMARY OF SELECTED SECTION 7 BIOLOGICAL OPINIONS

**Table C-1
Selected Section 7 Formal Consultations**

No.	Project Name	Project Type	Project Description	Action Agency	Applicant	Date Consultation Initiated	Date BO Issued	City/ County
1	Padova Padua Hills	Housing	125 single-family units on 112 ac site 62.5 ac of CH to be graded, incl. 26.5 ac of CSS	USACE	Pomona College	12/20/2000	4/5/2001	Claremont/ Los Angeles
2	Sycamore Creek Development	Housing	1,733 units, school, 4 parks, fire station, commercial area, major roadway, trails, detention basin, sewer lines/lift station, on 722 acres	USACE	Sycamore Creek Associates, L.P.	8/25/2000	1/31/2001	Unincorporated Riverside
3	Blackmore Development Project	Housing	172 single family homes on 64.4 acres within 102 acre project site			4/8/2002	10/21/2002	Murieta Riverside
4	Walnut Hills	Housing/ Golf Course	268 SF units & 18 hole golf course on 551 ac site, incl. 89.41 ac CSS.	USACE	Standard Pacific Homes	4/18/2002 (reinit.)	8/7/2002	Walnut/ Los Angeles

**Table C-1
Selected Section 7 Formal Consultations**

No.	Project Name	Project Type	Project Description	Action Agency	Applicant	Date Consultation Initiated	Date BO Issued	City/ County
5	Spring Mtn. Ranch Specific Plan	Housing/ Land Fill	785 ac master-planned community incl. elem school, commercial, water treatment facility, water tanks, & 177 ac landfill Also incl. 129 ac in CAGN CH	USACE	Eastbridge Partners L.P.	3/1/2002	9/13/2002	Unincorporated Riverside
6	Arroyo Trabuco Golf Course	Golf Course	18-hole golf course on 230 ac project site including range, clubhouse, and extension of existing hiking trails	USACE	DMB San Juan Golf Associates (agent is Rancho Mission Viejo)	4/18/2001	6/11/2002	Mission Viejo Orange
7	Brookfield Homes/ University Commons	Housing/ Road	695 SF and MF homes on 126 ac; extension/realignment of San Elijo Road Extension of Melrose Dr.; Development of 2.1 ac commercial, 12.8 ac light industrial, and 26-33 ac of private rec'l use. Includes 138.1 ac open space.	USACE	Brookfield Homes	2/6/2002	5/15/2002	San Marcos San Diego

**Table C-1
Selected Section 7 Formal Consultations**

No.	Project Name	Project Type	Project Description	Action Agency	Applicant	Date Consultation Initiated	Date BO Issued	City/ County
8	Calavera Hills Phase II	Housing	Maximum of 781 units on 300 ac., incl local infrastructure (3.5 miles local roads , sewer, storm, and water)	USACE	McMillan Land Development	8/7/2001	3/14/2002	San Marcos San Diego
9	La Sierra Avenue & El Sobrante Road Improvement Project	Road	Grading & widening of 2.13 miles of two roads (no additional lanes; not growth inducing)	USACE	Riverside County Transportation Department	11/20/2000	5/31/2001	Riverside Riverside
10	La Estrella/Nutmeg Street Extension	Road	Construction of 0.49 miles of new 4-lane road (88' ROW) and 0.57 total miles of new 2-lane roads (46'-66' ROW) to serve Lennar's Greer Ranch development. Project includes 6 new detention basins (0.21-1.3 ac) and one 9'X13' culvert. 177 ac of CH w/ PCEs remain onsite	USACE	Lennar Communities	3/21/2002	8/23/2002	Murrieta Riverside
11	Rancho Potrero Leadership Academy (Access Road)	Road	Construct 2.6 mile (28' wide) road on existing unpaved roads and trails, incl. replacing 2 existing culverts and constructing 2 new culverts	USACE	County of Orange Probation Dept	5/9/2001	8/23/2002	Unincorporated Orange County (Santa Ana Mtn)
12	Hunte Parkway Project	Road	1.67 miles of 6-lane arterial roadway connecting Olympic and Eastlake Parkways to Otay Ranch (Village 11)	USACE		4/26/2002	10/7/2002	Chula Vista San Diego

**Table C-1
Selected Section 7 Formal Consultations**

No.	Project Name	Project Type	Project Description	Action Agency	Applicant	Date Consultation Initiated	Date BO Issued	City/ County
13	SR-125 South	Road	Construction of approximately 12.5 mi. of new 4-lane controlled access hwy. between SR-905 and SR-54.	FHWA	Caltrans		2/26/1999	San Diego
14	Realignment/ Widening of Laguna Canyon Rd, SR-133	Road	Realign existing SR-133 from I-405 to SR-73, and widen road to 4 lanes. Project includes variable-width median, split-grade configuration, 8-ft bike lanes, and 4 detention basins.	FHWA	Caltrans	6/8/1999	3/4/2000	Unincorporated Orange
15	Moreno-Lakeside Pipeline	Water	4.85 mi underground pipeline (50-60" di.) requiring construction corridors b/t 60 and 110 ft. Includes pumping station (50' X 100') & flow control facility (0.59 ac)	USACE	SD County Water Authority	1/8/2001	6/8/2002	Lakeside/Santee San Diego
16	San Sevaine Creek Water Project (Reinitiation)	Water/ Flood Control	Reinitiation of consultation (based on new biol. info) for flood control/water storage facilities. Project includes replacement of existing levee, 55 ac. debris basin, excavation & concrete lining of 13.4 miles of existing flood control channels, and 9 miles of public trails. 34,000 ac "action area."	BOR	San Bernardino County Transportation and Flood Control District	4/10/2000	2/7/2002	Rancho Cucamonga & Fontana, and unincorporated San Bernardino

**Table C-1
Selected Section 7 Formal Consultations**

No.	Project Name	Project Type	Project Description	Action Agency	Applicant	Date Consultation Initiated	Date BO Issued	City/ County
17	Las Flores Estancia Camp Pendleton	Military (Grading)	Remove CSS surrounding historic building because it is damaging foundation (per National Historic Preservation Act)	US Marine Corps	Marine Corps Base Camp Pendleton	9/13/2000	2/2/2001	Camp Pendleton San Diego
18	Parking Construction for Bachelor Enlisted Quarters	Military (Parking)	Cut hillside to grade to construct parking associated with new military residences	US Marine Corps	Marine Corps Base Camp Pendleton	3/29/2002	5/30/2002	Camp Pendleton San Diego
19	Fallbrook Fire Management Plan	Military (Fire Plan)	Fire Plan designed to protect weapons storage area composed of grazing, firebreak maintenance, and prescribed burnings on 7,360 ac undeveloped land.	US Navy	Fallbrook Naval Ordnance Center	2/28/1994	2/8/1995	
20	Improvement/Use of Roads, Lots, and Loading Docks	Military (Grading)	Repairs to perimeter road and road, loading dock pavement repairs, and other road repairs are activities that may result in incidental take.	US Marine Corps	Marine Corps Air Station Miramar	6/16/1999	9/21/1999	Miramar San Diego

**Table C-1
Selected Section 7 Formal**

No.	Project Name	CAGN Biological Information				CAGN Impacts/ITP		Other Listed Species Present	CAGN Conservation Measures
		Pairs Detected	Nearest Breeding Site	CH Present	Habitat Corridor	Acres	Pairs		
1	Padova Padua Hills	None	7 miles	Yes	Infrequent	62.6 (CH)	None	None	<ol style="list-style-type: none"> 1. Transfer 1207.2 ac within CH to City as open space (mandate) 2. Dedicate 55 ac Cons. Easement adjacent to CH (FWS...not) 3. Enhance/Revegetate 6.2 ac CSS within CH (breeding)
2	Sycamore Creek Development	N/A	N/A	Yes	Important regional corridor	107 (occ.)	6	Munz's Onion (E) In SKR HCP area (no effects)	<ol style="list-style-type: none"> 1. 71 ac wildlife corridor (support 2 pr CAGN), to incl. passive recreation only, preserved onsite (2 pr CAGN) 2. Purchase mitigation credits for 192.2 ac. (and 4 pairs CAGN) at Wilson Creek Conservation Bank. 3. Biological monitoring during clearing/grading 4. Revegetate 27.1 acres sage scrub and develop Sage Scrub Revegetation Plan 5. Landscaping and lighting tailored to CAGN needs 6. Sage scrub removal outside CAGN breeding season 7. Temporary fencing/buffers near occupied CAGN habitat during construction
3	Blackmore Development Project	1 male ID'd	breeding behavior observed on site	Yes	Essential	54.6 ac RSS 55.2 ac CH	No take authorized	Least Bell's Vireo In SKR HCP area (no effects)	<ol style="list-style-type: none"> 1. Purchase 110 ac RSS credits from Wilson Cr Mit Bank 2. 20.4 ac conserved onsite (within CAGN CH) 3. Vehicular/pedestrian access restrictions on easement 4. Biological monitoring during all construction activities 5. No grading between Feb 15 and Aug 31 6. Employee education program for construction workers 7. Lighting directed away from natural areas. 8. Exclusion fencing adjacent to residential areas 9. Educational program for the public
4	Walnut Hills	10	On site	No	Critical	62.67 ac suitable habitat	4	None (8 sensitive spp.)	<ol style="list-style-type: none"> 1. Avoid 27.37 ac CSS on site (incl. Cons. Easement) 2. Create 58 ac. CSS (incl. Cons. Easement) 3. Biological monitoring before/during site disturbance 4. Mitigate areas outside designated footprint at 5:1 ratio 5. Site grading between Aug 31 and Feb 15 only 6. Place/maintain cowbird traps 7. Include deed restrictions to: shield lighting near open space; avoid introducing invasive plant spp.; discourage access to restoration areas 8. Implement an approved Habitat Restoration Plan 9. Implement an approved Landscape Plan

**Table C-1
Selected Section 7 Formal**

No.	Project Name	CAGN Biological Information				CAGN Impacts/ITP		Other Listed Species Present	CAGN Conservation Measures
		Pairs Detected	Nearest Breeding Site	CH Present	Habitat Corridor	Acres	Pairs		
5	Spring Mtn. Ranch Specific Plan	One male	breeding behavior observed on site	Yes	Essential	103.9 ac CH in project site 23.6 ac CH in landfill site	"Take" of 1 CAGN (harm)	SBKR suitable habitat (no spp.) In SKR HCP area (no effects)	<ol style="list-style-type: none"> 1. Wildlife conservation easements over 112.8 acres to offset impacts to project site. 2. A 107.3 ac conservation easement for the landfill site. 3. Restore 50.5 ac CAGN habitat in cons. easement. 4. Plant 4 ac of scrub 5. Develop/implement Resource Management Plan (including annual CAGN surveys) 6. 45 ac set aside as open space, w/ 16.4 ac as scrub 7. Biological monitoring during all construction 8. Presence/absence surveys within 500 ft of CAGN habitat (Construction stops if CAGN determined to be present) 9. Permanent fencing around all conservation areas 10. All lighting directed away from conservation areas 11. Employee training program for all construction personnel 12. Develop/implement a revegetation/restoration plan 13. Develop educational program for the public
6	Arroyo Trabuco Golf Course	12 pairs & 3 individuals in study area 5 pairs & 1 male are in project area	observed on site	Yes (Unit 6) Part of southern subregion of Orange County NCCP	Critical	11.9 ac CSS 79.4 ac other suitable habitat	4 pairs	least Bell's vireo	<ol style="list-style-type: none"> 1. Dedicate onsite 55.2 ac CSS (10 prs and 2 ind. Males) & revegetate and/or restore 4.0 ac CSS as part of 360 ac open space dedication 2. Biological monitoring before and during construction (work postponed if nest found w/in construction areas) 3. Sedimentation fencing around CSS during construction 4. Implement contractor education program 5. Conduct cowbird trapping program for 20 yrs 6. No golf cart bridge maintenance during breeding season 7. Golf course and range will be unlit
7	Brookfield Homes/ University Commons	7 (pre-1996)* 3 (2011)	N/A	Yes (Unit 3)	Essential (In MHCP Core Area and San Marcos Subarea Plan)	130 ac CSS 6.6 ac valley grass 13.2 ac chaparral <u>0.15 ac nonnative grass</u> 169.2 ac in CH	6	None	<ol style="list-style-type: none"> 1. Minimize noise impacts during construction 2. Project redesign to contribute to 1,000-ft wildlife linkage 3. Onsite set-aside of 115.6 ac of CSS/suitable habitat 4. Offsite preservation of 170.9 ac of CSS/suitable habitat 5. Add'l 17.5 ac to be preserved off-site from willing seller 6. Biological monitoring before/during construction 7. Construct bridge for Melrose Dr. extension to preserve 1,000-ft wildlife corridor 8. Revegate with original soil and native species 9. Chainlink fencing around conservation areas near roads 10. Develop/implement monitoring & management plan 11. Insure preservation of at least 6 CAGN pairs within the on- and off-site preservation areas 12. Restoration of 8 ac CSS in off-site preserve 13. No clearing during breeding season 14. Develop employee education program 15. Shield road lighting from habitat areas

**Table C-1
Selected Section 7 Formal**

No.	Project Name	CAGN Biological Information				CAGN Impacts/ITP		Other Listed Species Present	CAGN Conservation Measures
		Pairs Detected	Nearest Breeding Site	CH Present	Habitat Corridor	Acres	Pairs		
8	Calavera Hills Phase II	7 pairs	N/A	Yes	Regionally significant corridor ("Link A" in Carlsbad HMP)	91.2 ac CSS (65.4 ac in CH) 27.5 ac chaparral (19.2 ac in CH) 2 ac nonnative grassland	3 pairs	least Bell's vireo	<ol style="list-style-type: none"> 1. Onsite preservation of 87.3 ac CSS (in CH) 2. Revegetation of 2.4 ac CSS on site (in CH) 3. Preservation of 35.6 ac CSS in adjacent Calavera Nature Preserve (in CH) 4. Off-site preservation of 51.3 ac CSS 5. Lighting shielded from undeveloped areas 6. biological monitoring 7. employee education program 8. wildlife undercrossing beneath College Blvd. (not only CAGN)
9	La Sierra Avenue & El Sobrante Road Improvement Project	up to 7 nearby	N/A	Yes	No	3.6 (occ.)	2	Least Bell's Vireo	<ol style="list-style-type: none"> 1. Purchase of 8.8 ac of CSS from Wilson Creek Mit. Bank 2. Pre-construction surveys to determine CAGN presence 3. Biological monitoring during construction 4. Lighting directed away from natural areas.
10	La Estrella/Nutmeg Street Extension	One ind. observed onsite*	N/A	Yes (Unit 10)	Stepping stone	9.7 ac CH** (w/in already diminished habitat corridor) "Action Area" also includes 300 graded ac at Greer Ranch, which had previously avoided consultation, but was now included due to "indirect" (gross inducing) effects.	No Take Authorized	Least Bell's Vireo In SKR HCP Plan Area	<ol style="list-style-type: none"> 1. Set-aside 254.9 ac (177.4 in CH) at Greer Ranch 2. Preserve 10.77 ac Hollingsworth Strip area (in CH) near Greer Road (thin linkage corridor) 3. Restore 10.69 ac of transitional habitat within wildlife movement corridor (not req'd by USFWS) 4. Prohibit human activities in preserved areas 5. Pet/cat exclusion fencing abutting all residential areas and potential access points 6. Lighting directed away from preservation areas 7. Education program for public 8. All clearing will occur outside CAGN breeding season 9. Biological monitoring before/during all construction 10. Employee education program 11. Revegetation of disturbed areas with RSS
11	Rancho Potrero Leadership Academy (Access Road)	One adult pair and 3 juveniles	Breeding behavior observed onsite	Yes (Unit 6)	N/A	46.1 ac CH (14.7 ac CSS)	One pair	Arroyo Toad (w/ CH)	<ol style="list-style-type: none"> 1. Preserve 44.1 ac CSS onsite 2. Create 2.1 ac oak woodland onsite 3. Create 4.8 ac native grassland 4. Avoid grading/construction during breeding season 5. Biological monitoring before/during construction 6. Incl weekly reports during grading and annual surveys 7. Contractor education program 8. Direct lighting away from habitat
12	Hunte Parkway Project	One pair on-site (33 pr in 1200 ac ownership area)	Breeding behavior observed onsite	Yes (Unit 1)	N/A	3.3 ac CH (0.6 ac CSS) [incl Otay & Quino proposed CH]	2 pairs	Otay Tarplant (and proposed CH) Quino Checkerspot Butterfly CH (and proposed CH)	<ol style="list-style-type: none"> 1. Preserve 1.2 ac CSS onsite 2. Preserve 3.0 ac non-native grassland onsite 3. Revegetate road boundary adjacent to preserves with non-native, non-invasive shrubbery (CAGN barrier) 4. Preserve-side fill slope planted w/ CSS seed 5. Site grading/construction outside breeding season

**Table C-1
Selected Section 7 Formal**

No.	Project Name	CAGN Biological Information				CAGN Impacts/ITP		Other Listed Species Present	CAGN Conservation Measures
		Pairs Detected	Nearest Breeding Site	CH Present	Habitat Corridor	Acres	Pairs		
13	SR-125 South	32 pairs	On-site	No (prior to 2000)		60.5 ac CSS (direct) 45.2 ac CSS (indirect)	32 pairs	least Bell's vireo Quino Chkspt Btfly SD fairy shrimp Otay tarplant spreading navarettia	<ol style="list-style-type: none"> 1. Off-site preservation of 1,100 total acres CAGN habitat incl 731 ac in Rancho San Diego Mitigation Bank* (supporting 32 pairs), and purchase of development rights 2. Clearing outside breeding season 3. Pre-construction surveys and avoidance of nest sites 4. Unauthorized destruction of CSS to be offset at 5:1 ratio 5. Employee education program 6. Biological monitoring during construction
14	Realignment/ Widening of Laguna Canyon Rd, SR-133	2 pairs (direct) 4 pairs (indirect)		No (prior to 2000)	N/A	21.51 ac CSS (add'l fragmentation of 16.49 ac CSS)	6 pairs	least Bell's vireo SW willow flycatcher	<ol style="list-style-type: none"> 1. Implement resource management plan, including surveys, biol monitoring, and noise reduction.
15	Moreno-Lakeside Pipeline	10 pairs in project area 2 pairs in proposed alignment	N/A	No	N/A	0.54 ac CSS (permanent) 5.34 ac CSS (temporary)	2 pairs	arroyo toad (and CH)	<ol style="list-style-type: none"> 1. Permanent impacts to 0.54 ac mitigated at 2:1 ratio at applicant's Crestridge Habitat Management Area 2. Temporary impacts to 5.35 ac mitigated through 1:1 revegetation onsite, and 1:1 offsite mitigation at the applicant's Crestridge Habitat Management Area 3. Revegetated areas that do not reestablish in 2 yrs will be mitigated offsite at add'l 1:1 ratio (2:1 overall mitigation) 4. Preconstruction CAGN surveys 5. Biological monitoring during all construction/mitigation 6. CSS grading outside breeding season 7. Develop mitigation/management plan
16	San Sevaine Creek Water Project (Reinitiation)	10 in action area since 1994	N/A	Yes (7,272 ac in action area)	Yes	64 ac RASS	One pair	SBKR (w/ CH)	<ol style="list-style-type: none"> 1. Preservation of 329 to 343 ac (174 contiguous with CAGN CH; remaining acres primarily for SBKR). 2. Endowment of \$1,000/ac for long-term management 3. Revegetate 56 ac (CAGN, SBKR, and others) 4. Long-term Maintenance and Monitoring Plan 5. Biological monitoring before/during construction 6. No clearing during breeding season

Table C-1
Selected Section 7 Formal

No.	Project Name	CAGN Biological Information				CAGN Impacts/ITP		Other Listed Species Present	CAGN Conservation Measures
		Pairs Detected	Nearest Breeding Site	CH Present	Habitat Corridor	Acres	Pairs		
17	Las Flores Estancia Camp Pendleton	1 in project site	N/A	No	Stepping stone for local dispersal	0.74 ac CSS	One pair	None	<ol style="list-style-type: none"> 1. Debit 1.48 ac credits (2:1) from Coastal Sage Scrub Restoration Bank. 2. Remove CSS outside breeding season
18	Parking Construction for Bachelor Enlisted Quarters	1 (incidental sighting; no surveys)	N/A	No	N/A	2.21 ac CSS	One pair	None	<ol style="list-style-type: none"> 1. Debit 4.42 ac credits (2:1) from Coastal Sage Scrub Restoration Bank. 2. Restore 1.18 ac CSS on adjacent slope (part of 2.21 ac) 3. No clearing during breeding season 4. Shield parking lot lighting away from habitat
19	Fallbrook Fire Management Plan	Throughout project area	N/A	No	Yes	Unknown	5 pairs (2 mortality; 3 harass)	least Bell's vireo SKR	<ol style="list-style-type: none"> 1. Maintain at least 2,000 ac suitable CSS at all times 2. Rely on grazing/mowing as preferential fire prevention 3. Only habitat containing fewer than 2 pairs CAGN can be considered for prescribed burns 4. Focused CAGN surveys immediately prior to burns 5. Fire management activities outside breeding season
20	Improvement/Use of Roads, Lots, and Loading Docks	66 pairs on base		No		0.22 ac CSS <u>0.44 ac Chap.</u> 0.66 total	One pair (harass)	SD Fairy shrimp SD button celery SD mesa mint	<ol style="list-style-type: none"> 1. Mitigate occupied CAGN habitat at 2:1 restoration 2. Mitigate unoccupied CAGN habitat at 1:1 restoration 3. Construction outside breeding season 4. No noisy construction w/in 500 ft of nest 5. Biological monitoring 6. Exclusion fencing

Table C-1
Selected Section 7 Formal

No.	Project Name	Voluntary/Recommended Project Modifications	Effective Mitigation Ratio(s)
1	Padova Padua Hills	Salvage/translocate CSS & sensitive plant spp. Shield lighting adjacent to open space Avoid introducing invasive plants spp.	0.88:1 non-breed hab pres. Off 0.1:1 breed hab restoration
2	Sycamore Creek Development	Management of easement @ \$13.5K (Yr1), \$20K (Yr2-5), and \$40K (Yr 6), adj CPI after. Original proposal to include picnic benches in easement were abandoned	0.66:1 onsite 1.8:1 off-site CAGN pairs @ 1:1
3	Blackmore Development Project		RSS @ 2:1 off-site 0.4:1 onsite
4	Walnut Hills	Unknown	0.44:1 on-site 0.93:1 creation

Table C-1
Selected Section 7 Formal

No.	Project Name	Voluntary/Recommended Project Modifications	Effective Mitigation Ratio(s)
5	Spring Mtn. Ranch Specific Plan		1.09:1 onsite (cons easement) 0.16:1 onsite (open space ded.) 4.55:1 onsite (landfill)
6	Arroyo Trabuco Golf Course		4.64:1 onsite CAGN pairs @ 2.75:1
7	Brookfield Homes/ University Commons		0.9:1 onsite 1.45:1 offsite CSS @ 2:1 grassland @ 2:1 Chaparral @ 1:1 Nonnative grassland @ 0.5:1 CAGN individuals @ 1:1

Table C-1
Selected Section 7 Formal

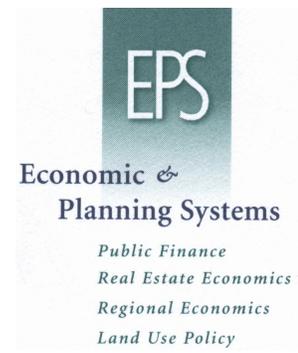
No.	Project Name	Voluntary/Recommended Project Modifications	Effective Mitigation Ratio(s)
8	Calavera Hills Phase II		0.96:1 onsite 0.95:1 offsite 0.03:1 restoration
		↓)	
9	La Sierra Avenue & El Sobrante Road Improvement Project		2.44:1 offsite
10	La Estrella/Nutmeg Street Extension		0.82:1 on-site 0.03:1 offsite preservation
11	Rancho Potrero Leadership Academy (Access Road)	Project footprint reduced to avoid CH impacts	CSS @ 3:1 on-site (44.1/14.7=3) Oak Woodland @ 1:1 on-site native grassland @ 1:1 on-site
12	Hunte Parkway Project		CSS @ 2:1 on-site (1.2/0.6 =2) Non-native grassland @ 1:1 onsite

Table C-1
Selected Section 7 Formal

No.	Project Name	Voluntary/Recommended Project Modifications	Effective Mitigation Ratio(s)
13	SR-125 South	Informal consultation process included review of 17 build variations for project. Realignment to both northern and southern sections of roadway were selected to avoid significant impacts to CAGN. Project review required considerable time from all participants.	CSS direct effects @ 2:1 offsite CSS indirect effects @ 1:1 CAGN pairs @ 1:1 [key factor often resulting in larger acreage set-asides than habitat mitigation alone] (Effective Mit. Ratio of 18.2:1)
14	Realignment/ Widening of Laguna Canyon Rd, SR-133	Recommend selecting least damaging road alignment Recommend measures to minimize roadway noise Recommend wildlife undercrossings	Mitigation through Central/Coastal HCP/NCCP
15	Moreno-Lakeside Pipeline		Permanent CSS @ 2:1 offsite Temporary CSS @ 1:1 offsite and 1:1 onsite revegetation (if revegetation fails w/in 2 yrs, add'l 1:1 offsite mitigation req'd)
16	San Sevaine Creek Water Project (Reinitiation)	Project footprint reduced by 24 acres. 74 ac habitat no longer isolated by levees Preserve area augmented by 42 acres	2.7:1 onsite (174/64) 0.4:1 revegetation ([56/2]/64)

Table C-1
Selected Section 7 Formal

No.	Project Name	Voluntary/Recommended Project Modifications	Effective Mitigation Ratio(s)
17	Las Flores Estancia Camp Pendleton	USMC should restore/enhance CSS in the vicinity of the historic bldg. USMC should eradicate sweet fennel plants	CSS @ 2:1 offsite
18	Parking Construction for Bachelor Enlisted Quarters		CSS @ 2:1 offsite
19	Fallbrook Fire Management Plan		Impacts unknown, so no mit. ratio
20	Improvement/Use of Roads, Lots, and Loading Docks	USMC continues to develop INRMP addressing CAGN.	Occupied = 2:1 restoration Unoccupied = 1:1 restoration



APPENDIX D

REAL ESTATE MARKET DATA AND LAND VALUE CALCULATIONS

**Table D-1
Residential Land Value Calculations by County**

Measure	Los Angeles	Orange	Riverside	San Bernardino	San Diego	Ventura
Average Home Sales Price (1)	\$394,230	\$464,304	\$250,923	\$202,240	\$410,435	\$415,458
<u>Housing Acreage Distribution (2)</u>						
Single Family, Detached	\$226,994	\$69,413	\$50,822	\$59,850	\$75,135	\$22,714
Single Family, Attached	\$21,195	\$10,918	\$3,989	\$2,296	\$8,840	\$2,683
Multi-Family, 2-4 Units	\$19,126	\$5,835	\$1,832	\$2,674	\$5,036	\$1,011
Multi-Family, 5+ Units	<u>\$56,430</u>	<u>\$12,584</u>	<u>\$4,070</u>	<u>\$4,173</u>	<u>\$15,106</u>	<u>\$1,939</u>
Total	\$323,744	\$98,750	\$60,713	\$68,994	\$104,117	\$28,348
Units / Gross Ac. (Weighted Avg.)[3]	\$9.93	\$9.46	\$8.31	\$8.20	\$9.53	\$8.46
Market Value per Gross Acre	\$3,916,654	\$4,392,812	\$2,085,156	\$1,657,608	\$3,910,551	\$3,514,263
Residual Value per Vacant Gross Ac.(4)	\$391,665	\$439,281	\$208,516	\$165,761	\$391,055	\$351,426
Residual Value per Vacant GSF	\$8.99	\$10.08	\$4.79	\$3.81	\$8.98	\$8.07

(1) From Table 10

(2) Calculated by multiplying the number of housing units of each type in 2000 (DOF Table E-5a) by the following assumed unit-per-acre estimates:

single family detached:	7
single family attached:	10
multi-family (2-4 units):	15
multi-family (5+ units):	20

(3) Average of unit-per-acre assumptions in footnote (2), weighted by housing acreage distribution.

(4) Assumes value of vacant land zoned for development (but otherwise unentitled) is 10% percent of total market value.

**Table D-2
Office and Industrial Land Value Calculations by County**

Measure	Los Angeles	Orange	Riverside	San Bernardino	San Diego	Ventura
<u>Office</u>						
Sales Price (\$/Leasable SqFt) (1)	\$193	\$220	\$125	\$125	\$195	\$175
Parcel Price per Net SqFt (2)	\$68	\$77	\$44	\$44	\$68	\$61
Parcel Price per Gross SqFt (3)	\$54	\$62	\$35	\$35	\$54	\$49
Market Value per Gross Acre	\$2,356,079	\$2,683,296	\$1,524,600	\$1,524,600	\$2,373,741	\$2,134,440
Residual Value per Vacant Gross Ac.(4)	\$235,608	\$268,330	\$152,460	\$152,460	\$237,374	\$213,444
Residual Value per Vacant GSF	\$5.41	\$6.16	\$3.50	\$3.50	\$5.45	\$4.90
<u>Industrial</u>						
Sales Price (\$/Leasable SqFt) (1)	\$43	\$59	\$41	\$41	\$65	\$69
Parcel Price per Net SqFt (5)	\$10.86	\$14.70	\$10.25	\$10.25	\$16.25	\$17.18
Parcel Price per Gross SqFt (3)	\$8.69	\$11.76	\$8.20	\$8.20	\$13.00	\$13.74
Market Value per Gross Acre	\$378,381	\$512,266	\$357,192	\$357,192	\$566,280	\$598,689
Residual Value per Vacant Gross Ac.(4)	\$37,838	\$51,227	\$35,719	\$35,719	\$56,628	\$59,869
Residual Value per Vacant GSF	\$0.87	\$1.18	\$0.82	\$0.82	\$1.30	\$1.37
Reported Unimproved Land Value (1)	\$5.00	--	\$4.00	\$4.00	\$4.00	--

(1) From Table 1

(2) Assumes floor area ratio (FAR) of 0.35 for office space.

(3) Assumes net-to-gross ratio of 0.80 to account for associated infrastructure (roads, sidewalks, etc.).

(4) Assumes value of vacant land zoned for development (but otherwise unentitled) is 10% of total market value.

(5) Assumes floor area ratio (FAR) of 0.25 for industrial space.

Source: Economic & Planning Systems, Inc.

**Table D-3
Retail Land Value Calculations by County**

Measure	Los Angeles	Orange	Riverside	San Bernardino	San Diego	Ventura
Sales Price (\$/Leasable SqFt) (1)	\$144	\$142	\$108	\$108	\$124	\$144
Parcel Price per Net SqFt (2)	\$43	\$43	\$32	\$32	\$37	\$43
Parcel Price per Gross SqFt (3)	\$35	\$34	\$26	\$26	\$30	\$35
Market Value per Gross Acre	\$1,505,434	\$1,484,525	\$1,129,075	\$1,129,075	\$1,296,346	\$1,505,434
Residual Value per Vacant Gross Ac.(4)	\$150,543	\$148,452	\$112,908	\$112,908	\$129,635	\$150,543
Residual Value per Vacant GSF	\$3.46	\$3.41	\$2.59	\$2.59	\$2.98	\$3.46

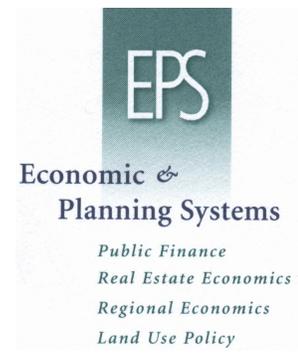
(1) From Table 10

(2) Assumes floor area ratio (FAR) of 0.3 for office space.

(3) Assumes net-to-gross ratio of 0.80 to account for associated infrastructure (roads, sidewalks, etc.).

(4) Assumes value of vacant land zoned for development (but otherwise unentitled) is 10% of total market value.

Source: Economic & Planning Systems, Inc.



APPENDIX E

PROJECT MODIFICATION COST CALCULATIONS FOR PRIVATE LAND DEVELOPMENT

Table E-1
Projected Development in Proposed Critical Habitat Regulated Under Section 7 (1)

Proposed Critical Habitat Unit	Residential Growth Acres Regulated by Section 7 (1)			Total Residential
	Single Family Residential	Multi-Family Residential	Mobile Home	
Critical Habitat Unit 1 (5) San Diego	--	--	--	64
Critical Habitat Unit 2 San Diego	58	0	0	58
Critical Habitat Unit 3 San Diego	183	6	0	189
Critical Habitat Unit 4 San Diego	0	0	0	0
Critical Habitat Unit 5 San Diego	--	--	--	286
Critical Habitat Unit 6 Orange	373	50	3	426
San Diego	0	0	0	0
Critical Habitat Unit 7 Orange (6)	--	--	--	32

Table E-1
Projected Development in Proposed Critical Habitat Regulated Under Section 7 (1)

Proposed Critical Habitat Unit	Residential Growth Acres Regulated by Section 7 (1)			Total Residential
	Single Family Residential	Multi-Family Residential	Mobile Home	
Critical Habitat Unit 8 Los Angeles	0	0	0	0
Critical Habitat Unit 9 Los Angeles	58	16	5	80
Orange	71	9	3	83
Riverside	0	0	0	0
San Bernardino	6	1	0	7
Critical Habitat Unit 10 Orange	0	0	0	0
Riverside	2,039	106	401	2,546
San Bernardino	293	32	19	344
San Diego	0	0	0	0
Critical Habitat Unit 11 San Bernardino	390	12	16	417
Critical Habitat Unit 12 Los Angeles	8	3	1	11
Critical Habitat Unit 13 Los Angeles	835	155	81	1,071
Ventura	136	17	6	159
Total Acres	4,451	406	535	5,774

**Table E-1
Projected Developm**

Proposed Critical Habitat Unit	Commercial Growth Acres Regulated by Section 7 (1)						Total	Total	Total
	Office	Commercial	Industrial	Retail	Services	Other	"Office" (2)	"Industrial" (3)	"Retail" (4)
Critical Habitat Unit 1 San Diego	--	--	--	--	--	--	0	5	2
Critical Habitat Unit 2 San Diego	0	0	0	--	--	0	0	0	0
Critical Habitat Unit 3 San Diego	1	9	15	--	--	0	1	15	9
Critical Habitat Unit 4 San Diego	0	0	0	--	--	0	0	0	0
Critical Habitat Unit 5 San Diego	--	--	--	--	--	--	0	2	4
Critical Habitat Unit 6 Orange	--	--	0	0	0	0	0	0	0
San Diego	0	0	0	--	--	0	0	0	0
Critical Habitat Unit 7 Orange (6)	--	--	--	--	--	--	16	48	5

**Table E-1
Projected Developm**

Proposed Critical Habitat Unit	Commercial Growth Acres Regulated by Section 7 (1)						Total	Total	Total
	Office	Commercial	Industrial	Retail	Services	Other	"Office" (2)	"Industrial" (3)	"Retail" (4)
Critical Habitat Unit 8 Los Angeles	--	--	0	0	0	0	0	0	0
Critical Habitat Unit 9 Los Angeles	--	--	93	46	171	11	171	104	46
Orange	--	--	115	65	206	24	206	139	65
Riverside	--	--	0	0	0	0	0	0	0
San Bernardino	--	--	13	9	24	3	24	16	9
Critical Habitat Unit 10 Orange	--	--	0	0	1	0	1	0	0
Riverside	--	--	2,184	2,218	5,754	1,283	5,754	3,467	2,218
San Bernardino	--	--	22	4	19	-1	19	21	4
San Diego	0	0	0	--	--	0	0	0	0
Critical Habitat Unit 11 San Bernardino	--	--	640	448	1,195	158	1,195	797	448
Critical Habitat Unit 12 Los Angeles	--	--	35	18	66	4	66	40	18
Critical Habitat Unit 13 Los Angeles	--	--	666	338	1,260	82	1,260	748	338
Ventura	--	--	524	381	1,134	134	1,134	658	381
Total Acres	1	9	4,309	3,528	9,830	1,699	9,847	6,063	3,549

Table E-2
On-site Set-aside Calculations for Projected Residential Development

Proposed Critical Habitat Unit	County	Effective On-site Mitigation Ratio (1)	Projected Residential Development			Set-Aside Calculations by Year (4)					
			Projected Growth Acres (2)	Acres Set-aside	Per-acre Residual Land Value (3)	2003 1	2004 2	2005 3	2006 4	2007 5	
Critical Habitat Unit 1											
Acres Units	San Diego	0.06 :1	64	4	\$391,055	Acres	0.15	0.15	0.15	0.15	0.15
						Annual Cost	\$59,730	\$59,730	\$59,730	\$59,730	\$59,730
						NPV	\$461,019				
Critical Habitat Unit 2											
Acres Units	San Diego	0.06 :1	58	3	\$391,055	Acres	0.14	0.14	0.14	0.14	0.14
						Annual Cost	\$53,617	\$53,617	\$53,617	\$53,617	\$53,617
						NPV	\$413,838				
Critical Habitat Unit 3											
Acres Units	San Diego	0.06 :1	189	10	\$391,055	Acres	0.45	0.45	0.45	0.45	0.45
						Annual Cost	\$176,269	\$176,269	\$176,269	\$176,269	\$176,269
						NPV	\$1,360,519				
Critical Habitat Unit 4											
Acres Units	San Diego	0.06 :1	0	0	\$391,055	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$150	\$150	\$150	\$150	\$150
						NPV	\$1,160				
Critical Habitat Unit 5											
Acres Units	San Diego	0.06 :1	286	16	\$391,055	Acres	0.68	0.68	0.68	0.68	0.68
						Annual Cost	\$266,790	\$266,790	\$266,790	\$266,790	\$266,790
						NPV	\$2,059,198				
Critical Habitat Unit 6											
Acres Units	Orange	1.82 :1	426	275	\$439,281	Acres	11.96	11.96	11.96	11.96	11.96
						Annual Cost	\$5,252,546	\$5,252,546	\$5,252,546	\$5,252,546	\$5,252,546
Acres Units	San Diego	0.06 :1	0	0	\$391,055	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$12	\$12	\$12	\$12	\$12
						Total NPV	\$40,541,515				
Critical Habitat Unit 7											
Acres Units	Orange	1.82 :1	32	20	\$439,281	Acres	0.89	0.89	0.89	0.89	0.89
						Annual Cost	\$388,987	\$388,987	\$388,987	\$388,987	\$388,987
						NPV	\$3,002,368				
Critical Habitat Unit 8											
Acres Units	Los Angeles	0.44 :1	0	0	\$391,665	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 9											
Acres Units	Los Angeles	0.44 :1	80	24	\$391,665	Acres	1.06	1.06	1.06	1.06	1.06
						Annual Cost	\$414,360	\$414,360	\$414,360	\$414,360	\$414,360
Acres Units	Orange	1.82 :1	83	54	\$439,281	Acres	2.33	2.33	2.33	2.33	2.33
						Annual Cost	\$1,022,166	\$1,022,166	\$1,022,166	\$1,022,166	\$1,022,166
Acres Units	Riverside	1.14 :1	0.1	0.1	\$208,516	Acres	0.003	0.003	0.003	0.003	0.003
						Annual Cost	\$529	\$529	\$529	\$529	\$529
Acres Units	San Bernardino	2.70 :1	7	5	\$165,761	Acres	0.23	0.23	0.23	0.23	0.23
						Annual Cost	\$38,021	\$38,021	\$38,021	\$38,021	\$38,021
						Total NPV	\$11,385,286				
Critical Habitat Unit 10											

Table E-2
On-site Set-aside Calculations for Projected Residential Development

Proposed Critical Habitat Unit	County	Effective On-site Mitigation Ratio (1)	Projected Residential Development			Set-Aside Calculations by Year (4)						
			Projected Growth Acres (2)	Acres Set-aside	Per-acre Residual Land Value (3)	2003 1	2004 2	2005 3	2006 4	2007 5		
Acres Units	Orange	1.82 :1	0.4	0.2	\$439,281	Acres Annual Cost	0.01 \$4,592	0.01 \$4,592	0.01 \$4,592	0.01 \$4,592	0.01 \$4,592	
Acres Units	Riverside	1.14 :1	2,546	1,358	\$208,516	Acres Annual Cost	59.04 \$12,311,202	59.04 \$12,311,202	59.04 \$12,311,202	59.04 \$12,311,202	59.04 \$12,311,202	
Acres Units	San Bernardino	2.70 :1	344	251	\$165,761	Acres Annual Cost	10.91 \$1,808,836	10.91 \$1,808,836	10.91 \$1,808,836	10.91 \$1,808,836	10.91 \$1,808,836	
Acres Units	San Diego	0.06 :1	0	0	\$391,055	Acres Annual Cost	0.00 \$111	0.00 \$111	0.00 \$111	0.00 \$111	0.00 \$111	
Critical Habitat Unit 11							Total NPV	\$109,020,874				
Acres Units	San Bernardino	2.70 :1	417	305	\$165,761	Acres Annual Cost NPV	13.24 \$2,194,559 \$16,938,559	13.24 \$2,194,559	13.24 \$2,194,559	13.24 \$2,194,559	13.24 \$2,194,559	
Critical Habitat Unit 12							Acres Annual Cost NPV	0.15 \$59,600 \$460,019	0.15 \$59,600	0.15 \$59,600	0.15 \$59,600	0.15 \$59,600
Acres Units	Los Angeles	0.44 :1	11	3	\$391,665	Acres Annual Cost NPV	14.23 \$5,574,503	14.23 \$5,574,503	14.23 \$5,574,503	14.23 \$5,574,503	14.23 \$5,574,503	
Critical Habitat Unit 13							Acres Annual Cost NPV	2.11 \$742,146	2.11 \$742,146	2.11 \$742,146	2.11 \$742,146	2.11 \$742,146
Acres Units	Ventura	0.44 :1	159	49	\$351,426	Acres Annual Cost NPV	2.11 \$742,146	2.11 \$742,146	2.11 \$742,146	2.11 \$742,146	2.11 \$742,146	
Total NPV, All Units:			\$234,398,990									

- (1) For San Diego and Orange counties, the Effective Mitigation Ratio is the County-specific on-site mitigation ratio summarized in Table 11 minus an assumed CEQA mitigation ratio of 2-to-1. For all other counties, the Effective Mitigation Ratio is the ratio reported in Table 11.
Mitigation ratios in Ventura County were assumed to be the same as in Los Angeles, because no Biological Opinions were provided for projects in Ventura involving the CAGN.
- (2) Table E-1
(3) Table D-1
(4) Assumes projected development is distributed evenly throughout 2025.

Table E-2
On-site Set-aside Calculations for Pr

Proposed Critical Habitat Unit	County	Set-Aside Calculations by Year (4)									
		2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14	2017 15
Critical Habitat Unit 1											
Acres	San Diego	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Units		\$59,730	\$59,730	\$59,730	\$59,730	\$59,730	\$59,730	\$59,730	\$59,730	\$59,730	\$59,730
Critical Habitat Unit 2											
Acres	San Diego	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Units		\$53,617	\$53,617	\$53,617	\$53,617	\$53,617	\$53,617	\$53,617	\$53,617	\$53,617	\$53,617
Critical Habitat Unit 3											
Acres	San Diego	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Units		\$176,269	\$176,269	\$176,269	\$176,269	\$176,269	\$176,269	\$176,269	\$176,269	\$176,269	\$176,269
Critical Habitat Unit 4											
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$150	\$150	\$150	\$150	\$150	\$150	\$150	\$150	\$150	\$150
Critical Habitat Unit 5											
Acres	San Diego	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Units		\$266,790	\$266,790	\$266,790	\$266,790	\$266,790	\$266,790	\$266,790	\$266,790	\$266,790	\$266,790
Critical Habitat Unit 6											
Acres	Orange	11.96	11.96	11.96	11.96	11.96	11.96	11.96	11.96	11.96	11.96
Units		\$5,252,546	\$5,252,546	\$5,252,546	\$5,252,546	\$5,252,546	\$5,252,546	\$5,252,546	\$5,252,546	\$5,252,546	\$5,252,546
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$12	\$12	\$12	\$12	\$12	\$12	\$12	\$12	\$12	\$12
Critical Habitat Unit 7											
Acres	Orange	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Units		\$388,987	\$388,987	\$388,987	\$388,987	\$388,987	\$388,987	\$388,987	\$388,987	\$388,987	\$388,987
Critical Habitat Unit 8											
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9											
Acres	Los Angeles	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Units		\$414,360	\$414,360	\$414,360	\$414,360	\$414,360	\$414,360	\$414,360	\$414,360	\$414,360	\$414,360
Acres	Orange	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
Units		\$1,022,166	\$1,022,166	\$1,022,166	\$1,022,166	\$1,022,166	\$1,022,166	\$1,022,166	\$1,022,166	\$1,022,166	\$1,022,166
Acres	Riverside	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Units		\$529	\$529	\$529	\$529	\$529	\$529	\$529	\$529	\$529	\$529
Acres	San Bernardino	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Units		\$38,021	\$38,021	\$38,021	\$38,021	\$38,021	\$38,021	\$38,021	\$38,021	\$38,021	\$38,021
Critical Habitat Unit 10											

Table E-2
On-site Set-aside Calculations for Pr

Proposed Critical Habitat Unit	County	Set-Aside Calculations by Year (4)									
		2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14	2017 15
Acres	Orange	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Units		\$4,592	\$4,592	\$4,592	\$4,592	\$4,592	\$4,592	\$4,592	\$4,592	\$4,592	\$4,592
Acres	Riverside	59.04	59.04	59.04	59.04	59.04	59.04	59.04	59.04	59.04	59.04
Units		\$12,311,202	\$12,311,202	\$12,311,202	\$12,311,202	\$12,311,202	\$12,311,202	\$12,311,202	\$12,311,202	\$12,311,202	\$12,311,202
Acres	San Bernardino	10.91	10.91	10.91	10.91	10.91	10.91	10.91	10.91	10.91	10.91
Units		\$1,808,836	\$1,808,836	\$1,808,836	\$1,808,836	\$1,808,836	\$1,808,836	\$1,808,836	\$1,808,836	\$1,808,836	\$1,808,836
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$111	\$111	\$111	\$111	\$111	\$111	\$111	\$111	\$111	\$111
Critical Habitat Unit 11											
Acres	San Bernardino	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24
Units		\$2,194,559	\$2,194,559	\$2,194,559	\$2,194,559	\$2,194,559	\$2,194,559	\$2,194,559	\$2,194,559	\$2,194,559	\$2,194,559
Critical Habitat Unit 12											
Acres	Los Angeles	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Units		\$59,600	\$59,600	\$59,600	\$59,600	\$59,600	\$59,600	\$59,600	\$59,600	\$59,600	\$59,600
Critical Habitat Unit 13											
Acres	Los Angeles	14.23	14.23	14.23	14.23	14.23	14.23	14.23	14.23	14.23	14.23
Units		\$5,574,503	\$5,574,503	\$5,574,503	\$5,574,503	\$5,574,503	\$5,574,503	\$5,574,503	\$5,574,503	\$5,574,503	\$5,574,503
Acres	Ventura	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11
Units		\$742,146	\$742,146	\$742,146	\$742,146	\$742,146	\$742,146	\$742,146	\$742,146	\$742,146	\$742,146
Total NPV, All Units:											

Table E-2
On-site Set-aside Calculations for Pr

Proposed Critical Habitat Unit	County	Set-Aside Calculations by Year (4)							
		2018	2019	2020	2021	2022	2023	2024	2025
		16	17	18	19	20	21	22	23
<hr/>									
Critical Habitat Unit 1									
Acres	San Diego	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Units		\$59,730	\$59,730	\$59,730	\$59,730	\$59,730	\$59,730	\$59,730	\$59,730
Critical Habitat Unit 2									
Acres	San Diego	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Units		\$53,617	\$53,617	\$53,617	\$53,617	\$53,617	\$53,617	\$53,617	\$53,617
Critical Habitat Unit 3									
Acres	San Diego	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Units		\$176,269	\$176,269	\$176,269	\$176,269	\$176,269	\$176,269	\$176,269	\$176,269
Critical Habitat Unit 4									
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$150	\$150	\$150	\$150	\$150	\$150	\$150	\$150
Critical Habitat Unit 5									
Acres	San Diego	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Units		\$266,790	\$266,790	\$266,790	\$266,790	\$266,790	\$266,790	\$266,790	\$266,790
Critical Habitat Unit 6									
Acres	Orange	11.96	11.96	11.96	11.96	11.96	11.96	11.96	11.96
Units		\$5,252,546	\$5,252,546	\$5,252,546	\$5,252,546	\$5,252,546	\$5,252,546	\$5,252,546	\$5,252,546
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$12	\$12	\$12	\$12	\$12	\$12	\$12	\$12
Critical Habitat Unit 7									
Acres	Orange	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Units		\$388,987	\$388,987	\$388,987	\$388,987	\$388,987	\$388,987	\$388,987	\$388,987
Critical Habitat Unit 8									
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9									
Acres	Los Angeles	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Units		\$414,360	\$414,360	\$414,360	\$414,360	\$414,360	\$414,360	\$414,360	\$414,360
Acres	Orange	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
Units		\$1,022,166	\$1,022,166	\$1,022,166	\$1,022,166	\$1,022,166	\$1,022,166	\$1,022,166	\$1,022,166
Acres	Riverside	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Units		\$529	\$529	\$529	\$529	\$529	\$529	\$529	\$529
Acres	San Bernardino	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Units		\$38,021	\$38,021	\$38,021	\$38,021	\$38,021	\$38,021	\$38,021	\$38,021
Critical Habitat Unit 10									

Table E-2
On-site Set-aside Calculations for Pr

Proposed Critical Habitat Unit	County	Set-Aside Calculations by Year (4)							
		2018	2019	2020	2021	2022	2023	2024	2025
		16	17	18	19	20	21	22	23
Acres	Orange	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Units		\$4,592	\$4,592	\$4,592	\$4,592	\$4,592	\$4,592	\$4,592	\$4,592
Acres	Riverside	59.04	59.04	59.04	59.04	59.04	59.04	59.04	59.04
Units		\$12,311,202	\$12,311,202	\$12,311,202	\$12,311,202	\$12,311,202	\$12,311,202	\$12,311,202	\$12,311,202
Acres	San Bernardino	10.91	10.91	10.91	10.91	10.91	10.91	10.91	10.91
Units		\$1,808,836	\$1,808,836	\$1,808,836	\$1,808,836	\$1,808,836	\$1,808,836	\$1,808,836	\$1,808,836
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$111	\$111	\$111	\$111	\$111	\$111	\$111	\$111
Critical Habitat Unit 11									
Acres	San Bernardino	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24
Units		\$2,194,559	\$2,194,559	\$2,194,559	\$2,194,559	\$2,194,559	\$2,194,559	\$2,194,559	\$2,194,559
Critical Habitat Unit 12									
Acres	Los Angeles	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Units		\$59,600	\$59,600	\$59,600	\$59,600	\$59,600	\$59,600	\$59,600	\$59,600
Critical Habitat Unit 13									
Acres	Los Angeles	14.23	14.23	14.23	14.23	14.23	14.23	14.23	14.23
Units		\$5,574,503	\$5,574,503	\$5,574,503	\$5,574,503	\$5,574,503	\$5,574,503	\$5,574,503	\$5,574,503
Acres	Ventura	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11
Units		\$742,146	\$742,146	\$742,146	\$742,146	\$742,146	\$742,146	\$742,146	\$742,146
Total NPV, All Units:									

Table E-3
Off-site Preservation Calculations for Projected Residential Development

Proposed Critical Habitat Unit	County	Off-site Mitigation Ratio (1)	Projected Residential Development			Preservation Calculations by Year (4)					
			Projected Acres Developed (2)	Acres Preserved	Average Price per Mitigation Acre (3)	2003 1	2004 2	2005 3	2006 4	2007 5	
Critical Habitat Unit 1											
Acres Units	San Diego	0.00 :1	61	0	\$19,750	Acres Annual Cost NPV	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0
Critical Habitat Unit 2											
Acres Units	San Diego	0.00 :1	54	0	\$19,750	Acres Annual Cost NPV	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0
Critical Habitat Unit 3											
Acres Units	San Diego	0.00 :1	179	0	\$19,750	Acres Annual Cost NPV	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0
Critical Habitat Unit 4											
Acres Units	San Diego	0.00 :1	0	0	\$19,750	Acres Annual Cost NPV	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0
Critical Habitat Unit 5											
Acres Units	San Diego	0.00 :1	271	0	\$19,750	Acres Annual Cost NPV	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0
Critical Habitat Unit 6											
Acres Units	Orange	0.00 :1	151	0	\$78,333	Acres Annual Cost	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0
Acres Units	San Diego	0.00 :1	0	0	\$19,750	Acres Annual Cost Total NPV	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0
Critical Habitat Unit 7											
Acres Units	Orange	0.00 :1	11	0	\$78,333	Acres Annual Cost NPV	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0
Critical Habitat Unit 8											
Acres Units	Los Angeles	0.00 :1	0	0	\$0	Acres Annual Cost NPV	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0
Critical Habitat Unit 9											
Acres Units	Los Angeles	0.00 :1	55	0	\$0	Acres Annual Cost	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0
Acres Units	Orange	0.00 :1	29	0	\$78,333	Acres Annual Cost	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0
Acres Units	Riverside	1.22 :1	0	0	\$9,500	Acres Annual Cost	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0
Acres Units	San Bernardino	0.00 :1	2	0	\$0	Acres Annual Cost Total NPV	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0
Critical Habitat Unit 10											

**Table E-3
Off-site Preservation Calculations for Projected Residential Development**

Proposed Critical Habitat Unit	County	Off-site Mitigation Ratio (1)	Projected Residential Development			Preservation Calculations by Year (4)					
			Projected Acres Developed (2)	Acres Preserved	Average Price per Mitigation Acre (3)	2003 1	2004 2	2005 3	2006 4	2007 5	
Acres Units	Orange	0.00 :1	0	0	\$78,333	Acres Annual Cost	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0
Acres Units	Riverside	1.22 :1	1,188	1,453	\$9,500	Acres Annual Cost	63.17 \$600,147	63.17 \$600,147	63.17 \$600,147	63.17 \$600,147	63.17 \$600,147
Acres Units	San Bernardino	0.00 :1	93	0	\$0	Acres Annual Cost	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0
Acres Units	San Diego	0.00 :1	0	0	\$19,750	Acres Annual Cost	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0
Critical Habitat Unit 11						Total NPV	\$4,632,192				
Acres Units	San Bernardino	0.00 :1	113	0	\$0	Acres Annual Cost NPV	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0
Critical Habitat Unit 12											
Acres Units	Los Angeles	0.00 :1	8	0	\$0	Acres Annual Cost NPV	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0	0.00 \$0 \$0
Critical Habitat Unit 13											
Acres Units	Los Angeles	0.00 :1	744	0	\$0	Acres Annual Cost	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0
Acres Units	Ventura	0.00 :1	110	0	\$0	Acres Annual Cost	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0
Total NPV, All Units:					\$4,632,192	Total NPV	\$0				

- (1) For San Diego and Orange counties, all mitigation above CEQA baseline is assumed to be on-site. The off-site mitigation ratio is therefore assumed to be zero. For the remaining counties, the mitigation ratio is from a review of selected Biological Opinions, as summarized in Table 11 and detailed in Appendix C. Mitigation ratios in Ventura County were assumed to be the same as in Los Angeles, because no Biological Opinions were provided for projects in Ventura involving the CAGN.
- (2) Equal to Projected Growth Acres minus Acres Set-aside (Table E-1)
- (3) Table 15
- (4) Assumes projected development is distributed evenly throughout 2025.

Table E-3
Off-site Preservation Calculations for Proj

Proposed Critical Habitat Unit	County	Preservation Calculations by Year (4)										
		2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14	2017 15	2018 16
Critical Habitat Unit 1												
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 2												
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 3												
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 4												
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 5												
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 6												
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7												
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 8												
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9												
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 10												

Table E-3
Off-site Preservation Calculations for Proj

Proposed Critical Habitat Unit	County	Preservation Calculations by Year (4)										
		2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14	2017 15	2018 16
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	63.17	63.17	63.17	63.17	63.17	63.17	63.17	63.17	63.17	63.17	63.17
Units		\$600,147	\$600,147	\$600,147	\$600,147	\$600,147	\$600,147	\$600,147	\$600,147	\$600,147	\$600,147	\$600,147
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 11												
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 12												
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 13												
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Ventura	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total NPV, All Units:												

**Table E-3
Off-site Preservation Calculations for Proj**

Proposed Critical Habitat Unit	County	Preservation Calculations by Year (4)						
		2019 17	2020 18	2021 19	2022 20	2023 21	2024 22	2025 23
Critical Habitat Unit 1								
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 2								
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 3								
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 4								
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 5								
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 6								
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7								
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 8								
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9								
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0

Critical Habitat Unit 10

Table E-3
Off-site Preservation Calculations for Proj

Proposed Critical Habitat Unit	County	Preservation Calculations by Year (4)						
		2019 17	2020 18	2021 19	2022 20	2023 21	2024 22	2025 23
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	63.17	63.17	63.17	63.17	63.17	63.17	63.17
Units		\$600,147	\$600,147	\$600,147	\$600,147	\$600,147	\$600,147	\$600,147
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 11								
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 12								
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 13								
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Ventura	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total NPV, All Units:								

Table E-4
CSS Restoration Calculations for Projected Residential Development

Proposed Critical Habitat Unit	County	Restoration Mitigation Ratio (1)	Projected Residential Development			Restoration Calculations by Year (4)				
			Projected Acres Developed (2)	Acres Restored	Avg. Restoration Cost per Acre (3)	2003 1	2004 2	2005 3	2006 4	
Critical Habitat Unit 1										
Acres	San Diego	0.00 :1	61	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0
						NPV	\$0			
Critical Habitat Unit 2										
Acres	San Diego	0.00 :1	54	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0
						NPV	\$0			
Critical Habitat Unit 3										
Acres	San Diego	0.00 :1	179	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0
						NPV	\$0			
Critical Habitat Unit 4										
Acres	San Diego	0.00 :1	0	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0
						NPV	\$0			
Critical Habitat Unit 5										
Acres	San Diego	0.00 :1	271	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0
						NPV	\$0			
Critical Habitat Unit 6										
Acres	Orange	0.00 :1	151	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0
Acres	San Diego	0.00 :1	0	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0
						Total NPV	\$0			
Critical Habitat Unit 7										
Acres	Orange	0.00 :1	11	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0
						NPV	\$0			
Critical Habitat Unit 8										
Acres	Los Angeles	0.93 :1	0	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0
						NPV	\$0			
Critical Habitat Unit 9										
Acres	Los Angeles	0.93 :1	55	51.43	\$30,000	Acres	2.24	2.24	2.24	2.24
Units						Annual Cost	\$67,083	\$67,083	\$67,083	\$67,083
Acres	Orange	0.00 :1	29	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0
Acres	Riverside	0.00 :1	2	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.40 :1	2	0.78	\$30,000	Acres	0.03	0.03	0.03	0.03
Units						Annual Cost	\$1,019	\$1,019	\$1,019	\$1,019

Table E-4
CSS Restoration Calculations for Projected Residential Development

Proposed Critical Habitat Unit	County	Restoration Mitigation Ratio (1)	Projected Residential Development			Restoration Calculations by Year (4)					
			Projected Acres Developed (2)	Acres Restored	Avg. Restoration Cost per Acre (3)	2003 1	2004 2	2005 3	2006 4		
						Total NPV	\$525,647				
Critical Habitat Unit 10											
Acres Units	Orange	0.00 :1	0	0.00	\$30,000	Acres Annual Cost	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0	
Acres Units	Riverside	0.00 :1	1,188	0.00	\$30,000	Acres Annual Cost	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0	
Acres Units	San Bernardino	0.40 :1	93	37.18	\$30,000	Acres Annual Cost	1.62 \$48,499	1.62 \$48,499	1.62 \$48,499	1.62 \$48,499	
Acres Units	San Diego	0.00 :1	0	0.00	\$30,000	Acres Annual Cost	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0	
						Total NPV	\$374,338				
Critical Habitat Unit 11											
Acres Units	San Bernardino	0.40 :1	113	45.11	\$30,000	Acres Annual Cost NPV	1.96 \$58,841 \$454,163	1.96 \$58,841	1.96 \$58,841	1.96 \$58,841	
Critical Habitat Unit 12											
Acres Units	Los Angeles	0.93 :1	8	7.40	\$30,000	Acres Annual Cost NPV	0.32 \$9,649 \$74,475	0.32 \$9,649	0.32 \$9,649	0.32 \$9,649	
Critical Habitat Unit 13											
Acres Units	Los Angeles	0.93 :1	744	691.91	\$30,000	Acres Annual Cost	30.08 \$902,490	30.08 \$902,490	30.08 \$902,490	30.08 \$902,490	
Acres Units	Ventura	0.93 :1	110	102.66	\$30,000	Acres Annual Cost	4.46 \$133,908	4.46 \$133,908	4.46 \$133,908	4.46 \$133,908	
Total NPV, All Units:						Total NPV	\$7,999,371				
		\$9,427,994									

- (1) Based on review of selected Biological Opinions, as summarized in Table 11 and detailed in Appendix C. Mitigation ratios in Ventura County were assumed to be the same as in Los Angeles, because no Biological Opinions were provided for projects in Ventura involving the CAGN.
- (2) Equal to Projected Growth Acres minus Acres Set-aside (Table E-1)
- (3) Table 15
- (4) Assumes projected development is distributed evenly throughout 2025.

**Table E-4
CSS Restoration Calculations for Pr**

Proposed Critical Habitat Unit	County	Restoration Calculations by Year (4)									
		2007 5	2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14
Critical Habitat Unit 1											
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 2											
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 3											
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 4											
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 5											
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 6											
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7											
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 8											
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9											
Acres	Los Angeles	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24
Units		\$67,083	\$67,083	\$67,083	\$67,083	\$67,083	\$67,083	\$67,083	\$67,083	\$67,083	\$67,083
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Units		\$1,019	\$1,019	\$1,019	\$1,019	\$1,019	\$1,019	\$1,019	\$1,019	\$1,019	\$1,019

**Table E-4
CSS Restoration Calculations for Pr**

Proposed Critical Habitat Unit	County	Restoration Calculations by Year (4)									
		2007 5	2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14
Critical Habitat Unit 10											
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62
Units		\$48,499	\$48,499	\$48,499	\$48,499	\$48,499	\$48,499	\$48,499	\$48,499	\$48,499	\$48,499
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 11											
Acres	San Bernardino	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96
Units		\$58,841	\$58,841	\$58,841	\$58,841	\$58,841	\$58,841	\$58,841	\$58,841	\$58,841	\$58,841
Critical Habitat Unit 12											
Acres	Los Angeles	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Units		\$9,649	\$9,649	\$9,649	\$9,649	\$9,649	\$9,649	\$9,649	\$9,649	\$9,649	\$9,649
Critical Habitat Unit 13											
Acres	Los Angeles	30.08	30.08	30.08	30.08	30.08	30.08	30.08	30.08	30.08	30.08
Units		\$902,490	\$902,490	\$902,490	\$902,490	\$902,490	\$902,490	\$902,490	\$902,490	\$902,490	\$902,490
Acres	Ventura	4.46	4.46	4.46	4.46	4.46	4.46	4.46	4.46	4.46	4.46
Units		\$133,908	\$133,908	\$133,908	\$133,908	\$133,908	\$133,908	\$133,908	\$133,908	\$133,908	\$133,908
Total NPV, All Units:											

**Table E-4
CSS Restoration Calculations for Pr**

Proposed Critical Habitat Unit	County	Restoration Calculations by Year (4)								
		2017 15	2018 16	2019 17	2020 18	2021 19	2022 20	2023 21	2024 22	2025 23
Critical Habitat Unit 1										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 2										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 3										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 4										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 5										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 6										
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7										
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 8										
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9										
Acres	Los Angeles	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24
Units		\$67,083	\$67,083	\$67,083	\$67,083	\$67,083	\$67,083	\$67,083	\$67,083	\$67,083
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Units		\$1,019	\$1,019	\$1,019	\$1,019	\$1,019	\$1,019	\$1,019	\$1,019	\$1,019

**Table E-4
CSS Restoration Calculations for Pr**

Proposed Critical Habitat Unit	County	Restoration Calculations by Year (4)								
		2017 15	2018 16	2019 17	2020 18	2021 19	2022 20	2023 21	2024 22	2025 23
Critical Habitat Unit 10										
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62
Units		\$48,499	\$48,499	\$48,499	\$48,499	\$48,499	\$48,499	\$48,499	\$48,499	\$48,499
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 11										
Acres	San Bernardino	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96
Units		\$58,841	\$58,841	\$58,841	\$58,841	\$58,841	\$58,841	\$58,841	\$58,841	\$58,841
Critical Habitat Unit 12										
Acres	Los Angeles	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Units		\$9,649	\$9,649	\$9,649	\$9,649	\$9,649	\$9,649	\$9,649	\$9,649	\$9,649
Critical Habitat Unit 13										
Acres	Los Angeles	30.08	30.08	30.08	30.08	30.08	30.08	30.08	30.08	30.08
Units		\$902,490	\$902,490	\$902,490	\$902,490	\$902,490	\$902,490	\$902,490	\$902,490	\$902,490
Acres	Ventura	4.46	4.46	4.46	4.46	4.46	4.46	4.46	4.46	4.46
Units		\$133,908	\$133,908	\$133,908	\$133,908	\$133,908	\$133,908	\$133,908	\$133,908	\$133,908
Total NPV, All Units:										

Table E-5
On-site Set-aside Calculations for Projected Commercial Development

Proposed Critical Habitat Unit	County	On-site Mitigation Ratio (1)	Projected Office Development			Projected Industrial Development			Set-Aside Calculations by Year (4)		
			Projected Growth Acres (2)	Acres Set-aside	Per-acre Residual Land Value (3)	Acres Impacted (2)	Acres Set-aside	Per-acre Residual Land Value (3)	2003	2004	
Critical Habitat Unit 1											
Acres Units	San Diego	0.06 :1	0	0	\$237,374	5	0	\$56,628	Acres Annual Cost NPV	0.01 \$774 \$5,970	0.01 \$774
Critical Habitat Unit 2											
Acres Units	San Diego	0.06 :1	0	0	\$237,374	0	0	\$56,628	Acres Annual Cost NPV	0.00 \$17 \$131	0.00 \$17
Critical Habitat Unit 3											
Acres Units	San Diego	0.06 :1	1	0	\$237,374	15	1	\$56,628	Acres Annual Cost NPV	0.04 \$2,771 \$21,389	0.04 \$2,771
Critical Habitat Unit 4											
Acres Units	San Diego	0.06 :1	0	0	\$237,374	0	0	\$56,628	Acres Annual Cost NPV	0.00 \$2 \$19	0.00 \$2
Critical Habitat Unit 5											
Acres Units	San Diego	0.06 :1	0	0	\$237,374	2	0	\$56,628	Acres Annual Cost NPV	0.01 \$292 \$2,254	0.01 \$292
Critical Habitat Unit 6											
Acres Units	Orange	1.82 :1	0	0	\$268,330	0	0	\$51,227	Acres Annual Cost	0.00 \$0	0.00 \$0
Acres Units	San Diego	0.06 :1	0	0	\$237,374	0	0	\$56,628	Acres Annual Cost	0.00 \$0	0.00 \$0
Critical Habitat Unit 7											
Acres Units	Orange	1.82 :1	16	10	\$268,330	48	31	\$51,227	Acres Annual Cost NPV	1.77 \$185,758 \$1,433,758	1.77 \$185,758
Critical Habitat Unit 8											
Acres Units	Los Angeles	0.44 :1	0	0	\$235,608	0	0	\$37,838	Acres Annual Cost NPV	0.00 \$0 \$0	0.00 \$0
Critical Habitat Unit 9											
Acres Units	Los Angeles	0.44 :1	171	52	\$235,608	104	32	\$37,838	Acres Annual Cost	3.66 \$588,268	3.66 \$588,268
Acres Units	Orange	1.82 :1	206	133	\$268,330	139	90	\$51,227	Acres Annual Cost	9.68 \$1,748,819	9.68 \$1,748,819
Acres Units	Riverside	1.14 :1	0	0	\$152,460	0	0	\$35,719	Acres Annual Cost	0.01 \$1,369	0.01 \$1,369
Acres Units	San Bernardino	2.70 :1	24	17	\$152,460	16	12	\$35,719	Acres Annual Cost Total NPV	1.26 \$133,278 \$19,077,909	1.26 \$133,278

**Table E-5
On-site Set-aside Calculations for Projected Commercial Development**

Proposed Critical Habitat Unit	County	On-site Mitigation Ratio (1)	Projected Office Development			Projected Industrial Development			Set-Aside Calculations by Year (4)		
			Projected Growth Acres (2)	Acres Set-aside	Per-acre Residual Land Value (3)	Acres Impacted (2)	Acres Set-aside	Per-acre Residual Land Value (3)	2003	2004	
Critical Habitat Unit 10											
Acres Units	Orange	1.82 :1	1	0	\$268,330	0	0	\$51,227	Acres Annual Cost	0.03 \$5,808	0.03 \$5,808
Acres Units	Riverside	1.14 :1	5,754	3,069	\$152,460	3,467	1,850	\$35,719	Acres Annual Cost	213.88 \$23,219,256	213.88 \$23,219,256
Acres Units	San Bernardino	2.70 :1	19	14	\$152,460	21	16	\$35,719	Acres Annual Cost	1.29 \$117,515	1.29 \$117,515
Acres Units	San Diego	0.06 :1	0	0	\$237,374	0	0	\$56,628	Acres Annual Cost Total NPV	0.00 \$0 \$180,168,151	0.00 \$0
Critical Habitat Unit 11											
Acres Units	San Bernardino	2.70 :1	1,195	872	\$152,460	797	582	\$35,719	Acres Annual Cost NPV	63.21 \$6,682,889 \$51,581,437	63.21 \$6,682,889
Critical Habitat Unit 12											
Acres Units	Los Angeles	0.44 :1	66	20	\$235,608	40	12	\$37,838	Acres Annual Cost NPV	1.41 \$227,597 \$1,756,691	1.41 \$227,597
Critical Habitat Unit 13											
Acres Units	Los Angeles	0.44 :1	1,260	385	\$235,608	748	229	\$37,838	Acres Annual Cost	26.68 \$4,320,610	26.68 \$4,320,610
Acres Units	Ventura	0.44 :1	1,134	346	\$213,444	658	201	\$59,869	Acres Annual Cost Total NPV	23.81 \$3,738,432 \$62,203,177	23.81 \$3,738,432
Total NPV, All Units	\$316,250,887										

- (1) For San Diego and Orange counties, the Effective Mitigation Ratio is the County-specific on-site mitigation ratio summarized in Table 11 minus an assumed CEQA mitigation ratio of 2-to-1. For all other counties, the Effective Mitigation Ratio is the ratio reported in Table 11.
Ventura involving the CAGN.
- (2) Table E-1
- (3) Table D-1
- (4) Assumes projected development is distributed evenly throughout 2025.

**Table E-5
On-site Set-aside Calculations for Pr**

Proposed Critical Habitat Unit	County	Set-Aside Calculations by Year (4)											
		2005 3	2006 4	2007 5	2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14
Critical Habitat Unit 1													
Acres	San Diego	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Units		\$774	\$774	\$774	\$774	\$774	\$774	\$774	\$774	\$774	\$774	\$774	\$774
Critical Habitat Unit 2													
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$17	\$17	\$17	\$17	\$17	\$17	\$17	\$17	\$17	\$17	\$17	\$17
Critical Habitat Unit 3													
Acres	San Diego	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Units		\$2,771	\$2,771	\$2,771	\$2,771	\$2,771	\$2,771	\$2,771	\$2,771	\$2,771	\$2,771	\$2,771	\$2,771
Critical Habitat Unit 4													
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2
Critical Habitat Unit 5													
Acres	San Diego	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Units		\$292	\$292	\$292	\$292	\$292	\$292	\$292	\$292	\$292	\$292	\$292	\$292
Critical Habitat Unit 6													
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7													
Acres	Orange	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77
Units		\$185,758	\$185,758	\$185,758	\$185,758	\$185,758	\$185,758	\$185,758	\$185,758	\$185,758	\$185,758	\$185,758	\$185,758
Critical Habitat Unit 8													
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9													
Acres	Los Angeles	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
Units		\$588,268	\$588,268	\$588,268	\$588,268	\$588,268	\$588,268	\$588,268	\$588,268	\$588,268	\$588,268	\$588,268	\$588,268
Acres	Orange	9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68
Units		\$1,748,819	\$1,748,819	\$1,748,819	\$1,748,819	\$1,748,819	\$1,748,819	\$1,748,819	\$1,748,819	\$1,748,819	\$1,748,819	\$1,748,819	\$1,748,819
Acres	Riverside	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Units		\$1,369	\$1,369	\$1,369	\$1,369	\$1,369	\$1,369	\$1,369	\$1,369	\$1,369	\$1,369	\$1,369	\$1,369
Acres	San Bernardino	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
Units		\$133,278	\$133,278	\$133,278	\$133,278	\$133,278	\$133,278	\$133,278	\$133,278	\$133,278	\$133,278	\$133,278	\$133,278

**Table E-5
On-site Set-aside Calculations for Pr**

Proposed Critical Habitat Unit	County	Set-Aside Calculations by Year (4)											
		2005 3	2006 4	2007 5	2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14
Critical Habitat Unit 10													
Acres	Orange	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Units		\$5,808	\$5,808	\$5,808	\$5,808	\$5,808	\$5,808	\$5,808	\$5,808	\$5,808	\$5,808	\$5,808	\$5,808
Acres	Riverside	213.88	213.88	213.88	213.88	213.88	213.88	213.88	213.88	213.88	213.88	213.88	213.88
Units		\$23,219,256	\$23,219,256	\$23,219,256	\$23,219,256	\$23,219,256	\$23,219,256	\$23,219,256	\$23,219,256	\$23,219,256	\$23,219,256	\$23,219,256	\$23,219,256
Acres	San Bernardino	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Units		\$117,515	\$117,515	\$117,515	\$117,515	\$117,515	\$117,515	\$117,515	\$117,515	\$117,515	\$117,515	\$117,515	\$117,515
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 11													
Acres	San Bernardino	63.21	63.21	63.21	63.21	63.21	63.21	63.21	63.21	63.21	63.21	63.21	63.21
Units		\$6,682,889	\$6,682,889	\$6,682,889	\$6,682,889	\$6,682,889	\$6,682,889	\$6,682,889	\$6,682,889	\$6,682,889	\$6,682,889	\$6,682,889	\$6,682,889
Critical Habitat Unit 12													
Acres	Los Angeles	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41
Units		\$227,597	\$227,597	\$227,597	\$227,597	\$227,597	\$227,597	\$227,597	\$227,597	\$227,597	\$227,597	\$227,597	\$227,597
Critical Habitat Unit 13													
Acres	Los Angeles	26.68	26.68	26.68	26.68	26.68	26.68	26.68	26.68	26.68	26.68	26.68	26.68
Units		\$4,320,610	\$4,320,610	\$4,320,610	\$4,320,610	\$4,320,610	\$4,320,610	\$4,320,610	\$4,320,610	\$4,320,610	\$4,320,610	\$4,320,610	\$4,320,610
Acres	Ventura	23.81	23.81	23.81	23.81	23.81	23.81	23.81	23.81	23.81	23.81	23.81	23.81
Units		\$3,738,432	\$3,738,432	\$3,738,432	\$3,738,432	\$3,738,432	\$3,738,432	\$3,738,432	\$3,738,432	\$3,738,432	\$3,738,432	\$3,738,432	\$3,738,432
Total NPV, All Units	\$316,250,887												

**Table E-5
On-site Set-aside Calculations for Pr**

Proposed Critical Habitat Unit	County	Set-Aside Calculations by Year (4)								
		2017 15	2018 16	2019 17	2020 18	2021 19	2022 20	2023 21	2024 22	2025 23
Critical Habitat Unit 1										
Acres	San Diego	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Units		\$774	\$774	\$774	\$774	\$774	\$774	\$774	\$774	\$774
Critical Habitat Unit 2										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$17	\$17	\$17	\$17	\$17	\$17	\$17	\$17	\$17
Critical Habitat Unit 3										
Acres	San Diego	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Units		\$2,771	\$2,771	\$2,771	\$2,771	\$2,771	\$2,771	\$2,771	\$2,771	\$2,771
Critical Habitat Unit 4										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2
Critical Habitat Unit 5										
Acres	San Diego	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Units		\$292	\$292	\$292	\$292	\$292	\$292	\$292	\$292	\$292
Critical Habitat Unit 6										
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7										
Acres	Orange	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77
Units		\$185,758	\$185,758	\$185,758	\$185,758	\$185,758	\$185,758	\$185,758	\$185,758	\$185,758
Critical Habitat Unit 8										
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9										
Acres	Los Angeles	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
Units		\$588,268	\$588,268	\$588,268	\$588,268	\$588,268	\$588,268	\$588,268	\$588,268	\$588,268
Acres	Orange	9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68
Units		\$1,748,819	\$1,748,819	\$1,748,819	\$1,748,819	\$1,748,819	\$1,748,819	\$1,748,819	\$1,748,819	\$1,748,819
Acres	Riverside	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Units		\$1,369	\$1,369	\$1,369	\$1,369	\$1,369	\$1,369	\$1,369	\$1,369	\$1,369
Acres	San Bernardino	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
Units		\$133,278	\$133,278	\$133,278	\$133,278	\$133,278	\$133,278	\$133,278	\$133,278	\$133,278

**Table E-5
On-site Set-aside Calculations for Pr**

Proposed Critical Habitat Unit	County	Set-Aside Calculations by Year (4)								
		2017 15	2018 16	2019 17	2020 18	2021 19	2022 20	2023 21	2024 22	2025 23
Critical Habitat Unit 10										
Acres	Orange	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Units		\$5,808	\$5,808	\$5,808	\$5,808	\$5,808	\$5,808	\$5,808	\$5,808	\$5,808
Acres	Riverside	213.88	213.88	213.88	213.88	213.88	213.88	213.88	213.88	213.88
Units		\$23,219,256	\$23,219,256	\$23,219,256	\$23,219,256	\$23,219,256	\$23,219,256	\$23,219,256	\$23,219,256	\$23,219,256
Acres	San Bernardino	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Units		\$117,515	\$117,515	\$117,515	\$117,515	\$117,515	\$117,515	\$117,515	\$117,515	\$117,515
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 11										
Acres	San Bernardino	63.21	63.21	63.21	63.21	63.21	63.21	63.21	63.21	63.21
Units		\$6,682,889	\$6,682,889	\$6,682,889	\$6,682,889	\$6,682,889	\$6,682,889	\$6,682,889	\$6,682,889	\$6,682,889
Critical Habitat Unit 12										
Acres	Los Angeles	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41
Units		\$227,597	\$227,597	\$227,597	\$227,597	\$227,597	\$227,597	\$227,597	\$227,597	\$227,597
Critical Habitat Unit 13										
Acres	Los Angeles	26.68	26.68	26.68	26.68	26.68	26.68	26.68	26.68	26.68
Units		\$4,320,610	\$4,320,610	\$4,320,610	\$4,320,610	\$4,320,610	\$4,320,610	\$4,320,610	\$4,320,610	\$4,320,610
Acres	Ventura	23.81	23.81	23.81	23.81	23.81	23.81	23.81	23.81	23.81
Units		\$3,738,432	\$3,738,432	\$3,738,432	\$3,738,432	\$3,738,432	\$3,738,432	\$3,738,432	\$3,738,432	\$3,738,432
Total NPV, All Units	\$316,250,887									

Table E-6
Off-site Preservation Calculations for Projected Commercial Development

Proposed Critical Habitat Unit	County	Off-site Mitigation Ratio (1)	Projected Office Development			Projected Industrial Development			Preservation Calculations by Year (4)		
			Projected Acres Developed (2)	Acres Preserved	Average Price per Mitigation Acre (3)	Projected Acres Developed (2)	Acres Preserved	Per-acre Residual Land Value (3)	2003 1	2004 2	
Critical Habitat Unit 1											
Acres Units	San Diego	0.00 :1	0	0	\$19,750	5	0	\$56,628	Acres	0.00	0.00
									Annual Cost	\$0	\$0
									NPV	\$0	\$0
Critical Habitat Unit 2											
Acres Units	San Diego	0.00 :1	0	0	\$19,750	0	0	\$56,628	Acres	0.00	0.00
									Annual Cost	\$0	\$0
									NPV	\$0	\$0
Critical Habitat Unit 3											
Acres Units	San Diego	0.00 :1	1	0	\$19,750	14	0	\$56,628	Acres	0.00	0.00
									Annual Cost	\$0	\$0
									NPV	\$0	\$0
Critical Habitat Unit 4											
Acres Units	San Diego	0.00 :1	0	0	\$19,750	0	0	\$56,628	Acres	0.00	0.00
									Annual Cost	\$0	\$0
									NPV	\$0	\$0
Critical Habitat Unit 5											
Acres Units	San Diego	0.00 :1	0	0	\$19,750	2	0	\$56,628	Acres	0.00	0.00
									Annual Cost	\$0	\$0
									NPV	\$0	\$0
Critical Habitat Unit 6											
Acres Units	Orange	0.00 :1	0	0	\$78,333	0	0	\$51,227	Acres	0.00	0.00
									Annual Cost	\$0	\$0
Acres Units	San Diego	0.00 :1	0	0	\$19,750	0	0	\$56,628	Acres	0.00	0.00
									Annual Cost	\$0	\$0
									Total NPV	\$0	\$0
Critical Habitat Unit 7											
Acres Units	Orange	0.00 :1	6	0	\$78,333	17	0	\$51,227	Acres	0.00	0.00
									Annual Cost	\$0	\$0
									NPV	\$0	\$0
Critical Habitat Unit 8											
Acres Units	Los Angeles	0.00 :1	0	0	\$0	0	0	\$37,838	Acres	0.00	0.00
									Annual Cost	\$0	\$0
									NPV	\$0	\$0
Critical Habitat Unit 9											
Acres Units	Los Angeles	0.00 :1	119	0	\$0	72	0	\$37,838	Acres	0.00	0.00
									Annual Cost	\$0	\$0
Acres Units	Orange	0.00 :1	73	0	\$78,333	49	0	\$51,227	Acres	0.00	0.00
									Annual Cost	\$0	\$0
Acres Units	Riverside	1.22 :1	0	0	\$9,500	0	0	\$35,719	Acres	0.01	0.01
									Annual Cost	\$261	\$261
Acres Units	San Bernardino	0.00 :1	6	0	\$0	4	0	\$35,719	Acres	0.00	0.00
									Annual Cost	\$0	\$0
									Total NPV	\$2,016	\$0

Table E-6
Off-site Preservation Calculations for Projected Commercial Development

Proposed Critical Habitat Unit	County	Off-site Mitigation Ratio (1)	Projected Office Development			Projected Industrial Development			Preservation Calculations by Year (4)		
			Projected Acres Developed (2)	Acres Preserved	Average Price per Mitigation Acre (3)	Projected Acres Developed (2)	Acres Preserved	Per-acre Residual Land Value (3)	2003	2004	
									1	2	
Critical Habitat Unit 10											
Acres Units	Orange	0.00 :1	0	0	\$78,333	0	0	\$51,227	Acres Annual Cost	0.00 \$0	0.00 \$0
Acres Units	Riverside	1.22 :1	2,685	3,284	\$9,500	1,618	1,979	\$35,719	Acres Annual Cost	228.84 \$4,430,084	228.84 \$4,430,084
Acres Units	San Bernardino	0.00 :1	5	0	\$0	6	0	\$35,719	Acres Annual Cost	0.00 \$0	0.00 \$0
Acres Units	San Diego	0.00 :1	0	0	\$19,750	0	0	\$56,628	Acres Annual Cost	0.00 \$0	0.00 \$0
									Total NPV	\$34,193,311	
Critical Habitat Unit 11											
Acres Units	San Bernardino	0.00 :1	323	0	\$0	216	0	\$35,719	Acres Annual Cost NPV	0.00 \$0 \$0	0.00 \$0 \$0
Critical Habitat Unit 12											
Acres Units	Los Angeles	0.00 :1	46	0	\$0	27	0	\$37,838	Acres Annual Cost NPV	0.00 \$0 \$0	0.00 \$0 \$0
Critical Habitat Unit 13											
Acres Units	Los Angeles	0.00 :1	875	0	\$0	520	0	\$37,838	Acres Annual Cost	0.00 \$0	0.00 \$0
Acres Units	Ventura	0.00 :1	787	0	\$0	457	0	\$59,869	Acres Annual Cost	0.00 \$0	0.00 \$0
Total NPV, All Units:										\$34,195,327	

- (1) For San Diego and Orange counties, all mitigation above CEQA baseline is assumed to be on-site. The off-site mitigation ratio is therefore assumed to be zero. For the remaining counties, the mitigation ratio is from a review of selected Biological Opinions, as summarized in Table 11 and detailed in Appendix C. Mitigation ratios in Ventura County were assumed to be the same as in Los Angeles, because no Biological Opinions were provided for projects in Ventura involving the CAGN.
- (2) Equal to Projected Growth Acres minus Acres Set-aside (Table E-1)
- (3) Table 15
- (4) Assumes projected development is distributed evenly throughout 2025.

Table E-6
Off-site Preservation Calculations for

Proposed Critical Habitat Unit	County	Preservation Calculations by Year (4)											
		2005 3	2006 4	2007 5	2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14
Critical Habitat Unit 1													
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 2													
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 3													
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 4													
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 5													
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 6													
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7													
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 8													
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9													
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Units		\$261	\$261	\$261	\$261	\$261	\$261	\$261	\$261	\$261	\$261	\$261	\$261
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**Table E-6
Off-site Preservation Calculations for**

Proposed Critical Habitat Unit	County	Preservation Calculations by Year (4)											
		2005 3	2006 4	2007 5	2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14
Critical Habitat Unit 10													
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	228.84	228.84	228.84	228.84	228.84	228.84	228.84	228.84	228.84	228.84	228.84	228.84
Units		\$4,430,084	\$4,430,084	\$4,430,084	\$4,430,084	\$4,430,084	\$4,430,084	\$4,430,084	\$4,430,084	\$4,430,084	\$4,430,084	\$4,430,084	\$4,430,084
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 11													
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 12													
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 13													
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Ventura	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total NPV, All Units:													

Table E-6
Off-site Preservation Calculations for

Proposed Critical Habitat Unit	County	Preservation Calculations by Year (4)								
		2017 15	2018 16	2019 17	2020 18	2021 19	2022 20	2023 21	2024 22	2025 23
Critical Habitat Unit 1										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 2										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 3										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 4										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 5										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 6										
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7										
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 8										
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9										
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Units		\$261	\$261	\$261	\$261	\$261	\$261	\$261	\$261	\$261
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Table E-6
Off-site Preservation Calculations for

Proposed Critical Habitat Unit	County	Preservation Calculations by Year (4)								
		2017 15	2018 16	2019 17	2020 18	2021 19	2022 20	2023 21	2024 22	2025 23
Critical Habitat Unit 10										
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	228.84	228.84	228.84	228.84	228.84	228.84	228.84	228.84	228.84
Units		\$4,430,084	\$4,430,084	\$4,430,084	\$4,430,084	\$4,430,084	\$4,430,084	\$4,430,084	\$4,430,084	\$4,430,084
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 11										
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 12										
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 13										
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Ventura	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total NPV, All Units:										

Table E-7
CSS Restoration Calculations for Projected Commercial Development

Proposed Critical Habitat Unit	County	Restoration Mitigation Ratio (1)	Projected Office Development			Projected Industrial Development			Restoration Calculations by Year (4)			
			Projected Acres Developed (2)	Acres Restored	Avg. Restoration Cost per Acre (3)	Projected Acres Developed (2)	Acres Restored	Avg. Restoration Cost per Acre (3)	2003 1	2004 2		
Critical Habitat Unit 1												
Acres Units	San Diego	0.00 :1	0	0.00	\$30,000	5	0.00	\$30,000	Acres	0.00	0.00	
									Annual Cost	\$0	\$0	
									NPV	\$0		
Critical Habitat Unit 2												
Acres Units	San Diego	0.00 :1	0	0.00	\$30,000	0	0.00	\$30,000	Acres	0.00	0.00	
									Annual Cost	\$0	\$0	
									NPV	\$0		
Critical Habitat Unit 3												
Acres Units	San Diego	0.00 :1	1	0.00	\$30,000	14	0.00	\$30,000	Acres	0.00	0.00	
									Annual Cost	\$0	\$0	
									NPV	\$0		
Critical Habitat Unit 4												
Acres Units	San Diego	0.00 :1	0	0.00	\$30,000	0	0.00	\$30,000	Acres	0.00	0.00	
									Annual Cost	\$0	\$0	
									NPV	\$0		
Critical Habitat Unit 5												
Acres Units	San Diego	0.00 :1	0	0.00	\$30,000	2	0.00	\$30,000	Acres	0.00	0.00	
									Annual Cost	\$0	\$0	
									NPV	\$0		
Critical Habitat Unit 6												
Acres Units	Orange	0.00 :1	0	0.00	\$30,000	0	0.00	\$30,000	Acres	0.00	0.00	
									Annual Cost	\$0	\$0	
Acres Units	San Diego	0.00 :1	0	0.00	\$30,000	0	0.00	\$30,000	Acres	0.00	0.00	
									Annual Cost	\$0	\$0	
									Total NPV	\$0		
Critical Habitat Unit 7												
Acres Units	Orange	0.00 :1	6	0.00	\$30,000	17	0.00	\$30,000	Acres	0.00	0.00	
									Annual Cost	\$0	\$0	
									NPV	\$0		
Critical Habitat Unit 8												
Acres Units	Los Angeles	0.93 :1	0	0.00	\$30,000	0	0.00	\$30,000	Acres	0.00	0.00	
									Annual Cost	\$0	\$0	
									NPV	\$0		
Critical Habitat Unit 9												
Acres Units	Los Angeles	0.93 :1	119	110.55	\$30,000	72	67.42	\$30,000	Acres	7.74	7.74	
									Annual Cost	\$232,140	\$232,140	
Acres Units	Orange	0.00 :1	73	0.00	\$30,000	49	0.00	\$30,000	Acres	0.00	0.00	
									Annual Cost	\$0	\$0	
Acres Units	Riverside	0.00 :1	0	0.00	\$30,000	0	0.00	\$30,000	Acres	0.00	0.00	
									Annual Cost	\$0	\$0	
Acres Units	San Bernardino	0.40 :1	6	2.58	\$30,000	4	1.72	\$30,000	Acres	0.19	0.19	
									Annual Cost	\$5,602	\$5,602	
									Total NPV	\$1,835,000		

Table E-7
CSS Restoration Calculations for Projected Commercial Development

Proposed Critical Habitat Unit	County	Restoration Mitigation Ratio (1)	Projected Office Development			Projected Industrial Development			Restoration Calculations by Year (4)		
			Projected Acres Developed (2)	Acres Restored	Avg. Restoration Cost per Acre (3)	Projected Acres Developed (2)	Acres Restored	Avg. Restoration Cost per Acre (3)	2003 1	2004 2	
Critical Habitat Unit 10											
Acres Units	Orange	0.00 :1	0	0.00	\$30,000	0	0.00	\$30,000	Acres	0.00	0.00
									Annual Cost	\$0	\$0
Acres Units	Riverside	0.00 :1	2,685	0.00	\$30,000	1,618	0.00	\$30,000	Acres	0.00	0.00
									Annual Cost	\$0	\$0
Acres Units	San Bernardino	0.40 :1	5	2.09	\$30,000	6	2.30	\$30,000	Acres	0.19	0.19
									Annual Cost	\$5,720	\$5,720
Acres Units	San Diego	0.00 :1	0	0.00	\$30,000	0	0.00	\$30,000	Acres	0.00	0.00
									Annual Cost	\$0	\$0
									Total NPV	\$44,151	
Critical Habitat Unit 11											
Acres Units	San Bernardino	0.40 :1	323	129.16	\$30,000	216	86.21	\$30,000	Acres	9.36	9.36
									Annual Cost	\$280,922	\$280,922
									NPV	\$2,168,281	
Critical Habitat Unit 12											
Acres Units	Los Angeles	0.93 :1	46	42.86	\$30,000	27	25.52	\$30,000	Acres	2.97	2.97
									Annual Cost	\$89,192	\$89,192
									NPV	\$688,423	
Critical Habitat Unit 13											
Acres Units	Los Angeles	0.93 :1	875	813.89	\$30,000	520	483.16	\$30,000	Acres	56.39	56.39
									Annual Cost	\$1,691,807	\$1,691,807
Acres Units	Ventura	0.93 :1	787	732.23	\$30,000	457	425.08	\$30,000	Acres	50.32	50.32
									Annual Cost	\$1,509,534	\$1,509,534
									Total NPV	\$24,709,337	
Total NPV, All Units:			\$29,445,192								

- (1) Based on review of selected Biological Opinions, as summarized in Table 11 and detailed in Appendix C. Mitigation ratios in Ventura County were assumed to be the same as in Los Angeles, because no Biological Opinions were provided for projects in Ventura involving the CAGN.
- (2) Equal to Projected Growth Acres minus Acres Set-aside (Table E-1)
- (3) Table 15
- (4) Assumes projected development is distributed evenly throughout 2025.

**Table E-7
CSS Restoration Calculations for Pr**

Proposed Critical Habitat Unit	County	Restoration Calculations by Year (4)											
		2005 3	2006 4	2007 5	2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14
Critical Habitat Unit 1													
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 2													
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 3													
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 4													
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 5													
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 6													
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7													
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 8													
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9													
Acres	Los Angeles	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74
Units		\$232,140	\$232,140	\$232,140	\$232,140	\$232,140	\$232,140	\$232,140	\$232,140	\$232,140	\$232,140	\$232,140	\$232,140
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Units		\$5,602	\$5,602	\$5,602	\$5,602	\$5,602	\$5,602	\$5,602	\$5,602	\$5,602	\$5,602	\$5,602	\$5,602

**Table E-7
CSS Restoration Calculations for Pr**

Proposed Critical Habitat Unit	County	Restoration Calculations by Year (4)											
		2005 3	2006 4	2007 5	2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14
Critical Habitat Unit 10													
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Units		\$5,720	\$5,720	\$5,720	\$5,720	\$5,720	\$5,720	\$5,720	\$5,720	\$5,720	\$5,720	\$5,720	\$5,720
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 11													
Acres	San Bernardino	9.36	9.36	9.36	9.36	9.36	9.36	9.36	9.36	9.36	9.36	9.36	9.36
Units		\$280,922	\$280,922	\$280,922	\$280,922	\$280,922	\$280,922	\$280,922	\$280,922	\$280,922	\$280,922	\$280,922	\$280,922
Critical Habitat Unit 12													
Acres	Los Angeles	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97
Units		\$89,192	\$89,192	\$89,192	\$89,192	\$89,192	\$89,192	\$89,192	\$89,192	\$89,192	\$89,192	\$89,192	\$89,192
Critical Habitat Unit 13													
Acres	Los Angeles	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39
Units		\$1,691,807	\$1,691,807	\$1,691,807	\$1,691,807	\$1,691,807	\$1,691,807	\$1,691,807	\$1,691,807	\$1,691,807	\$1,691,807	\$1,691,807	\$1,691,807
Acres	Ventura	50.32	50.32	50.32	50.32	50.32	50.32	50.32	50.32	50.32	50.32	50.32	50.32
Units		\$1,509,534	\$1,509,534	\$1,509,534	\$1,509,534	\$1,509,534	\$1,509,534	\$1,509,534	\$1,509,534	\$1,509,534	\$1,509,534	\$1,509,534	\$1,509,534
Total NPV, All Units:													

Table E-7
CSS Restoration Calculations for Pr

Proposed Critical Habitat Unit	County	Restoration Calculations by Year (4)								
		2017 15	2018 16	2019 17	2020 18	2021 19	2022 20	2023 21	2024 22	2025 23
Critical Habitat Unit 1										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 2										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 3										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 4										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 5										
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 6										
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7										
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 8										
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9										
Acres	Los Angeles	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74
Units		\$232,140	\$232,140	\$232,140	\$232,140	\$232,140	\$232,140	\$232,140	\$232,140	\$232,140
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Units		\$5,602	\$5,602	\$5,602	\$5,602	\$5,602	\$5,602	\$5,602	\$5,602	\$5,602

**Table E-7
CSS Restoration Calculations for Pr**

Proposed Critical Habitat Unit	County	Restoration Calculations by Year (4)								
		2017 15	2018 16	2019 17	2020 18	2021 19	2022 20	2023 21	2024 22	2025 23
Critical Habitat Unit 10										
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Units		\$5,720	\$5,720	\$5,720	\$5,720	\$5,720	\$5,720	\$5,720	\$5,720	\$5,720
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 11										
Acres	San Bernardino	9.36	9.36	9.36	9.36	9.36	9.36	9.36	9.36	9.36
Units		\$280,922	\$280,922	\$280,922	\$280,922	\$280,922	\$280,922	\$280,922	\$280,922	\$280,922
Critical Habitat Unit 12										
Acres	Los Angeles	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97
Units		\$89,192	\$89,192	\$89,192	\$89,192	\$89,192	\$89,192	\$89,192	\$89,192	\$89,192
Critical Habitat Unit 13										
Acres	Los Angeles	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39
Units		\$1,691,807	\$1,691,807	\$1,691,807	\$1,691,807	\$1,691,807	\$1,691,807	\$1,691,807	\$1,691,807	\$1,691,807
Acres	Ventura	50.32	50.32	50.32	50.32	50.32	50.32	50.32	50.32	50.32
Units		\$1,509,534	\$1,509,534	\$1,509,534	\$1,509,534	\$1,509,534	\$1,509,534	\$1,509,534	\$1,509,534	\$1,509,534
Total NPV, All Units:										

Table E-8
On-site Set-aside Calculations for Projected Retail Development

Proposed Critical Habitat Unit	County	On-site Mitigation Ratio (1)	Projected Residential Development			Set-Aside Calculations by Year (4)					
			Projected Growth Acres (2)	Acres Set-aside	Per-acre Residual Land Value (3)	2003 1	2004 2	2005 3	2006 4	2007 5	
Critical Habitat Unit 1											
Acres Units	San Diego	0.06 :1	2	0	\$129,635	Acres Annual Cost NPV	0.01 \$729 \$5,626	0.01 \$729	0.01 \$729	0.01 \$729	0.01 \$729
Critical Habitat Unit 2											
Acres Units	San Diego	0.06 :1	0	0	\$129,635	Acres Annual Cost NPV	0.00 \$43 \$332	0.00 \$43	0.00 \$43	0.00 \$43	0.00 \$43
Critical Habitat Unit 3											
Acres Units	San Diego	0.06 :1	9	1	\$129,635	Acres Annual Cost NPV	0.02 \$2,827 \$21,822	0.02 \$2,827	0.02 \$2,827	0.02 \$2,827	0.02 \$2,827
Critical Habitat Unit 4											
Acres Units	San Diego	0.06 :1	0	0	\$129,635	Acres Annual Cost NPV	0.00 \$0 \$1	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0
Critical Habitat Unit 5											
Acres Units	San Diego	0.06 :1	4	0	\$129,635	Acres Annual Cost NPV	0.01 \$1,258 \$9,713	0.01 \$1,258	0.01 \$1,258	0.01 \$1,258	0.01 \$1,258
Critical Habitat Unit 6											
Acres Units	Orange	1.82 :1	0	0	\$148,452	Acres Annual Cost	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0
Acres Units	San Diego	0.06 :1	0	0	\$129,635	Acres Annual Cost Total NPV	0.00 \$0 \$3	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0
Critical Habitat Unit 7											
Acres Units	Orange	1.82 :1	5	3	\$148,452	Acres Annual Cost NPV	0.14 \$21,263 \$164,115	0.14 \$21,263	0.14 \$21,263	0.14 \$21,263	0.14 \$21,263
Critical Habitat Unit 8											
Acres Units	Los Angeles	0.44 :1	0	0	\$150,543	Acres Annual Cost NPV	0.00 \$0 \$0	0.00 \$0	0.00 \$0	0.00 \$0	0.00 \$0
Critical Habitat Unit 9											
Acres Units	Los Angeles	0.44 :1	46	14	\$150,543	Acres Annual Cost	0.61 \$91,850	0.61 \$91,850	0.61 \$91,850	0.61 \$91,850	0.61 \$91,850
Acres Units	Orange	1.82 :1	65	42	\$148,452	Acres Annual Cost	1.83 \$271,751	1.83 \$271,751	1.83 \$271,751	1.83 \$271,751	1.83 \$271,751
Acres Units	Riverside	1.14 :1	0.1	0.1	\$112,908	Acres Annual Cost	0.003 \$343	0.003 \$343	0.003 \$343	0.003 \$343	0.003 \$343
Acres Units	San Bernardino	2.70 :1	9	7	\$112,908	Acres Annual Cost Total NPV	0.28 \$32,039 \$3,056,371	0.28 \$32,039	0.28 \$32,039	0.28 \$32,039	0.28 \$32,039
Critical Habitat Unit 10											
Acres Units	Orange	1.82 :1	0.2	0.1	\$148,452	Acres	0.01	0.01	0.01	0.01	0.01

Table E-8
On-site Set-aside Calculations for Projected Retail Development

Proposed Critical Habitat Unit	County	On-site Mitigation Ratio (1)	Projected Residential Development			Set-Aside Calculations by Year (4)					
			Projected Growth Acres (2)	Acres Set-aside	Per-acre Residual Land Value (3)	2003	2004	2005	2006	2007	
						1	2	3	4	5	
Units						Annual Cost	\$901	\$901	\$901	\$901	\$901
Acres	Riverside	1.14 :1	2,218	1,183	\$112,908	Acres	51.44	51.44	51.44	51.44	51.44
Units						Annual Cost	\$5,808,223	\$5,808,223	\$5,808,223	\$5,808,223	\$5,808,223
Acres	San Bernardino	2.70 :1	4	3	\$112,908	Acres	0.13	0.13	0.13	0.13	0.13
Units						Annual Cost	\$14,543	\$14,543	\$14,543	\$14,543	\$14,543
Acres	San Diego	0.06 :1	0	0	\$129,635	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$1	\$1	\$1	\$1	\$1
						Total NPV	\$44,949,597				
Critical Habitat Unit 11											
Acres	San Bernardino	2.70 :1	448	327	\$112,908	Acres	14.23	14.23	14.23	14.23	14.23
Units						Annual Cost	\$1,606,451	\$1,606,451	\$1,606,451	\$1,606,451	\$1,606,451
						NPV	\$12,399,283				
Critical Habitat Unit 12											
Acres	Los Angeles	0.44 :1	18	5	\$150,543	Acres	0.24	0.24	0.24	0.24	0.24
Units						Annual Cost	\$35,563	\$35,563	\$35,563	\$35,563	\$35,563
						NPV	\$274,487				
Critical Habitat Unit 13											
Acres	Los Angeles	0.44 :1	338	103	\$150,543	Acres	4.49	4.49	4.49	4.49	4.49
Units						Annual Cost	\$675,201	\$675,201	\$675,201	\$675,201	\$675,201
Acres	Ventura	0.44 :1	381	117	\$150,543	Acres	5.07	5.07	5.07	5.07	5.07
Units						Annual Cost	\$762,704	\$762,704	\$762,704	\$762,704	\$762,704
						Total NPV	\$11,098,372				
Total NPV, All Units:											
											\$71,979,721

- (1) For San Diego and Orange counties, the Effective Mitigation Ratio is the County-specific on-site mitigation ratio summarized in Table 11 minus an assumed CEQA mitigation ratio of 2-to-1. For all other counties, the Effective Mitigation Ratio is the ratio reported in Table 11.
Mitigation ratios in Ventura County were assumed to be the same as in Los Angeles, because no Biological Opinions were provided for projects in Ventura involving the CAGN.
- (2) Table E-1
(3) Table D-1
(4) Assumes projected development is distributed evenly throughout 2025.

Table E-8
On-site Set-aside Calculations for Pr

Proposed Critical Habitat Unit	County	Set-Aside Calculations by Year (4)									
		2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14	2017 15
Critical Habitat Unit 1											
Acres	San Diego	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Units		\$729	\$729	\$729	\$729	\$729	\$729	\$729	\$729	\$729	\$729
Critical Habitat Unit 2											
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$43	\$43	\$43	\$43	\$43	\$43	\$43	\$43	\$43	\$43
Critical Habitat Unit 3											
Acres	San Diego	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Units		\$2,827	\$2,827	\$2,827	\$2,827	\$2,827	\$2,827	\$2,827	\$2,827	\$2,827	\$2,827
Critical Habitat Unit 4											
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 5											
Acres	San Diego	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Units		\$1,258	\$1,258	\$1,258	\$1,258	\$1,258	\$1,258	\$1,258	\$1,258	\$1,258	\$1,258
Critical Habitat Unit 6											
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7											
Acres	Orange	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Units		\$21,263	\$21,263	\$21,263	\$21,263	\$21,263	\$21,263	\$21,263	\$21,263	\$21,263	\$21,263
Critical Habitat Unit 8											
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9											
Acres	Los Angeles	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Units		\$91,850	\$91,850	\$91,850	\$91,850	\$91,850	\$91,850	\$91,850	\$91,850	\$91,850	\$91,850
Acres	Orange	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
Units		\$271,751	\$271,751	\$271,751	\$271,751	\$271,751	\$271,751	\$271,751	\$271,751	\$271,751	\$271,751
Acres	Riverside	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Units		\$343	\$343	\$343	\$343	\$343	\$343	\$343	\$343	\$343	\$343
Acres	San Bernardino	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Units		\$32,039	\$32,039	\$32,039	\$32,039	\$32,039	\$32,039	\$32,039	\$32,039	\$32,039	\$32,039
Critical Habitat Unit 10											
Acres	Orange	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

**Table E-8
On-site Set-aside Calculations for Pr**

Proposed Critical Habitat Unit	County	Set-Aside Calculations by Year (4)									
		2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14	2017 15
Units		\$901	\$901	\$901	\$901	\$901	\$901	\$901	\$901	\$901	\$901
Acres	Riverside	51.44	51.44	51.44	51.44	51.44	51.44	51.44	51.44	51.44	51.44
Units		\$5,808,223	\$5,808,223	\$5,808,223	\$5,808,223	\$5,808,223	\$5,808,223	\$5,808,223	\$5,808,223	\$5,808,223	\$5,808,223
Acres	San Bernardino	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Units		\$14,543	\$14,543	\$14,543	\$14,543	\$14,543	\$14,543	\$14,543	\$14,543	\$14,543	\$14,543
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$1
Critical Habitat Unit 11											
Acres	San Bernardino	14.23	14.23	14.23	14.23	14.23	14.23	14.23	14.23	14.23	14.23
Units		\$1,606,451	\$1,606,451	\$1,606,451	\$1,606,451	\$1,606,451	\$1,606,451	\$1,606,451	\$1,606,451	\$1,606,451	\$1,606,451
Critical Habitat Unit 12											
Acres	Los Angeles	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Units		\$35,563	\$35,563	\$35,563	\$35,563	\$35,563	\$35,563	\$35,563	\$35,563	\$35,563	\$35,563
Critical Habitat Unit 13											
Acres	Los Angeles	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49
Units		\$675,201	\$675,201	\$675,201	\$675,201	\$675,201	\$675,201	\$675,201	\$675,201	\$675,201	\$675,201
Acres	Ventura	5.07	5.07	5.07	5.07	5.07	5.07	5.07	5.07	5.07	5.07
Units		\$762,704	\$762,704	\$762,704	\$762,704	\$762,704	\$762,704	\$762,704	\$762,704	\$762,704	\$762,704
Total NPV, All Units:											

Table E-8
On-site Set-aside Calculations for Pr

Proposed Critical Habitat Unit	County	Set-Aside Calculations by Year (4)							
		2018	2019	2020	2021	2022	2023	2024	2025
		16	17	18	19	20	21	22	23
Critical Habitat Unit 1									
Acres	San Diego	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Units		\$729	\$729	\$729	\$729	\$729	\$729	\$729	\$729
Critical Habitat Unit 2									
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$43	\$43	\$43	\$43	\$43	\$43	\$43	\$43
Critical Habitat Unit 3									
Acres	San Diego	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Units		\$2,827	\$2,827	\$2,827	\$2,827	\$2,827	\$2,827	\$2,827	\$2,827
Critical Habitat Unit 4									
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 5									
Acres	San Diego	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Units		\$1,258	\$1,258	\$1,258	\$1,258	\$1,258	\$1,258	\$1,258	\$1,258
Critical Habitat Unit 6									
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7									
Acres	Orange	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Units		\$21,263	\$21,263	\$21,263	\$21,263	\$21,263	\$21,263	\$21,263	\$21,263
Critical Habitat Unit 8									
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9									
Acres	Los Angeles	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Units		\$91,850	\$91,850	\$91,850	\$91,850	\$91,850	\$91,850	\$91,850	\$91,850
Acres	Orange	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
Units		\$271,751	\$271,751	\$271,751	\$271,751	\$271,751	\$271,751	\$271,751	\$271,751
Acres	Riverside	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Units		\$343	\$343	\$343	\$343	\$343	\$343	\$343	\$343
Acres	San Bernardino	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Units		\$32,039	\$32,039	\$32,039	\$32,039	\$32,039	\$32,039	\$32,039	\$32,039
Critical Habitat Unit 10									
Acres	Orange	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Table E-8
On-site Set-aside Calculations for Pr

Proposed Critical Habitat Unit	County	Set-Aside Calculations by Year (4)							
		2018	2019	2020	2021	2022	2023	2024	2025
		16	17	18	19	20	21	22	23
Units		\$901	\$901	\$901	\$901	\$901	\$901	\$901	\$901
Acres	Riverside	51.44	51.44	51.44	51.44	51.44	51.44	51.44	51.44
Units		\$5,808,223	\$5,808,223	\$5,808,223	\$5,808,223	\$5,808,223	\$5,808,223	\$5,808,223	\$5,808,223
Acres	San Bernardino	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Units		\$14,543	\$14,543	\$14,543	\$14,543	\$14,543	\$14,543	\$14,543	\$14,543
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$1
Critical Habitat Unit 11									
Acres	San Bernardino	14.23	14.23	14.23	14.23	14.23	14.23	14.23	14.23
Units		\$1,606,451	\$1,606,451	\$1,606,451	\$1,606,451	\$1,606,451	\$1,606,451	\$1,606,451	\$1,606,451
Critical Habitat Unit 12									
Acres	Los Angeles	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Units		\$35,563	\$35,563	\$35,563	\$35,563	\$35,563	\$35,563	\$35,563	\$35,563
Critical Habitat Unit 13									
Acres	Los Angeles	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49
Units		\$675,201	\$675,201	\$675,201	\$675,201	\$675,201	\$675,201	\$675,201	\$675,201
Acres	Ventura	5.07	5.07	5.07	5.07	5.07	5.07	5.07	5.07
Units		\$762,704	\$762,704	\$762,704	\$762,704	\$762,704	\$762,704	\$762,704	\$762,704
Total NPV, All Units:									

Table E-9
Off-site Preservation Calculations for Projected Retail Development

Proposed Critical Habitat Unit	County	Off-site Mitigation Ratio (1)	Projected Retail Development			Preservation Calculations by Year (4)					
			Projected Acres Developed (2)	Acres Preserved	Average Price per Mitigation Acre (3)	2003 1	2004 2	2005 3	2006 4	2007 5	
Critical Habitat Unit 1											
Acres Units	San Diego	0.00 :1	2	0	\$19,750	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 2											
Acres Units	San Diego	0.00 :1	0	0	\$19,750	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 3											
Acres Units	San Diego	0.00 :1	9	0	\$19,750	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 4											
Acres Units	San Diego	0.00 :1	0	0	\$19,750	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 5											
Acres Units	San Diego	0.00 :1	4	0	\$19,750	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 6											
Acres Units	Orange	0.00 :1	0	0	\$78,333	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
	San Diego	0.00 :1	0	0	\$19,750	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
						Total NPV	\$0				
Critical Habitat Unit 7											
Acres Units	Orange	0.00 :1	2	0	\$78,333	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 8											
Acres Units	Los Angeles	0.00 :1	0	0	\$0	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 9											
Acres Units	Los Angeles	0.00 :1	32	0	\$0	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
	Orange	0.00 :1	23	0	\$78,333	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
	Riverside	1.22 :1	0	0	\$9,500	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
	San Bernardino	0.00 :1	2	0	\$0	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
						Total NPV	\$0				
Critical Habitat Unit 10											
Acres Units	Orange	0.00 :1	0	0	\$78,333	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
	Riverside	1.22 :1	1,035	1,266	\$9,500	Acres	55.04	55.04	55.04	55.04	55.04
						Annual Cost	\$522,897	\$522,897	\$522,897	\$522,897	\$522,897
	San Bernardino	0.00 :1	1	0	\$0	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
	San Diego	0.00 :1	0	0	\$19,750	Acres	0.00	0.00	0.00	0.00	0.00

**Table E-9
Off-site Preservation Calculations for Projected Retail Development**

Proposed Critical Habitat Unit	County	Off-site Mitigation Ratio (1)	Projected Retail Development				Preservation Calculations by Year (4)				
			Projected Acres Developed (2)	Acres Preserved	Average Price per Mitigation Acre (3)		2003 1	2004 2	2005 3	2006 4	2007 5
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
						Total NPV	\$4,035,944				
Critical Habitat Unit 11											
Acres	San Bernardino	0.00 :1	121	0	\$0	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 12											
Acres	Los Angeles	0.00 :1	12	0	\$0	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 13											
Acres	Los Angeles	0.00 :1	234	0	\$0	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
						Total NPV	\$0				
Acres	Ventura	0.00 :1	265	0	\$0	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
						Total NPV	\$0				
Total NPV, All Units:							\$4,035,944				

- (1) For San Diego and Orange counties, all mitigation above CEQA baseline is assumed to be on-site. The off-site mitigation ratio is therefore assumed to be zero. For the remaining counties, the mitigation ratio is from a review of selected Biological Opinions, as summarized in Table 11 and detailed in Appendix C. Mitigation ratios in Ventura County were assumed to be the same as in Los Angeles, because no Biological Opinions were provided for projects in Ventura involving the CAGN.
- (2) Equal to Projected Growth Acres minus Acres Set-aside (Table E-1)
- (3) Table 15
- (4) Assumes projected development is distributed evenly throughout 2025.

**Table E-9
Off-site Preservation Calculations for Pro**

Proposed Critical Habitat Unit	County	Preservation Calculations by Year (4)										
		2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14	2017 15	2018 16
Critical Habitat Unit 1												
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 2												
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 3												
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 4												
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 5												
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 6												
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7												
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 8												
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9												
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 10												
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	55.04	55.04	55.04	55.04	55.04	55.04	55.04	55.04	55.04	55.04	55.04
Units		\$522,897	\$522,897	\$522,897	\$522,897	\$522,897	\$522,897	\$522,897	\$522,897	\$522,897	\$522,897	\$522,897
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table E-9
Off-site Preservation Calculations for Pro

Proposed Critical Habitat Unit	County	Preservation Calculations by Year (4)										
		2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14	2017 15	2018 16
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 11												
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 12												
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 13												
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Ventura	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total NPV, All Units:												

**Table E-9
Off-site Preservation Calculations for Pro**

Proposed Critical Habitat Unit	County	Preservation Calculations by Year (4)						
		2019	2020	2021	2022	2023	2024	2025
		17	18	19	20	21	22	23
Critical Habitat Unit 1								
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 2								
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 3								
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 4								
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 5								
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 6								
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7								
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 8								
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9								
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 10								
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	55.04	55.04	55.04	55.04	55.04	55.04	55.04
Units		\$522,897	\$522,897	\$522,897	\$522,897	\$522,897	\$522,897	\$522,897
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table E-9
Off-site Preservation Calculations for Pro

Proposed Critical Habitat Unit	County	Preservation Calculations by Year (4)						
		2019	2020	2021	2022	2023	2024	2025
		17	18	19	20	21	22	23
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 11								
Acres	San Bernardino	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 12								
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 13								
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Ventura	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total NPV, All Units:								

**Table E-10
CSS Restoration Calculations for Projected Retail Development**

Proposed Critical Habitat Unit	County	Restoration Mitigation Ratio (1)	Projected Retail Development			Restoration Calculations by Year (4)					
			Projected Acres Developed (2)	Acres Restored	Avg. Restoration Cost per Acre (3)	2003 1	2004 2	2005 3	2006 4	2007 5	
Critical Habitat Unit 1											
Acres	San Diego	0.00 :1	2	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 2											
Acres	San Diego	0.00 :1	0	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 3											
Acres	San Diego	0.00 :1	9	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 4											
Acres	San Diego	0.00 :1	0	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 5											
Acres	San Diego	0.00 :1	4	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 6											
Acres	Orange	0.00 :1	0	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00 :1	0	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
						Total NPV	\$0				
Critical Habitat Unit 7											
Acres	Orange	0.00 :1	2	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 8											
Acres	Los Angeles	0.93 :1	0	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
						NPV	\$0				
Critical Habitat Unit 9											
Acres	Los Angeles	0.93 :1	32	29.66	\$30,000	Acres	1.29	1.29	1.29	1.29	1.29
Units						Annual Cost	\$38,687	\$38,687	\$38,687	\$38,687	\$38,687
Acres	Orange	0.00 :1	23	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00 :1	2	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00	0.00
Units						Annual Cost	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.40 :1	2	0.97	\$30,000	Acres	0.04	0.04	0.04	0.04	0.04
Units						Annual Cost	\$1,261	\$1,261	\$1,261	\$1,261	\$1,261

Table E-10
CSS Restoration Calculations for Projected Retail Development

Proposed Critical Habitat Unit	County	Restoration Mitigation Ratio (1)	Projected Retail Development			Restoration Calculations by Year (4)					
			Projected Acres Developed (2)	Acres Restored	Avg. Restoration Cost per Acre (3)	2003 1	2004 2	2005 3	2006 4	2007 5	
						Total NPV	\$308,340				
Critical Habitat Unit 10											
Acres Units	Orange	0.00 :1	0	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
Acres Units	Riverside	0.00 :1	1,035	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
Acres Units	San Bernardino	0.40 :1	1	0.44	\$30,000	Acres	0.02	0.02	0.02	0.02	0.02
						Annual Cost	\$572	\$572	\$572	\$572	\$572
Acres Units	San Diego	0.00 :1	0	0.00	\$30,000	Acres	0.00	0.00	0.00	0.00	0.00
						Annual Cost	\$0	\$0	\$0	\$0	\$0
						Total NPV	\$4,419				
Critical Habitat Unit 11											
Acres Units	San Bernardino	0.40 :1	121	48.48	\$30,000	Acres	2.11	2.11	2.11	2.11	2.11
						Annual Cost	\$63,236	\$63,236	\$63,236	\$63,236	\$63,236
						NPV	\$488,080				
Critical Habitat Unit 12											
Acres Units	Los Angeles	0.93 :1	12	11.48	\$30,000	Acres	0.50	0.50	0.50	0.50	0.50
						Annual Cost	\$14,979	\$14,979	\$14,979	\$14,979	\$14,979
						NPV	\$115,614				
Critical Habitat Unit 13											
Acres Units	Los Angeles	0.93 :1	234	218.04	\$30,000	Acres	9.48	9.48	9.48	9.48	9.48
						Annual Cost	\$284,395	\$284,395	\$284,395	\$284,395	\$284,395
Acres Units	Ventura	0.93 :1	265	246.29	\$30,000	Acres	10.71	10.71	10.71	10.71	10.71
						Annual Cost	\$321,252	\$321,252	\$321,252	\$321,252	\$321,252
						Total NPV	\$4,674,651				
Total NPV, All Units:					\$5,591,104						

- (1) Based on review of selected Biological Opinions, as summarized in Table 11 and detailed in Appendix C. Mitigation ratios in Ventura County were assumed to be the same as in Los Angeles, because no Biological Opinions were provided for projects in Ventura involving the CAGN.
- (2) Equal to Projected Growth Acres minus Acres Set-aside (Table E-1)
- (3) Table 15
- (4) Assumes projected development is distributed evenly throughout 2025.

**Table E-10
CSS Restoration Calculations for Proje**

Proposed Critical Habitat Unit	County	Restoration Calculations by Year (4)									
		2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14	2017 15
Critical Habitat Unit 1											
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 2											
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 3											
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 4											
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 5											
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 6											
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7											
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 8											
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9											
Acres	Los Angeles	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Units		\$38,687	\$38,687	\$38,687	\$38,687	\$38,687	\$38,687	\$38,687	\$38,687	\$38,687	\$38,687
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Units		\$1,261	\$1,261	\$1,261	\$1,261	\$1,261	\$1,261	\$1,261	\$1,261	\$1,261	\$1,261

**Table E-10
CSS Restoration Calculations for Proje**

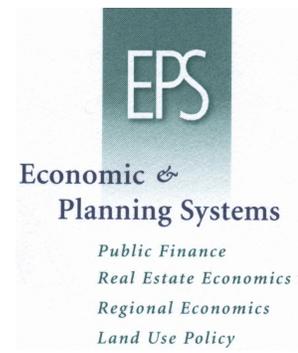
Proposed Critical Habitat Unit	County	Restoration Calculations by Year (4)									
		2008 6	2009 7	2010 8	2011 9	2012 10	2013 11	2014 12	2015 13	2016 14	2017 15
Critical Habitat Unit 10											
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Units		\$572	\$572	\$572	\$572	\$572	\$572	\$572	\$572	\$572	\$572
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 11											
Acres	San Bernardino	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11
Units		\$63,236	\$63,236	\$63,236	\$63,236	\$63,236	\$63,236	\$63,236	\$63,236	\$63,236	\$63,236
Critical Habitat Unit 12											
Acres	Los Angeles	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Units		\$14,979	\$14,979	\$14,979	\$14,979	\$14,979	\$14,979	\$14,979	\$14,979	\$14,979	\$14,979
Critical Habitat Unit 13											
Acres	Los Angeles	9.48	9.48	9.48	9.48	9.48	9.48	9.48	9.48	9.48	9.48
Units		\$284,395	\$284,395	\$284,395	\$284,395	\$284,395	\$284,395	\$284,395	\$284,395	\$284,395	\$284,395
Acres	Ventura	10.71	10.71	10.71	10.71	10.71	10.71	10.71	10.71	10.71	10.71
Units		\$321,252	\$321,252	\$321,252	\$321,252	\$321,252	\$321,252	\$321,252	\$321,252	\$321,252	\$321,252
Total NPV, All Units:											

**Table E-10
CSS Restoration Calculations for Proje**

Proposed Critical Habitat Unit	County	Restoration Calculations by Year (4)							
		2018 16	2019 17	2020 18	2021 19	2022 20	2023 21	2024 22	2025 23
Critical Habitat Unit 1									
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 2									
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 3									
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 4									
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 5									
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 6									
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 7									
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 8									
Acres	Los Angeles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 9									
Acres	Los Angeles	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Units		\$38,687	\$38,687	\$38,687	\$38,687	\$38,687	\$38,687	\$38,687	\$38,687
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Units		\$1,261	\$1,261	\$1,261	\$1,261	\$1,261	\$1,261	\$1,261	\$1,261

**Table E-10
CSS Restoration Calculations for Proje**

Proposed Critical Habitat Unit	County	Restoration Calculations by Year (4)							
		2018 16	2019 17	2020 18	2021 19	2022 20	2023 21	2024 22	2025 23
Critical Habitat Unit 10									
Acres	Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	Riverside	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acres	San Bernardino	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Units		\$572	\$572	\$572	\$572	\$572	\$572	\$572	\$572
Acres	San Diego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Units		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Habitat Unit 11									
Acres	San Bernardino	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11
Units		\$63,236	\$63,236	\$63,236	\$63,236	\$63,236	\$63,236	\$63,236	\$63,236
Critical Habitat Unit 12									
Acres	Los Angeles	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Units		\$14,979	\$14,979	\$14,979	\$14,979	\$14,979	\$14,979	\$14,979	\$14,979
Critical Habitat Unit 13									
Acres	Los Angeles	9.48	9.48	9.48	9.48	9.48	9.48	9.48	9.48
Units		\$284,395	\$284,395	\$284,395	\$284,395	\$284,395	\$284,395	\$284,395	\$284,395
Acres	Ventura	10.71	10.71	10.71	10.71	10.71	10.71	10.71	10.71
Units		\$321,252	\$321,252	\$321,252	\$321,252	\$321,252	\$321,252	\$321,252	\$321,252
Total NPV, All Units:									



APPENDIX F

CONSULTATION COST MODEL

4736 Estimates of the cost of an individual consultation were developed from a review and
analysis of historical section 7 files from a number of Service field offices around the
country. These files addressed consultations conducted for both listings and CH
designations. Cost figures were based on an average level of effort for consultations of
low, medium, or high complexity, multiplied by the appropriate labor rates for staff
4741 from the Service and other Federal agencies. Estimates take into consideration the level
of effort of the Service, the Action agency, and the applicant during both formal and
informal consultations, as well as the varying complexity of consultations. Informal
consultations are assumed to involve a low to medium level of complexity. Formal
consultations are assumed to involve a medium to high level of complexity. The cost of
a formal consultation includes the cost of the informal consultation that likely began the
section 7 consultation process.

4746 Section 7 consultation costs include the administrative costs associated with conducting
the consultation, such as the cost of time spent in meetings, preparing letters, and in
some cases, developing a biological assessment and biological opinion. The costs of
reinitiating a consultation are assumed to be similar to conducting the original
consultation, because the re-initiation generally involves time spent in meetings and
preparing letters. This analysis assumes that the economic impact associated with a
4751 non-substantive reinitiation is similar to the cost of an informal consultation and the
economic impact associated with a substantive re-initiation is similar to the cost of a
formal consultation. The cost of internal consultation, where the Service is the Action
agency, depends on the activity under consideration and may be similar to the costs of
either informal or formal consultations.

4756 Cost estimates for technical assistance are based on an analysis of past technical
assistance efforts by the Service in southern California. Technical assistance costs
represent the estimated economic costs of informational conversations, letters, and
meetings between landowners or developers and the Service regarding the designation
4761 of CH. Most likely, such communication will occur between municipal or private
property owners and the Service regarding areas designated as CH or lands adjacent to
CH.

4766 Estimated administrative costs associated with section 7 consultations, reinitiations, and
technical assistance efforts are presented in Table F-1 (these are per effort estimates).
The low and the high scenarios represent a reasonable range of costs for each type of
interaction. For example, when the Service participates in technical assistance with a
third party regarding a particular activity, the cost of the Service's effort is expected to
be approximately \$260 to \$680. The cost of the third party's effort is expected to be
4771 approximately \$600 to \$1,500. A summary of total costs by agency and consultation
type is shown in Table F-2, for both Scenario A and Scenario B.¹⁰⁵ A description of the
number of anticipated consultations by project is shown in Table F-3. Project-level cost
summaries by agency are shown in Tables F-4A and F-4B (for Scenario A and B,
respectively). Project-level cost summaries by consultation type are shown in Tables F-
4776 5A and F-5B (for Scenario A and B, respectively).

Project modifications may be agreed upon during both informal and formal
consultations. The costs of modifications are estimated on a case-specific basis, relying
on information provided by the Service, action agencies, and private parties involved in
4781 the consultations. Likely project modifications and associated costs are addressed in the
main report text, for each relevant activity.

¹⁰⁵Scenario A assumes discount rates of 12 percent and 7 percent for private and public development, respectively. Scenario B assumes a discount rate of 3 percent for both private and public development.

Table F-1
Individual Consultation and Technical Assistance Costs [1]
Economic Analysis of Critical Habitat Designation for the California Gnatcatcher

Category	Technical Assistance		Informal Consultations		Formal Consultations	
	<i>Low</i>	<i>High</i>	<i>Low</i>	<i>High</i>	<i>Low</i>	<i>High</i>
USFWS	\$260	\$680	\$1,000	\$3,100	\$3,100	\$6,100
Action Agency	\$0	\$0	\$1,300	\$3,900	\$3,900	\$6,500
Third Party	\$600	\$1,500	\$1,200	\$2,900	\$2,900	\$4,100
Biological Assessment	\$0	\$0	\$0	\$4,000	\$4,000	\$5,600

Notes:

[1] A low to high cost range is specified for each action.

Table F-2
Consultation and Technical Assistance Administrative Cost Summary
Economic Analysis of Critical Habitat Designation for the California Gnatcatcher

Category	Technical Assistance		Informal Consultation		Formal Consultation [1]		TOTAL	
	<i>Low</i>	<i>High</i>	<i>Low</i>	<i>High</i>	<i>Low</i>	<i>High</i>	<i>Low</i>	<i>High</i>
USFWS	\$848	\$2,218	\$184,916	\$573,240	\$3,760,317	\$7,399,333	\$3,946,081	\$7,974,791
Action Agency	\$0	\$0	\$240,391	\$721,172	\$4,730,721	\$7,884,536	\$4,971,112	\$8,605,708
Third Party	\$1,957	\$4,892	\$14,872	\$35,942	\$3,755,230	\$5,309,118	\$3,772,059	\$5,349,952
Biological Assessments	\$0	\$0	\$0	\$0	\$4,621,793	\$6,470,510	\$4,621,793	\$6,470,510
TOTAL	\$2,805	\$7,110	\$440,179	\$1,330,353	\$16,868,061	\$27,063,497	\$17,311,045	\$28,400,961

Notes:

[1] Formal Consultation cost totals include Biological Assessment costs.

Table F-3
Consultation Descriptions for Future Activities
Economic Analysis of Proposed Critical Habitat Designation for the California Gnatcatcher

Consultation Nexus		Consultation Descriptions					
		Technical Assistance	Informal Consultations	Informal 3rd Party	Formal Consultations	Formal 3rd Party [1]	Biological Assessments [2]
Project Owner/Activity	Action Agency						
Private Land Development	USACE	-	-	-	866	1259	866
Transportation and Road Construction							
Caltrans	USACE/FHWA	-	-	-	191	191	191
Transportation Corridor Agency	USACE	-	-	-	1	1	1
Municipal Water Supply							
Regional Infrastructure	USACE	-	-	-	13	13	13
Flood Control	BOR	-	12	12	3	3	3
Municipal Power Supply	USACE/FERC/BLM	-	-	-	6	6	6
Federal Land Management							
Angeles National Forest	USFS	-	23	-	-	-	-
Cleveland National Forest	USFS	-	41	-	41	-	21
San Bernardino National Forest	USFS	-	5	-	5	-	5
Bureau of Land Management	BLM	3	12	-	4	-	4
Federal Emergency Management Activities	FEMA	-	75	-	30	-	30
Military Operations							
Camp Pendleton (non-training areas)	USMC	-	-	-	37	-	0
Fallbrook	US Navy	-	-	-	16	-	16
El Toro	US Navy	-	-	-	1	-	1
Existing Habitat Conservation Plans (HCPs)	USFWS	-	28	28	8	8	8
Future Habitat Conservation Plans (HCPs)	USFWS	-	-	-	16	16	-
Reinitiated Section 7 Consultations	USFWS	-	-	-	-	-	-
Total (2)		3	197	40	1,237	1,496	1,163

[1] The number reported in this column reflects the total number of third parties participating in formal consultations (for example, if there are three formal consultations and one third party listed, only one consultation includes a third party participant).

(2) Because training areas in Marine Corps Base Camp Pendleton have not been proposed for critical habitat designation, estimated consultation costs for these areas are not included in the total.

Table F-4 (1)
Consultation Costs by Agency and Party
Economic Analysis of Proposed Critical Habitat Designation for the California Gnatcatcher

Consultation Nexus		Consultation Costs (1)							
		Fish and Wildlife Service		Action Agency		Third Party		Total	
Project Owner/Activity	Action Agency	Low	High	Low	High	Low	High	Low	High
Private Land Development (2)	USACE	\$2,062,942	\$3,399,496	\$1,133,165	\$1,888,609	\$1,052,757	\$1,488,381	\$4,248,864	\$6,776,485
Transportation and Road Construction									
Caltrans	USACE/FHWA	\$663,318	\$1,093,073	\$364,358	\$607,263	\$270,933	\$383,043	\$1,298,608	\$2,083,379
Transportation Corridor Agency (3)	USACE	\$7,100	\$11,700	\$3,900	\$6,500	\$2,900	\$4,100	\$13,900	\$22,300
Municipal Water Supply									
Regional Infrastructure	USACE	\$45,396	\$74,807	\$24,936	\$41,559	\$18,542	\$26,214	\$88,873	\$142,581
Flood Control	BOR	\$15,153	\$33,791	\$12,883	\$32,001	\$10,997	\$28,932	\$39,034	\$94,723
Municipal Power Supply	USACE/FERC/BLM	\$20,428	\$33,663	\$11,221	\$18,702	\$8,344	\$11,796	\$39,993	\$64,161
Federal Land Management									
Angeles National Forest	USFS	\$11,272	\$34,944	\$14,654	\$43,962	\$0	\$0	\$25,926	\$78,905
Cleveland National Forest	USFS	\$122,915	\$241,800	\$104,780	\$209,560	\$0	\$0	\$227,695	\$451,360
San Bernardino National Forest	USFS	\$19,849	\$36,267	\$12,742	\$25,485	\$0	\$0	\$32,591	\$61,752
Bureau of Land Management	BLM	\$20,108	\$42,359	\$15,377	\$36,157	\$959	\$2,398	\$36,444	\$80,913
Federal Emergency Management Activities	FEMA	\$141,174	\$286,025	\$105,145	\$238,967	\$0	\$0	\$246,319	\$524,991
Military Operations									
Camp Pendleton (non-training areas)	USMC	\$56,214	\$110,614	\$70,721	\$117,868	\$0	\$0	\$126,935	\$228,482
Fallbrook	US Navy	\$55,675	\$91,746	\$30,582	\$50,970	\$0	\$0	\$86,257	\$142,716
El Toro (3)	US Navy	\$7,100	\$11,700	\$3,900	\$6,500	\$0	\$0	\$11,000	\$18,200
Existing Habitat Conservation Plans (HCPs)	USFWS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Future Habitat Conservation Plans (HCPs)	USFWS	\$7,842	\$24,309	\$10,194	\$30,582	\$0	\$0	\$18,035	\$54,891
Reinitiated Section 7 Consultations	USFWS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total (4)		\$3,256,485	\$5,526,293	\$1,918,558	\$3,354,683	\$1,365,432	\$1,944,864	\$6,540,475	\$10,825,839

(1) Unless otherwise noted, the reported values are the net present value of future costs, assuming that all future costs are distributed evenly through 2025, and using a discount rate of 7 percent.

(2) The reported values are the net present value of future costs, assuming that all future costs are distributed evenly through 2025, and using a discount rate of 12 percent.

(3) The reported values are consultation costs expressed in constant dollars, assuming all costs are incurred in year 1 (2003).

(4) Because training areas in Marine Corps Base Camp Pendleton have not been proposed for critical habitat designation, estimated consultation costs for these areas are not included in the total.

Table F-5 (1)

Consultation Costs by Consultation Type

Economic Analysis of Proposed Critical Habitat Designation for the California Gnatcatcher

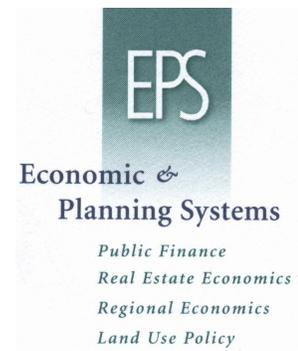
Consultation Nexus		Consultation Costs (1)							
		Technical Assistance		Informal Consultations		Formal Consultations		Biological Assessments	
		Low	High	Low	High	Low	High	Low	High
Project Owner/Activity	Action Agency								
Private Land Development (2)	USACE	-	-	-	-	\$3,086,643	\$5,149,376	\$1,162,221	\$1,627,109
Transportation and Road Construction									
Caltrans	USACE/FHWA	-	-	-	-	\$924,908	\$1,560,198	\$373,700	\$523,180
Transportation Corridor Agency (3)	USACE	-	-	-	-	\$9,900	\$16,700	\$4,000	\$5,600
Municipal Water Supply									
Regional Infrastructure	USACE	-	-	-	-	\$63,298	\$106,776	\$25,575	\$35,805
Flood Control	BOR	-	-	\$21,259	\$60,133	\$12,660	\$21,355	\$5,115	\$7,161
Municipal Power Supply	ISACE/FERC/BLM	-	-	-	-	\$28,484	\$48,049	\$11,509	\$16,112
Federal Land Management									
Angeles National Forest	USFS	-	-	\$25,926	\$78,905	-	-	\$0	\$0
Cleveland National Forest	USFS	-	-	\$46,345	\$141,050	\$141,050	\$253,890	\$40,300	\$56,420
San Bernardino National Forest	USFS	-	-	\$5,636	\$17,153	\$17,153	\$30,876	\$9,802	\$13,723
Bureau of Land Management	BLM	1,375	3,485	\$13,970	\$42,518	\$13,427	\$24,168	\$7,673	\$10,742
Federal Emergency Management Activities	FEMA	-	-	\$84,557	\$257,349	\$102,939	\$185,291	\$58,823	\$82,352
Military Operations									
Camp Pendleton (non-training areas)	USMC	-	-	-	-	\$126,935	\$228,482	\$0	\$0
Fallbrook	US Navy	-	-	-	-	\$54,891	\$98,803	\$31,366	\$43,913
El Toro (3)	US Navy	-	-	-	-	\$7,000	\$12,600	\$4,000	\$5,600
Existing Habitat Conservation Plans (HCPs)	USFWS	-	-	-	-	\$0	\$0	\$0	\$0
Future Habitat Conservation Plans (HCPs)	USFWS	-	-	-	-	\$158,400	\$267,200	\$0	\$0
Reinitiated Section 7 Consultations	USFWS	-	-	-	-	-	-	\$0	\$0
Total (4)		\$1,375	\$3,485	\$197,694	\$597,109	\$4,747,688	\$8,003,765	\$1,734,083	\$2,427,716

(1) Unless otherwise noted, the reported values are the net present value of future costs, assuming that all future costs are distributed evenly through 2025, and using a discount rate of 7 percent.

(2) The reported values are the net present value of future costs, assuming that all future costs are distributed evenly through 2025, and using a discount rate of 12 percent.

(3) The reported values are consultation costs expressed in constant dollars, assuming all costs are incurred in year 1 (2003).

(4) Because training areas in Marine Corps Base Camp Pendleton have not been proposed for critical habitat designation, estimated consultation costs for these areas are not included in the total.



APPENDIX G

PROJECT MODIFICATION COST CALCULATIONS FOR PUBLIC LAND DEVELOPMENT

**Appendix Table G-1
Project Modification Costs for Caltrans District 7**

		Year	2003	2004	2005	2006	2007	2008	2009	2010
Project Modification Costs			1	2	3	4	5	6	7	8
Total Impact (ac)	6	Annual Acres Impacted	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
Mitigation Ratio	1 : 1	Annual Acres Mitigated	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
Cost/Ac	\$ 116,667	Annual Mitigation Cost	\$ 116,667	\$ -	\$ -	\$ -	\$ 116,667	\$ -	\$ -	\$ -
Discount Rate	7.0%									
NPV	\$ 369,198	Year	2011	2012	2013	2014	2015	2016	2017	2018
			9	10	11	12	13	14	15	16
Acre Adj.	100%	Annual Acres Impacted	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
Adj. NPV	\$ 369,198	Annual Acres Mitigated	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
		Annual Mitigation Cost	\$ 116,667	\$ -	\$ -	\$ -	\$ 116,667	\$ -	\$ -	\$ -
		Year	2019	2020	2021	2022	2023	2024	2025	
			17	18	19	20	21	22	23	TOTAL
		Annual Acres Impacted	1.0	0.0	0.0	0.0	1.0	0.0	0.0	6.0
		Annual Acres Mitigated	1.0	0.0	0.0	0.0	1.0	0.0	0.0	6.0
		Annual Mitigation Cost	\$ 116,667	\$ -	\$ -	\$ -	\$ 116,667	\$ -	\$ -	\$ 700,000

**Appendix Table G-2
Project Modification Costs for Caltrans District 8**

		Year	2003	2004	2005	2006	2007	2008	2009	2010
Project Modification Costs			1	2	3	4	5	6	7	8
Unit 10 Impact	750 acres	Annual Acres Impacted	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1
Riverside growth Impact/1,000 ac	22,648 acres	Annual Acres Mitigated	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3
Unit 11 Growth	4,502 acres	Annual Mitigation Cost	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724
<u>Unit 11 Impact</u>	<u>149</u>									
Total Impact	899 acres	Year	2011	2012	2013	2014	2015	2016	2017	2018
Mitigation Ratio	3 :1		9	10	11	12	13	14	15	16
Cost/Ac	\$ 32,000	Annual Acres Impacted	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1
Discount Rate	7.0%	Annual Acres Mitigated	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3
NPV	\$ 42,301,405	Annual Mitigation Cost	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724
Acre Adj.	100%	Year	2019	2020	2021	2022	2023	2024	2025	
Adj. NPV	\$ 42,301,405		17	18	19	20	21	22	23	TOTAL
		Annual Acres Impacted	39.1	39.1	39.1	39.1	39.1	39.1	39.1	899.1
		Annual Acres Mitigated	117.3	117.3	117.3	117.3	117.3	117.3	117.3	2697.3
		Annual Mitigation Cost	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724	\$ 3,752,724	\$ 86,312,646

**Appendix Table G-3
Project Modification Costs for Caltrans District 11**

Project Modification Costs		Year	2003	2004	2005	2006	2007	2008	2009	2010
			1	2	3	4	5	6	7	8
Total Impact (ac)	71.5									
SD Mitigation Ratio	2.06 :1	Annual Acres Impacted	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
<u>CEQA baseline</u>	<u>2.00 :1</u>	Annual Acres Mitigated	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
"Net" mitigation ratio	0.06 :1	Annual Mitigation Cost	\$ 5,770	\$ 5,770	\$ 5,770	\$ 5,770	\$ 5,770	\$ 5,770	\$ 5,770	\$ 5,770
Cost/Ac	\$ 32,000	Year	2011	2012	2013	2014	2015	2016	2017	2018
Discount Rate	7.0%		9	10	11	12	13	14	15	16
NPV	\$ 65,038	Annual Acres Impacted	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Acre Adj.	36%	Annual Acres Mitigated	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Adj. NPV	\$ 23,480	Annual Mitigation Cost	\$ 5,770	\$ 5,770	\$ 5,770	\$ 5,770	\$ 5,770	\$ 5,770	\$ 5,770	\$ 5,770
		Year	2019	2020	2021	2022	2023	2024	2025	
			17	18	19	20	21	22	23	TOTAL
		Annual Acres Impacted	3.1	3.1	3.1	3.1	3.1	3.1	3.1	71.5
		Annual Acres Mitigated	0.2	0.2	0.2	0.2	0.2	0.2	0.2	4.1
		Annual Mitigation Cost	\$ 5,770	\$ 5,770	\$ 5,770	\$ 5,770	\$ 5,770	\$ 5,770	\$ 5,770	\$ 132,704

**Appendix Table G-4
Project Modification Costs for Caltrans District 12**

Project Modification Costs		Year	2003	2004	2005	2006	2007	2008	2009	2010
			1	2	3	4	5	6	7	8
Units 1-5 Impact	72 acres									
San Diego growth	35,065 acres	Annual Acres Impacted	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Impact/1,000 ac	2.1	Annual Acres Mitigated	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
<u>Unit 11 Growth</u>	<u>11,486 acres</u>	Annual Mitigation Cost	\$ 59,148	\$ 59,148	\$ 59,148	\$ 59,148	\$ 59,148	\$ 59,148	\$ 59,148	\$ 59,148
Unit 11 Impact	24 acres									
Orange Mitigation Ratio	3.82 :1	Year	2011	2012	2013	2014	2015	2016	2017	2018
CEQA baseline	<u>2.00</u> :1		9	10	11	12	13	14	15	16
"Net" mitigation ratio	1.82 :1	Annual Acres Impacted	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Cost/Ac	\$ 31,692	Annual Acres Mitigated	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Discount Rate	7.0%	Annual Mitigation Cost	\$ 59,148	\$ 59,148	\$ 59,148	\$ 59,148	\$ 59,148	\$ 59,148	\$ 59,148	\$ 59,148
NPV	\$ 666,723	Year	2019	2020	2021	2022	2023	2024	2025	
Acre Adj.	67%		17	18	19	20	21	22	23	TOTAL
Adj. NPV	\$ 443,790	Annual Acres Impacted	1.0	1.0	1.0	1.0	1.0	1.0	1.0	23.6
		Annual Acres Mitigated	1.9	1.9	1.9	1.9	1.9	1.9	1.9	42.9
		Annual Mitigation Cost	\$ 59,148	\$ 59,148	\$ 59,148	\$ 59,148	\$ 59,148	\$ 59,148	\$ 59,148	\$ 1,360,395

Appendix Table G-5

Project Modification Costs for TCA Construction of Foothill-South Toll Road -- Far East Alignment

Toll Road Construction Assumptions:			Year	2003	2004	2005	2006	2007	2008	2009	2010
16 Rd miles				1	2	3	4	5	6	7	8
5280 ft/mile											
84,480 Linear Feet			Annual CSS Acres Impacted	0	0	145	145	145	145	0	0
300 ROW width (ft)			Annual mitigation acres	0	0	265	265	265	265	0	0
25,344,000 footprint (sq ft)			Annual Proj. Mod. Cost	\$0	\$0	\$20,736,970	\$20,736,970	\$20,736,970	\$20,736,970	\$0	\$0
581.8 footprint (ac)											
100% Assumed CSS coverage											
581.8 Est. impacts to CSS			Year	2011	2012	2013	2014	2015	2016	2017	2018
				9	10	11	12	13	14	15	16
CSS Mitigation Assumptions:											
CSS Acres Impacted	581.8		Annual mitigation acres	0	0	0	0	0	0	0	0
			Annual Proj. Mod. Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Section 7 mitigation ratio	3.8 :1										
<u>CEQA baseline CSS mitigation</u>	<u>2.0 :1</u>										
Effective CSS baseline	1.8 :1		Year	2019	2020	2021	2022	2023	2024	2025	
				17	18	19	20	21	22	23	TOTAL
Cost per acre mitigated	\$78,333		Annual CSS Acres Impacted	0	0	0	0	0	0	0	582
Discount Rate	7.0%		Annual mitigation acres	0	0	0	0	0	0	0	
NPV	\$61,350,771		Annual Proj. Mod. Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$82,947,879
Acre Adj.	100%										
Adj. NPV	\$ 61,350,771										

**Appendix Table G-6
Project Modification Costs for TCA Construction of Foothill-South Toll Road -- Arterial Improvement Alternative**

Toll Road Construction Assumptions:		
I-5 Widening:	Arterial Widening (Ant.Pkwy & Av. La Pata):	Smart Streets (Ortega Hwy, Camino Las Ramblas, & Av. Pico):
4.5 Road miles w/ CSS	10.4 Road miles	9.4 Road miles
23,760 Linear Feet	54,912 Linear Feet	49,632 Linear Feet
40 expansion width (ft)	40 ROW width (ft)	10 expansion width (ft)
950,400 footprint (sq ft)	2,196,480 footprint (sq ft)	496,320 footprint (sq ft)
21.8 footprint (ac)	50.4 footprint (ac)	11.4 footprint (ac)
100% Assumed CSS coverage	100% Assumed CSS coverage	100% Assumed CSS coverage
21.8 Est. impacts to CSS	50.4 Est. impacts to CSS	11.4 Est. impacts to CSS
83.6 Total Acres CSS Affected	Widening Assumptions:	
	2 Total Lanes (one each dir.)	
	10 Lane Width (ft)	
	10 Shoulder width (ft)	
	40 Total Width (ft)	

CSS Mitigation Assumptions:		Year	2003	2004	2005	2006	2007	2008	2009	2010
CSS Acres Impacted	83.6 acres		1	2	3	4	5	6	7	8
Section 7 mitigation ratio	3.8 :1	Annual CSS Acres Impacted	0	0	21	21	21	21	0	0
<u>CEQA baseline CSS mitigation</u>	<u>2.0 :1</u>	Annual mitigation acres	0	0	38	38	38	38	0	0
Effective CSS baseline	1.8 :1	Annual Proj. Mod. Cost	\$0	\$0	\$2,980,939	\$2,980,939	\$2,980,939	\$2,980,939	\$0	\$0
Cost per acre mitigated	\$78,333	Year	2011	2012	2013	2014	2015	2016	2017	2018
Discount Rate	7.0%		9	10	11	12	13	14	15	16
NPV	\$8,819,173	Annual CSS Acres Impacted	0	0	0	0	0	0	0	0
Acre Adj.	100%	Annual mitigation acres	0	0	0	0	0	0	0	0
Adj. NPV	\$ 8,819,173	Annual Proj. Mod. Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Average, Scenario 1 & 2 (7%)	\$35,084,972	Year	2019	2020	2021	2022	2023	2024	2025	TOTAL
			17	18	19	20	21	22	23	
		Annual CSS Acres Impacted	0	0	0	0	0	0	0	84
		Annual mitigation acres	0	0	0	0	0	0	0	
		Annual Proj. Mod. Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$11,923,758

**Appendix Table G-7
Project Modification Costs for the San Diego County Water Authority**

Project Modification Assumptions													
Annual CSS Acres Impacted (Temporary)				Year	2003	2004	2005	2006	2007	2008	2009	2010	
Annual mitigation acres acquired					1	2	3	4	5	6	7	8	
Annual Proj. Mod. Cost													
CSS Impact	<u>Acres Impacted</u>	<u>Temp/Perm</u>	<u>Year</u>	<u>Permanent</u>									
Project 1	0.86	P	2000-'05	Annual CSS Acres Impacted	0.29	0.29	0.29	27	27	27	27	27	
Project 2	0.5	P	2005-'10	Annual mitigation acres	0	0	0	14	14	14	14	14	
Project 3	136.95	P	2005-'10	Annual Proj. Mod. Cost	\$2,150	\$2,150	\$2,150	\$206,175	\$206,175	\$206,175	\$206,175	\$206,175	
Project 4	8.24	T	2005-'10	<u>Temporary</u>									
Project 5	4	P	2010-'15	Annual CSS Acres Impacted	0	0	0	2	2	2	2	2	
Project 6	0.8	P	2010-'15	Annual mitigation acres	0	0	0	0	0	0	0	0	
Project 7	2.6	P	2010-'15	Annual Proj. Mod. Cost	\$0	\$0	\$0	\$7,416	\$7,416	\$7,416	\$7,416	\$7,416	
Project 8	20.72	T	2010-'15										
Assumed mitigation ratio (Permanent)			0.5 :1	Year	2011	2012	2013	2014	2015	2016	2017	2018	
Reported mitigation ratio (Temporary)			1.5 :1		9	10	11	12	13	14	15	16	
<u>Assumed CEQA baseline ratio</u>			<u>1.2 :1</u>	<u>Permanent</u>									
Assumed mitigation ratio (Temporary)			0.3 :1	Annual CSS Acres Impacted	1.5	1.5	1.5	1.5	1.5	0	0	0	
Cost per acre mitigated (Permanent)			\$15,000	Annual mitigation acres	1	1	1	1	1	0	0	0	
Cost per acre mitigated (Temporary)			\$15,000	Annual Proj. Mod. Cost	\$11,100	\$11,100	\$11,100	\$11,100	\$11,100	\$0	\$0	\$0	
Discount Rate	7.0%			<u>Temporary</u>									
NPV	\$791,517			Annual CSS Acres Impacted	4	4	4	4	4	0	0	0	
Acres Adj.	68%			Annual mitigation acres	1	1	1	1	1	0	0	0	
Adj. NPV	\$ 538,216			Annual Proj. Mod. Cost	\$18,648	\$18,648	\$18,648	\$18,648	\$18,648	\$0	\$0	\$0	
				Year	2019	2020	2021	2022	2023	2024	2025		
					17	18	19	20	21	22	23	TOTAL	
				<u>Permanent</u>									
				Annual CSS Acres Impacted	0	0	0	0	0	0	0	0	146
				Annual mitigation acres	0	0	0	0	0	0	0	0	
				Annual Proj. Mod. Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,092,825
				<u>Temporary</u>									
				Annual CSS Acres Impacted	0	0	0	0	0	0	0	0	
				Annual mitigation acres	0	0	0	0	0	0	0	0	
				Annual Proj. Mod. Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$130,320

**Appendix Table G-8
Project Modification Costs for the Metropolitan Water District**

Project Modification Costs		Year	2003	2004	2005	2006	2007	2008	2009	2010
			1	2	3	4	5	6	7	8
Annual Acres Impacted		Annual Acres Impacted	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
Annual Acres Mitigated		Annual Acres Mitigated	18.1	18.1	18.1	18.1	18.1	18.1	18.1	18.1
Annual Mitigation Cost		Annual Mitigation Cost	\$ 794,580	\$ 794,580	\$ 794,580	\$ 794,580	\$ 794,580	\$ 794,580	\$ 794,580	\$ 794,580
SDCWA impact	146 acres									
San Diego growth	35,065 acres									
Impact/1,000 ac	4.2	Year	2011	2012	2013	2014	2015	2016	2017	2018
<u>Growth outside SD</u>	<u>47,987 acres</u>		9	10	11	12	13	14	15	16
MWD Impact	199 acres									
Average mitigation ratio	2.63 :1	Annual Acres Impacted	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
<u>Est. CEQA baseline</u>	<u>0.54 :1</u>	Annual Acres Mitigated	18.1	18.1	18.1	18.1	18.1	18.1	18.1	18.1
"Net" Mitigation Ratio	2.09 :1	Annual Mitigation Cost	\$ 794,580	\$ 794,580	\$ 794,580	\$ 794,580	\$ 794,580	\$ 794,580	\$ 794,580	\$ 794,580
Cost/Ac	\$ 43,917	Year	2019	2020	2021	2022	2023	2024	2025	
Discount Rate	7.0%		17	18	19	20	21	22	23	TOTAL
NPV	\$ 8,956,652	Annual Acres Impacted	8.7	8.7	8.7	8.7	8.7	8.7	8.7	199.4
Acre Adj.	68%	Annual Acres Mitigated	18.1	18.1	18.1	18.1	18.1	18.1	18.1	416.1
Adj. NPV	\$ 6,090,353	Annual Mitigation Cost	\$ 794,580	\$ 794,580	\$ 794,580	\$ 794,580	\$ 794,580	\$ 794,580	\$ 794,580	\$ 18,275,335

- (1) (All counties other than San Diego)
- (2) (2:1 baseline, weighted by relative acreage of Orange County units)
- (3) to all counties other than San Diego)

**Appendix Table G-9
Project Modification Costs for the Bureau of Reclamation**

Project Modification Assumptions		Year	2003	2004	2005	2006	2007	2008	2009	2010
<u>"Small" Water Reuse Projects</u>		Year	1	2	3	4	5	6	7	8
Frequency: 4 projects every 5 years										
* 3 informal consultations; 1 formal consultation										
CSS Impact per Project	0.5 acres	Annual CSS Acres Impacted	0.5	0.5	0.5	0.5	64	0.5	0.5	0.5
		Annual mitigation acres ("net")	0	0	0	0	4	0	0	0
		Annual Proj. Mod. Cost	\$919	\$919	\$919	\$919	\$117,642	\$919	\$919	\$919
<u>"Large" Regional Water Infrastructure Projects</u>		Year	2011	2012	2013	2014	2015	2016	2017	2018
Frequency: One every 5 years										
CSS Impacts per Project	64 acres		9	10	11	12	13	14	15	16
		Annual CSS Acres Impacted	0.5	64	0.5	0.5	0.5	0.5	64	0.5
		Annual mitigation acres ("net")	0	4	0	0	0	0	4	0
		Annual Proj. Mod. Cost	\$919	\$117,642	\$919	\$919	\$919	\$919	\$117,642	\$919
<u>Mitigation Assumptions</u>		Year	2019	2020	2021	2022	2023	2024	2025	TOTAL
CSS Mitigation Ratio:	2.06		17	18	19	20	21	22	23	
<u>Baseline mitigation (CEQA):</u>	<u>2.00</u>									
"Net" section 7 mitigation:	0.06									
Cost per acre mitigated	\$31,692	Annual CSS Acres Impacted	0.5	0.5	0.5	64	0.5	0.5	0.5	266
Discount Rate	7.0%	Annual mitigation acres ("net")	0	0	0	4	0	0	0	15
NPV	\$225,387	Annual Proj. Mod. Cost	\$919	\$919	\$919	\$117,642	\$919	\$919	\$919	\$488,030
Acre Adj.	68%									
Adj. NPV	\$ 153,259									

Appendix Table G-10
Project Modification Costs for Southern California Edison

Project Modification Costs		Year	2003	2004	2005	2006	2007	2008	2009	2010
Projects with Modifications	4		1	2	3	4	5	6	7	8
Total Acres Impacted	250									
Acres Impacted per project	63									
Reported mitigation ratio	2.00 :1									
<u>Est. CEQA baseline</u>	<u>0.54 :1 (1)</u>									
Est. "net" mitigation ratio	1.46 :1									
Cost per acre mitigated	\$47,600	Year	2011	2012	2013	2014	2015	2016	2017	2018
SCE Service Territory	50,000 square miles		9	10	11	12	13	14	15	16
Discount Rate	7.0%									
NPV	\$10,347,646									
Acre Adj.	68%									
Adj. NPV	\$ 7,036,202									
		Year	2019	2020	2021	2022	2023	2024	2025	TOTAL
			17	18	19	20	21	22	23	
		Annual CSS Acres Impacted								250
		Annual mitigation acres	0	0	0	0	0	0	0	
		Annual Proj. Mod. Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$17,325,340

(1) (2:1 baseline, weighted by relative acreage of Orange County units to all

Appendix Table G-11

Project Modification Costs for San Diego Gas & Electric

Project Modification Costs		Year	2003	2004	2005	2006	2007	2008	2009	2010
			1	2	3	4	5	6	7	8
SCE impact	250 acres									
Growth outside SD	47,987 acres	Annual Acres Impacted	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
Impact/1,000 ac	5.2	Annual Acres Mitigated	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
<u>San Diego growth</u>	<u>35,065 acres</u>	Annual Mitigation Cost	\$ 9,098	\$ 9,098	\$ 9,098	\$ 9,098	\$ 9,098	\$ 9,098	\$ 9,098	\$ 9,098
SDG&E Impact	183 acres									
Mitigation Ratio	2.06 :1	Year	2011	2012	2013	2014	2015	2016	2017	2018
<u>SD CEQA baseline</u>	<u>2.00 :1</u>		9	10	11	12	13	14	15	16
"Net" ratio	0.06 :1	Annual Acres Impacted	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
Cost/Ac	\$ 19,750	Annual Acres Mitigated	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Discount Rate	7.0%	Annual Mitigation Cost	\$ 9,098	\$ 9,098	\$ 9,098	\$ 9,098	\$ 9,098	\$ 9,098	\$ 9,098	\$ 9,098
NPV	\$ 102,559									
Acre Adj.	68%	Year	2019	2020	2021	2022	2023	2024	2025	
Adj. NPV	\$ 69,738		17	18	19	20	21	22	23	TOTAL
		Annual Acres Impacted	7.9	7.9	7.9	7.9	7.9	7.9	7.9	182.7
		Annual Acres Mitigated	0.5	0.5	0.5	0.5	0.5	0.5	0.5	10.6
		Annual Mitigation Cost	\$ 9,098	\$ 9,098	\$ 9,098	\$ 9,098	\$ 9,098	\$ 9,098	\$ 9,098	\$ 209,263

Appendix Table G-12
Project Modification Costs for the Southern California Gas Company

Project Modification Costs			Year	2003	2004	2005	2006	2007	2008	2009	2010
Annual Acres Impacted				1	2	3	4	5	6	7	8
Annual Acres Mitigated			Annual Acres Impacted	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Annual Mitigation Cost			Annual Acres Mitigated	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
			Annual Mitigation Cost	\$ 577,958	\$ 577,958	\$ 577,958	\$ 577,958	\$ 577,958	\$ 577,958	\$ 577,958	\$ 577,958
SCGC Service Territory	23,000 square miles										
SCE service territory	50,000 square miles										
Scaling factor:	0.46		Year	2011	2012	2013	2014	2015	2016	2017	2018
				9	10	11	12	13	14	15	16
SCE impact	250 acres		Annual Acres Impacted	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Imputed SDG&E impact	115 acres		Annual Acres Mitigated	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
Estimated Consultations	2		Annual Mitigation Cost	\$ 577,958	\$ 577,958	\$ 577,958	\$ 577,958	\$ 577,958	\$ 577,958	\$ 577,958	\$ 577,958
Average mitigation ratio	2.63 :1	(1)									
Est. CEQA baseline	0.54 :1	(2)									
Est. "net" mitigation ratio	2.09 :1		Year	2019	2020	2021	2022	2023	2024	2025	TOTAL
				17	18	19	20	21	22	23	
Cost/Ac	\$ 55,389		Annual Acres Impacted	5.0	5.0	5.0	5.0	5.0	5.0	5.0	115.0
Discount Rate	7.0%		Annual Acres Mitigated	10.4	10.4	10.4	10.4	10.4	10.4	10.4	240.0
NPV	\$ 6,514,855		Annual Mitigation Cost	\$ 577,958	\$ 577,958	\$ 577,958	\$ 577,958	\$ 577,958	\$ 577,958	\$ 577,958	\$ 13,293,043
Acre Adj.	68%										
Adj. NPV	\$ 4,429,978										

(1) (All counties other than San Diego)

(2) (2:1 baseline, weighted by relative acreage of Orange County units to all counties other than San Diego)

Appendix Table G-13
Project Modification Costs for Angeles National Forest

Project Modification Assumptions		Year	2003	2004	2005	2006	2007	2008	2009	2010
Total Acres Protected	4,000		1	2	3	4	5	6	7	8
Total Prescribed Burns	23									
Ac. Protected / Burn	174	Annual Acres Protected	174	174	174	174	174	174	174	174
Per-Acre Protection Cost	\$100	Annual Proj. Mod. Cost	\$17,391	\$17,391	\$17,391	\$17,391	\$17,391	\$17,391	\$17,391	\$17,391
Discount Rate	7.0%									
NPV	\$196,038	Year	2011	2012	2013	2014	2015	2016	2017	2018
			9	10	11	12	13	14	15	16
Acre Adj.	100%	Annual Acres Protected	174	174	174	174	174	174	174	174
Adj. NPV	\$ 196,038	Annual Proj. Mod. Cost	\$17,391	\$17,391	\$17,391	\$17,391	\$17,391	\$17,391	\$17,391	\$17,391
		Year	2019	2020	2021	2022	2023	2024	2025	
			17	18	19	20	21	22	23	TOTAL
		Annual Acres Protected	174	174	174	174	174	174	174	4000
		Annual Proj. Mod. Cost	\$17,391	\$17,391	\$17,391	\$17,391	\$17,391	\$17,391	\$17,391	\$400,000

Appendix Table G-14
Project Modification Costs for Cleveland National Forest

Project Modification Costs		Year	2003	2004	2005	2006	2007	2008	2009	2010
Annual Acres Protected			1	2	3	4	5	6	7	8
Annual Proj. Mod. Cost										
Total Acres Protected	20,000	Annual Acres Protected	290	290	290	290	290	290	290	290
Total Prescribed Burns	69	Annual Proj. Mod. Cost	\$28,986	\$28,986	\$28,986	\$28,986	\$28,986	\$28,986	\$28,986	\$28,986
Ac. Protected / Burn	290									
Per-Acre Protection Cost	\$100	Year	2011	2012	2013	2014	2015	2016	2017	2018
Discount Rate	7.0%		9	10	11	12	13	14	15	16
NPV	\$326,730	Annual Acres Protected	290	290	290	290	290	290	290	290
Acre Adj.	62%	Annual Proj. Mod. Cost	\$28,986	\$28,986	\$28,986	\$28,986	\$28,986	\$28,986	\$28,986	\$28,986
Adj. NPV	\$ 203,838	Year	2019	2020	2021	2022	2023	2024	2025	
			17	18	19	20	21	22	23	TOTAL
		Annual Acres Protected	290	290	290	290	290	290	290	6667
		Annual Proj. Mod. Cost	\$28,986	\$28,986	\$28,986	\$28,986	\$28,986	\$28,986	\$28,986	\$666,667

Appendix Table G-15
Project Modification Costs for San Bernardino National Forest

Project Modification Costs		Year	2003	2004	2005	2006	2007	2008	2009	2010
Annual Acres Protected			1	2	3	4	5	6	7	8
Annual Proj. Mod. Cost										
Total Acres Protected	1,000	Annual Acres Protec	43	43	43	43	43	43	43	43
Per-Acre Protection Cost	\$100	Annual Proj. Mod. Ci	\$4,348	\$4,348	\$4,348	\$4,348	\$4,348	\$4,348	\$4,348	\$4,348
Discount Rate	7.0%	Year	2011	2012	2013	2014	2015	2016	2017	2018
NPV	\$49,010		9	10	11	12	13	14	15	16
Acre Adj.	100%	Annual Acres Protec	43	43	43	43	43	43	43	43
Adj. NPV	\$ 49,010	Annual Proj. Mod. Ci	\$4,348	\$4,348	\$4,348	\$4,348	\$4,348	\$4,348	\$4,348	\$4,348
		Year	2019	2020	2021	2022	2023	2024	2025	
			17	18	19	20	21	22	23	TOTAL
		Annual Acres Protec	43	43	43	43	43	43	43	1000
		Annual Proj. Mod. Ci	\$4,348	\$4,348	\$4,348	\$4,348	\$4,348	\$4,348	\$4,348	\$100,000

Appendix Table G-16
Project Modification Costs for the Bureau of Land Management

Project Modification Costs		Year	2003	2004	2005	2006	2007	2008	2009	2010
			1	2	3	4	5	6	7	8
Projects with Modifications	6									
Acres Impacted per project	4	Annual CSS Acres Impacted	4	0	0	0	4	0	0	0
Assumed mitigation ratio	2 :1	Annual mitigation acres	8	0	0	0	8	0	0	0
Cost per acre mitigated	\$1,500	Annual Proj. Mod. Cost	\$12,000	\$0	\$0	\$0	\$12,000	\$0	\$0	\$0
Discount Rate	7.0%									
NPV	\$37,975	Year	2011	2012	2013	2014	2015	2016	2017	2018
			9	10	11	12	13	14	15	16
Acres Adj.	68%	Annual CSS Acres Impacted	4	0	0	0	4	0	0	0
Adj. NPV	\$ 25,822	Annual mitigation acres	8	0	0	0	8	0	0	0
		Annual Proj. Mod. Cost	\$12,000	\$0	\$0	\$0	\$12,000	\$0	\$0	\$0
		Year	2019	2020	2021	2022	2023	2024	2025	
			17	18	19	20	21	22	23	TOTAL
		Annual CSS Acres Impacted	4	0	0	0	4	0	0	24
		Annual mitigation acres	8	0	0	0	8	0	0	
		Annual Proj. Mod. Cost	\$12,000	\$0	\$0	\$0	\$12,000	\$0	\$0	\$72,000

Table G-17
Project Modification Calculations -- Camp Pendleton

Location / Project Name	Service Project #	Date of BO	Acres of CSS Impact		Estimated Cost (1)
			Permanent	Temporary	
Non-Training Areas					
San Onofre Sewage Effluent	1-6-95-F-25	3/30/1995	0	0.3	\$11,400
Bridge Retrofit - Interstate 5	1-6-96-F-31	8/15/1996	0	1.08	\$41,040
Santa Margarita Sewage Effluent	1-6-96-F-36	10/21/1996	26.3	0.8	\$2,029,200
Slope Stabilization at SDGE Talega Substation	1-6-98-F-27	9/8/1998	0	3.5	\$133,000
DeLuz Housing	1-6-98-F-38	11/23/1998	3.93	0	\$298,680
Ammunition Handling Facility	1-6-99-F-30	4/19/1999	2.57	1.07	\$235,980
Santa Margarita River Levee	1-6-95-F-02-R10	7/19/1999	1.65	0	\$125,400
PPM Burn at San Mateo	1-6-00-F-34	5/12/2000	5.0	0	\$380,000
Las Flores Estancia	1-6-01-F-910.2	2/2/2001	0.74	0	\$56,240
SDGE Talega Substation Expansion	1-6-02-F-1988.2	12/10/2001	0	0	\$0
SDGE Access Road	1-6-02-F-2464.2	1/31/2002	0	0	\$0
San Onofre Housing Firebreak	1-6-02-F-2869.1	5/23/2002	0.77	0	\$58,520
San Mateo BEQ Parking	1-6-02-F-2729.3	<u>5/30/2002</u>	<u>2.21</u>	<u>0</u>	<u>\$167,960</u>
Subtotal		13	43.17	6.75	\$3,537,420
Amount Per Year		1.58	5.23	0.82	\$428,778
Training Areas					
Northern Power Line	1-6-99-F-45	6/28/1999	0.0013	0.148	\$5,723
SFPP Petroleum Pipeline	1-6-99-F-54	8/23/1999	0	0	\$0
Electrical Towers M3-T3	1-6-99-F-76	10/28/1999	0.17	0.12	\$17,480
Range 314 Road Upgrade	1-6-03-F-3001.3	1/10/2003	3.5	0	\$266,000
Biological Assessment of Upland Habitat		on-going	-	-	-
Subtotal		5	3.6713	0.268	\$289,203
Amount Per Year		0.61	0.45	0.03	\$35,055

(1) Assumes a 2:1 total mitigation requirement for permanent impacts, 1:1 restoration for temporary impacts, and a cost of \$38,000 per mitigated or restored acre. Does not represent actual amount paid.

Source: US Fish & Wildlife Service; Fallbrook Naval Weapons Station; Economic & Planning Systems, Inc.

Table G-17
Project Modification Calculations -- Camp Pendleton

Non-training NPV			7%	\$4,833,268	Year	2003	2004	2005	2006	2007	2008	2009	2010
Training NPV:			7%	\$395,145	Non-Training	\$428,778	\$428,778	\$428,778	\$428,778	\$428,778	\$428,778	\$428,778	\$428,778
					Training	\$35,055	\$35,055	\$35,055	\$35,055	\$35,055	\$35,055	\$35,055	\$35,055
					Year	2011	2012	2013	2014	2015	2016	2017	2018
					Non-Training	\$428,778	\$428,778	\$428,778	\$428,778	\$428,778	\$428,778	\$428,778	\$428,778
					Training	\$35,055	\$35,055	\$35,055	\$35,055	\$35,055	\$35,055	\$35,055	\$35,055
					Year	2019	2020	2021	2022	2023	2024	2025	
					Non-Training	\$428,778	\$428,778	\$428,778	\$428,778	\$428,778	\$428,778	\$428,778	
					Training	\$35,055	\$35,055	\$35,055	\$35,055	\$35,055	\$35,055	\$35,055	

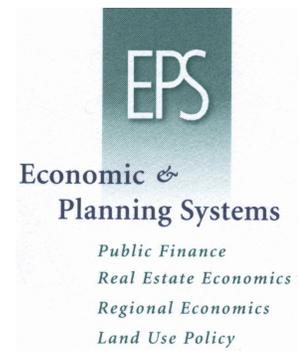
Appendix Table G-18
Project Modification Costs for Fallbrook Naval Weapons Station

Project Modification Assumptions		Year	2003	2004	2005	2006	2007	2008	2009	2010
Projects with Modifications	16	Proj. 1 Ammunition Rd.	0	20	0	0	0	0	0	0
Assumed mitigation ratio	1 :1	Proj. 2 Ten Mags over 20 years	0	5	0	5	0	5	0	5
Cost per acre mitigated	\$38,000	Proj. 3 Five year Cycles for Roads	0	0	3.3	0	0	0	0	3
Discount Rate	7.0%	Proj. 4 Building	0	0	0	0	0	0	0	0
NPV	\$2,109,962	Annual CSS Acres Impacted	0	25	3	5	0	5	0	8
Acres Adj.	100%	Annual Project Modification Cost	\$0	\$950,000	\$126,667	\$190,000	\$0	\$190,000	\$0	\$316,667
			13500	13500	13500	13500	13500	13500	13500	13500
		Year	2011	2012	2013	2014	2015	2016	2017	2018
For Fallbrook		Proj. 1 Ammunition Rd.	9	10	11	12	13	14	15	16
0.25 mi		Proj. 2 Ten Mags over 20 years	0	0	0	0	0	0	0	0
5280		Proj. 3 Five year Cycles for Roads	0	5	0	5	0	5	0	5
1320 LF		Proj. 4 Building	0	0	0	0	3	0	0	0
22 ft width		Annual CSS Acres Impacted	0	0	0	0	0	0	15	0
29040 sq ft		Annual Project Modification Cost	\$0	\$190,000	\$0	\$190,000	\$126,667	\$190,000	\$570,000	\$190,000
0.666666667 acres/yr			13500							
3.333333333 Every Five Years		Year	2019	2020	2021	2022	2023	2024	2025	TOTAL
		Proj. 1 Ammunition Rd.	17	18	19	20	21	22	23	
		Proj. 2 Ten Mags over 20 years	0	0	0	0	0	0	0	
		Proj. 3 Five year Cycles for Roads	0	5	0	5	0	0	0	
		Proj. 4 Building	0	3	0	0	0	0	0	
		Annual CSS Acres Impacted	0	0	0	0	0	0	0	98
		Annual Project Modification Cost	\$0	\$316,667	\$0	\$190,000	\$0	\$0	\$0	\$3,736,667
			13500	13500	13500	13500	13500	13500	13500	
			14519	14519	14519	14519	14519	14519	14519	
			28019	28019	28019	28019	28019	28019	28019	
			0	8	0	5	0	0	0	
			\$28,019	\$344,685	\$28,019	\$218,019	\$28,019	\$28,019	\$28,019	\$4,381,099

Appendix Table G-19

Project Modification Costs for the Pala Band of Mission Indians

Project Modification Costs		Year	2003	2004	2005	2006	2007	2008	2009	2010
			1	2	3	4	5	6	7	8
Housing projects	60									
Acres Impacted per project	1.0	Annual CSS Acres Impacted	2.0	0.7	0.7	0.7	0.7	2.0	0.7	0.7
		Annual mitigation acres	3.9	1.3	1.3	1.3	1.3	3.9	1.3	1.3
Community projects	5 (in 2005, '10, '15, & '20)	Annual Proj. Mod. Cost	\$77,127	\$26,444	\$26,444	\$26,444	\$26,444	\$77,127	\$26,444	\$26,444
Acres Impacted per project	5.0									
Percent CSS on Reservation	26%	Year	2011	2012	2013	2014	2015	2016	2017	2018
Assumed mitigation ratio	2 :1		9	10	11	12	13	14	15	16
Cost per acre mitigated	\$19,750	Annual CSS Acres Impacted	0.7	0.7	2.0	0.7	0.7	0.7	0.7	2.0
Discount Rate	7.0%	Annual mitigation acres	1.3	1.3	3.9	1.3	1.3	1.3	1.3	3.9
NPV	\$432,705	Annual Proj. Mod. Cost	\$26,444	\$26,444	\$77,127	\$26,444	\$26,444	\$26,444	\$26,444	\$77,127
		Year	2019	2020	2021	2022	2023	2024	2025	TOTAL
			17	18	19	20	21	22	23	
		Annual CSS Acres Impacted	0.7	0.7	0.7	0.7	2.0	0.7	0.7	22
		Annual mitigation acres	1.3	1.3	1.3	1.3	3.9	1.3	1.3	
		Annual Proj. Mod. Cost	\$26,444	\$26,444	\$26,444	\$26,444	\$77,127	\$26,444	\$26,444	\$861,619



APPENDIX H

SUMMARY OF ECONOMIC ANALYSIS FOR

AREAS PROPOSED FOR CRITICAL HABITAT DESIGNATION

AND EXCLUSION (COMBINED)

**Table H-1
Summary of Economic Impacts by Unit -- CH Proposed for Designation and Exclusion**

Proposed CH Unit	Estimated Project Modification Costs (1)	Estimated Administrative Costs (2)	Estimated Delay Costs	Estimated Uncertainty Costs (3)	Total Estimated Cost
Unit 1	\$34,256,806	\$3,605,251	\$1,671,146	\$35,168,661	\$74,701,863
Unit 2	\$2,027,499	\$281,550	\$55,528	\$1,168,556	\$3,533,132
Unit 3	\$6,329,275	\$532,510	\$188,139	\$3,959,294	\$11,009,218
Unit 4	\$2,448,883	\$266,690	\$158	\$3,326	\$2,719,057
Unit 5	\$9,807,316	\$999,226	\$302,572	\$6,367,508	\$17,476,623
Unit 6	\$85,506,924	\$966,067	\$173,173	\$2,817,874	\$89,464,038
Unit 7	\$10,991,170	\$683,677	\$27,397	\$445,779	\$12,148,023
Unit 8	\$332,697	\$116,418	\$0	\$0	\$449,115
Unit 9	\$38,074,247	\$392,512	\$254,193	\$3,950,050	\$42,671,002
Unit 10	\$435,551,729	\$3,069,916	\$2,212,996	\$19,072,846	\$459,907,488
Unit 11	\$90,433,234	\$297,332	\$232,976	\$2,400,835	\$93,364,377
Unit 12	\$3,649,153	\$64,918	\$44,013	\$271,750	\$4,029,834
Unit 13	\$168,719,062	\$1,723,757	\$2,156,399	\$12,857,995	\$185,457,213
Project-specific HCPs (4)	N/A	\$141,539	N/A	N/A	\$141,539
Total Cost	\$888,127,996	\$13,141,364	\$7,318,690	\$88,484,473	\$997,072,523
Annualized Cost (5)	\$110,347,057	\$1,508,355	\$948,209	\$11,464,045	\$124,267,667

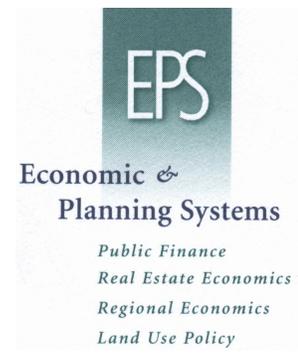
(1) Assumes discount rate of 12% for private development projects and 7% for public development projects.

(2) Average administrative consultation costs (low and high) were allocated among units in proportion to the number of projected growth acres in each unit with a Federal nexus.

(3) This value is one-half the difference between the total Upper End Mitigation Scenario cost and total estimated project modification costs.

(4) Because the location of all existing project-specific HCPs was not known, this item is reported individually.

(5) Represents the annual amount that is equivalent to the Total Costs, when distributed over a 23-year period. Assumes a discount rate of 12 percent for Scenario A (private/public costs could not be separated in the Unit Summary table), and 3 percent for Scenario B.



APPENDIX I

TIME DELAY SUMMARY

**Table I-1
Summary of Section 7 Time Delay Calculations**

Unit	Developable Acres with nexus in CH through 2025 (1)	Acres Delayed (2)	Land Value of Delayed Acres (3)	Value Impact of Delay (4)
Unit 1	68	3	\$1,055,723	\$63,343
Unit 2	55	2	\$925,461	\$55,528
Unit 3	203	9	\$3,135,642	\$188,139
Unit 4	0	0	\$2,634	\$158
Unit 5	276	12	\$4,626,554	\$277,593
Unit 6	151	7	\$2,886,221	\$173,173
Unit 7	35	2	\$327,476	\$19,649
Unit 8	0	0	\$0	\$0
Unit 9	469	20	\$4,236,554	\$254,193
Unit 10	6,631	288	\$36,883,272	\$2,212,996
Unit 11	772	34	\$3,882,926	\$232,976
Unit 12	94	4	\$733,544	\$44,013
Unit 13	3,993	174	\$35,939,988	\$2,156,399
Totals	12,747	554	\$94,635,996	\$5,678,160

(1) See Table 10. Equals projected growth acres through 2025 affected by section 7 minus on-site set-aside requirements.

(2) First year of land development after CHD is conservatively assumed to be delayed by six months due to lack of time to plan to avoid breeding season. Acres delay represents developed acres divided by 23, the number of years of the projection.

(3) Represents value of raw, entitled land ready for development. Based on land values presented in Appendix D.

(4) Based on 6 percent discount rate, as delay lasts six months (i.e., one-half of 12% annual discount rate).

(5) Based on 1.5 percent discount rate, as delay lasts six months.