

**FINAL ENVIRONMENTAL IMPACT STATEMENT  
FOR AUTHORIZATION FOR INCIDENTAL TAKE  
AND IMPLEMENTATION  
OF THE STANFORD UNIVERSITY  
HABITAT CONSERVATION PLAN**



**U.S. FISH AND  
WILDLIFE  
SERVICE**

**NOVEMBER 2012**



**NATIONAL MARINE  
FISHERIES  
SERVICE**



**FINAL ENVIRONMENTAL IMPACT STATEMENT  
FOR AUTHORIZATION FOR INCIDENTAL TAKE  
AND IMPLEMENTATION  
OF THE STANFORD UNIVERSITY  
HABITAT CONSERVATION PLAN**

**NOVEMBER 2012**



United States Fish and Wildlife Service and  
National Oceanic Atmospheric Administration/  
National Marine Fisheries Service  
as Co-Lead Agencies



## COVER SHEET

### Final Environmental Impact Statement for Authorization for Incidental Take and Implementation of the Stanford University Habitat Conservation Plan

NEPA Co-Lead Agencies: United States Fish and Wildlife Service and National Oceanic and Atmospheric Administration – National Marine Fisheries Service

Type of Statement: Final Environmental Impact Statement

For Further Information Contact:

**Mr. Gary Stern**

SF Bay Branch Supervisor  
Telephone: (707) 575-6060  
Fax: (707) 578-3435  
Gary.Stern@noaa.gov

National Marine Fisheries Service, Southwest Region  
777 Sonoma Avenue, Room 325  
Santa Rosa, California 95404

**Ms. Sheila Larsen**

Senior Staff Biologist  
Telephone: (916) 414-6685  
Fax: (916) 414-6713  
Sheila\_Larsen@fws.gov

United States Fish and Wildlife Service  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825

**Abstract:**

The U. S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) (also collectively known as the Services) have received applications from the Board of Trustees of Leland Stanford Junior University (Stanford) for incidental take permits under Section 10(a)(1)(B) of the federal Endangered Species Act of 1973, as amended (ESA). Stanford has requested authorization for the incidental take of the California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), western pond turtle (*Clemmys marmorata*), and steelhead (*Oncorhynchus mykiss*) on Stanford lands within San Mateo and Santa Clara counties, California. As part of the ITP application process, Stanford prepared a habitat conservation plan (HCP) that specifies, among other things, (i) the impacts likely to result from the taking of the Covered Species and the measures Stanford will undertake to avoid, minimize, and mitigate such impacts, (ii) how the HCP would be funded, and (iii) alternatives to the proposed HCP. The Covered Activities by Stanford that would be included in the permit are ongoing maintenance and operation of Stanford facilities, up to 180 acres of future development on Stanford lands, and implementation of the Conservation Program. The Covered Activities do not include activities that are directly associated with Searsville Dam and Reservoir. The proposed term of the permits is 50 years.

On April 12, 2010, the Services distributed to public agencies and the general public a Draft Environmental Impact Statement (DEIS) for Authorization for Incidental Take and Implementation of the Stanford University Habitat Conservation Plan. In accordance with

environmental review procedures for implementing the National Environmental Policy Act (NEPA), a 90-day public review period was provided for the DEIS. The review period was extended by 45 days to August 30, 2010, based on requests by local environmental groups and the general public.

The Final Environmental Impact Statement (FEIS) examines the environmental effects of the Services' approval of the proposed permits (the Proposed Action), and the environmental effects of two alternatives to the Proposed Action, including the No Action alternative and an HCP for CTS Only alternative.

The FEIS concludes that the Proposed Action and alternatives would have no significant adverse effect on cultural resources, noise, hazardous materials/waste, public services, land use or socioeconomics. The Proposed Action and alternatives would have an unavoidable significant adverse effect on traffic because of existing conditions. Likewise, because of existing conditions, the Proposed Action and alternatives would have a significant unavoidable cumulative effect on traffic and on air quality (particulate emissions but not other pollutants).

Because of the conservation easements and habitat enhancements included in the proposed Habitat Conservation Plan, the Proposed Action provides the greatest benefit to geology, water quality, and biology as compared to the No Action and HCP for CTS Only alternatives. The Proposed Action is the preferred alternative.

# Final Environmental Impact Statement for Authorization for Incidental Take and Implementation of the Stanford University Habitat Conservation Plan

## TABLE OF CONTENTS

<b>Abbreviations.....</b>	<b>i</b>
<b>Glossary.....</b>	<b>i</b>
<b>1.0 Summary .....</b>	<b>1-1</b>
1.1 Introduction.....	1-1
1.2 Purpose and Need for the Proposed Action .....	1-1
1.3 Scope of the EIS Analysis .....	1-2
1.4 Public Review Process.....	1-2
1.4.1 Areas of Controversy and Issues Raised During the Public Review Process.....	1-3
1.5 Changes to the EIS.....	1-4
1.6 The Proposed Action and Alternatives .....	1-4
1.6.1 The Proposed Action (Preferred Alternative).....	1-5
1.6.2 The No Action Alternative.....	1-6
1.6.3 The HCP for CTS Only Alternative.....	1-6
1.7 Environmental Effects of the Proposed Action and Alternatives .....	1-6
1.7.1 Environmental Consequences by Resource Area .....	1-6
1.7.2 Cumulative Effects.....	1-8
<b>2.0 Introduction: Purpose and Need .....</b>	<b>2-1</b>
2.1 Introduction.....	2-1
2.2 Background.....	2-1
2.3 Purpose and Need for the Federal Action.....	2-2
2.4 Regulatory Context.....	2-2
2.4.1 The Endangered Species Act (ESA).....	2-2
2.4.2 National Environmental Policy Act (NEPA).....	2-4
2.4.3 Clean Water Act (CWA).....	2-4
2.4.4 National Historic Preservation Act .....	2-5
2.5 Scope of EIS Analysis .....	2-6
2.6 Environmental Review Process .....	2-6
2.6.1 Notice of Intent (NOI) .....	2-6
2.6.2 EIS Scoping and Public Participation.....	2-6
2.6.3 DEIS Public Review .....	2-7
2.7 Summary of Changes to the Stanford HCP .....	2-8
2.8 Summary of Changes to the EIS.....	2-10
2.9 Stanford’s Final HCP (Proposed Action) .....	2-13
2.10 Searsville Dam and Reservoir.....	2-14
2.11 Organization of the FEIS .....	2-15
2.11.1 Organization of Volume I of the FEIS.....	2-16
2.11.2 Organization of Volume II of the FEIS .....	2-17
<b>3.0 Proposed Action and Alternatives.....</b>	<b>3-1</b>
3.1 Proposed Action (Preferred Alternative).....	3-1
3.1.1 Covered Activities .....	3-1
3.1.2 Creation of Management Zones.....	3-5
3.1.3 Measures to Minimize the Potentially Adverse Effects of the Covered Activities ...	3-5

- 3.1.4 Establishment of Mitigation Accounts..... 3-8
- 3.1.5 Covered Species Monitoring Program..... 3-13
- 3.1.6 Adaptive Management ..... 3-13
- 3.2 Alternatives ..... 3-14
  - 3.2.1 No Action Alternative..... 3-14
  - 3.2.2 HCP for CTS Only..... 3-16
- 3.3 Comparison of the Primary Features of the Alternatives Retained for Consideration.....3-19
- 3.4 Alternatives Not Selected for Detailed Evaluation..... 3-22
  - 3.4.1 No Take Alternative..... 3-22
  - 3.4.2 Take from Existing Operations Only ..... 3-22
  - 3.4.3 Ongoing Operations and GUP Development Only..... 3-23
  - 3.4.4 Participation in Santa Clara Valley Habitat Plan HCP/NCCP..... 3-23
  - 3.4.5 HCP Using All Off-site Mitigation..... 3-24
  - 3.4.6 HCP That Covers Modifications to Searsville Dam and Reservoir for Flood Control ...  
..... 3-24
  - 3.4.7 HCP That Covers Removal or Modifications to Searsville Dam for Fish Passage..3-26
- 4.0 Affected Environment ..... 4-1**
  - 4.1 Physical Environment ..... 4-1
    - 4.1.1 Geologic Hazards, Seismicity and Soils ..... 4-1
    - 4.1.2 Cultural and Historical Resources ..... 4-3
    - 4.1.3 Hydrology and Water Quality..... 4-5
    - 4.1.4 Air Quality ..... 4-18
    - 4.1.5 Noise ..... 4-20
    - 4.1.6 Traffic ..... 4-21
    - 4.1.7 Hazardous Materials/Waste ..... 4-22
    - 4.1.8 Public Services..... 4-24
    - 4.1.9 Land Use ..... 4-26
  - 4.2 Biological Environment..... 4-39
    - 4.2.1 Overview of Habitat: Plant Communities and Wildlife..... 4-39
    - 4.2.2 Covered Species..... 4-42
    - 4.2.3 Other Special-Status Species ..... 4-48
  - 4.3 Socioeconomic Environment..... 4-62
    - 4.3.1 Socioeconomic Setting..... 4-62
  - 4.4 Environmental Justice..... 4-64
  - 4.5 Indian Trust Assets ..... 4-65
- 5.0 Environmental Consequences..... 5-1**
  - 5.1 Physical Environment ..... 5-1
    - 5.1.1 Geologic Hazards and Soils ..... 5-1
    - 5.1.2 Cultural and Historic Resources ..... 5-6
    - 5.1.3 Hydrology and Water Quality..... 5-10
    - 5.1.4 Air Quality ..... 5-18
    - 5.1.5 Noise ..... 5-20
    - 5.1.6 Traffic ..... 5-23
    - 5.1.7 Hazardous Materials/Waste ..... 5-27
    - 5.1.8 Public Services..... 5-29
    - 5.1.9 Land Use ..... 5-32
  - 5.2 Biological Environment..... 5-35
    - 5.2.1 Effects of the Proposed Action Alternative ..... 5-35

5.2.2 Effects of the No Action Alternative ..... 5-55

5.2.3 Effects of the HCP for CTS Only Alternative ..... 5-56

5.2.4 Comparison of Alternatives ..... 5-58

5.3 Socioeconomic Environment ..... 5-58

5.3.1 Effects of the Proposed Action ..... 5-58

5.3.2 Effects of the No Action Alternative ..... 5-59

5.3.3 Effects of the HCP for CTS Only Alternative ..... 5-60

5.3.4 Comparison of Alternatives ..... 5-61

5.4 Environmental Justice ..... 5-61

5.4.1 Comparison of Alternatives ..... 5-62

5.5 Cumulative Effects ..... 5-62

5.5.1 Past, Present, and Reasonably Foreseeable Future Actions ..... 5-62

5.5.2 Cumulative Effects by Resource Area ..... 5-72

5.5.3 Global Climate Change ..... 5-81

5.5.4 Comparison of Alternatives ..... 5-83

5.6 Short-term Uses of Man's Environment and the Maintenance and Enhancement of Long-term Productivity ..... 5-84

5.7 Irreversible or Irrecoverable Commitments of Resources ..... 5-84

**6.0 References ..... 6-1**

6.1 Persons and Organizations Consulted ..... 6-1

6.2 Personal Communications Cited ..... 6-1

6.3 Literature ..... 6-2

**7.0 List of Preparers ..... 7-1**

7.1 U.S. Fish and Wildlife Service ..... 7-1

7.2 National Marine Fisheries Service ..... 7-1

7.3 Consultants ..... 7-1

**8.0 FEIS Distribution List ..... 8-1**

8.1 Bound Hard Copies ..... 8-1

8.1.1 Local Jurisdictions (2 copies each – one for staff and one for public counter) ..... 8-1

8.1.2 Libraries ..... 8-2

8.1.3 Agencies or Individuals ..... 8-2

8.2 CDs ..... 8-2

**9.0 Index ..... 9-1**

## LIST OF FIGURES

<b>Figure</b>	<b>Title</b>
2-1	Project Location
2-2	Primary Watershed Basins
2-3	Land Use
3-1	Management Zones
3-2	San Francisquito/Los Trancos Creek Basin
3-3	Matadero/Deer Creek Basin
3-4	CTS Basin
3-5	Possible Location of Assumed Development
4-1	Geologic Hazards
4-2	Major Fault Zones
4-3	Geologic Faults
4-4	Farmland
4-5	Historic Resources Inventory with Management Zones
4-6	San Francisquito Creek Hydrograph
4-7	Average Annual Forecasted Emissions
4-8	Annual Average CO Emissions
4-9	Roadways and GUP EIR Traffic Study Intersections
4-10	Water Diversions and Creek Monitoring Facilities
4-11	Governmental Jurisdictions
4-12	Existing Land Use in Habitat Management Zones
4-13	Recreational Uses
4-14	Leaseholds: Agricultural & Equestrian
4-15	Leaseholds: Commercial/Institutional
4-16	California Red-Legged Frog at Stanford
4-17	California Tiger Salamander at Stanford
4-18	Western Pond Turtle at Stanford
4-19	Steelhead at Stanford
5-1	Coastal San Francisco Bay Diversity Stratum of CCC Steelhead DPS
5-2	CRLF Recovery Units

**LIST OF TABLES**

<b>Table</b>	<b>Title</b>	
Table 2-1.	Proposed Covered Species .....	2-1
Table 3-1.	Summary of Future Development in Management Zones 1, 2 and 3.....	3-4
Table 3-2.	Diversion Rates and Minimum Bypass Flow Requirements for the Los Trancos Creek Diversion Facility.....	3-7
Table 3-3.	Diversion Rates and Minimum Bypass Flow Requirements for the San Francisquito Creek Pump Station .....	3-8
Table 3-4.	Examples of Preservation or Enhancement Activities that could earn Additional Mitigation Credits .....	3-11
Table 3-5.	Comparison of the Primary Features of the Alternatives Retained for Consideration....	3-19
Table 4-1.	Creek Protection Policies .....	4-11
Table 4-2.	San Francisco Bay Area Air Basin Annual Average Emissions, in Tons per Day ..	4-19
Table 4-3.	Stanford Environmental Health and Safety Departments, Programs and Policies (Santa Clara County 2000a).....	4-23
Table 4-4.	Public Service Providers.....	4-24
Table 4-5.	Distribution of Stanford Lands Across Jurisdictions.....	4-26
Table 4-6.	Santa Clara County: Stanford Community Plan Land Use Designation and Allowable Land Use Inside Academic Growth Boundary .....	4-30
Table 4-7.	Santa Clara County: Stanford Community Plan Land Use Designation and Allowable Land Use Outside the AGB .....	4-31
Table 4-8.	Allowable Uses under San Mateo County Zoning .....	4-32
Table 4-9.	Allowable Uses under Palo Alto Zoning.....	4-33
Table 4-10.	Zoning Definitions for Woodside.....	4-34
Table 4-11.	Acreage, Existing Land Use, and Allowable Land Use of Management Zones ....	4-37
Table 4-12.	Special-Status Plant Species.....	4-49
Table 4-13.	Special-Status Animal Species .....	4-51
Table 5-1.	Traffic Projections for Stanford HCP Development Scenarios.....	5-25
Table 5-2.	Traffic Rates Comparison between Stanford GUP and Habitat Conservation Plan	5-25
Table 5-3.	Effects of Implementation of the Monitoring and Management Plans on Covered Species .....	5-39
Table 5-4.	Summary of Estimated Steelhead Take Associated with HCP Monitoring Program .....	5-46
Table 5-5.	Summary of Estimated Loss of Habitat in Zones 1 and 2 for Ongoing Stanford Operations and Future Development .....	5-48

Table 5-6. Summary of Estimated Incidental Take of Covered Species for Ongoing Stanford Operations and Future Development ..... 5-49

Table 5-7. Estimate of Permanent Impacts to Plant Communities ..... 5-53

Table 5-8. Comparison of Alternatives..... 5-85

## LIST OF APPENDICES

- Appendix A. Scoping Report, including Notice of Intent
- Appendix B. Stanford's Final Habitat Conservation Plan
- Appendix C. U.S. Environmental Protection Agency and the Services' Notices of Availability for the DEIS
- Appendix D. Stanford's January 4, 2011 letter to the Services revising the HCP and application
- Appendix E. Stanford's January 6, 2011 document entitled "The Future of Searsville Dam and Reservoir"
- Appendix F. NMFS report entitled "An Assessment of bypass flows to protect steelhead below Stanford University's water diversion facilities on Los Trancos Creek and San Francisquito Creek" February 15, 2006. 32 pages
- Appendix G. Summary of Central California Coast steelhead collections and observations in the San Francisquito Creek Watershed

This page intentionally left blank.

**ABBREVIATIONS**

AAQS	National Ambient Air Quality Standards
AGB	Academic Growth Boundary
BAAQMD	Bay Area Air Quality Management District
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
Cal-EPA	California Environmental Protection Agency
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO	carbon monoxide
CPM	Conservation Program Manager
CRLF	California red-legged frog
CRMP	Creek Resources Management Plan
CSC	California species of concern
CTS MA	California Tiger Salamander Management Area
CTS	California tiger salamander
dB, dB(A)	decibels, decibels A-weighted
DPS	Distinct Population Segment
DSOD	California Division of Safety of Dams
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act (federal or state)
FAHCE	Fisheries Aquatic Habitat Conservation Enhancement
FDG	facility design guidelines
FEMA	Federal Emergency Management Agency
FPPA	Farmland Protection Policy Act
FSC	Federal species of concern
FT	Federal threatened
GUP EIR	General Use Permit Environmental Impact Report
GUP	General Use Permit
HCP	Habitat Conservation Plan

HCP/NCCP	Habitat Conservation Plan/Natural Communities Conservation Plan
HHC	Santa Clara County Historical Heritage Committee
ITA	Indian trust assets
ITE	Institute of Transportation Engineers
ITP	Incidental take permit
JRBP	Jasper Ridge Biological Preserve
JSB	Junipero Serra Boulevard
LOS	Level of Service
MBTA	Migratory Bird Treaty Act
MROSD	Mid-Peninsula Regional Open Space District
NEPA	National Environmental Policy Act
mgd	million gallons per day
NRHP	National Register of Historic Places
NMFS	National Oceanic and Atmospheric Administration, National Marine Fisheries Service
NOA	Notice of Availability
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OHWM	ordinary high water mark
OSHA	Occupational Safety and Health Administration
PAMC	Palo Alto municipal code
PM <sub>10</sub> and PM <sub>2.5</sub>	particulate matter, 2.5 or 10 microns in size
PPCHR	Procedures for Protection of Cultural and Historic Resources
ROD	Record of Decision
ROI	Region of Influence
RWQCB	Regional Water Quality Control Board
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Plan
SCVWD	Santa Clara Valley Water District
SE	State endangered
SFPUC	San Francisco Public Utilities Commission
SHEP	Steelhead Habitat Enhancement Project
SLAC	Stanford Linear Accelerator Center
STOPPP	Stormwater Pollution Prevention Program
SU	Stanford University
SWPPP	Storm Water Pollution Prevention Plan
TDM	travel demand management
UBC	Uniform Building Code
USACE	U.S. Army Corps of Engineers

USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
WPT	Western pond turtle

This page intentionally left blank.

## GLOSSARY

**Alternatives** – A range of reasonable options to address the identified problem or satisfy the stated need (see 40 CFR § 1502.14). The alternatives that are analyzed in the EIS include the Proposed Action (Preferred Alternative), No Action, and an HCP for California Tiger Salamander (CTS) Only.

**Basin** – The HCP identifies three geographic areas on Stanford lands that provide potential habitat for the Covered Species. The three basins are the (1) San Francisquito/Los Trancos Creek Basin; (2) Matadero/Deer Creek Basin; and (3) CTS Basin.

**Best Management Practices (BMPs)** – Measures incorporated into construction and maintenance projects that reduce environmental impacts of the project. These most often refer to measures used to reduce erosion and prevent water pollution.

**Biological Opinion** – A document that is the product of formal consultation between another Federal agency and the US Fish and Wildlife Service or the National Marine Fisheries Service, stating the opinion of the USFWS and/or NMFS on whether or not a Federal action is likely to jeopardize the continued existence of a federally listed species or result in the destruction or adverse modification of critical habitat.

**California Environmental Quality Act (CEQA)** – A legislative Act of the State of California (Pub. Res. Code § 21000 et seq.), requiring public agencies to review and disclose the environmental impacts of discretionary projects.

**Central Campus CTS Management Area** – Approximately 95 acres of Zone 1 and 2 California tiger salamander habitat north of Junipero Serra Boulevard (JSB), including Lagunita. This area will be subject to measures identified in the Central Campus CTS Management Plan.

**Conservation Easement** – Permanent restriction on the use of land pursuant to §§ 815 et seq of the California Civil Code.

**Conservation Program** – All of the conservation and management measures provided for under the Stanford University HCP to avoid, minimize, mitigate and monitor the impacts of take of the Covered Species (see Section 4 of the HCP).

**Conservation Program Manager (CPM)** – The person at Stanford who will be responsible for managing and overseeing implementation of the HCP's Conservation Program.

**Covered Activities** -- Those specific activities identified in the HCP which will be authorized to take federally listed species under Section 10(a)(1)(B) of the Federal Endangered Species Act (see Section 3 of the HCP).

**Covered Species** – Central California Coast steelhead, California red-legged frog, California tiger salamander, San Francisco garter snake and western pond turtle.

**Critical Habitat** – Section 4 of the Federal Endangered Species Act provides for designation of “critical habitat” for listed species when judged to be “prudent and determinable.” Critical habitat includes geographic areas “on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection.” Critical habitat may include areas not occupied by the species at the time of listing that are essential to the conservation of the species. Critical habitat designations affect only federal agency actions or federally funded or permitted activities.

**CTS Account** – A mitigation account to track the loss and conservation of California tiger salamander and San Francisco garter snake habitat (see Section 4.3.3 of the HCP).

**CTS Reserve** – An area south of JSB that contains breeding and aestivation habitat for the California tiger salamander and potential San Francisco garter snake habitat (see Section 4.3.3.1 of the HCP).

**Distinct Population Segment (DPS)** – a population determined by USFWS or NMFS to be discrete from other populations, and significant to its taxon.

**Enhancement** – Manipulation of habitat in conserved areas to reverse the effects of previous disturbance, control exotic species, retain natural diversity, and improve habitat values for one or more of the Covered Species (see Section 4 of the HCP).

**General Plan** – A comprehensive, long-term general plan for the physical development of the county or city, and of any land outside its boundaries which in the planning agency's judgment bears relation to its planning, as required by California Government Code § 65300.

**General Use Permit (GUP)** – A development permit issued in 2000 by Santa Clara County to Stanford.

**Habitat Conservation Plan (HCP)** – A habitat conservation plan or “HCP” must accompany an application for an incidental take permit. The purpose of an HCP is to ensure there is adequate minimization and mitigation of the effects of the authorized incidental take. (Addendum to the Endangered Species Habitat Conservation Planning Handbook 64 Fed. Reg. 11485-11490 (March 9, 1999)).

**Harm** – A form of take under the Federal Endangered Species Act; defined in federal regulations as an act that actually kills or injures fish or wildlife. Such acts may include significant habitat modification or degradation when it actually kills fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering.

**Incidental Take Permit (ITP)** – A permit issued by the USFWS and/or NMFS under Section 10 of the Federal Endangered Species Act to private parties undertaking otherwise lawful activities that might result in the take of an endangered or threatened species. Application for an incidental take permit requires preparation of a Habitat Conservation Plan by the permittee.

**Lead Agency** – The agency or agencies responsible for preparing the environmental impact statement (40 CFR 1508.16).

**Management Zones** – The HCP classifies Stanford’s lands into four Management Zones according to the habitat value of the land, if any, to the Covered Species (see Section 4.1 of the HCP).

**Minimization Measures** – Measures that Stanford will implement as part of the Conservation Program in order to avoid, minimize or mitigate the take of Covered Species (see Section 4.2 of the HCP).

**Mitigation** – Planning actions taken to either avoid an impact altogether; minimize the degree or magnitude of the impact; reduce the impact over time; rectify the impact; or compensate for the impact (40 CFR 1508.20).

**Mitigation Account** – A system for tracking the loss and conservation of Covered Species’ habitat. The proposed Stanford HCP includes two “Riparian Accounts” and a “CTS Account” (see Section 4.3 of the HCP).

**Mitigation Credits** – Actions that “fund” the Mitigation Account. Credits are earned through permanent conservation easements and enhancement activities.

**Monitoring and Management Plans** – Individual plans associated with the monitoring and management of Covered Species habitat within the San Francisquito/Los Trancos creek conservation easement, the Matadero/Deer creek conservation easement, the California Tiger Salamander (CTS) Reserve, and the Central Campus CTS Area.

**NOAA’s National Marine Fisheries Service (NMFS)** – A Federal agency which conserves, protects and manages living marine resources, including Central California Coast steelhead.

**Recovery Plan** – A plan developed by the Federal government describing reasonable actions to achieve the recovery and/or protection of Federally-listed species (ESA Section 4(f)).

**Redd** – the gravel nest where spawning fish lay their eggs.

**Riparian Account** – A mitigation account that will be funded by placing a conservation easement over riparian habitat.

**Section 10** – Refers to section 10(a)(1)(B) of the Federal Endangered Species Act, which allows permits to be issued for incidental take of Federally-listed species.

**Services** – The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS).

**Special-Status Species** – Plant and animal species that are listed as threatened or endangered by the State of California or the Federal government; are designated as species of special concern or fully-protected by the State of California; and/or are included in the California Native Plant Society’s rare and endangered plant inventory.

**Take** – "...to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" with regard to endangered species. (Section 3(19) of the Endangered Species Act, 1973 as amended 1978).

**Take Minimization Measures** – See Minimization Measures.

**U.S. Fish and Wildlife Service (USFWS)** – A federal agency which conserves, protects and manages living terrestrial resources, including California red-legged frog, California tiger salamander, San Francisco garter snake and western pond turtle.

**Wildlife Agencies** – The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS).

This page intentionally left blank.

## 1.0 SUMMARY

### 1.1 INTRODUCTION

The U. S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) (also collectively known as the Services) have received applications from the Board of Trustees of Leland Stanford Junior University (Stanford) for Incidental Take Permits (ITPs) under section 10(a)(1)(B) of the Federal Endangered Species Act of 1973, as amended (ESA), to take certain federally protected species incidental to otherwise lawful activities. This Final Environmental Impact Statement (FEIS) addresses the potential environmental consequences that may occur if ITPs are issued by the Services and other alternatives, including a no action alternative. Additionally, the FEIS includes modifications to the 2010 Draft Environmental Impact Statement (DEIS) based on revisions to Stanford's permit application and in response to public comments. This Environmental Impact Statement (EIS) has been prepared pursuant to the National Environmental Policy Act (NEPA) (42 United States Code [USC] 4321; 40 Code of Federal Regulations [CFR] 1500.1) and the President's Council on Environmental Quality (CEQ) guidelines on implementing NEPA. The USFWS and NMFS are co-lead agencies under NEPA for this action.

Stanford is a private entity that owns more than 8,000 contiguous acres in southern San Mateo County and northern Santa Clara County, California. Approximately 40 percent of the land has been intensively developed with urban facilities, including academic buildings, student and faculty housing, recreational facilities, administrative buildings, commercial and retail buildings, roads, sidewalks, an 18-hole golf course and golf driving range. In contrast, the other portions of the property are currently undeveloped or have only minor development.

The requested ITPs would authorize incidental take of four listed species and one non-listed species on all of Stanford's lands. The four listed species include the California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), and Central California Coast steelhead (*Oncorhynchus mykiss*). The non-listed species included in the ITP application is the western pond turtle (*Clemmys marmorata*). The listed and non-listed species are collectively known as the Covered Species. The USFWS has jurisdiction over the California red-legged frog ("red-legged frog" or CRF), California tiger salamander ("tiger salamander" or CTS), San Francisco garter snake ("garter snake" or SFGS), and the western pond turtle ("pond turtle" or WPT), and NMFS has jurisdiction over Central California Coast (CCC) steelhead. Activities addressed in the HCP include ongoing operations and maintenance of many Stanford facilities, future development, and conservation program actions. Collectively, these activities are known as Covered Activities. The Covered Activities do not include activities that are directly associated with Searsville Dam and Reservoir. The HCP specifies, among other things: (i) the impacts likely to result from the taking of the Covered Species and the measures Stanford will undertake to avoid, minimize, and mitigate such impacts; (ii) how the HCP would be funded; and (iii) alternatives to the proposed HCP. The proposed term of the permits is 50 years.

### 1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

Certain areas of Stanford's property are occupied by or provide suitable habitat for species that are presently listed as threatened and endangered under the ESA or may become listed under the ESA (see the Figures in Section 4 for the location of these species). Normal, otherwise lawful

operation of Stanford could result in take of the Covered Species, and Stanford needs a long-term, comprehensive solution that assures compliance with the ESA.

The Services need to ensure compliance with the ESA and to conserve the Covered Species and their habitats at Stanford within a comprehensive conservation program that improves habitat functions and connectivity. Specifically, as the Stanford tiger salamander population is the last remaining population on the San Francisco Peninsula, USFWS has a need to conserve salamanders at Stanford for species conservation value.

The purpose of the proposed federal action is to enable the permit applicant (Stanford) to continue academic activities, building construction, and operations and maintenance activities that are consistent with its long-term academic mission that provides protection and conservation of the Covered Species and allows some take of listed Species, as provided for under Section 10(a)(1)(B) of the ESA.

The applicant's needs and goals for preparing an HCP, as summarized from Section 1.5 of the HCP (Institutional and Biological Goals), are to: (1) provide cost effective measures to avoid, minimize and mitigate the incidental take of listed and unlisted species that may occur during the present and future operation of Stanford University; (2) utilize Stanford's natural resources in a manner that preserves their utility for future generations; (3) build on past efforts to conserve Stanford's tiger salamander population and steelhead populations; (4) support Stanford's academic mission, maintain land use flexibility, and incorporate sustainable land use practices; and (5) obtain long-term assurances from the Services that Stanford is in compliance with the ESA.

### **1.3 SCOPE OF THE EIS ANALYSIS**

This EIS analyzes the potential direct, indirect, and cumulative environmental effects of authorizing "take" of the Covered Species through issuance of the requested ITPs and applicant implementation of the proposed HCP. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. The EIS considers the physical, biological, and socioeconomic effects of the Proposed Action and the alternatives in a study area that includes Stanford lands and immediately adjoining areas. The analysis of cumulative effects uses a broader study area, depending on the resource being assessed.

The EIS addresses three alternatives: the Proposed Action, No Action, and an HCP for California tiger salamander (CTS) Only. The resource areas analyzed for each alternative are associated with the physical environment (Geology and Seismicity, Cultural and Historical Resources, Hydrology and Water Quality, Air Quality, Noise, Traffic, Hazardous Materials/Waste, Public Services, and Land Use), the biological environment, and the socioeconomic environment. The resource areas of environmental justice and Indian Trust assets were not analyzed in depth because the preliminary analysis indicated these resources are not in the study area and would not be affected.

### **1.4 PUBLIC REVIEW PROCESS**

NEPA (42 U.S.C. 4321 et seq.) requires that all federal agencies proposing major actions with potential significant effects on the quality of the human environment prepare a detailed statement of environmental effects. Agencies must consider and disclose publicly the environmental implications of their proposed actions through the preparation of appropriate documents. The Services published a Notice of Intent (NOI) in the Federal Register on September 11, 2006 (71

FR 53466). The Services held a public scoping meeting on September 21, 2006, at the Stanford campus, Jordan Hall, 450 Serra Mall, Building 420, Room 040, Stanford, California. A copy of the Scoping Report, which includes copies of the comment letters, is attached as Appendix A.

The Draft EIS and Draft HCP were released for public review and comment on April 12, 2010. Two Notices of Availability (NOA) were published in the Federal Register. An NOA prepared by the Services for the DEIS and Draft HCP was published on April 12, 2010 (Vol. 75, No. 69), and the U.S. Environmental Protection Agency (EPA) published an NOA of the DEIS on April 16, 2010 (Vol. 75 No. 73). A copy of each NOA is included in Appendix C of the FEIS. A 90-day comment period began when the EPA published the NOA on April 16, 2010. At the request of the public, the Services extended the public comment period an additional 45 days to August 30, 2010 (Federal Register, July 15, 2010 [Vol. 75, No. 135]). Comments received on the DEIS and HCP and responses can be found in Volume II of this FEIS.

#### **1.4.1 Areas of Controversy and Issues Raised During the Public Review Process**

Based on input during the public scoping and comment periods, several issue areas have been identified regarding the proposed Stanford HCP and DEIS. Some of the issues raised might be considered controversial. The issues of greatest concern raised in comments to date are highlighted below. These issue areas and their resolution as it relates to the Stanford HCP and EIS are discussed in responses to comments in Volume II, Section 3 of the FEIS. Key issues and concerns include the following:

- Future disposition of Searsville Dam and Reservoir;
- Past, present, and future impacts of Searsville Dam, Reservoir, Diversion, and other Searsville-related activities on the human environment;
- Relationship between Searsville Dam and other components of Stanford's local water system;
- Inclusion of modifications to Searsville Dam and Reservoir in the HCP for the benefit of steelhead;
- Potential future flood reduction activities and the HCP;
- Best available data and analysis regarding steelhead populations and habitat conditions in the San Francisquito Creek watershed;
- Stanford's State of California water rights;
- Impact of future campus development;
- Interrelated and interdependent activities, and cumulative effects;
- Control of non-native species;
- Appropriateness of mitigation account/credit system approach for conservation of Covered Species and their habitat;
- Protection of wildlife corridors; and
- Need for the Services to prepare and issue a supplemental DEIS.

Where appropriate, the Services have included revisions in the FEIS to address the issues and concerns that were raised during the public comment period. Stanford has also made revisions to the Final HCP in response to comments. Volume II of the FEIS provides a record of the

comments received on the DEIS and Draft HCP, and provides the Services' response to those comments.

## **1.5 CHANGES TO THE EIS**

The Services made changes to the EIS based on Stanford's revised application and in response to public comments. These revisions to Stanford's application, the Proposed Action, and the analysis in the EIS did not result in any new significant environmental impacts or substantially increase the severity of an environmental impact. No new or modified mitigation measures would be required as a result of these changes. Section 2, Section 2.8, presents a list of the changes to the EIS. Changes include, but are not limited to:

- Addition of information regarding Covered Species, Searsville Dam and Reservoir, and hydrology and water quality;
- Update of information regarding the DEIS public review process;
- Change to the proposed action based on Stanford's removal of Searsville Dam, Reservoir, Diversion, and other Searsville-related activities from the HCP;
- Addition of information regarding Searsville Dam and its relationship to the Proposed Action;
- Consideration of an alternative not selected for detailed study regarding removal or modification of Searsville Dam for fish passage;
- Addition of information to describe bypass flows and other operational protocols at Stanford's Los Trancos Creek Diversion Facility and San Francisquito Creek Pump Station;
- Correction regarding the amount of historical steelhead habitat upstream of Searsville Reservoir;
- Addition of information regarding the cumulative effects of past, present, and reasonably foreseeable future actions at Searsville Dam, Reservoir, and Diversion;
- Addition of information regarding the incidental take of steelhead from the Covered Activities;
- Correction and clarification of Table 5-5 regarding estimated loss of habitat for Covered Species in Zones 1 and 2;
- Correction of estimated incidental take levels of steelhead in Table 5-6; and
- Addition of an index.

## **1.6 THE PROPOSED ACTION (PREFERRED ALTERNATIVE) AND ALTERNATIVES**

The EIS assesses three alternatives: "Proposed Action," a "No Action alternative," and an "HCP for CTS Only alternative." Each alternative is described briefly below and a detailed description is included in Section 3 of the FEIS.

### 1.6.1 The Proposed Action

Under the Proposed Action, ITPs would be issued by USFWS and NMFS, which would result in the applicant's implementation of a HCP that provides a comprehensive Conservation Program intended for the benefit of steelhead, tiger salamander, red-legged frog, garter snake, and pond turtle. The proposed Conservation Program includes take avoidance and minimization measures, monitoring and management of habitat, and permanent preservation of habitat as mitigation for the permanent loss of habitat (at a ratio concomitant with the quality of habitat lost). It applies to all of Stanford University. Implementation of the Proposed Action will result in the issuance of an incidental take permit by NMFS for steelhead and by the USFWS for tiger salamander, red-legged frog, garter snake, and if it becomes listed, the pond turtle. The Covered Activities include ongoing maintenance and operation of Stanford facilities, up to 180 acres of future development on Stanford lands, and implementation of the Conservation Program. Ongoing Stanford facilities and operations identified as Covered Activities include:

- Los Trancos Creek Diversion Facility;
- San Francisquito Creek Pump Station;
- Creek bank stabilization;
- Debris removal for conveyance of flood waters;
- Field academic activities;
- Utility installation and maintenance;
- Bridge and road maintenance;
- Recreation and athletic activities;
- Grounds maintenance and fire control; and
- Agricultural and equestrian operations by leaseholders.

Since the issuance of the DEIS, the Proposed Action has been revised in a manner that removes Searsville-related activities and associated measures. In January 2011, Stanford removed ongoing operations and maintenance of Searsville Dam, dredging in Searsville Reservoir, and water diversion from Searsville Reservoir from their HCP (Appendix D). Searsville-related activities removed from the HCP and the Proposed Action are operation of Searsville Dam, Searsville Reservoir, Searsville water diversion intake structure, the Searsville 16-inch water conveyance pipeline extending downstream of Searsville Reservoir to the booster pumping station, the Searsville 16-inch pipeline and gate valve used for pipeline maintenance (*i.e.* flushing), and the in-line booster pumping station constructed in 2004 on the Searsville pipeline approximately 2 miles below Searsville Reservoir. Repairs and upgrades to valves, pipelines, flashboards and appurtenances at the above facilities are also excluded from the Covered Activities. Thus, any take associated with Searsville-related activities would not be authorized under the Services' proposed ITPs.

Future development included as Covered Activities consists of new academic facilities and housing over the next 50 years, covering an area of up to 180 acres. The HCP divides Stanford's lands into four Management Zones according to habitat value. Zones 1, 2, and 3 have habitat value for Covered Species, while Zone 4 is fully developed and does not offer habitat value to Covered Species. The existing General Use Permit (GUP) issued by Santa Clara County to

Stanford in 2000 allows for 30 acres of development in Zones 1-3. The HCP forecasts that Stanford could develop an additional 150 acres within Zones 1-3 over the 50-year permit term.

Conservation Program activities include a wide range of measures to minimize and avoid impacts to Covered Species and monitoring to collect data on Covered Species and evaluate the effectiveness of the Conservation Program. On Los Trancos and San Francisquito creeks, minimum bypass flows below Stanford's water diversions ensure stream flow conditions are protective of steelhead and other aquatic species when the intakes are operating. Minimization measures for creek maintenance activities include in-stream work windows, pre-construction surveys, and barriers to protect sensitive habitats. Permanent habitat loss associated with future development actions would be mitigated by recording permanent conservation easements and through habitat enhancement projects.

### **1.6.2 The No Action Alternative**

Under the No Action alternative, the Services would not issue ITPs. The applicant would not implement the HCP. Ongoing activities or future development that would result in the take of listed species would be addressed on a project-by-project basis. Incidental take permits may be issued later in response to project-specific applications, or incidental take may be provided through section 7 consultations with other Federal agencies, such as the Army Corps of Engineers. Stanford would not implement a comprehensive conservation and monitoring program for the Covered Species under the No Action Alternative. However, mitigation would occur when individual permits are issued, and mitigation actions would be project-specific rather than area-wide.

### **1.6.3 The HCP for CTS Only Alternative**

Under the HCP for CTS Only alternative the USFWS would issue an ITP for the California tiger salamander only. The applicant would only implement the portion of the HCP that is associated with the tiger salamander, and the Covered Activities would include only those activities that affect tiger salamanders. A permit authorizing the incidental take of steelhead, red-legged frog, or garter snake would not be issued and the HCP for CTS Only alternative would not cover these species or the pond turtle. The take of steelhead, garter snake and red-legged frog would require separate permits to be issued by the Services on a project-specific basis.

## **1.7 ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION AND ALTERNATIVES**

### **1.7.1 Environmental Consequences by Resource Area**

The potential environmental effects on each resource area associated with the Proposed Action and Alternatives are summarized below, and are described in detail in Section 5, Environmental Consequences.

**Geologic Hazards, Seismicity and Soils.** The Proposed Action or the alternatives would not result in significant adverse effects to geologic hazards and soils. The Conservation Program under the Proposed Action provides bank stabilization that may not otherwise be required, and this would reduce erosion and benefit water quality. The easements proposed in the Conservation Program would also protect Prime Farmland from development. In comparing the alternatives, none pose a significant adverse effect, but the Proposed Action provides a benefit related to geologic hazards and soils.

**Cultural and Historic Resources.** The Proposed Action or the alternatives would not result in significant adverse effects to cultural resources. Under the proposed action, the Procedures for Protection of Cultural and Historic Resources (PPCHR) would specify the process and protocols for avoiding, minimizing, and treatment of potential effects to historic properties and cultural resources during implementation of Conservation Program actions for CCC steelhead. The USFWS would include as a condition of its ITP that Stanford's conservation activities avoid or minimize potential effects and comply with the Secretary of Interior's standards for archeology and historic preservation. Protocols already in place would minimize the risk of damaging or destroying known cultural or historic resources under the Proposed Action or alternatives. The Proposed Action or alternatives do not significantly differ in effects on cultural and historic resources.

**Hydrology and Water Quality.** The Proposed Action or the alternatives would not result in significant adverse effects to hydrology and water quality. The Conservation Program under the Proposed Action provides bank stabilization that may not otherwise be required, and this would reduce erosion and benefit water quality. The easements proposed in the Conservation Program would also restrict development within the creek zones, in turn protecting surface water quality in the creeks. In comparing the alternatives, none pose a significant adverse effect, but the Proposed Action provides a benefit related to hydrology and water quality.

**Air Quality.** The Proposed Action or the alternatives would not result in significant adverse effects to air quality. Although the Proposed Action's Conservation Program may require more hours of equipment use than the other alternatives in order to implement restoration activities, the Proposed Action or alternatives do not significantly differ in effects on air quality.

**Noise.** The Proposed Action or the alternatives would not result in significant adverse effects to noise, with the exception of construction noise associated with future development. Depending on the location of future development relative to sensitive receptors, construction noise could be significant even with mitigation measures. The operational noise should not be significant after mitigation is implemented. The Proposed Action or alternatives do not significantly differ in effects on noise.

**Traffic.** The Proposed Action or the alternatives would not result in significant adverse effects to traffic, with the exception of traffic associated with future development. Because development under the GUP EIR was found to have an unavoidable traffic impact by adversely affecting the LOS at some intersections, the analysis in this DEIS assumes that any future development under the Proposed Action or alternatives would also have an unavoidable adverse effect on traffic. However, a definitive determination of effects on traffic is not possible considering the uncertainty of changes that could affect traffic over the next 50 years. Improvements to the road system around Stanford or project-specific mitigation may prevent adverse traffic effects. The Proposed Action or alternatives do not significantly differ in effects on traffic.

**Hazardous Materials/Waste.** The Proposed Action or the alternatives would not result in significant adverse effects to hazardous materials/waste. Protocols already in place by Stanford would minimize the risk of exposure to hazardous materials/waste under the Proposed Action or alternatives. The Proposed Action or alternatives do not significantly differ in effects on hazardous materials/waste.

**Public Services.** The Proposed Action or the alternatives would not result in significant adverse effects to public services. Future development could be limited by the availability of a potable

water supply, but future development would not adversely affect any public services. The Proposed Action or alternatives do not differ in effects on public services.

**Land Use.** The Proposed Action or the alternatives would not result in significant adverse effects to land use. Land use is governed by local General Plans and zoning ordinances, and any future changes in land use would comply with those or would require approval for a change in land use designation. The Proposed Action or alternatives do not significantly differ in effects on land use.

**Biological Environment.** The Proposed Action or alternatives would not result in a significant adverse effect on biological resources. The Proposed Action provides greater benefit to biological resources than the alternatives because it provides a comprehensive Conservation Program and Monitoring and Management Plans that would be implemented in perpetuity over at least 360 acres of the highest quality habitat. The No Action and HCP for CTS Only alternatives do not provide either a comprehensive Conservation Program or perpetual management of biological resources over as large an area of Stanford's lands. Under the Proposed Action and both alternatives, operation of the Los Trancos Creek Diversion Facility and the San Francisquito Creek Pump Station would continue to occur in compliance with the fish bypass flow requirements established by the SHEP.

**Socioeconomic Environment.** The Proposed Action or the alternatives would not result in significant adverse effects to socioeconomics. Future conservation easements under the Proposed Action or alternatives will restrict the ability to develop the land for economic benefit. However development on most of these lands is currently restricted by local land use regulations. The Proposed Action or alternatives do not significantly differ in effects on socioeconomics.

**Environmental Justice.** The Proposed Action or alternatives would not have adverse effects related to environmental justice. The Proposed Action and alternatives do not differ in their effects on environmental justice.

### 1.7.2 Cumulative Effects

The EIS includes an analysis of the incremental impact of the Proposed Action and the alternatives in light of other past, present and reasonably foreseeable future Federal, State, local government, and private actions. Cumulative impacts are defined as the "impact on the environment that results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions." (40 C.F.R. § 1508.7). The study area for cumulative effects generally includes San Mateo and Santa Clara counties, but it does vary for some of the resource areas addressed in the EIS analysis.

The San Francisco Peninsula has been highly altered by human generated actions, including substantial residential, commercial, institutional, industrial, and recreational development, along with a vast transportation network and other infrastructure to support these land uses. These alterations to the natural landscape have all contributed to the current environmental conditions, which are described in Section 4, Affected Environment. General actions and specific future projects that may result in cumulative impacts in combination with the Proposed Action include:

- **Urban Growth.** Population growth in the study area will continue over the 50-year timeframe of the ITPs. As such, the City of Palo Alto, Town of Portola Valley, City of Menlo Park, and Town of Woodside (collectively, "cities") and San Mateo and Santa Clara counties will continue to urbanize. Based on the cities' and counties' general plans, new shopping centers, commercial and institutional buildings, and housing will be built

during the next 50 years. This development would be accompanied by public and private infrastructure improvements, such as new roads, utilities, and recreational facilities, and maintenance of new and existing facilities, such as street and sidewalk repairs. Future development would result in a wide range of environmental impacts that would contribute to cumulative conditions in the region.

- **Regional Flood Control.** Flood projects along San Francisquito Creek are anticipated to eliminate the need for thousands of properties to contribute to the National Flood Insurance Program. Channel widening, bridge replacement, floodwall construction, bypass culverts, and detention basins would likely be used to increase creek capacity and address flooding. Channel widening would likely be designed to improve conditions for native plants and wildlife on the floodplain adjacent to San Francisquito Creek. Project construction would result in location-specific impacts from ground disturbance; however, mitigation and enhancement activities would benefit native species and their habitat.
- **Environmental/Conservation Projects.** A number of regional and local environmental improvement projects are currently underway or anticipated during the next 50 years. These include local restoration and enhancement actions as well as area-wide conservation programs such as the Santa Clara Valley Water District's Three Creeks HCP and the Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan.
- **Searsville Dam and Reservoir.** To maintain Searsville Dam and Reservoir on Corte Madera Creek in good operating condition and comply with California Division of Safety of Dams regulations, periodic maintenance activities are conducted by Stanford and will likely continue to be conducted in the future. Operation of the Searsville water diversion is expected to continue in the future in a manner similar to past operations. Water diversions from Searsville Reservoir primarily occur between the months of December and June, and annual diversion amounts have ranged from zero to a maximum of 1,021 acre feet. In the absence of future actions by Stanford, the natural filling of Searsville Reservoir will continue.

The Proposed Action or alternatives would not contribute to cumulative adverse effects in the study area associated with geology and seismicity, cultural and historical resources, water quality, flooding, biological resources, air quality, noise, hazardous materials/waste, public services, land use, and socioeconomics. Future development associated with the Proposed Action or alternatives would contribute to cumulatively adverse traffic effects.

Future development covered by the Proposed Action or alternatives would contribute to the loss of a relatively small amount of habitat within the study area. The Proposed Action and HCP for CTS Only alternative could have an additive beneficial effect in combination with proposed conservation plans in preparation in Santa Clara County, however ITPs issued in conjunction with these HCPs would also result in a greater amount of authorized take, so until permit decisions are made, and these HCPs are completed, the cumulative conservation effect is not known.

The Proposed Action and the HCP for CTS Only alternative include conservation programs, but the contribution of green house gas (GHG) emissions from these actions is not cumulatively significant. Because project-level details are unknown at this time, any attempt to quantify GHG emissions from future development under the Proposed Action or alternatives would be speculative. The Proposed Action's Conservation Program includes actions that could reduce

the effects of global climate change on the Covered Species. Similarly, the HCP for CTS Only alternative includes actions that could reduce the effects of climate change on tiger salamander.

In comparison, the Proposed Action and alternatives are the same except with regard to cumulative effects on biological resources related to future development and to GHG emissions. The Proposed Action is superior to the alternatives because it provides a cumulatively beneficial effect on biological resources and provides for adaptive management throughout Covered Species habitat on Stanford's lands to respond to the effects of global climate change on the Covered Species.

## 2.0 INTRODUCTION: PURPOSE AND NEED

### 2.1 INTRODUCTION

This FEIS addresses the potential environmental effects that could result from the Services' issuance of ITPs to Stanford University and reflects modifications to the DEIS based on revisions to Stanford's permit application and in response to public comments. The FEIS has been prepared in accordance with NEPA, 42 U.S.C. 4321 *et seq.*, and its implementing regulations, 40 CFR parts 1500–1508. NMFS and USFWS are co-lead agencies under NEPA for issuance of the ITPs described below.

### 2.2 BACKGROUND

Stanford University (Stanford) has submitted an application to NMFS and USFWS (collectively referred to as the Services) for ITPs in accordance with section 10(a)(1)(B) of the Federal Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Stanford is seeking this authorization so that activities associated with implementing the Stanford HCP comply with the ESA by providing protection for four species listed under the ESA and one non-listed species. The species and their status are listed in Table 2-1.

<b>Covered Species Common Name (Scientific Name)</b>	<b>Jurisdiction</b>	<b>Listing Status</b>
California red-legged frog ( <i>Rana draytonii</i> )	USFWS	Threatened
California tiger salamander (Central California DPS) ( <i>Ambystoma californiense</i> )	USFWS	Threatened
San Francisco garter snake ( <i>Thamnophis sirtalis tetrataenia</i> )	USFWS	Endangered
Steelhead (Central California Coast DPS) ( <i>Oncorhynchus mykiss</i> )	NMFS	Threatened
Western pond turtle ( <i>Clemmys marmorata</i> )	USFWS	None

Since the issuance of ITPs by the Services would be a Federal action that may affect the human environment, issuance is subject to review under NEPA. NEPA provides an interdisciplinary framework for Federal agencies to evaluate environmental consequences of programs and projects over which they have discretionary authority. The DEIS and FEIS were prepared in compliance with NEPA regulations and the NEPA implementing regulations for NMFS (NOAA Administrative Order 216-6). The Stanford HCP was prepared in support of Stanford's application for ITPs to cover the continued operation and maintenance of Stanford facilities and up to 180 acres of future development on the Stanford Campus. Stanford requests coverage for the incidental take of listed Covered Species for a term of 50 years. The Stanford HCP would provide measures to minimize and mitigate impacts of the proposed incidental taking of listed Covered Species and the habitats upon which they depend for the full 50-year permit term. The pond turtle is not currently listed as threatened or endangered, but may become federally listed

within the proposed 50-year term of the permits. Take authorization for the pond turtle would become effective if the pond turtle is listed.

Stanford is a private entity that owns more than 8,000 contiguous acres in southern San Mateo County and northern Santa Clara County, California, along the southeastern base of the Santa Cruz Mountains on the San Francisco peninsula (Figure 2-1, Project Location). Stanford's property lies in the Matadero/Deer Creek and San Francisquito/Los Trancos Creek watersheds (Figure 2-2, Primary Watershed Basins). Approximately 40 percent of Stanford's property has been intensively developed with urban facilities such as academic buildings, student and faculty housing, administrative buildings, commercial and retail buildings, roads, sidewalks, and a variety of recreational amenities such as playing fields, equestrian facilities, a golf course and golf driving range. In contrast, other portions of the property are currently undeveloped or have only minor development (Figure 2-3, Land Use).

### **2.3 PURPOSE AND NEED FOR THE FEDERAL ACTION**

Certain areas of Stanford's property are occupied by or provide suitable habitat for species that are presently listed as threatened or endangered under the ESA or may become listed under the ESA. Normal, otherwise lawful operation of Stanford could result in take of the Covered Species, and Stanford needs a long-term, comprehensive solution that assures compliance with the ESA.

The Services need to ensure compliance with the ESA and to conserve the Covered Species and their habitats at Stanford within a comprehensive conservation program that improves habitat functions and connectivity. Specifically, as the Stanford tiger salamander population is the last remaining population on the San Francisco Peninsula, USFWS has a need to conserve salamanders at Stanford for species conservation value.

The purpose of the proposed Federal action is to enable the permit applicant (Stanford) to continue academic activities, building construction, and operations and maintenance activities that are consistent with its long-term academic mission that provide protection and conservation of the Covered Species and that allow take of listed Species, as provided for under section 10(a)(1)(B) of ESA.

The applicant's needs and goals for preparing an HCP, as summarized from Section 1.5 of the HCP (Institutional and Biological Goals), are to: (1) provide cost effective measures to avoid, minimize and mitigate the incidental take of listed and unlisted species that may occur during the present and future operation of Stanford University; (2) utilize Stanford's natural resources in a manner that preserves their utility for future generations; (3) build on past efforts to conserve Stanford's tiger salamander population and steelhead populations; (4) support Stanford's academic mission, maintain land use flexibility, and incorporate sustainable land use practices; and (5) obtain long-term assurances from the Services that Stanford is in compliance with the ESA.

### **2.4 REGULATORY CONTEXT**

#### **2.4.1 The Endangered Species Act (ESA)**

Section 9 of the ESA prohibits "take" of species that are listed as endangered, and Section 4 provides the Services with the discretion to extend all or some of those protections deemed necessary and advisable to provide for the conservation of threatened species. Take includes harassment, harm, pursuit, hunting, shooting, wounding, killing, trapping, capturing, or

collecting a listed species, or attempting to engage in any such conduct. (16 USC §1538(19)). Harm is further defined in ESA implementing regulations as an act which actually kills or injures fish or wildlife, including significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering. (50 C.F.R. §17.3, and §222.102).

Under section 10 of the ESA, non-federal entities can apply for an ITP exempting them from the “take” prohibition for scientific purposes to aid the species’ survival, or for an “incidental take” authorization when the project or activity does not involve a Federal action and the take is incidental to, and not the purpose of, an otherwise lawful activity (16 USC §1539(a)(1)(A-B)). Section 10 and the Services’ implementing regulations then define under what circumstances the Services will issue an ITP.

Under section 10(a)(2)(A)(i-iv), no permit may be issued by the Services authorizing incidental take of listed species unless the applicant submits a conservation plan that specifies:

- the impact that will likely result from such taking;
- what steps the applicant will take to minimize and mitigate such impacts, and the funding that will be available to implement such steps;
- what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized; and
- such other measures that the Services may require as being necessary or appropriate for purposes of the plan.

Section 10(a)(2)(B), provides that the Services shall issue an ITP if the Services find, after opportunity for public comment, that:

- the taking will be incidental;
- the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking;
- the applicant will ensure that adequate funding for the plan will be provided;
- the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild;
- the measures, if any, required by the Services as being necessary or appropriate for purposes of the plan will be met; and
- the Services have received such other assurances as may be required that the plan will be implemented.

In 2000, the Services adopted a five-point policy designed to clarify certain elements of an HCP. 65 FR 35242-35257 (June 1, 2000). The five-point policy recommends that:

- an HCP include specific, measurable biological goals and objectives based on the best available scientific information;
- an HCP include an adaptive management provision;
- an HCP include a monitoring program to gauge the effectiveness of the plan in meeting the biological goals and objectives and the permittee’s compliance with the plan;

- the Services consider several factors to determine the appropriate duration of an ITP, including the duration of the covered activities and the expected effects on the covered species; and
- the Services expand public participation by providing a 60-day comment period for most HCPs.

The ESA's implementing regulations provide "no surprises" assurances (50 CFR Part 17.22(b)(5), 17.32(b)(5); 50 CFR 222.307(g)). The no surprises rule assures private landowners that if "unforeseen circumstances" arise, the Services will not require the commitment of additional land, water or financial compensation or additional restrictions on the use of land, water, or other natural resources beyond what is required by the ITP and associated HCP and Implementing Agreement without the permittee's consent. The government will honor these assurances as long as a permittee is implementing the terms and conditions of the HCP, permit, and other associated documents.

Section 7 of the ESA mandates that all Federal agencies consult with the USFWS and NMFS if they determine that a proposed project may affect a listed species or designated critical habitat. This means that the Services must conduct an internal (intra-agency) formal section 7 consultation on their issuance of ITPs to Stanford to ensure that issuance of the ITPs meets ESA standards under section 7.

#### **2.4.2 National Environmental Policy Act (NEPA)**

NEPA requires that all Federal agencies proposing major actions with potential significant effects on the quality of the human environment prepare a detailed statement of environmental effects. NEPA applies to all Federal agencies and to most of the activities they manage, regulate, or fund that affect the human environment. It requires all agencies to consider and to disclose publicly the environmental implications of their proposed actions through the preparation of appropriate documents. The Council of Environmental Quality (CEQ) has adopted regulations and other guidance that provides detailed procedures that Federal agencies must follow to implement NEPA.

This document has been prepared because NEPA requires Federal agencies to prepare an appropriate environmental analysis – either an environmental impact statement (EIS) or an environmental assessment (EA) – to thoroughly assess the environmental impact of major Federal actions on the human environment. The Services have concluded that an EIS is appropriate for this proposed action.

#### **2.4.3 Clean Water Act (CWA)**

The Clean Water Act of 1977 is the principal Federal legislation designated to protect the quality of the nation's waters. The purposes of the CWA include "protection and propagation of fish, shellfish, and wildlife." The EPA is charged with implementing most of the CWA requirements, although the CWA includes provisions for states to assume much of the implementation responsibility. Under CWA, Section 404, the U.S. Army Corps of Engineers (USACE) and EPA regulate the discharge of dredged and fill materials into waters of the United States. Waters of the United States refers to oceans, bays, rivers, streams, lakes, ponds, and wetlands, including any or all of the following:

- Areas within the ordinary high water mark (OHWM) of a stream, including non-perennial streams with a defined bed and bank, and any stream channel that conveys natural runoff, even if it has been realigned.
- Seasonal and perennial wetlands, including coastal wetlands.

Applicants must obtain a permit from the USACE for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity. Isolated waters and wetlands that are not used in interstate or foreign commerce are not regulated. As part of the wetland delineation and verification process, the USACE determines whether the wetlands in the study area are isolated and if they are linked to commerce. The USACE may issue either an individual permit evaluated on a case-by-case basis or a general permit evaluated at a program level for a series of related activities. General permits are preauthorized and are issued to cover multiple instances of similar activities expected to cause only minimal adverse environmental effects. Nationwide Permits (NWP) are a type of general permit issued to cover particular fill activities. Each NWP specifies particular conditions that must be met in order for the NWP to apply to a particular project.

Section 402 of the CWA regulates construction-related storm water discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, administered by EPA. In California, the State Water Resources Control Board is authorized by EPA to oversee the NPDES program through the Regional Water Quality Control Boards (RWQCB). Stanford University is within the jurisdiction of the San Francisco Bay RWQCB. NPDES permits are required for construction projects that disturb more than 1 acre of land.

Under CWA Section 401, applicants for a Federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States, must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over the affected waters at the point where the discharge would originate. Therefore, all projects that have a Federal component and may affect state water quality (including projects that require Federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401. In California, CWA Section 401 water quality certifications are issued by the RWQCBs.

Issuance of ITPs from the Services does not relieve Stanford from obtaining the appropriate CWA permits and approvals described above. Prior to proceeding with future development, Stanford must utilize existing USACE protocols for identifying seasonal and perennial wetlands regulated under the CWA, and request verification from the USACE for any delineations and jurisdictional determinations. When appropriate, Stanford will submit applications to the USACE and San Francisco Bay RWQCB for future development projects, including projects that are in the HCP as Covered Activities. Although the incidental take of listed species associated with Covered Activities would already be permitted in the Services' ITPs, the USACE continues to have an obligation to consult with the Services pursuant to section 7 of the ESA. These section 7 consultations between the USACE and the Services would determine if Stanford's proposed action is consistent with the HCP and ITPs, and the consultation would also ensure Covered Activities are in compliance with Section 404 of the CWA.

#### **2.4.4 National Historic Preservation Act**

The National Historic Preservation Act (NHPA) of 1966, as amended, requires Federal agencies to take into account the effects of a proposed undertaking on cultural resources listed or eligible for listing on the National Register of Historic Places (NRHP). The purpose of Section 106 is to

ensure that Federal agencies consult with state and local groups before non-renewable cultural resources, such as archaeological sites and historic structures, are affected. Section 106 requires Federal agencies to take into account the effects of their actions on properties that may be eligible for listing or that are listed in the NRHP for projects that they finance, permit, or own.

## **2.5 SCOPE OF EIS ANALYSIS**

This EIS analyzes the potential direct, indirect and cumulative environmental effects of authorizing “take” of the Covered Species through issuance of the requested ITPs and applicant implementation of the proposed HCP. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. The EIS considers the physical, biological and socioeconomic effects of the Proposed Action and the alternatives in a study area that includes Stanford’s lands and immediately adjoining areas. The analysis of cumulative effects uses a broader study area, depending on the resource being assessed.

The EIS addresses three alternatives: the Proposed Action, No Action, and an HCP for CTS Only. The resource areas analyzed for each alternative are associated with the physical environment (Geology and Seismicity, Cultural and Historical Resources, Hydrology and Water Quality, Air Quality, Noise, Traffic, Hazardous Materials/Waste, Public Services, and Land Use), the biological environment, and the socioeconomic environment. The resource areas of environmental justice and Indian Trust assets were not analyzed in depth because the preliminary analysis indicated these resources are not in the study area and would not be affected.

## **2.6 ENVIRONMENTAL REVIEW PROCESS**

### **2.6.1 Notice of Intent (NOI)**

The Services published an NOI in the Federal Register on September 11, 2006 (71 FR 53466) to provide notice of the preparation of an environmental document, announce the initiation of a public scoping period, obtain information to assist the Services in determining whether to prepare an EIS or Environmental Assessment (EA), and to obtain suggestions on the scope and issues to be included in the environmental document. The NOI provided information on the background and purpose of the Proposed Action and provided details for the public scoping meeting, and comment period. In addition to the publication of the NOI, meeting notifications via email and regular mail were sent to 24 local entities and public officials, and the scoping meeting was advertised in the September 15, 2006 issue of the *Palo Alto Weekly* newspaper.

### **2.6.2 EIS Scoping and Public Participation**

The NEPA scoping period began with publication of the NOI on September 11, 2006, and officially ended on October 11, 2006; however comments were accepted through October 31, 2006. The Services held a public scoping meeting on September 21, 2006, at the Stanford campus, Jordan Hall, 450 Serra Mall, Building 420, Room 040, Stanford, California. Members of the public were given an opportunity to provide oral comments, and eight oral comments were received. A total of 11 separate comment letters were received from public agencies, organizations, and individuals during the scoping period. Comments regarding the environmental document included general comments regarding the contents, including information regarding future development and the relationship between the proposed HCP and other local plans that were being developed; recommendations to prepare an EIS rather than an EA; recommendations to expand the scope of the impact analysis; and the scope of the

alternatives. A copy of the Scoping Report, which includes copies of the comment letters, is attached as Appendix A.

An issue identified during the NEPA scoping process involved the “Flood Damage Reduction and Ecosystem Restoration Project” being pursued by the San Francisquito Creek Joint Powers Authority (JPA) and USACE. Members of the JPA and others that may benefit from the flood control project asked that the HCP not prevent or limit flood control solutions involving Stanford’s lands, including the construction of detention facilities on Stanford’s lands or modifications to Searsville Dam or Reservoir for flood control purposes. Some commenters requested that the HCP’s Covered Activities include future flood reduction facilities. Stanford is not currently considering flood reduction facilities on Stanford’s lands. While the JPA and the USACE are conducting multi-disciplinary regional studies for flood reduction, it was determined by Stanford and the Services that sufficient information is not currently available to include flood reduction as a Covered Activity.

Another issue raised by commenters concerned with steelhead, asked that modifications to Searsville Dam or Reservoir for fish habitat purposes and fish passage be considered in the HCP. Searsville Dam and Reservoir are located on Corte Madera Creek. The dam was built in 1892 and has trapped a significant amount of sediment, reducing its water storage capacity. The dam blocks steelhead access from historical spawning and rearing habitat in the upper portion of the San Francisquito Creek watershed.

### **2.6.3 DEIS Public Review**

The Draft EIS and Draft HCP were released for public review and comment on April 12, 2010. Two Notices of Availability (NOA) were published in the Federal Register. The Services jointly prepared an NOA for the DEIS and Draft HCP that was published on April 12, 2010 (Vol. 75, No. 69), and the U.S. Environmental Protection Agency (EPA) published an NOA of the DEIS on April 16, 2010 (Vol. 75 No. 73). A copy of each NOA is included in Appendix C of the FEIS. A 90-day comment period began when the EPA published the NOA on April 16, 2010. At the request of the public, the Services extended the public comment period an additional 45 days to August 30, 2010 (Federal Register, July 15, 2010 [Vol. 75, No. 135]). Comments received on the DEIS and HCP and responses can be found in Volume II of this FEIS.

Stanford issued a news release on April 19, 2010 announcing the DEIS and HCP were available for public review. A public meeting was held on May 25, 2010, on the Stanford Campus in Palo Alto, California regarding the DEIS. During the comment period, 30 comment letters were received from Federal and local agencies, environmental organizations, and the general public. In addition, the Services received over 3,000 form email messages during the public comment period. The primary issue raised in the comment letters and email messages related to Searsville Dam and Reservoir. Many commenters requested that Stanford revise the HCP and that the Services prepare a supplemental DEIS for public review and comment. Comments received on the DEIS and Draft HCP and responses can be found in Volume II of this FEIS. Volume I of the FEIS incorporates all changes to the text, tables, and figures that were completed following the public review and comment period. A summary of revisions to the Stanford HCP and EIS based on comments received are presented below under Section 2.7, Changes to the Stanford HCP and Section 2.8, Changes to the EIS.

## 2.7 SUMMARY OF CHANGES TO THE STANFORD HCP

Stanford's July 2009 Draft HCP initially included several Covered Activities associated with Searsville Dam and Reservoir. These Covered Activities included the Searsville water diversion (Searsville Diversion), maintenance of the dam's valves, flashboards and intake tower; physically cleaning the cement dam face to remove accumulated vegetation and debris; and periodic dredging of accumulated sediments from within the reservoir (collectively referred to as Searsville-related activities). Although these activities were proposed for inclusion in the July 2009 Draft HCP, Stanford elected not to include the presence of Searsville Dam itself as a Covered Activity.

During the public comment period, the Services received numerous comments related to the impacts of Searsville Dam on the human environment, with the majority of comments related to impacts of the dam on threatened steelhead, hydrology, and water quality. Stanford thereafter notified the Services by letter dated January 4, 2011, that it was revising the section 10 permit application and was no longer seeking incidental take authorization for Searsville-related activities. A revised application and HCP was submitted to the Services that withdrew Searsville-related activities as Covered Activities, as well as minimization measures for those activities.

The reasons given for removal of Searsville operational and maintenance activities from the HCP were presented in Stanford's January 4, 2011 letter. Stanford believes that removing Searsville-related activities from the HCP will provide NMFS the additional time and data needed to assess the effects of Searsville on steelhead, facilitate the current permit process for the remaining Covered Activities, and allow the Conservation Program to be implemented sooner. Stanford's letter also informed the Services that Stanford has initiated a process to study the long-term future of Searsville Dam and Reservoir. At this time, Stanford has not identified future actions at Searsville in sufficient detail to assess potential impacts to the Covered Species or other resources. Stanford's January 4, 2011, letter to the Services regarding the removal of Searsville-related activities is in Appendix D to Volume I of the FEIS. Stanford has described the situation and the proposed process to address Searsville Dam and Reservoir in a January 6, 2011, document titled "The Future of Searsville Dam and Reservoir," which is Appendix E to Volume I of the FEIS.

The following substantive revisions to the HCP are listed below by HCP section. Minor text changes, revisions and clarifications, including revisions to the figures to conform to the text, are not summarized below, but are included in the Final HCP. The Final HCP is attached as Appendix B to Volume I of the FEIS.

### Section 1.0 – Introduction

- No substantive changes.

### Section 2.0 – Physical/Biological Setting, including Covered Species

- Additional description of California tiger salamander breeding pond success included (Section 2.4.3).
- Figure 2-4 was updated to show recently established ponds.
- State listing of the California tiger salamander included (Section 2.4.3).

### Section 3.0 – Covered Activities and Their Impacts

- Description of Stanford’s Steelhead Habitat Enhancement Project (SHEP) changed to indicate that the project is completed (Section 3.1.1).
- Figure 3-2 (Lake Water Sources) removed.
- Operation and maintenance of the Searsville water diversion deleted as a Covered Activity (Section 3.1.1).
- Minimization measures associated with Searsville water diversion deleted (Section 3.1.1).
- Operation and maintenance of Searsville Dam deleted as a Covered Activity (Section 3.1.3).
- Dredging of Searsville Reservoir deleted as a Covered Activity (Section 3.1.3).
- More detail provided about recent upgrades to Stanford’s water system and excavation at Felt Reservoir (Section 3.1.3).
- Description of Searsville Dam and Reservoir deleted from description of impacts associated with Covered Activities (Sections 3.1.3 and 3.1.3.1).
- More detail provided concerning the effects of the removal of the non-operating Lagunita Diversion included (Section 3.1.6.1).
- More detail provided about restoration activities in Corte Madera Creek to prevent flooding (Section 3.2).
- More detail provided concerning public trails on and near Stanford’s Lands (Figure 3-3).
- More detail provided concerning the effects of grazing on Covered Species (Section 3.8.3.1).

### Section 4.0 – Conservation Program

- Clarification that a biological monitor will have the ability to stop work if a Covered Species is encountered during monitoring (throughout Section 4.0).
- Minimization measures associated with operation and maintenance of the Searsville Diversion and Searsville Dam deleted (Section 4.2.1).
- Minimization measures associated with dredging of Searsville Reservoir deleted (Section 4.2.1).
- Clarification that the scope of the Searsville Dam fish passage study will be developed in coordination with NMFS and those options will range from a fish ladder to removal of the dam (Section 4.2.1).
- Requirement that grazing lessee Best Management Practices will be reviewed and approved by the Conservation Program Manager added (Section 4.2.8).
- Tiger salamander “breeding habitat” defined (Section 4.3).
- Clarification of the extent of the Central Campus CTS Management Area (Figure 4-5).
- Requirement to assess impact to fish passage of the partial barrier in San Francisquito Creek downstream of confluence with Bear Creek and evaluate feasibility of its removal, within 3 years of the approval of the HCP added (Section 4.3.1.2).

- More detail provided about the CTS Monitoring and Management Plan developed for the first easement located in the CTS Reserve (Section 4.3.3.2).
- Clarification of the Lagunita development prohibition (Section 4.3.3.4).
- Additional detail provided about the Conservation Program Manager's responsibilities for appropriate training of monitors (Section 4.6).
- Additional detail provided concerning the day surveys of suitable steelhead habitat (Section 4.6.2).
- Searsville diversion/flow monitoring deleted (Section 4.6.2).

#### Section 5.0 – Potential Biological Impact / Take Assessment

- Clarification of the possible locations of assumed development (Figure 5-1).
- Description of the SHEP changed to indicate that the project is completed (Section 5.4.1).

#### Section 6.0 – Plan Implementation

- Requirement that Stanford will provide the Services with a copy of all CWA Section 404 applications within 3 days of submittal to the USACE added (Section 6.3.2).
- Details provided concerning the land trust (Section 6.3.3).
- Clarification provided that Stanford will prepare long-term management and monitoring plans for easement areas prior to the end of the 50-year permit term (Section 6.5).
- Clarification provided regarding requirements for unforeseen circumstances (Section 6.6.1).

#### Section 7.0 – Alternatives to Take

- No substantive changes.

#### Appendix A – SHEP Biological Opinion

- California Department of Fish and Game (CDFG) Streambed Alteration Agreement added.

#### Appendix B – Recommended BMPs on Creeks

- *Phragmites sp.* from Approved Plant List (Table 2) deleted.

## **2.8 SUMMARY OF CHANGES TO THE EIS**

Changes to the FEIS based on Stanford's revised application and in response to public comments are summarized below by EIS section. These revisions to the Proposed Action did not result in any new significant environmental effects or substantially increase the severity of an environmental effect. Minor text changes, revisions and clarifications, including revisions to the figures to conform to the text, are not summarized below, but are included in the FEIS.

### Section 1.0 – Summary

- Clarification of information regarding the scope of the EIS analysis (Section 1.3, Scope of the EIS Analysis).
- Updated information regarding the EIS public review process (Section 1.4, Public Review Process).
- Addition of a list of areas of controversy and issues that arose during public review of the DEIS and draft HCP (Section 1.4.1, Areas of Controversy and Issues Raised During the Public Review Process).
- Addition of a summary of revisions to the EIS since publication of the DEIS (Section 1.5, Changes to the EIS).
- Clarification to indicate that Searsville Dam, Reservoir, and Diversion are not included in the Proposed Action (Section 1.6, the Proposed Action and Alternatives).
- Inclusion of Table 1-1 summarizing the effects of the proposed action and alternatives on evaluated resources areas (Section 1.7.1, Environmental Consequences by Resource Area).
- Addition of a summary of cumulative effects (Section 1.7.2, Cumulative Effects).

### Section 2.0 – Introduction: Purpose and Need

- Added information regarding Stanford's ESA section 10(a)(1)(B) application to clarify the Services and its relationship to of the Federal Action (Section 2.2, Background).
- Added information regarding the Clean Water Act and its relationship to this project (Section 2.4.3, Clean Water Act).
- Updated information regarding the DEIS public review and comments received (Section 2.6, Environmental Review Process).
- Addition of a section with a summary of changes to the Final HCP (Section 2.7, Major Changes to the Stanford HCP).
- Addition of a section with a summary of changes to the FEIS (Section 2.8, Summary of Major Changes to the EIS).
- Updated information regarding Stanford's Final HCP and the Proposed Action (Section 2.9, Stanford's Final HCP [Proposed Federal Action]).
- Addition of information regarding Searsville Dam and its relationship to the Proposed Action (Section 2.10, Searsville Dam and Reservoir).
- Addition of a section regarding the organization of the FEIS (Section 2.11, Organization of the FEIS).

### Section 3.0 – Proposed Action and Alternatives

- Changed the Proposed Action based on Stanford's Final HCP and added information explaining that Searsville Dam and Reservoir are not included in the HCP as Covered Activities (Section 3.1.1, Covered Activities).

- Added information to describe bypass flows and other operational protocols at Stanford's Los Trancos Creek and San Francisquito Creek water diversion facilities (Section 3.1.3, Measures to Minimize the Potentially Adverse Effects of the Covered Activities).
- Included Table 3-2 presenting minimum bypass flow requirements for water diversion operations on Los Trancos Creek (Section 3.1.3, Table 3-2, Diversion Rates and Minimum Bypass Flow requirements for the Los Trancos Creek Diversion Facility).
- Included Table 3-3 presenting minimum bypass flow requirements for water diversion operations on San Francisquito Creek (Section 3.1.3, Table 3-3, Diversion Rates and Minimum Bypass Flow requirements for the San Francisquito Creek Pump Station).
- Consideration of an alternative not selected for detailed study regarding removal or modification of Searsville Dam for fish passage (Section 3.4.7, HCP That Covers Removal or Modifications to Searsville Dam for Fish Passage).

#### Section 4.0 – Affected Environment

- Addition of information regarding groundwater percolation at Lagunita and in San Francisquito Creek (Section 4.1.3.2, Groundwater).
- Addition of information and inclusion of Figure 4-6 regarding the hydrology of the San Francisquito Creek watershed (Section 4.1.3.3, Hydrology and Flooding).
- Addition of information regarding water temperature, dissolved oxygen, and suspended sediment levels in surface waters (Section 4.1.3.4, Water Quality).
- Addition of information regarding existing conditions at Searsville Dam and the effects of the Searsville water diversion (Section 4.1.3.5, Water Diversions and Searsville Dam).
- Correction regarding the amount of historical steelhead habitat upstream of Searsville Reservoir (Section 4.2.2.4, Steelhead).
- Addition of information regarding the status of the steelhead population in the San Francisquito watershed and their existing habitat conditions (Section 4.2.2.4, Steelhead).

#### Section 5.0 – Environmental Consequences

- Addition of information regarding the effects of the Proposed Action on hydrology and water quality (Section 5.1.3.1, Hydrology and Water Quality- Effects of the Proposed Action).
- Removal of information regarding conservation measures associated with Searsville-related activities including the Searsville Diversion (Section 5.1.3.1, Hydrology and Water Quality- Effects of the Proposed Action).
- Addition of information regarding the incidental take of steelhead from the Covered Activities (Section 5.2.1, Biological Environment-Effects of the Proposed Action Alternative).
- Inclusion of Table 5-4 presenting the anticipated numbers of steelhead collected by the HCP's monitoring program (Section 5.2.1.1 Biological Environment-Effects of the Conservation Program, Table 5-4, Summary of Estimated Steelhead Take Associated with HCP Monitoring Program).

- Correction and clarification of Table 5-5 (Table 5-4 in the DEIS) regarding estimated loss of habitat for Covered Species in Zones 1 and 2 (Section 5.2.1.2, Ongoing Stanford Operations, Table 5-5, Summary of Estimated Loss of Habitat in Zones 1 and 2 for Ongoing Stanford Operations and Maintenance).
- Correction of estimated incidental take levels of steelhead in Table 5-6 (Table 5-5 in the DEIS) (Section 5.2.1.2, Ongoing Stanford Operations, Table 5-6, Summary of Estimated Incidental Take of Covered Species for Ongoing Stanford Operations and Future Development).
- Addition of information regarding the basis for selecting the CCC steelhead Coastal San Francisco Bay Diversity Stratum as the geographic scope in the cumulative effects analysis (Section 5.5, Cumulative Effects).
- Update of information regarding the development and implementation status of flood control projects in San Francisquito Creek (Section 5.5.1.2, Regional Flood Control).
- Update of information regarding the development of the Three Creeks HCP, the Santa Clara Valley Habitat Plan, and the Grady Ranch Development and Restoration Project (Section 5.5.1.3, Environmental/Conservation Projects).
- Addition of information regarding the past, present, and reasonably foreseeable future actions at Searsville Dam, Reservoir, and Diversion (Section 5.5.1.4, Searsville Dam and Reservoir).
- Updated Figure 5-1 to clarify the geographic range of the CCC steelhead Coastal San Francisco Bay Diversity Stratum (end of Section 5, Environmental Consequences).

#### Section 6.0 – References

- This section has been updated with additional references cited in the FEIS.

#### Section 7.0 – List of Preparers

- No substantive changes.

#### Section 8.0 – FEIS Distribution List

- This section has been updated to include the names of public agencies, organizations, and individuals who will receive a copy of the FEIS.

#### Section 9.0 – Index

- This section has been added to the FEIS.

### **2.9 STANFORD’S FINAL HCP (PROPOSED ACTION)**

The Services propose to issue ITPs based on Stanford’s January 2011 revised section 10(a)(1)(B) application and HCP (Proposed Action). Revisions to Stanford’s HCP consist primarily of Stanford’s removal of all operational and maintenance activities associated with Searsville Dam, Reservoir, and Diversion (collectively referred to as Searsville-related activities). As such, the proposed Federal action, the issuance of ITPs, would no longer include incidental take authorization associated with Searsville Dam, Searsville Reservoir, the Searsville water diversion (Searsville Diversion), and other Searsville-related activities. The Services have concluded that these changes to the Proposed Action reduce the scope of the Federal Action and, as such, reduce the associated environmental effects on the human environment from the Proposed Action.

Minimization measures for Searsville-related activities have also been removed from the Proposed Action. As discussed below in Section 2.10, Searsville Dam and Reservoir, the impacts of removing these measures will not result in significant environmental impacts.

The Proposed Action in the FEIS is a subset of the Proposed Action presented in the DEIS. This change to the preferred alternative (i.e., Proposed Action) is described in detail in Section 3.1, Proposed Action, of the FEIS, and analyzed in terms of impacts in Section 5, Environmental Consequences, of the FEIS. The changes to the Proposed Action and revisions to the FEIS do not result in significant environmental impacts or alternatives that were not already analyzed in the DEIS and circulated for the public to review; therefore, the Services concluded that a supplemental EIS was not warranted. In addition to the Proposed Action, a No Action alternative (i.e., no ITPs would be issued and no Conservation Program implemented) and HCP for CTS Only alternative, are analyzed in the FEIS.

The Proposed Action, if approved, would result in Stanford's implementation of a Conservation Program for five Covered Species and the Services would authorize incidental take in connection with several ongoing Stanford operations and maintenance activities including, but not limited to, water diversion operations at the Los Trancos Creek Diversion Facility and San Francisquito Creek Pump Station, and future development of up to 180 acres of land on the Stanford Campus. In this case, the Proposed Action is considered environmentally beneficial because implementation of the HCP would provide greater environmental protection and improvement in habitat conditions in relation to what is expected to occur over time under the No Action alternative or the HCP for CTS Only alternative.

## **2.10 SEARSVILLE DAM AND RESERVOIR**

In response to comments received during the DEIS public comment period, additional information has been included in the FEIS regarding Searsville Dam and Reservoir. Additional information about Stanford's existing Searsville facilities is presented in Section 4.1.3, Hydrology and Water Quality, and information regarding past, present and reasonably foreseeable future actions at Searsville Dam are presented in Section 5.5.1.4, Searsville Dam and Reservoir. The EIS recognizes that there are significant issues associated with Searsville Dam including fish passage, downstream flow conditions, water quality and flood reduction. However, Stanford's January 2011 revised application and HCP (i.e., Proposed Action) do not include Searsville Dam, Searsville Reservoir, Searsville Diversion, and other Searsville-related activities as Covered Activities. Accordingly, minimization measures for Searsville-related activities have also been removed from the HCP and the Proposed Action.

Measures to protect Covered Species which were previously proposed for Searsville-related activities in the July 2009 Draft HCP consisted of water diversion measures, pipeline/valve flushing measures, and dredging measures. In order to minimize the effects of water diversions at Searsville Reservoir on the downstream hydrology of lower Corte Madera Creek, Stanford proposed to (1) limit water withdrawals between October 1 and April 30 to 300 acre-feet, (2) cease water diversions if the water surface level of Searsville Reservoir drop by more than one foot below the spillway between October 1 and April 30, and (3) limit total annual diversion amounts to not exceed 600 acre-feet. Since 1932, Stanford's typical annual water diversion ranged from 300-400 acre-feet, but they have withdrawn as much as 1,000 acre-feet in a single year. These measures would have functioned to ensure that the rates of water withdrawal from

Searsville were low during the steelhead migration and spawning season, and would have ensured reservoir levels never dropped low enough to effectively capture all runoff during even a small rainfall event.<sup>1</sup> Although the current impact of water diversions on the hydrology of Corte Madera Creek below the dam is minimal in most years, the former water diversion restrictions would prevent a worst-case scenario that results in drying-out of the stream below the dam for longer periods between storms or earlier in the spring. The conservation measures associated with flushing Searsville pipes/valves consisted of visual surveys in the area to be affected by the discharge and relocating any Covered Species that could be affected by the flushing. Flushing presently occurs during the winter when creek flows are high and this measure was designed primarily to relocate frogs and pond turtles away from the outfall prior to a temporary discharge. In general, flushing of pipes/valves occurs once annually for a period of a few minutes, although some discharge may extend at lower levels for up to 2 hours. The dredging conservation measures included relocation of animals that could be crushed by dredging equipment and restriction of dredging to periods of no overflow at Searsville Dam. Dredging has never been performed in Searsville Reservoir, and this activity would require future permitting (i.e., Corps, CDFG) prior to implementation.

With the removal of Searsville-related activities from the HCP's Covered Activities, the measures described above that were associated with these activities are no longer part of the Proposed Action. Water diversion restrictions at the Searsville intake would not be implemented, so it is anticipated that diversions would continue as historically performed (i.e., No Action alternative). Annual flushing of Searsville pipelines would not include surveys at the outlet structures and relocation of red-legged frogs and pond turtles.

Information regarding existing conditions at Searsville Dam and Reservoir is provided in Section 4 (Affected Environment), of the FEIS for the purpose of succinctly describing the environment of the area to be affected by the Proposed Action and alternatives under consideration.

Information and analysis regarding the existing effects of Searsville Dam and Reservoir are included to the level of detail necessary to understand the effects of the Proposed Action and its alternatives. Information regarding the cumulative effects of the past, present, and reasonably foreseeable future effects of Searsville Dam are analyzed in Section 5.5.2 (Cumulative Effects by Resource Area), of the FEIS to determine the impact on the environment which results from the incremental effects of the Proposed Action and its alternatives when added to other past, present, and reasonably foreseeable future actions. This information regarding Stanford's Searsville facilities and Searsville-related activities is meant to improve the analysis in response to comments and does not introduce any new impacts due to the Proposed Action from what was presented in the DEIS.

## **2.11 ORGANIZATION OF THE FEIS**

The FEIS is comprised of two volumes. Volume I includes the FEIS, with text revisions made as a result of changes to Stanford's ITP application or in response to public comment. The Final

---

<sup>1</sup> Approximately 11 acre-feet of runoff is required for a 1-foot rise in the water surface elevation of Searsville Reservoir. A moderate storm event producing 0.5 inch of runoff in the upstream watershed of Corte Madera Creek produces approximately 380 acre-feet of runoff. Thus, a small rainfall event is typically sufficient to raise the water surface elevation of the reservoir by 12 inches and initiate spill over the dam's crest to lower Corte Madera Creek. (Source: T. Zigterman, May 2009)

HCP is attached as Appendix B to Volume I of the FEIS. Volume II includes the comments received on the DEIS and Draft HCP, and the Services' responses to those comments.

### **2.11.1 Organization of Volume I of the FEIS**

Section 1.0 (Summary) provides a brief description of all sections in the FEIS and includes a discussion of areas of controversy.

Section 2.0 (Introduction: Purpose and Need) provides a background discussion of the Stanford HCP and proposed incidental take permit. This section includes information regarding the project purpose and need, regulatory context, scope of the EIS analysis, public scoping and review process, and changes to the Stanford HCP and FEIS.

Section 3.0 (Proposed Action and Alternatives) describes the Proposed Action, which consists of the Services issuing ESA section 10(a)(1)(B) incidental take permits and Stanford's implementation of the HCP. This section also includes a description of two alternatives considered by the Services (No Action alternative and HCP for CTS Only alternative), and seven alternatives considered, but not brought forward for detailed analysis.

Section 4.0 (Affected Environment) describes existing conditions on Stanford's lands and the surrounding area to provide a baseline for assessing environmental impacts that may occur. Regional and site-specific information are provided related to the physical environment, biological environment, socioeconomic environment, environmental justice, and Indian Trust Assets.

Section 5.0 (Environmental Consequences) provides an evaluation of potential impacts to the physical, biological, and socioeconomic environments that may occur as a result of implementing the Proposed Action and Alternatives. Direct, indirect, and cumulative effects are discussed.

Section 6.0 (References) presents the persons and organizations contacted and the literature cited in the preparation of the FEIS.

Section 7.0 (List of Preparers) presents the persons and organizations that prepared the FEIS.

Section 8.0 (FEIS Distribution List) has been updated to include the names of public agencies, organizations, and individuals who will receive a copy of the FEIS.

Section 9.0 (Index) has been added to the FEIS.

Appendices to support the analyses in the EIS consist of the following:

Appendix A – Scoping Report, including Notice of Intent

Appendix B – Stanford's Final HCP

Appendix C – EPA and the Services' Notices of Availability for the DEIS

Appendix D – Stanford's January 4, 2011 letter to the Services revising the HCP and application

Appendix E – Stanford's January 6, 2011 document entitled "The Future of Searsville Dam and Reservoir"

Appendix F – NMFS report entitled "An Assessment of bypass flows to protect steelhead below Stanford University's water diversion facilities on Los Trancos Creek and San Francisquito Creek" February 15, 2006.

Appendix G – Summary of Central California Coast steelhead collections and observations in the San Francisquito Creek Watershed

**2.11.2 Organization of Volume II of the FEIS**

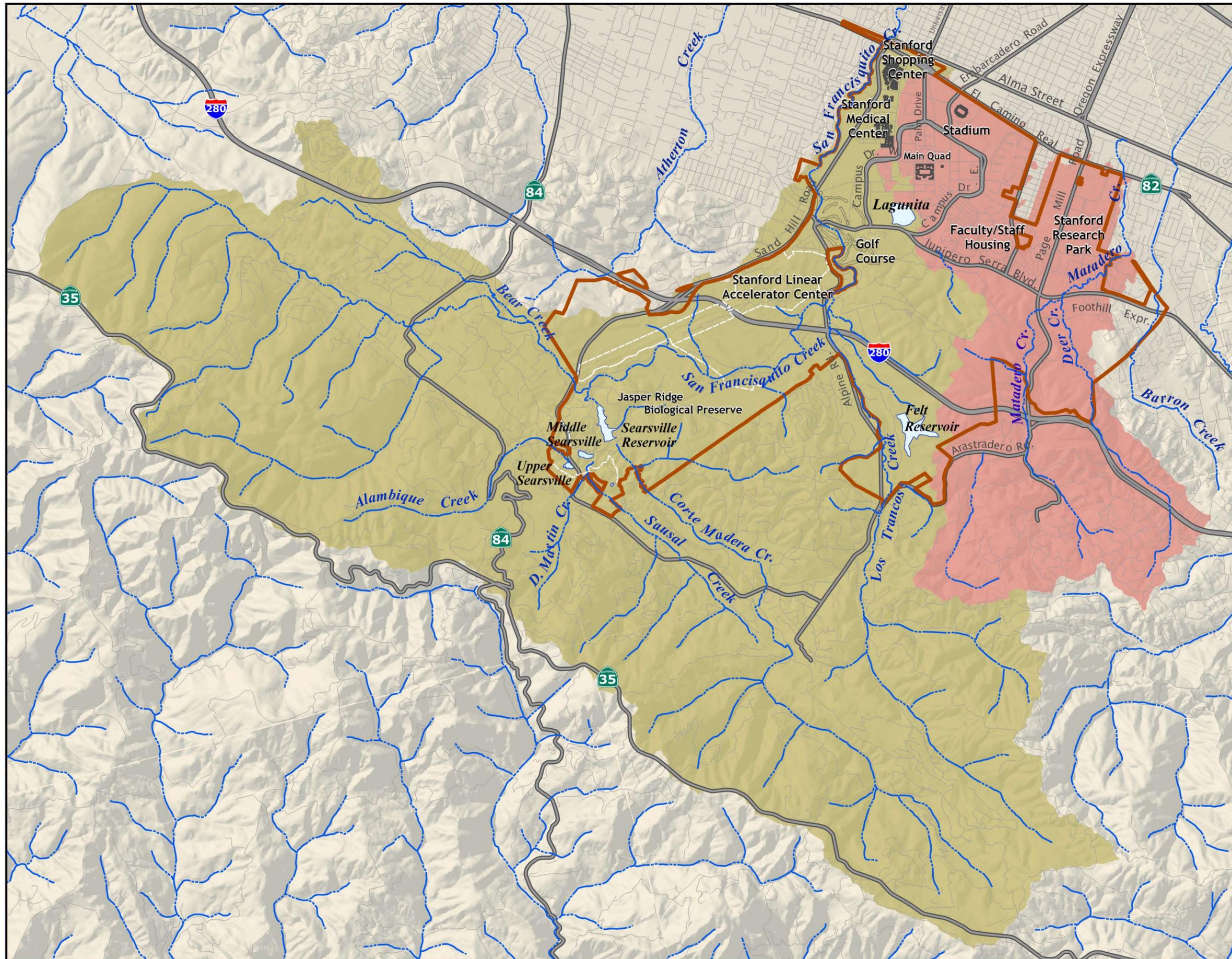
Section 1.0 (Introduction) provides background on the purpose of Volume II, describes the organization of Volume II, lists the public agencies, organizations, and individuals who commented on the DEIS, and explains how a commenter can find the response(s) to their comments in Volume II.

Section 2.0 (Comments Received on the DEIS) presents letters and electronic mail messages received during the public comment period.

Section 3.0 (Responses to Comments) includes the Services responses to comments received during the public comment period.

This page intentionally left blank.





**Stanford University HCP  
Environmental  
Impact  
Statement**

**Primary  
Watershed  
Basins**

- Stanford Boundary
- Matadero Creek
- San Francisquito Creek

*Note:*  
Complete stream basins not shown. Depicted are those primary basin areas that are adjacent to, within or upstream of Stanford University lands.

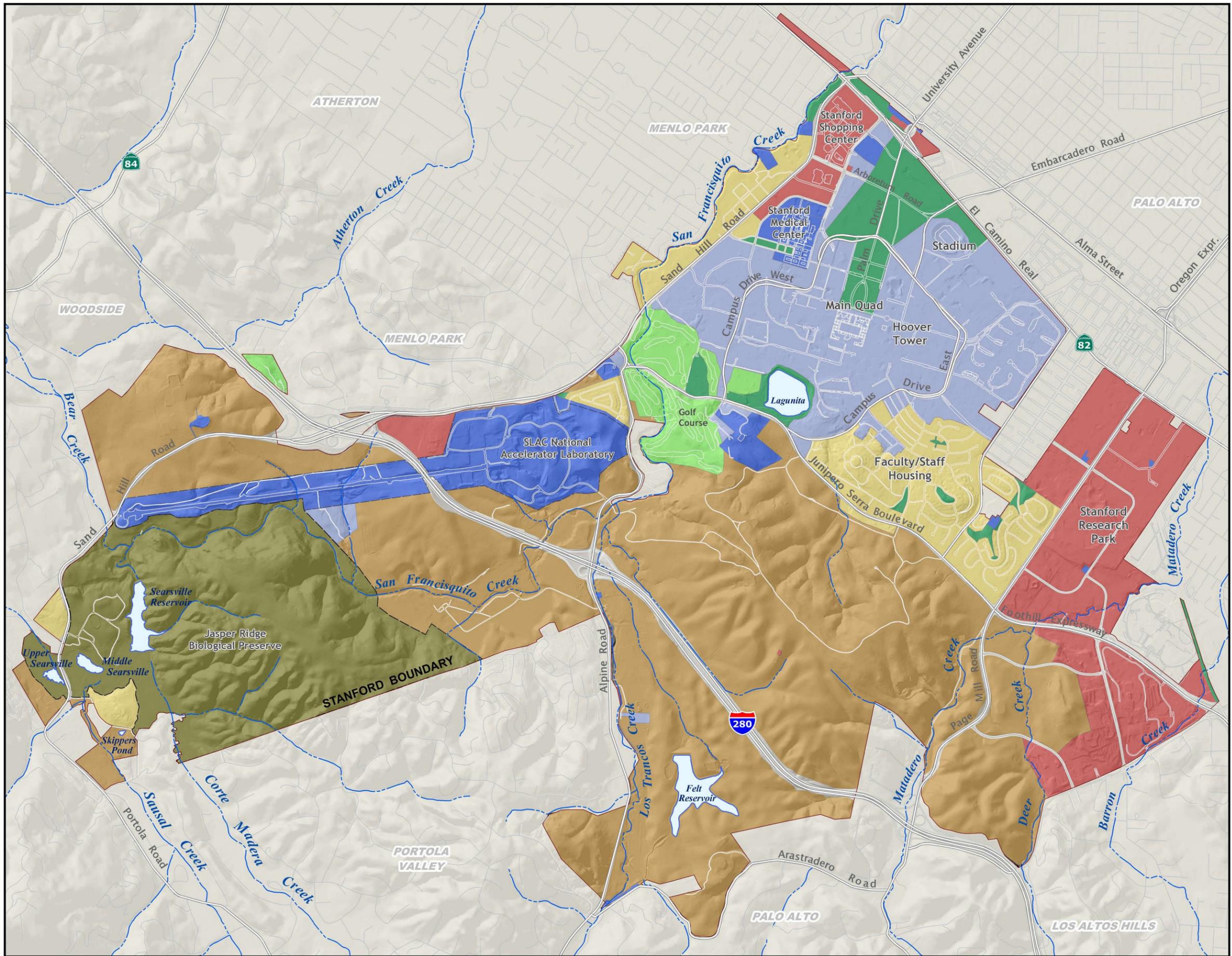
*Sources:*  
Watershed: USGS, 1991, Nolte, 1999, SU/PO, 2004  
Additional S.F. Creek drainage: Nolte, 1999  
Creeks: US Geological Survey, 1991

*Disclaimer:*  
This map was produced by the SU Planning Office. While generally accurate, this map may not be completely free of error. The information is derived from a variety of sources deemed reliable, but subject to recurrent change and Stanford does not warrant the accuracy and completeness of these data.

0 0.5 1  
Miles

Stanford University Land Use & Env. Planning  
Date Printed: March 14, 2007

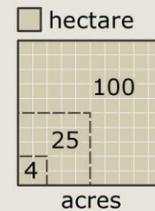
**Figure 2-2**



# Stanford University HCP Environmental Impact Statement

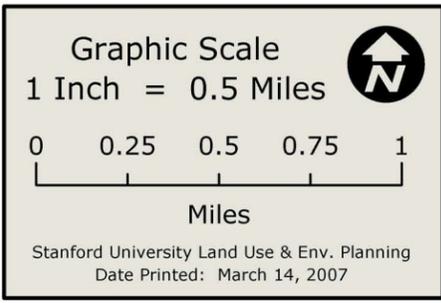
## Land Use

- Academic
- Academic Reserve
- Biological Preserve
- Commercial
- Institutional
- Open Space
- Recreation
- Residential



Sources:  
Land Use: Stanford University Planning Office, 2006  
Creeks: US Geological Survey, 1991

Disclaimer:  
This map was produced by the SU Planning Office. While generally accurate, this map may not be completely free of error. The information is derived from a variety of sources deemed reliable, but subject to recurrent change and Stanford does not warrant the accuracy and completeness of these data.



# Figure 2-3